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From Regional Development Sustainability to Global Economic Growth

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Abstract

This paper attempts to presents a literature review on Agency Theory and its relevance in understanding the relationship between Government and the HEIs. It discusses the general aspects of the theory and also reviewed some previous studies that have applied the theory. Theories as we know help us to accomplish many important outcomes in academia. They help us to organize our thoughts and ideas about the world and also help us generate and explain relationships, complex or otherwise, between individuals or among groups. Theories also help us improve our predictions and expectations about people, groups or organizations, while at the same time giving us a better understanding of the world around us. Attempt has also been made to relate the application of the Principal – Agent theory to Higher Education, especially public universities with regards to their governance and funding. It is a well-known fact that Governments provides the greater part of funds required by the public universities. In this case therefore the Government has some expectations on these universities, especially with regards to the utilization of the funds provided and also the need for accountability, as the funds so provided, is tax payers' money and must therefore be accounted for. The theory is also expected to provide a useful framework for performance funding procedures in the public universities.

Keywords: Higher education, funding, Agency Theory

1. Introduction

One of the earliest descriptions of the principal-agent phenomena was provided by Adam Smith in the book "the Wealth of Nations", where he described a corporate structure in which Owners (Principals) hire or employ Managers (Agents) to manage their corporations for them (Smith, 2005). He posits that since the managers are paid salaries, they do not share in the profits of the corporation directly. This, he believes, will make the managers to care less about their expenses and also care less about their duties, thus having a very high tendency to shirk (Yarmolinski, 2012). This observation by Adam Smith is focused on the fact that agents often have different motivations than their

principals due to their specialized knowledge, which may make it difficult for the principals to monitor or assess their performances (Yarmolinski, 2012). Agency theory thus developed out of the need to investigate general questions on information asymmetry and risk sharing in various types of relationships (Moe, 1984).

According to Spence (1973), the theory was initially focused on the problems or dilemmas of incomplete information in the Insurance Industry, but was soon applied into more general problems with contracts in other contexts (Dewhurst, 2003; Namazi, 2013). The theory is an analytic expression that explains how best to organize relationships between two parties (the principal and the agent), whereby the principal engages the agent to perform some tasks or services for him for a fee (Eisenhardt, 1989; Kivistö, 2007; Waterman & Meier, 1998). The contract between the principal and the agent is based on the premise that the agent possesses the skills, information, qualifications, experience and the ability to perform the required tasks effectively and satisfactorily to the satisfaction of the principal (Kivistö, 2008). The major problem in this relationship, which is the also the central problem of the theory, as presented by Kivistö (2007) is the possibility of the principal establishing effective incentives and information structures that will motivate the agent to produce the desired outcome. Thus the major assumptions in the theory are the existence of information asymmetries and goal conflicts.

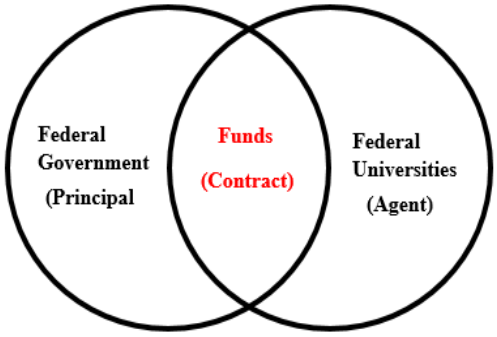
2. The Principal - Agent Contract

The contract between a Principal on the one hand and an agent on the other, can either be explicit (in writing) or implicit (verbal), formal or informal, objective or subjective, and it can be either a complete contract that includes all tasks, activities and contingencies, or it can be an incomplete contract that requires specifications for each task, activity and contingency as and when the need arises (Yarmolinski, 2012). A valid contract, according to Miles (2012), is the major determinant of an agency relationship between the principal and the agent and must therefore;

1) set the tasks of the agent, and
2) define the means of compensating the agent.

In the context of this study, the principal-agent relationship is said to exist because the public universities are established and funded by the Federal Government, to fulfill Nigeria's needs of creating, preserving and transmitting knowledge to its citizens, as postulated by Lane and Kivisto (2008). In order to empower the universities to carry out this mission therefore, the government, through the NUC, provides the appropriate funds, thus creating an implied PAT contract (Lane & Kivisto, 2008). A representation of this principal-agent relationship is illustrated in Figure 1 below.

Figure 1: Principal Agent relationship between Government and Public Universities



Source: Adapted from Lane and Kivisto (2008)

As illustrated in Figure 1 above, the contract between the government and the federal universities is an implied contract through the funds provided by the government and accepted by the universities, to provide education according to the former's higher education objectives, as set out in the National Policy on Education from time to time. So as the Government provides funds to the HEIs for their operations, it also expects feedback from these HEIs in the form of improved access, completion and quality graduates (Yarmolinski, 2012). It should however be noted that agency relationship could come in different forms besides the single principal – single agent format (Ahmad & Farley, 2013; Kivistö, 2008; Yarmolinski, 2012). There could also be;

1) multiple principals – single agent (as is obtained between a dentist and his patients), or

2) a single principal – multiple agents (as is the case between employer and employees) (Ahmad & Farley, 2013; Waterman & Meier, 1998).

3. Assumptions in the Theory

As highlighted by Kivistö (2007), the relevance of agency theory will apply to any contractual relationship, due to the occurrence of two things,

1. There must be the existence of a potential for divergence of interests between the principal and the agent (goal conflicts).
2. The principal must have some difficulties in determining the capabilities or actions of the agent. That is, there must be an information asymmetry between the principal and the agent.

3.1 Goal Conflicts

This is one of the central assumptions underlying the Principal – Agent Theory. It is said to exist in any contractual relationship, when there is a divergence of interests between the principal and the agent on a given task, and both prefer a different course of action (Ahmad & Farley, 2013; Ahmad *et al.*, 2012). While the principal's objective in a contract is for the agent to do all that it takes to complete it, the agent on the other hand, it is assumed, will put in minimum efforts in its execution unless, of course, there is an added incentive (Petersen, 1993). Goal conflict therefore arises due to the agent's self interest in maximizing his benefits from the contract at the expense of the principal. As postulated by Kivistö (2005), the higher the probability of goal conflict, the greater the opportunity for the agent to explore his self-interest.

In a public university setting, goal conflicts can be likened to the areas of teaching and researches. While the Government (principal) is funding the federal universities for the teaching of mostly undergraduate studies, the university may choose to use part of the funds for the training of post-graduate students, thus creating a conflict of interest between them. Liefner (2003), deployed the principal-agent theory to HEI funding to promote the use of performance – based funding in public universities. He argued that due to the specialized nature of education, the object of trade of the universities, the Government (principal), cannot effectively monitor their activities. That the only way out is for the Government to use outcome based contracts (as provided by the theory), which is a form of performance – based funding, to monitor the public universities. By this action, he hypothesized that the use of such a funding mechanism will; make those inactive universities (agents) to work harder, and make the universities to avoid projects or programs that have high possibilities of failure.

For the universities to qualify for funding they will have to concentrate their activities in those areas where they expect to be successful, so as to fulfill the formula's criteria for funding (Liefner, 2003). It was therefore suggested that using the principal – agent theory in funding HEIs, the public universities will pay more attention to the needs of their principal, by adjusting and re-aligning their internal organizational structures in tune with the government's requirements, which will qualify them for funds re-allocations.

3.2 Information Asymmetries

Information asymmetries relates to those decisions taken in transactions or relationships where one party has more or has better information than the other. Thus it is said to exist when one of the parties in a contract, has more information about a situation than the other (Ahmad *et al.*, 2013; Akerlof, 1970). This situation has the tendency to create an imbalance of power between the participants, which may lead to an untimely determination. It is a major contributor to shirking and it usually occurs for two main reasons (Kivistö, 2007; Yarmolinski, 2012), thus:

a. When the principal cannot oversee the activities of the agent, thus making it impossible for him to actually know the extent of shirking.
b. When an agent possesses specialized knowledge about some processes and outputs and makes it difficult for the principal, due to his limited knowledge, to assess the effectiveness of the processes used, or the quality of the product produced.

Public Universities (agents), are contracted by the Government (principal) to provide education to the citizenry by providing these Universities with funds. It is therefore the responsibility of the universities, according to Ahmad et al. (2013), to use the necessary skills, information, qualifications and experiences at their disposal, in the discharge of this task. But due to the specialized nature of education, it is difficult for the Government, or for non-experts, to assess the work of the universities, due to their limited understanding of the operations of HEIs. This lack of capacity by the government to monitor the activities of the HEIs, and the fact that such an exercise will be very expensive to do, usually give rise to information asymmetry.

4. Problems in the Principal-Agent relationship

Agency problem is a situation where an agent, who is authorized to look after the interests of his principal, uses that authority bestowed on him for his own personal benefit. Generally in any contractual relationship, the mere presence of information asymmetry alone cannot be a serious problem, as the agent will automatically act according to the dictates of the contract. Likewise, the existence of goal conflict alone, may not be a threat to the relationship if information is available to all parties. In this situation, the principal can quickly identify the opportunistic tendencies of the agent and checkmate it immediately.

The problem however is when information asymmetry and goal conflicts exists sided by side in a contractual relationship (Eisenhardt, 1989). When incentives are imperfectly aligned, conflict of interest is highly inevitable (Eisenhardt, 1989; Yarmolinski, 2012). An agent may be tempted to act on his own personal interest, rather than on the interest of the principal therefore creating a disconnection between his objectives and goals with those of his principal's. Such a situation usually gives rise to two agency problems referred to as 1) Adverse selection and 2) Moral hazard (Eisenhardt, 1989; Kivistö, 2008; Waterman & Meier, 1998). Therefore, according to Eisenhardt (1989), it is now left for the principal to identify an agent that will accomplish his tasks and also compensate him adequately to diligently execute the agreed tasks according to specifications.

4.1 Adverse Selection

This is a pre-contractual problem and it refers to a process whereby an undesired result occurs when a principal and his agent have access to different/ imperfect information (Kivistö, 2005). According to Yarmolinski (2012) and Eisenhardt (1989), adverse selection is said to occur when an agent disguises his true capabilities, intentions and motivations to the principal in order to secure a contract and was adversely selected due to this deliberate misrepresentation. Having being adversely or negatively selected, an agent may be tempted to act selfishly in the contract, thereby increasing the probability of goal conflicts between him and the principal (Ahmad & Farley, 2013).

A principal can however detect or reduce the chances of adverse selection through two processes, 1) signaling and 2) screening. In signaling it is the agent that conveys his capabilities to the principal by revealing some private information about himself, which, according to Spence (1973), can be relied upon by the principal in employing the agent. Screening on the other hand, is a strategy where the principal undertakes to scrutinize the activities and claims of the agent by obtaining references or by conducting tests prior to engaging the agent (Kivistö, 2005).

4.2 Moral Hazard

This is a post contractual problem in an agency relationship. It is said to arise when the principal cannot directly supervise the activities of the agent, and where such supervision will be costly or subject to error (Kivistö, 2005). In this situation, an agent may be tempted to pursue his own interest, contrary to the provisions of the contract, and also at the expense of the principal (Hölmstrom, 1979; Namazi, 2013; Yarmolinski, 2012). Thus when an agent engages in behaviors that may detract the goals of the principal, moral hazard is said to have set in (Eisenhardt, 1989; Yarmolinski, 2012).

Moral hazard can be contained or controlled by the principal through the process of monitoring (behavior- based contract) or by entering into an outcome- based contract with the agent (Kivistö, 2005). Monitoring may include the establishment of a peculiar budgeting system like performance funding, or the establishment of a special reporting procedure (like monthly or weekly reports) (Kivistö, 2005; Lane & Kivisto, 2008). The principal may also engage the services of an independent supervisor to check the behaviors of the agent (Kivistö, 2005), which may likely make the agent to behave according to the dictates of the contract. It should however be noted that, should such monitoring activities prove to be expensive or illogical, then it is better to go into outcome- based contracts where compensations are in line with the agent's actual performances in the contract (Kivistö, 2005). This arrangement is expected to align the preferences of the principal with the interests of the agent, as the agent's rewards are directly dependent upon his performance of the contract (Kivistö, 2005); thus achieving congruence between the principal and the agent (Eisenhardt, 1989).

4.3 Shirking

Shirking is the evasion or the avoidance of performing a defined responsibility as enshrined in a contract. One of the major concerns of the agency relationship is how to align the actions of the agent with the preferences of the principal (Eisenhardt, 1989). Since the agent and the principal are expected to utilize their relationship maximally, it is expected that each will try to maximize his individual benefits from the contract (Davis *et al.*, 1997; Kiewiet, 1991). It is possible for the two parties to have a shared goal, but as pointed out by Ostrom (1999), it is very unlikely that they will ever do so, because as opined by Yarmolinski (2012), it is impossible to have full disclosures or agreements between an agent and a principal, which according to Ostrom (1999), will lead to a temptation to cheat. Shirking is therefore seen as the misalignment between the actions of the agent and the expectations or preferences of the principal due to their differences in the pursuit of their respective expectations in a common contract (Yarmolinski, 2012).

According to Yarmolinski (2012), Shirking can be avoided, or can be curtailed greatly by the principal with proper monitoring of the agent. This act will also improve the efficiency of the agent. Monitoring can come in the form of periodic reports, site visits, reviews and re-evaluations (Lane & Kivisto, 2008). Peer review mechanisms can also be employed by the government to assess the quality of teaching and research in the public universities (Kivistö, 2008). But before introducing the monitoring process, the principal has to weigh the cost implications, as it can be costly, time consuming and sometimes even impossible to undertake, especially where the principal cannot effectively differentiate between value- added and non-value -added behaviors of the agent, which is usually the case in HEIs (Pfeffer & Salancik, 2003; Yarmolinski, 2012). So before engaging the services of a monitoring agent, there is the need to weigh its costs against the potential cost of the effect of shirking. Sometimes, as posited by Yarmolinski (2012), it is better to consider a small

amount of shirking as an acceptable loss, if the cost of preventing it is higher than the cost of allowing it to happen. Also as presented by Yarmolinski (2012), besides the cost element, monitoring may lead to some unintended social consequences like decreased knowledge sharing; inhibited work effort; and resistance behaviors such as cheating etc. Sometimes therefore, monitoring may even lead to, or may actually reinforce the same behavior it is intended to check (Ostrom, 1999; Pfeffer & Salancik, 2003; Yarmolinski, 2012).

4.4 Slippage

When there is a disconnection between the actions of the agent and the preferences of the principal due to a communication breakdown, then slippage is said to occur (Kassab & Voas, 1998). According to Lane and Kivisto (2008), slippage comes into effect as a result of shirking or due to some structural defects in the contract. When the communication chain between the principal and the agent is too long such that the agent may not be able to identify how misinformation sets in, it can give rise to slippage (Nielson & Tierney, 2010; Waterman & Meier, 1998). The existence of multiple principals can also trigger information loss or information overload, which according to Nielson and Tierney (2003), can make an agent to engage in an activity believing same to be in alignment with the preferences of his principal, but which it actually is not.

5. Agency problem in Government – HEIs relationships

Agency problems can be manifested in Government- University relationship in many ways, typical amongst which, according to Kivistö (2005), is when a public university negotiates for funding from the government to execute their core tasks of T&L and R&D. Due to the need for better funding, universities may be tempted to deliberately distort their true capacities and achievements in meeting the set educational objectives of the Government. The government may not be able to identify or detect the true capacities of all the universities to deliver its required educational objectives, thus adversely funding some that might turn out to be incapable of meeting the set objectives.

This asymmetric problem can however be contained when Universities (agents) themselves divulge their true qualities and capabilities in T&L and R&D activities (Kivistö, 2005). Alternatively, the government can screen the universities prior to the release of funds, by reviewing or examining their performance records on indices like academic staff motivation; number and quality of research outputs; adequate and functional learning facilities; and enrollment and graduation rates. Prior to the release of research funds for example, the government can invite the universities to submit the records of their research activities for assessment, before funds for R&D are released (Thomas, 2001).

The problem of moral hazard can be contained in Government- University relationships, according to Kivistö (2005); Kivistö (2008) and Yarmolinski (2012), by establishing quality assurance systems and evaluation processes like accreditation exercises, to curtail the excesses of the universities. Such controls are aimed at providing assurances to the public, that the funds provided by the government (tax payers money) are actually utilized by the public universities according to the wishes and the aspirations of the populace, and also to confirm that the quality of outputs from these universities will serve the country's human development needs appropriately (Kivistö, 2005). In a performance-based funding arrangement of HEIs, Canton *et al.* (2001), and Kivistö (2005), contends that the use of outcome indicators like number of degrees awarded, number of study credits accumulated, number of research publications etc. can be used to monitor the performances of the public universities.

6. Conclusion

The theory, according to Kivistö (2008), is generic in nature and can be applied to not only economics (where it originated), but to other fields of studies and professions like accounting, marketing, public administration, finance etc. The application of the theory to higher education research is very recent and is being explored by researchers gradually, but cautiously. While the works of Kivistö (2007) and McDaniel (1996) linked the theory with HEI governance, Massy (1996),

attempted to link it with HEI budgeting mechanisms. Eisenhardt (1989), therefore contends that the theory can apply to a variety of settings, both micro and macro, as it is not limited to any particular application (Ahmad et al., 2013).
The Federal Government of Nigeria provides resources, contributed by the tax payers, to fund the Federal Universities. Thus there is therefore the need for the government to monitor, not only the performances of this universities, but also their outputs, which are considered as public or social goods (Ahmad & Farley, 2013; Kivistö, 2008). This need to continually monitor the activities of the Federal Universities can best be undertaken through the application of a theoretical framework that is firmly rooted in political economy which, as posited by Ahmad et al. (2013), is sufficiently provided by Agency Theory. Although the application of the theory to Higher education funding studies is very rare, the studies of Kivistö (2008); Rungfamai (2008); Schiller and Liefner (2007) and Ahmad and Farley (2013), have shown that the adoption of the theory to higher education studies is gradually being accepted. Except for the work of Ahmad et al. (2013), the literatures reviewed in relation to the application of agency theory to higher education, applied to the already developed nations of the world. There is therefore the need to apply the theory to the various higher education funding reforms in developing and the less developed economies.

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Does Reputational Resources Influence Export Performance?

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Abstract

The main goal of this study is to analyze the influence of reputational resources on export performance. Therefore, a quantitative methodological approach was used, conducting a descriptive, exploratory and transversal empirical study, having applied a questionnaire to a sample of Portuguese companies exporting footwear. The results support the merits of the RBV theory, indicating that it offers explanatory power. The findings suggest that reputation resources indeed influence on export performance. Therefore, this findings sustain the necessity to invest in this kind of resources as a strategic determinant, which contributes to the growth of small firms in foreign markets. Finally, the main limitation of this study is related to the sample size, since it was difficult to find companies willing to collaborate with this kind of research.

Keywords: reputational resources, export performance, SMEs.

Introduction

In a globalized world, firms' survival and expansion, and the consequent economic growth of countries, is strongly dependent on a better understanding of the determinants that influence their export performance (Sousa, Martínez-López & Coelho, 2008). Thus, analyzing the strategic variables together with the knowledge of the companies' micro-economic reality, contributes to a more aware and efficient measures by the economic agents to meet the challenges and constant changes. However, we acknowledge that in practice many companies are not aware of the true importance of resources and capabilities to maximize their internal and external efficiency and, therefore, are conditioning their growth.

The intangible assets of firms have attracted considerable interest in organizational and strategy research (Barney, 1991). In particular, scholars have focused a great deal of attention on a subclass of intangible assets that is called "social approval assets," because they develop their value from favorable collective perceptions (Pfarrer, Pollock & Rindova, 2010).

The important intangible resources studied in this research are the reputational resources, since it helps distinguish firms from competitors (Peteraf, 1993), reduces information asymmetry, consumer uncertainty and substitutes expensive governance mechanisms. Moreover, reputation has been linked to organizational performance. Therefore, it appears to be a key variable to understand why some organizations outperform others (Boyd, Bergh and Ketchen Jr, 2010).

Indeed, the fundamental question is to understand if these resources contribute to the export performance of the Portuguese small and medium enterprises (SMEs) in the footwear industry.

1. Theoretical Framework

1.1. Export ventures

Export development is of supreme importance since it contributes to the economic increase of nations by enhancing societal prosperity, developing national industries, improving productivity and creating new jobs. At the firm level, through market diversification, exporting presents an opportunity for firms to become less dependent on their domestic market, reach new clients and explore economies of scale and achieve lower production costs while producing more efficiently (Okpara, 2009).

Consequently, exporting is a more attractive way to enter in foreign markets, especially for SMEs, when compared with other alternatives, either joint-ventures or subsidiaries, since it does not have to make substantial resource commitments (Piercy et al., 1998; Dhanaraj & Beamish, 2003; Lu & Beamish, 2002), it is a less risky strategy and it allows greater flexibility by adjusting the export volume in different target foreign markets (Lu & Beamish, 2002).

On one hand, companies initiate their export activity to achieve certain objectives, such as economic ones (increase profits and sales) and/or strategic ones (markets diversification, gain external market share and enhance brand reputation) (Cavusgil & Zou, 1994).

On the other hand, the motivations for export ventures may result from proactive or reactive actions. A proactive orientation reflects an aspiration to create a sustained (long-term) competitive advantage (Porter, 1985). These proactive actions are related with profit advantage, unique products, technological advantage exclusive information, managerial urge, tax benefit and economies of scale. A reactive orientation reflects a short-term perspective with relatively little formal planning. Typically, linked with environmental turbulence, that threatens the organization's current equilibrium. These reactive actions are associated with competitive pressures, overproduction, declining domestic sales, excess capacity, saturated domestic markets and proximity to customers and ports (Wood & Robertson, 1997).

1.2. Intangible resources: reputational resources

The new paradigm of today's world economy is characterized by the mobility of production resources and the ability to combine them in an efficient way. The strategic management research has recognized the importance of studying the companies' resources and capabilities and its usefulness to achieve competitive advantage. This perspective is consistent with the Resource-Based View (RBV).

Scholars argue that resources form the basis of firm strategies (Barney, 1991). Therefore, firm resources and strategy cooperate to create positive returns. Firms employ both tangible resources (such as physical infrastructures and financial resources) and intangible resources (like knowledge and brand equity) in the development and implementation of strategies. However, intangible resources are more likely than tangible resources to produce a competitive advantage, since they are often rare and socially complex, thereby making them difficult to imitate (Hitt, Bierman, Shimizu, & Kochhar, 2001). Thus, intangible resources are considered strategic resources (Amit & Schoemaker, 1993).

Intangibles resources have three intrinsic characteristics that distinguish them from tangible resources (Molloy et al., 2011). First, intangibles do not deteriorate with use, since these resources are expected to confer benefits for an indeterminate period of time (Cohen, 2005). Secondly, multiple managers can use the intangibles resources simultaneously, for example, the use of a brand is available for all managers. Finally, the intangibles resources are immaterial, making them difficult to exchange, as they often cannot be separated from its' owner (Marr & Roos, 2005).

The existing literature suggests six types of resources that are particularly important sources of export venture competitive advantage: reputational resources; access to financial resources; human resources; cultural resources; relational resources; and, informational resources (Morgan et al., 2006).

The RBV describes reputation as an intangible resource that is consequent from combinations of internal investments and external evaluations (Shamsie, 2003). This "social approval assets" (Pfarrer, et al. 2010) can positively impact customer behavior (Gatzert, 2015), loyalty and consumption experience (Cretu & Brodie, 2007).

Reputational resources concern intangible image-based assets available to the firm and can be a differentiation factor in the target market (Hall, 1992). These resources must be understood as a source of competitive advantage, since they are rare, difficult to imitate and transfer and permeate the company's activity (Barney, 1991).

The most important reputational asset relevant to export performance identified in the literature is brand equity. This concept is associated to a set of assets linked to the name and symbol of the brand that adds value to the initial value of the product or service, such brand name awareness, distinctiveness of brand image, appeal of brand 'personality' and strength of brand image (Morgan et al., 2006). This valuable intangible resource allows the company to build and protect its market share, enhance marketing investments and introduce new products in the export target market more easily (Aaker, 2010).

Aaker (1991) identifies brand awareness as the potential customer ability to recognize that a brand has certain category. This recognition helps a brand to distinguish from others. Brand associations consist of brand-related thoughts, feelings, perceptions, smells, colors, music, images, experiences, beliefs and attitudes (Kotler & Keller 2011). Brand loyalty is defined as the attachment that a customer has to a brand. Perceived quality can be defined as customers' judgment about a product's overall excellence or superiority. Consequently, perceived quality is a overall feeling about a brand and does not imply the actual quality of a product (Aaker, 1991).

According to the RBV, performance differences across firms can be attributed to the heterogeneity in the firms' resources and capabilities (Makadok, 2001; Teece et al., 1997; Hitt et al., 2001). Resources that are valuable, unique, and difficult to imitate can provide competitive advantages (Amit & Schoemaker, 1993; Barney, 1991). In turn, these advantages provide positive returns (Peteraf, 1993). We therefore propose that:

H1: Reputational resources influences positively and significantly export performance.

2. Methodology

2.1. Sample

To test the hypothesis a sample of Portuguese footwear companies was used that meted the following criteria: companies in which at least 50% of income comes from exports of goods, or companies in which at least 10% of income comes from exports of goods and the export value is higher than 150,000 Euros (INE, 2011).

For information regarding companies the *Associação Portuguesa dos Industriais de Calçado, Componentes, Artigos em Pele e seus Sucedâneos* (APICCAPS) was contacted. We were provided with a database of 231 companies (company name, telephone contact, email, CAE, export markets, export intensity and capital origin) but only 167 companies fulfilled the parameters. All companies were contacted by APICCAPS and later by the authors, via e-mail and telephone, to ensure a higher rate of valid responses. The questionnaires began on April 22, 2014 and ended on July 22, 2014. After finishing the data collection period, 42 valid questionnaires were received, representing a 25% response rate. In this investigation we use a Non-probability sampling since the respondents were chosen for being members of APICCAPS.

2.2. Measure instrument and data collection process

To measure the reputational resources this study used the four items scale proposed by Morgan, Vorhies, & Schlegelmilch (2006). The respondents were asked to rate on a five-point Likert scale these resources available to export venture, relative to those of their major competitors (in this export market).

Okpara's scale (2009) was used to assess export performance, with five items scale comprising profitability indicators of sales growth, profit, activities, operations and performance in general. A five point Likert scale was also used to measure each item.

Data collection was implemented through online questionnaire in *Limesurvey*, version 1.91. To reduce misunderstandings, the questionnaire was validated by the research department of APICCAPS. The analysis unit used in this research was export venture.

3. Results And Analysis

3.1. Reliability Analysis

In order to verify the reliability of overall variables we estimated the stability and internal consistency through Cronbach's alpha (α). In general, an instrument or test is classified with appropriate reliability when α is higher or equal to 0.70 (Nunnally, 1978). However, in some research scenarios in social sciences an α of 0.60 is considered acceptable, as long as the results are interpreted with caution and the context is taken into account (DeVellis, 2012). For the present study we used the scale proposed by Pestana and Gageiro (2008).

The result of 0.905 achieved for all of variables is considered excellent, confirming the sample's internal consistency. It was also conducted an internal consistency test for all variables in each construct to assess their reliability (Table 1).

Table 1: Internal consistency test by construct (Cronbach's Alpha)

Construct	***Cronbach's α***	**Items Nr.**	**N**	**Analysis**
Reputational resources	.905	4	42	Excellent
Export performance	.927	5	42	Excellent

We found that both constructs have an excellent consistency.

3.2. Exploratory factor analysis

3.2.1. Reputational resources

We performed a factor analysis, with Varimax rotation, of entrepreneurial orientation construct items that comprise the scale, with the purpose of finding a solution that was more easily interpretable. Three factors were extracted and there was no need to delete items.

Thus, we obtained a scale composed of 4 items, distributed over one factor that explain 87.71% of total variance. The saturation of this factor varies between 0.695 e 0.819. Analyzing the internal consistency of these factor, we found that Cronbach's Alpha have an excellent internal consistency (α=0.931). KMO test indicates that there is a reasonable correlation between the variables (0.796). Bartlett's sphericity test registered a value of $\chi^2(210, N=42)=630.742$, $p<0.05$, therefore is confirmed that $\chi^2>\chi_{0.95}^2$, so the null hypothesis is rejected, i.e. the variables are correlated.

3.2.2. Export performance

In the factor analysis, with Varimax rotation, of export performance construct we got a scale with one factor and there was no need to delete items. A scale with 5 items was obtained, which explained 77.9% of total variance.

The internal consistency is excellent (α=0.927). KMO test point to a good correlation between the variables (0.814). Bartlett's sphericity test registered a value of $\chi^2(10, N=42) = 171.982$, $p<0.05$, therefore is confirmed that $\chi^2 > \chi_{0.95}^2$, so the null hypothesis is rejected and the variables are correlated.

3.3. Multiple linear regression

In linear regression the coefficient of determination R^2 measures the proportion of total variability that can be explained by regression ($0 \leq R \leq 1$), measuring the effect of independent variables on dependent variable (Marôco, 2011).

We carried out a multiple linear regression analysis linking variables of the studied constructs. The coefficient of determination R^2 measures the proportion of total variability that can be explained by regression, while the ANOVA regression provide information about levels of variability within a regression model, form a basis for tests of significance and allows to test the hypotheses: H0: $\rho^2=0$ *vs.* H1: $\rho^2 \neq 0$ (table 6).

Table 6: Summary and ANOVA regression

Model	R	R^2	Adj. R^2	Standard error	F	Sig.
1	.325[a]	.106	.083	.95738806	4.731	.036*

a. Predictors: (Constant) Reputational resources. Dependent variable: Export performance.
* $p<0.05$.
The previous table presents for model 1 a value of F=4.731, with ρ-*value*=0.036 (Sig.), so H0 is rejected in favour of H1. Thus, H1 is supported.

Conclusion

The goal of this study was to contribute to the large body of organizational and strategy research on intangible assets by specifying if reputational resources influence export performance of Portuguese SME.

This study provided evidence that reputational resources, mainly related to brand, have a positive and significant impact on export performance. This intangible resource enables the exporting company to increase its' notoriety, image distinctiveness, attractiveness of "personality" and image strength. These strong differentiation factors facilitate the development of existing products and/or introduce new products in foreign markets, thus following the market trends.

Brand equity contributes to add value to the product (and associated services) by promoting brand loyalty and increasing perceived quality by the customer.

Theoretical and practical implications

This study contributes to the theory of strategic management and consolidates the RBV, especially relating to reputational resources as one of the strategic determinants of export performance. It is known that strategy encompasses deliberate and emergent initiatives adopted by management, including the use of resources and capabilities to improve companies' performance (Nag, Hambrick, & Chen, 2007).

The findings are a contribution to clarify the influence of reputational resources on companies' export performance. To remain competitive, firms must do an internal assessment to find out which reputational resources provide them advantage over competitors and achieve superior export performance.

This study deeply analyzed a very important industry to the Portuguese balance of trade, as is the case of the footwear production, by understanding the contributions of reputational resources to the export performance.

This study also provided practical implications. On one hand, it is necessary to (re)define public policies to support and stimulate this industry activity and growth. On the other hand, this research draws attention to social approval assets, which managers may overlook. It is essential that managers are able to enhance their brand reputation by promoting brand name awareness, distinctiveness of brand image, appeal of brand 'personality' and overall strength of brand image, to be proactive and capable to identify present and future needs and trends of the target market, anticipate changes in demand and seek new business opportunities.

Research limitations

The main limitation of this study is the sample size, since it was difficult to find companies willing to collaborate in this type of research. The fact that this study used a non-probability convenience sampling is also a limitation. Therefore, we suggest caution in generalizing the results. Future studies should consider using random sampling approaches to enhance the validity of the findings.

The responses to the questionnaire were based on the subjective judgment of respondents. Although literature identifies the advantages of subjective measures to evaluate exports performance, it is recognized that some answers may not represent the reality of business performance in foreign markets.

Finally, this study considers export as an exclusive form of internationalization and such can be appointed as limitation.

Future lines of research

In future research, it is recommended that the studied model is used in a larger sample, in order to confirm the findings. It is also suggested to proceed with the research of strategic management in Portugal, focusing also on other sectors of the national economy, so that, in future, one can compare the present study with identical ones and thus find new factors that contribute to higher export performance.

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Factors affecting students' motivation: a case study from South East European University

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Abstract

The purpose of this paper is to study some selected factors that we believe that affect students' motivation. For this reason totally 120 students participated in the study. Study is conducted in March 2015. Factors as (1) the quality of teaching, (2) teacher's attitude, (3) students' participation in class, (4) students' competitiveness, (5) the fear of course failure, (6) high grades, (7) possibilities for getting a good job after graduation, (8) making parents happy, (9) the interest in learning the courses, and (10) the relevance of the course for the future career are analyzed.
Factors are grouped in three subgroups as teacher-academic motivation, student's motivation, and university motivation. Teachers' quality is confirmed as the most impact factor for their motivation. Teachers are who make students to be motivated, respectively unmotivated. Students believed that there is no unique formula for teaching and asses them. Hence, different methods in this line used by teachers make students more interested to addend and learn for. Moreover, practically oriented courses are welcomed for students.

Keywords: factors, motivation, students, Cronbach's alpha.

Introduction and Literature review

What are factors that make students be motivated? This is the question raised by many theoretical and practical stakeholders. Student's motivation is a topic for which many academic, researchers, educational institutions and others are interested. The answer to this question is not easy and many studies are done in this line. This study also tries to answer this question.

This is an interdisciplinary study in which the main aim is to identify which factors (values, qualities) affect students' motivation for learning at the five different faculties operating within the South East European University (hereafter SEEU).

Factors that influence students' motivation for learning will be considered through an analysis of their perceptions about (1) the quality of teaching, (2) teacher's attitude, (3) students' participation in class, (4) students' competitiveness, (5) the fear of course failure, (6) high grades, (7) possibilities for getting a good job after graduation, (8) making parents happy, (9) the interest in learning the courses, and (10) the relevance of the course for the future career. Hence, these factors are divided in three groups:

- The academic role of a teacher in students' motivation,
- The own students' role or students' responsibility in their motivation, and
- The administrative role of the University in students' motivation.

On the other hand, the study aims at identifying which the strongest de motivating factors are according to students' perceptions. It is also expected to provide information about various and specific aspects of teaching that impact students' motivation in order to achieve better learning outcomes.

Finally, it is expected that certain important factors which affect students' motivation at SEEU will be identified and analyzed. Through these research results we expect to contribute to achieving better learning outcomes and higher academic performance, as well as more satisfying experiences for our students in general. The study could general improve standards. The outcome would be for teachers, managers and relevant administrative staff. Hence, they could take concrete measures to minimize any difficulties or de-motivating factors.

There are extensive studies on the topic of student motivation and what are the key factors. The debate is ongoing, and some selected studies are presented below.

Tuan, Chin and Shieh (2005) have examined six factors of motivation as self-efficacy, active learning strategies, science learning value, performance goal, achievement goal, and learning environment stimulation.

Zepke, Leach and Butler (2010) have examined how the trinomial: teachers, external factors and student motivation influence engagement.

Green and Kelso (2006) have examined the influence of personal, teacher behavior, and institutional-structural factors. Besides other findings, they came to conclusion that "teacher behaviors are among those rated by students as having the most influence on their motivation to succeed." (p. 65)

Harb and El-Shaarawi (2006) in their study, besides other findings, came to conclusion that student's competence in English and class participation are the most important factors that positively affects student's performance.

Hanrahan (1998) have examined the learning environment. Her study "concluded that more activities should be used which either implicitly or explicitly reinforce positive beliefs about the need for self-direction in learning."

Zhao (2012) has examined also the factors that influence motivation. Study besides other finding, concluded that "both internal and external factors are considered having great effect on students' learning motivation, but they are not put into full play to promote and sustain students' motivation." (p. 109)

Sanfeliz and Stalzer (2003, p. 65) think that "when students actively participate in science, they can also become active participants in the educational process."

Skinner and Belmont (1993, p. 571) found that "students who are behaviorally disengaged receive teacher responses that should further undermine their motivation. The importance of the student-teacher relationship, especially interpersonal involvement, in optimizing student motivation is highlighted."

Research design and methodology

In this study the deductive approach is used. Moreover, case study as a research method is used because the study provides evidence which cannot be generalized, i.e. results and discussions are in context of the SEEU and time that the study is realized.

Data are obtained using online questionnaires (for more see appendixes). Totally 120 students from SEEU participated in the study in the period March 2015. The composition of 120 students that were responded to this questioner is as following. Firstly, according to gender 52% are male and 48% female. Secondly, according to study year 40.8% are the first year students, 36.7% second year and 22.5% third year. Thirdly, according to the faculty majority of observations are from Faculty of Business and Economics with 43.3%. Fourthly, based on student's success majority of selected students have GPA higher than 9. The structure of selected sample is presented in table 2.

Questionnaire was created with questions related with student data and other information that are related to specified factors that affect students 'motivation to study. Questionnaire' idea and concepts were based on Junaidu (2004) and modified by the case conditions. Questionnaire aim was to study which of motivation factors effect students' interest to study more. Because structure of study was with qualitative data, initially after data gathering they are coded for further statistical analysis.

Data are processed and analyses are performed using Statistical Analysis Software (SPSS). Descriptive analyis are done for gender, study year, faculty in which students study and their declared success. After that Crosstabulation (crros-tables) is used to study motivation factors toward gender, study year, faculty in which students study and their declared success.

Also, in this study is measured realibility of motivation scales for student's study using Cronbach's alpha coefficient. Students were asked to respond to the statement using a four-point Likert scale ranging from 1 (Strongly Agree) to 4 (Strongly Disagree).

A commonly accepted rule for describing internal consistency using Cronbach's alpha is as following (see table 1).

Table 1: Description of Cronbach's alpha

Cronbach's alpha	Description
> 0.90	Excellent
0.80 - 0.89	Good
0.70 - 0.79	Acceptable
0.60 - 0.69	Questionable
0.50 - 0.59	Poor
< 0.50	Unacceptable

Source: George & Mallory (2003), cited in Matkar (2012).

Table 2: Sample composition

Factor	Description	Percent
Gender	Male Female	51.7 48.3
Year study	First Second Third	40.8 36.7 22.5
Faculty	Business and Economics (FBE) Contemporary Sciences and Technologies (FCST) Languages, Cultures and Communication (FLCC) Law (FL) Public Administration and Political Sciences (FPA&PS)	43.3 17.5 17.5 15.8 5.8
Success	Between 6 and 7 Between 7 and 8 Between 8 and 9 Higher than 9	11.7 17.5 26.7 44.2
Total		100.0

Source: authors' calculations.

Results and discussion

In this section are discussed obtained results. Students believed that teaching quality (questions Q1-Q4) have motivated them. Students are declared above 90% with strongly agree and agree that teaching quality have motivated them. Students are declared above 80% with strongly agree and agree (questions Q5-Q8) that theirs responsibility have influenced motivation, except question 7 "another strong reason that makes me work harder for my courses is that I always want to be better than my colleagues in class" with 59.16% strongly agree and agree. Finally, students are declared above 65% with strongly agree and agree that university academic role have motivated them (questions Q9-Q12). More detailed results are given in table 3.

Table 3: Factors that affect students' motivation

No	Question	Answer	Total
Q1	Teaching quality (Professor being knowledgeable and well prepared for class) is a strong reason to like a course and to make more efforts with it.	Strongly agree	61.67%
		Agree	33.33%
		Disagree	5.00%
		Strongly disagree	0.00%
Q2	I easily lose interest in a course if I notice that the professor does not care about the students (how they feel, what they like and dislike, etc.)	Strongly agree	45.00%
		Agree	43.33%
		Disagree	11.67%
		Strongly disagree	0.00%
Q3	I'm more interested in a course if the professor has a friendly attitude towards students.	Strongly agree	61.67%
		Agree	36.67%
		Disagree	1.67%
		Strongly disagree	0.00%
Q4	Courses in which professors use different methods for teaching and assessment are much more interesting to attend and learn for.	Strongly agree	65.00%
		Agree	30.83%
		Disagree	3.33%
		Strongly disagree	0.83%
Q5	A big reason that makes me do additional effort with a course is to get a higher grade.	Strongly agree	36.67%
		Agree	45.00%
		Disagree	16.67%
		Strongly disagree	1.67%
Q6	The wish to make my parents happy is another factor that makes me put more efforts with a course.	Strongly agree	45.00%
		Agree	38.33%
		Disagree	10.83%
		Strongly disagree	5.83%
Q7	Another strong reason that makes me work harder for my courses is that I always want to be better than my colleagues in class.	Strongly agree	20.83%
		Agree	38.33%
		Disagree	32.50%
		Strongly disagree	8.33%
Q8	I work hard to get good grades because that will ensure a better job in the future.	Strongly agree	41.67%
		Agree	40.00%
		Disagree	10.00%
		Strongly disagree	8.33%
Q9	I am only interested in the courses that I know I can I need during my working career.	Strongly agree	25.83%
		Agree	41.67%
		Disagree	23.33%
		Strongly disagree	9.17%
Q10	Practically oriented courses (that contain more practice than theory) are always more interesting.	Strongly agree	68.33%
		Agree	24.17%
		Disagree	6.67%
		Strongly disagree	0.83%

Q11	The administrative services at my Faculty make my interest for learning higher.	Strongly agree	23.33%
		Agree	48.33%
		Disagree	19.17%
		Strongly disagree	9.17%
Q12	The working conditions at my Faculty (classrooms, technical equipment, etc.) make my interest in learning higher.	Strongly agree	36.67%
		Agree	46.67%
		Disagree	15.00%
		Strongly disagree	1.67%
	Total		100.0%

Source: authors' calculations.

In order to have more detailed view for these factors that affect students' motivation based on gender, year study, faculty and GPA, a cross tabulation is performed. Some of selected results are as below.
In question Q1 regarding whether teaching quality has motivated students, majority of them strongly agree. No one say that strongly disagree related with this factor. This factor was the most important factor in student's learning (with 27%). Majority of students answered in this question are in second year, are in FBE and have GPAs higher than 9.

In question Q2 regarding whether a professor cares about students, majority of students were answered that strongly agree or agree. Differences are found comparing faculties. For example, while 62% of students strongly agree in FCST, in FPA&PS 29% of students strongly agree. But, in general context majority of students strongly agree or agree related this question.

In question Q3 regarding whether a professor has a friendly attitude towards students, majority of students were answered that strongly agree or agree. Students that strongly agree are more in third year and in FPA&PS, whereas agree in first year and in FBE. Majority of students that strongly agree have GPAs higher than 9 whereas they that agree between 7 and 8.

In question Q4 regarding whether a professor use different methods for teaching and assessment, majority of students strongly agree, and in first year in FL. Majority of students that strongly agree have GPAs between 6 and 7, whereas they that agree between 7 and 8.

In question Q5 regarding students to get higher grades, majority of students agree, are in third year and have GPAs between 6 and 7.

In question Q6 regarding students making parents happy, majority of students strongly agree, are in first year and in FBE.

In question Q7 regarding students to be better than theirs colleagues in class, majority of students agree, are in first year and in FBE.

In question Q8 regarding in the future students to ensure a better job, majority of students believe that they work hard to get good grades because they will ensure a batter job in the future.

In question Q9 regarding working career, majority of students were answered with agree and are first year students.

In question Q10 regarding practically oriented courses, majority of students were answered with strongly agree and are second year students.

In question Q11 regarding administrative services, majority of students were answered with agree and are first year students.

Finally, in question Q12 regarding working conditions, majority of students were answered with agree and are second year students. For more detailed results see appendixes.

To measure the importance of these factors, students are answered in question that which of selected factors (Q1-Q12) have most influence in theirs learning. Table 4 shows the impact that has each selected variables (factors) in students' learning. From the maximum 100 percent, results per each factor are as below.

Order of questions-factors is done from the highest to lower impact in students' learning. As results show students believed that factor Q1: "teaching quality (professor being knowledgeable and well prepared for class) is a strong reason to like a course and to make more efforts with it" has the strongest impact in learning for them. Is followed by Q4: "courses in which professors use different methods for teaching and assessment are much more interesting to attend and learn for", and so on.

Factor Q7: "another strong reason that makes me work harder for my courses is that I always want to be better than my colleagues in class" has no impact. However, factors as working career (Q9), higher grade (Q5), working conditions (Q12), students care (Q2) and administrative service (Q11) have lower impacts in student's learning.

Table 4: Impact of factors in students' learning

Q1-teaching quality	Q4-different methods	Q10-practically oriented	Q3-friendly attitude	Q6-parents	Q8-better job	Q9-working career	Q5-higher grade	Q12-working conditions	Q2-lose interest	Q11-administrative services	Q7-better than colleagues	Total
26.7	15.0	14.2	10.0	10.0	10.0	4.2	3.3	2.5	2.5	1.7	0.0	100.0

Source: authors' calculations.

In the appendixes are presented results of factors that affect learning according to student's gender, study year, faculties, respectively GPAs.

A reliability analysis Cronbach's alpha was further conducted to determine if all item groupings are acceptable and reliable (see table 5). Generally, a questionnaire with an α of 0.8 is considered reliable (Field, 2009).

The first factor (Teacher-Academic Motivation) has 4 items with a reliability Cronbach's alpha is about 0.74, the second factor (Students Motivation) has 4 items with a Cronbach' alpha value is about 0.72, and the third factor (University Motivation) has 4 items with Cronbach' alpha value is about 0.73. The Cronbach's alpha indicator of the three factors suggests that the items have relatively high internal consistency.

Table 5: Rotated factor matrix

Items Questions	Factors		
	F1-for Teacher	**F2-for Students**	**F3- for University**
Teaching quality (professor being knowledgeable and well prepared for class) is a strong reason to like a course and to make more efforts with it.	0.745		
I easily lose interest in a course if I notice that the professor does not care about the students (how they feel, what they like and dislike, etc.)	0.761		
I'm more interested in a course if the professor has a friendly attitude towards students.	0.75		
Courses in which professors use different methods for teaching and assessment are much more interesting to attend and learn for.	0.735		
A big reason that makes me do additional effort with a course is to get a higher grade.		0.725	
The wish to make my parents happy is another factor that makes me put more efforts with a course.		0.721	
Another strong reason that makes me work harder for my courses is that I always want to be better than my colleagues in class.		0.744	
I work hard to get good grades because that will ensure a better job in the future.		0.72	
I am only interested in the courses that I know I can I need during my working career.			0.73
Practically oriented courses (that contain more practice than theory) are always more interesting.			0.744
The administrative services at my Faculty make my interest for learning higher.			0.725
The working conditions at my Faculty (classrooms, technical equipment, etc.) make my interest in learning higher.			0.73

Source: authors' calculations.

Results denoted that students' perceptions confirmed that in majority cases for selected factors they agree or strongly agree. Factor Q1-teaching quality was confirmed the first most important factor. After that, is followed with factors Q4-different methods for teaching and assessment as second important factor. Moreover, students believed that courses that are practically oriented are more interesting (factor Q10). On the other hand, students believed that factors as administrative services (Q11), professor care about students (Q2), working conditions (Q12), higher grades (Q5) and working career (Q9) have minor impact in their motivation regards learning. Students believed that working harder in order to be better than other class colleagues has no impact in their motivation. So, they are not oriented according to competition and who will be better in a class.

The Cronbach's alpha indicator of the three factors (teacher-academic motivation, students' motivation and university motivation) suggests that the items have relatively high internal consistency.

Conclusions

The purpose of this study was to study some factors that are supposed to affect students' motivation related with the learning and teaching process. Teaching quality was confirmed as the most impact factor in students' motivation. Teachers are who make students to be motivated, respectively unmotivated.

It can be concluded that the University has to strength teaching quality because it is the most valuable intangible asset. Well prepared teachers present the University goodwill. Hence, the key point in improving the University performance is to continue increasing and strength teaching quality and capabilities.

This study has own limitations. This kind of study is performed for the first time in SEEU. For this reason is suggested to be repeated with same methodology in order to confirm and strong founded evidence. Comparing results between SEEU and others universities in region or international context are welcomed.

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APPENDIXES

Table 6: Factors that affect learning according to student's gender

No	Question	Answer	Male	Female	Total
P1	Teaching quality (professor being knowledgeable and well prepared for class) is a strong reason to like a course and to make more efforts with it.	Strongly agree	64.52%	58.62%	61.67%
		Agree	30.65%	36.21%	33.33%
		Disagree	4.84%	5.17%	5.00%
		Strongly disagree	0.00%	0.00%	0.00%
P2	I easily lose interest in a course if I notice that the professor does not care about the students (how they feel, what they like and dislike, etc.)	Strongly agree	41.94%	48.28%	45.00%
		Agree	48.39%	37.93%	43.33%
		Disagree	9.68%	13.79%	11.67%
		Strongly disagree	0.00%	0.00%	0.00%
P3	I'm more interested in a course if the professor has a friendly attitude towards students.	Strongly agree	70.97%	51.72%	61.67%
		Agree	27.42%	46.55%	36.67%
		Disagree	1.61%	1.72%	1.67%
		Strongly disagree	0.00%	0.00%	0.00%
P4	Courses in which professors use different methods for teaching and assessment are much more interesting to attend and learn for.	Strongly agree	61.29%	68.97%	65.00%
		Agree	37.10%	24.14%	30.83%
		Disagree	1.61%	5.17%	3.33%
		Strongly disagree	0.00%	1.72%	0.83%
P5	A big reason that makes me do additional effort with a course is to get a higher grade.	Strongly agree	38.71%	34.48%	36.67%
		Agree	46.77%	43.10%	45.00%
		Disagree	12.90%	20.69%	16.67%
		Strongly disagree	1.61%	1.72%	1.67%
P6	The wish to make my parents happy is another factor that makes me put more efforts with a course.	Strongly agree	40.32%	50.00%	45.00%
		Agree	40.32%	36.21%	38.33%
		Disagree	14.52%	6.90%	10.83%
		Strongly disagree	4.84%	6.90%	5.83%
P7	Another strong reason that makes me work harder for my courses is that I always want to be better than my colleagues in class.	Strongly agree	25.81%	15.52%	20.83%
		Agree	41.94%	34.48%	38.33%
		Disagree	25.81%	39.66%	32.50%
		Strongly disagree	6.45%	10.34%	8.33%
P8	I work hard to get good grades because that will ensure a better job in the future.	Strongly agree	37.10%	46.55%	41.67%
		Agree	43.55%	36.21%	40.00%
		Disagree	9.68%	10.34%	10.00%
		Strongly disagree	9.68%	6.90%	8.33%
P9	I am only interested in the courses that I know I can I need during my working career.	Strongly agree	29.03%	22.41%	25.83%
		Agree	41.94%	41.38%	41.67%
		Disagree	25.81%	20.69%	23.33%
		Strongly disagree	3.23%	15.52%	9.17%
P10	Practically oriented courses (that contain more practice than theory) are always more interesting.	Strongly agree	66.13%	70.69%	68.33%
		Agree	24.19%	24.14%	24.17%
		Disagree	8.06%	5.17%	6.67%
		Strongly disagree	1.61%	0.00%	0.83%
P11	The administrative services at my Faculty make my interest for learning higher.	Strongly agree	20.97%	25.86%	23.33%
		Agree	50.00%	46.55%	48.33%
		Disagree	19.35%	18.97%	19.17%
		Strongly disagree	9.68%	8.62%	9.17%
P12	The working conditions at my Faculty (classrooms, technical equipment, etc.) make my interest in learning higher.	Strongly agree	37.10%	36.21%	36.67%
		Agree	48.39%	44.83%	46.67%
		Disagree	11.29%	18.97%	15.00%
		Strongly disagree	3.23%	0.00%	1.67%
	Total		100.0%	100.0%	100.0%

Source: authors' calculations.

Table 7: Factors that affect learning according to study year

No	Question	Answer	Study year			Total
			First	Second	Third	
P1	Teaching quality (professor being knowledgeable and well prepared for class) is a strong reason to like a course and to make more efforts with it.	Strongly agree	59.18%	65.91%	59.26%	61.67%
		Agree	36.73%	34.09%	25.93%	33.33%
		Disagree	4.08%	0.00%	14.81%	5.00%
		Strongly disagree	0.00%	0.00%	0.00%	0.00%
P2	I easily lose interest in a course if I notice that the professor does not care about the students (how they feel, what they like and dislike, etc.)	Strongly agree	46.94%	54.55%	25.93%	45.00%
		Agree	38.78%	40.91%	55.56%	43.33%
		Disagree	14.29%	4.55%	18.52%	11.67%
		Strongly disagree	0.00%	0.00%	0.00%	0.00%
P3	I'm more interested in a course if the professor has a friendly attitude towards students.	Strongly agree	51.02%	68.18%	70.37%	61.67%
		Agree	48.98%	27.27%	29.63%	36.67%
		Disagree	0.00%	4.55%	0.00%	1.67%
		Strongly disagree	0.00%	0.00%	0.00%	0.00%
P4	Courses in which professors use different methods for teaching and assessment are much more interesting to attend and learn for.	Strongly agree	71.43%	56.82%	66.67%	65.00%
		Agree	24.49%	43.18%	22.22%	30.83%
		Disagree	4.08%	0.00%	7.41%	3.33%
		Strongly disagree	0.00%	0.00%	3.70%	0.83%
P5	A big reason that makes me do additional effort with a course is to get a higher grade.	Strongly agree	36.73%	40.91%	29.63%	36.67%
		Agree	42.86%	43.18%	51.85%	45.00%
		Disagree	18.37%	13.64%	18.52%	16.67%
		Strongly disagree	2.04%	2.27%	0.00%	1.67%
P6	The wish to make my parents happy is another factor that makes me put more efforts with a course.	Strongly agree	46.94%	45.45%	40.74%	45.00%
		Agree	40.82%	36.36%	37.04%	38.33%
		Disagree	8.16%	11.36%	14.81%	10.83%
		Strongly disagree	4.08%	6.82%	7.41%	5.83%
P7	Another strong reason that makes me work harder for my courses is that I always want to be better than my colleagues in class.	Strongly agree	10.20%	27.27%	29.63%	20.83%
		Agree	51.02%	31.82%	25.93%	38.33%
		Disagree	30.61%	34.09%	33.33%	32.50%
		Strongly disagree	8.16%	6.82%	11.11%	8.33%
P8	I work hard to get good grades because that will ensure a better job in the future.	Strongly agree	48.98%	40.91%	29.63%	41.67%
		Agree	36.73%	43.18%	40.74%	40.00%
		Disagree	10.20%	2.27%	22.22%	10.00%
		Strongly disagree	4.08%	13.64%	7.41%	8.33%
P9	I am only interested in the courses that I know I can I need during my working career.	Strongly agree	22.45%	34.09%	18.52%	25.83%
		Agree	48.98%	36.36%	37.04%	41.67%
		Disagree	14.29%	27.27%	33.33%	23.33%
		Strongly disagree	14.29%	2.27%	11.11%	9.17%
P10	Practically oriented courses (that contain more practice than theory) are always more interesting.	Strongly agree	69.39%	75.00%	55.56%	68.33%
		Agree	24.49%	18.18%	33.33%	24.17%
		Disagree	6.12%	6.82%	7.41%	6.67%
		Strongly disagree	0.00%	0.00%	3.70%	0.83%
P11	The administrative services at my Faculty make my interest for learning higher.	Strongly agree	20.41%	29.55%	18.52%	23.33%
		Agree	59.18%	38.64%	44.44%	48.33%
		Disagree	14.29%	22.73%	22.22%	19.17%
		Strongly disagree	6.12%	9.09%	14.81%	9.17%
P12	The working conditions at my Faculty (classrooms, technical equipment, etc.) make my interest in learning higher.	Strongly agree	40.82%	36.36%	29.63%	36.67%
		Agree	48.98%	54.55%	29.63%	46.67%
		Disagree	10.20%	9.09%	33.33%	15.00%
		Strongly disagree	0.00%	0.00%	7.41%	1.67%
Total			100.0%	100.0%	100.0%	100.0%

Source: authors' calculations.

Table 8: Factors that affect learning according to faculties

No	Question	Answer	Faculty					Total
			FBE	FCST	FLCC	FL	FPA&PS	
P1	Teaching quality (professor being knowledgeable and well prepared for class) is a strong reason to like a course and to make more efforts with it.	Strongly agree	71.15%	57.14%	61.90%	47.37%	42.86%	61.67%
		Agree	25.00%	33.33%	28.57%	52.63%	57.14%	33.33%
		Disagree	3.85%	9.52%	9.52%	0.00%	0.00%	5.00%
		Strongly disagree	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
P2	I easily lose interest in a course if I notice that the professor does not care about the students (how they feel, what they like and dislike, etc.)	Strongly agree	42.86%	61.67%	53.85%	47.62%	28.57%	36.84%
		Agree	57.14%	33.33%	36.54%	38.10%	61.90%	42.11%
		Disagree	0.00%	5.00%	9.62%	14.29%	9.52%	21.05%
		Strongly disagree	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
P3	I'm more interested in a course if the professor has a friendly attitude towards students.	Strongly agree	28.57%	36.84%	42.86%	45.00%	53.85%	61.90%
		Agree	61.90%	42.11%	57.14%	43.33%	46.15%	38.10%
		Disagree	9.52%	21.05%	0.00%	11.67%	0.00%	0.00%
		Strongly disagree	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
P4	Courses in which professors use different methods for teaching and assessment are much more interesting to attend and learn for.	Strongly agree	53.85%	61.90%	66.67%	78.95%	57.14%	61.67%
		Agree	46.15%	38.10%	23.81%	21.05%	42.86%	36.67%
		Disagree	0.00%	0.00%	9.52%	0.00%	0.00%	1.67%
		Strongly disagree	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
P5	A big reason that makes me do additional effort with a course is to get a higher grade.	Strongly agree	57.14%	61.67%	65.38%	47.62%	80.95%	63.16%
		Agree	42.86%	36.67%	32.69%	47.62%	9.52%	31.58%
		Disagree	0.00%	1.67%	0.00%	4.76%	9.52%	5.26%
		Strongly disagree	0.00%	0.00%	1.92%	0.00%	0.00%	0.00%
P6	The wish to make my parents happy is another factor that makes me put more efforts with a course.	Strongly agree	80.95%	63.16%	71.43%	65.00%	32.69%	38.10%
		Agree	9.52%	31.58%	28.57%	30.83%	53.85%	47.62%
		Disagree	9.52%	5.26%	0.00%	3.33%	13.46%	9.52%
		Strongly disagree	0.00%	0.00%	0.00%	0.83%	0.00%	4.76%
P7	Another strong reason that makes me work harder for my courses is that I always want to be better than my colleagues in class.	Strongly agree	32.69%	38.10%	33.33%	57.89%	14.29%	36.67%
		Agree	53.85%	47.62%	33.33%	26.32%	57.14%	45.00%
		Disagree	13.46%	9.52%	33.33%	10.53%	28.57%	16.67%
		Strongly disagree	0.00%	4.76%	0.00%	5.26%	0.00%	1.67%
P8	I work hard to get good grades because that will ensure a better job in the future.	Strongly agree	14.29%	36.67%	46.15%	33.33%	47.62%	63.16%
		Agree	57.14%	45.00%	42.31%	42.86%	33.33%	15.79%
		Disagree	28.57%	16.67%	5.77%	14.29%	14.29%	15.79%
		Strongly disagree	0.00%	1.67%	5.77%	9.52%	4.76%	5.26%
P9	I am only interested in the courses that I know I can I need during my working career.	Strongly agree	47.62%	63.16%	14.29%	45.00%	13.46%	28.57%
		Agree	33.33%	15.79%	71.43%	38.33%	46.15%	28.57%
		Disagree	14.29%	15.79%	14.29%	10.83%	36.54%	28.57%
		Strongly disagree	4.76%	5.26%	0.00%	5.83%	3.85%	14.29%
P10	Practically oriented courses (that contain more practice than theory) are always more interesting.	Strongly agree	13.46%	28.57%	19.05%	36.84%	14.29%	20.83%
		Agree	46.15%	28.57%	28.57%	36.84%	42.86%	38.33%
		Disagree	36.54%	28.57%	38.10%	26.32%	14.29%	32.50%
		Strongly disagree	3.85%	14.29%	14.29%	0.00%	28.57%	8.33%
P11	The administrative services at my Faculty make my interest for learning higher.	Strongly agree	14.29%	20.83%	42.31%	33.33%	42.86%	52.63%
		Agree	42.86%	38.33%	44.23%	52.38%	33.33%	21.05%
		Disagree	14.29%	32.50%	7.69%	4.76%	19.05%	5.26%
		Strongly disagree	28.57%	8.33%	5.77%	9.52%	4.76%	21.05%
P12	The working conditions at my Faculty (classrooms, technical equipment, etc.) make my interest in learning higher.	Strongly agree	42.86%	52.63%	28.57%	41.67%	25.00%	33.33%
		Agree	33.33%	21.05%	42.86%	40.00%	44.23%	33.33%
		Disagree	19.05%	5.26%	28.57%	10.00%	15.38%	23.81%
		Strongly disagree	4.76%	21.05%	0.00%	8.33%	15.38%	9.52%
Total			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: authors' calculations.

Table 9: Factors that affect learning according to students' success (based on theirs declarations)

No	Question	Answer	GPA				Total
			Between 6 and 7	Between 7 and 8	Between 8 and 9	Higher than 9	
P1	Teaching quality (professor being knowledgeable and well prepared for class) is a strong reason to like a course and to make more efforts with it.	Strongly agree	42.86%	57.14%	56.25%	71.70%	61.67%
		Agree	57.14%	33.33%	40.63%	22.64%	33.33%
		Disagree	0.00%	9.52%	3.13%	5.66%	5.00%
		Strongly disagree	0.00%	0.00%	0.00%	0.00%	0.00%
P2	I easily lose interest in a course if I notice that the professor does not care about the students (how they feel, what they like and dislike, etc.)	Strongly agree	61.67%	21.43%	47.62%	46.88%	49.06%
		Agree	33.33%	71.43%	38.10%	46.88%	35.85%
		Disagree	5.00%	7.14%	14.29%	6.25%	15.09%
		Strongly disagree	0.00%	0.00%	0.00%	0.00%	0.00%
P3	I'm more interested in a course if the professor has a friendly attitude towards students.	Strongly agree	49.06%	45.00%	57.14%	61.90%	81.25%
		Agree	35.85%	43.33%	42.86%	38.10%	18.75%
		Disagree	15.09%	11.67%	0.00%	0.00%	0.00%
		Strongly disagree	0.00%	0.00%	0.00%	0.00%	0.00%
P4	Courses in which professors use different methods for teaching and assessment are much more interesting to attend and learn for.	Strongly agree	81.25%	50.94%	61.67%	64.29%	47.62%
		Agree	18.75%	45.28%	36.67%	35.71%	52.38%
		Disagree	0.00%	3.77%	1.67%	0.00%	0.00%
		Strongly disagree	0.00%	0.00%	0.00%	0.00%	0.00%
P5	A big reason that makes me do additional effort with a course is to get a higher grade.	Strongly agree	47.62%	59.38%	75.47%	65.00%	28.57%
		Agree	52.38%	37.50%	16.98%	30.83%	42.86%
		Disagree	0.00%	3.13%	5.66%	3.33%	28.57%
		Strongly disagree	0.00%	0.00%	1.89%	0.83%	0.00%
P6	The wish to make my parents happy is another factor that makes me put more efforts with a course.	Strongly agree	28.57%	28.57%	43.75%	37.74%	36.67%
		Agree	42.86%	52.38%	46.88%	41.51%	45.00%
		Disagree	28.57%	19.05%	3.13%	20.75%	16.67%
		Strongly disagree	0.00%	0.00%	6.25%	0.00%	1.67%
P7	Another strong reason that makes me work harder for my courses is that I always want to be better than my colleagues in class.	Strongly agree	36.67%	28.57%	52.38%	53.13%	41.51%
		Agree	45.00%	64.29%	33.33%	28.13%	39.62%
		Disagree	16.67%	7.14%	14.29%	12.50%	9.43%
		Strongly disagree	1.67%	0.00%	0.00%	6.25%	9.43%
P8	I work hard to get good grades because that will ensure a better job in the future.	Strongly agree	41.51%	45.00%	14.29%	19.05%	21.88%
		Agree	39.62%	38.33%	57.14%	42.86%	46.88%
		Disagree	9.43%	10.83%	21.43%	33.33%	21.88%
		Strongly disagree	9.43%	5.83%	7.14%	4.76%	9.38%
P9	I am only interested in the courses that I know I can I need during my working career.	Strongly agree	21.88%	22.64%	20.83%	21.43%	23.81%
		Agree	46.88%	26.42%	38.33%	50.00%	57.14%
		Disagree	21.88%	41.51%	32.50%	21.43%	14.29%
		Strongly disagree	9.38%	9.43%	8.33%	7.14%	4.76%
P10	Practically oriented courses (that contain more practice than theory) are always more interesting.	Strongly agree	23.81%	53.13%	47.17%	41.67%	28.57%
		Agree	57.14%	28.13%	37.74%	40.00%	28.57%
		Disagree	14.29%	9.38%	5.66%	10.00%	42.86%
		Strongly disagree	4.76%	9.38%	9.43%	8.33%	0.00%
P11	The administrative services at my Faculty make my interest for learning higher.	Strongly agree	28.57%	38.10%	25.00%	20.75%	25.83%
		Agree	28.57%	38.10%	46.88%	43.40%	41.67%
		Disagree	42.86%	19.05%	18.75%	22.64%	23.33%
		Strongly disagree	0.00%	4.76%	9.38%	13.21%	9.17%

P12	The working conditions at my Faculty (classrooms, technical equipment, etc.) make my interest in learning higher.	Strongly agree	25.83%	64.29%	61.90%	78.13%	66.04%
		Agree	41.67%	35.71%	23.81%	18.75%	24.53%
		Disagree	23.33%	0.00%	14.29%	0.00%	9.43%
		Strongly disagree	9.17%	0.00%	0.00%	3.13%	0.00%
Total			100.0%	100.0%	100.0%	100.0%	100.0%

Source: authors' calculations.

Accessible Tourism Services on an Example of Accommodation Facilities in Prague

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Abstract

Accessibility in tourism is one of the most discussed topics in the European Union. The number of disabled visitors increases also due to ageing population. In this context, the paper deals with accessible tourism and also it informs about requirements of disabled visitors on accommodation facilities. The paper focuses on accessible accommodation facilities in Prague and it shows possibilities for disabled visitors to travel there and enjoy their leisure time activities.

The aim of the article is to detect the readiness of the accommodation facilities to the providing services for disabled visitors in Prague. It compares a share of barrier-free accommodation facilities in Prague and other regions in the Czech Republic. We used primary and secondary research and from the methods of scientific work the analysis was used.

Keywords: Accessibility, accommodation facility, disability, universal design.

Introduction

Tourism is an important part of regional economy with numerous economic and also socio-cultural impacts. The share of Tourism on GDP in the world is 9 % (UNWTO Highlights 2015), in the Czech Republic 2.9 % (Czech Statistical Office).

In context of ageing the world population is still more important orientation on social tourism. The European Union uses for social tourism a term "tourism for all". This term often refers to very different aspects. Sometimes, in particular in social policy context, it is used to underline the need to facilitate holidays for lower income groups, sometimes to take into account the needs of disabled visitors (Leidner, 2006).

Each person should have possibility to travel and discover beauties of Earth. According the Global Code of Ethics for Tourism (UNWTO, 2001) all tourism activities should respect the equality of men and women. They should promote human rights and, more particularly, the individual rights of the most vulnerable groups, notably children, the elderly, the handicapped, ethnic minorities and indigenous peoples (art. 2). The prospect of direct and personal access to the discovery and enjoyment of the planet's resources constitutes a right equally open to all the world's inhabitants. The increasingly extensive participation in national and international tourism should be regarded as one of the best possible expressions of the sustained growth of free time, and obstacles should not be placed in its way (art. 7). Really important is, that social tourism, and in particular associative tourism, which facilitates widespread access to leisure, travel and holidays, should be developed with the support of the public authorities (art. 7, Linderová, 2015b). Global Code of Ethics for Tourism is a framework of reference and a set of principles to guide all the stakeholders in the sector towards responsible and sustainable development of global tourism. One of the Code's aims was to summarize various documents, codes and declarations (Manila Declaration, Tourism Bill of Rights, Tourist Code) of the same nature or with a similar purpose, which had been adopted by UNWTO throughout the years. On several occasions, the Code expressly mentions the right of all persons to practise tourism. Furthermore, articles 2 and 7 make explicit reference to the rights of persons with

disabilities and the need for all stakeholders to facilitate these persons' travel and tourist movements (UNWTO, 2015).

For accommodation facilities are disabled visitors an interesting target group. Disabled people are loyal customers, often returning to places that provide good accessibility. Other people may also benefit from improved accessibility, for example parents with pushchairs, people with injuries, and tourists with heavy luggage (Office for Official Publications of the European Communities, 2004).

Accessibility in accommodation facilities

Social tourism is one of the most discussed topics in the European Union nowadays. Minnaert (2014) says that social tourism is tourism that specifically encourages the participation in tourism activities of people who are economically weak or otherwise disadvantaged. Cazes (2000) sees social tourism as a complex phenomenon, which allows tourism participation for disadvantaged persons. It respects human rights as right for holiday and right for tourism, it is based on non-profit concept and it accepts social and financial situation of participants. According to Cazes, the aim of the social tourism is active use of leisure time, physical and cultural development of participants.

Various researchers have sought to highlight (McCabe, Johnson, 2013):
a) the transformative social possibilities of tourism (Higgins-Desbiolles, 2006),
b) concerns about equality of access and participation (Minnaert, Quinn, Griffen, and Stacey, 2010),
c) the individual and social benefits that can be derived from participation by disadvantaged groups (Minnaert, Maitland, and Miller, 2009).

Accessible tourism for all is a form of tourism that involves a collaborative process among stakeholders that enables people with access requirements, including mobility, vision, hearing and cognitive dimensions of access, to function independently and with equity and dignity through the delivery of universally designed tourism products, services and environments (Linderová, 2015a).

In practice, social tourism addresses four main target groups – senior citizens, young people, families with low-income and people with disabilities. Majority of these target groups have special requirements during their travel and holiday. Disabled visitors and seniors are groups with the biggest needs. They have limited mobility and they need special environment.

In the context of traveling of disabled visitors we speak about "accessible tourism for all". It is better to avoid misunderstandings.

People with disabilities are also those who are limited in the work they can do because of a longstanding health problem or a basic activity difficulty (Eurostat, 2014).

Persons with disabilities are diverse and heterogeneous, while stereotypical views of disability emphasize wheelchair users and a few other "classic" groups such as blind people and deaf people. Disability encompasses the child born with a congenital condition such as cerebral palsy or the young soldier who loses his leg to a land-mine, or the middle-aged woman with severe arthritis, or the older person with dementia, among many others. Health conditions can be visible or invisible; temporary or long term; static, episodic, or degenerating; painful or inconsequential (Linderová, 2015b).

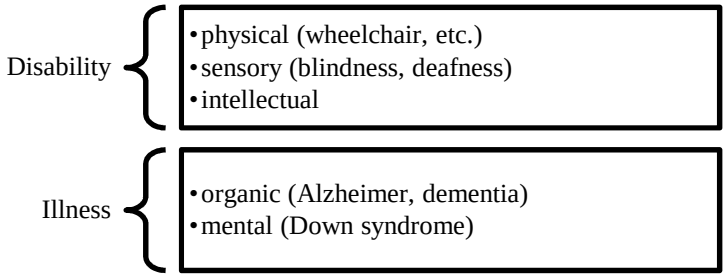

Figure 1: Disability vs. illness

Source: UNWTO, ENAT, ONCE. (2014). Manual sobre Turismo Accesible para Todos: Principios, herramientas y buenas prácticas.

According to the World Health Organization (2011) there are approximately 1 billion persons with disabilities in the world. This equates to approximately 15 % of the world population having a physical, mental or sensory disability. In addition, a rapid ageing of the population is under way. In 2009 there were more than 730 million people over age 60, equivalent to 10 % of the global population, which represented an increase of more than 20 % since 2000. By the year 2050 the number of persons over age 60 is projected to increase up to 20 % of the world population, with one-fifth of this group being over 80 years old. Due to the ageing population in the industrialized countries, the rate of disability among people with the capacity to travel is also increasing, adding to the demand for an accessible environment, transport and services – thereby adding to the market value of the accessible tourism segment (Rahman, 2005).

Accessibility is a central element of any responsible and sustainable tourism policy. It is both a human rights imperative, and an exceptional business opportunity. Above all, we must come to appreciate that accessible tourism does not only benefit persons with disabilities or special needs; it benefits us all (UNWTO, 2013). Accessibility refers to how easy it is for everybody to approach, enter and use buildings, outdoor areas and other facilities, independently, without the need for special arrangements. Providing information on accessibility and improving access benefits a wide range of people who want to travel, but who may find it difficult (Office for Official Publications of the European Communities, 2004).

The tourist service chain, however, begins with information about offers, events, destinations and the possibilities to get there. Accessible information, for example, means that the websites of tourism enterprises (including the transport sector) and destinations must be accessible also for blind and visually impaired users. To achieve better accessibility of the tourism sector would also prerequisite accessible public and private transport facilities and accessible buildings and attractions in destinations (Leidner, 2006; In Linderová, 2015a).

Persons with disabilities have special needs. So it is important to adapt for them (Linderová, 2015a) parking areas, communication tools, horizontal and vertical movements, accommodation and catering facilities, cultural activities, sport facilities, green spaces and natural environment.

It is important to adapt accommodation facilities for disabled visitors when we speak about accommodation facilities market. There should be good access to the building e.g. ramps and also special parking spaces with proper identification for vehicles of persons with reduced mobility close to the hotel. All car parks should have a minimum of one space designated for disabled drivers. Best practice is 6 % of barrier-free parking spaces, it means parking space at least 3.3 metres wide (Linderová, 2015a).

It is important to think about horizontal and vertical movements inside of the accommodation facilities. Horizontal movements mean elevators, vertical movements e.g. stairs. Stairs and other

barriers e.g. threshold should be signed. For disabled visitors are important also communication tools, e.g. the use of sign language, Braille, and augmentative and alternative way, adapted telephone, fax, internet.

Accessible accommodation should be as close as possible and on the ground floor where possible. A reasonable number of rooms in an accommodation establishment should be fully accessible to a person in a wheelchair without assistance (UNWTO, 2005). Such rooms should be designed in such a way as to allow all users to carry out the actions of moving, grasping, locating, and communicating easily and independently. This shall apply also to bathrooms and terraces if the room is so equipped (UNWTO, 2005).

A minimum transfer space for toilets, beds and seating is 750 mm. Best practice is 950 mm or wider. Height of controls for door handles, switches, lifts should be within the minimum range of 900 mm to 1,400 mm from the floor. Best practice is 850 mm to < 1,200 mm. A minimum area of circulation space for all rooms, WCs, bathrooms is 1,200 mm x 1,200 mm (or diameter 1,200 mm). Best practice is 1,800 mm x 1,800 mm (or diameter 1,800 mm). If a person with visual impairments is occupying a room alone, staff should offer to orientate the guest on the position of furniture and facilities in the accommodation (Linderová, 2015a).

To this end, the space and technical aids needed to allow any manoeuvre to be carried out easily and safely shall be taken into account. The needs of persons with impaired dexterity, blind persons, and deaf persons shall be taken into account in the design of all devices and actuators (UNWTO, 2005). Such rooms in an establishment should be fitted with alarm systems suitable for deaf visitors and a system of communication between the reception desk and the room that is suitable for such persons (UNWTO, 2005). A suitable telephone, alarm or other means of calling for help must be available. Corridors and passageways should be of a width to allow the passage of two wheelchairs so they are not blocked in normal traffic; otherwise, crossing zones should be provided (UNWTO, 2005).

Also hotel catering possibilities as restaurant, café, lobby bar should by adapted for disabled visitors as well as other services e.g. swimming pool, wellness centre, sauna or garden. Restaurants, cafés and bars in the hotel should provide accessible facilities which take into account ease of exterior access, furniture designed to enable their utilization by users in wheelchairs, bars at different heights, menus in Braille and with easily readable type, accessible bathrooms, etc. Such establishments should be clearly marked to make them easy to find (UNWTO, 2005).

For many people with disabilities affecting mobility, accommodation availability is critical to staying at a destination. Quite simply, if they cannot find barrier-free accommodation then they will not travel to the destination. One travel planning information issue is obtaining information about barrier-free accommodation. Many accommodation operators do not understand what accessible or barrier-free accommodation entails. In many cases, this involves accommodation operators representing their rooms as accessible or barrier-free, but people with disabilities find that the rooms are not suitable (Economic and Social Commission for Asia and the Pacific, 2003).

Barriers to accommodation occur in relation to the surrounding environment of the accommodation (location, proximity to services, public transport, parking and drop-offs), the reception, other facilities and services, and the rooms. The accommodation needs of disabled visitors on the individual, their disability and the level of their support needs (Economic and Social Commission for Asia and the Pacific, 2003).

Table 1: Barriers in accommodation facilities

Access and check-in	- lack of continuous pathways (from parking or drop off throughout all hotel facilities and to the room - reception counters are too high - door widths - circulation space in corridor
Room	- rooms are inappropriately located - no steps into rooms - door widths, door stops weight, D type door handles - circulation space in rooms - uncluttered furniture layout - cupboard height and reach - access to balconies - location of cupboards, fridge, TV, clock radio, telephone, ironing equipment, etc. - availability of telephone typewriters and visual signals for deaf people - provision of orientation for people with vision impairments, including blindness - table heights - bed heights, clearance under beds - switch and handle locations
Bathroom	- hobless roll in showers - hand held shower hose - lever taps - mirror location - hand basin positioning - space under the hand basin - need for adequate shower chair or bench - location of handrails - toilet height - positioning of the toilet (distance from the walls and front clearance)

Source: Economic and Social Commission for Asia and the Pacific. (2003), Barrier-free Tourism for people with disabilities in the Asian and Pacific Region, New York: United Nations.

Research design and methodology

The scientific goal of this paper is to detect the readiness of the accommodation facilities to the providing services for disabled visitors in Prague. We were interested in adapted accommodation facilities.

When searching for the possibilities for disabled visitors, we used primary and secondary (desk) research. Secondary research makes use of information previously researched for other purposes and publicly available. We focused on the documents dealing with barrier-free environment. We were interested in databases of accommodation facilities. Some information we gained from the information centres.

Primary research is a new research, carried out to answer specific issues or questions. It can involve questionnaires, surveys or interviews with individuals or small groups. Primary data were collected during the visit of accommodation facilities, which were not defined as strictly barrier-free. We used questionnaires and we contacted managers in accommodation facilities in three ways: face to face, over the phone or by e-mail. We also contacted municipality and regional office.

Results and discussion

Prague is the capital city of the Czech Republic and also the biggest city with 1,246,780 inhabitants. When speaking about economy level, Prague is the richest region with high life standard and the lowest unemployment.
Prague with its historical centre and monuments is 6th most visiting European city. In year 2000 Prague was the European Capital of Culture.

In the last years, Prague also pays attention to the barrier-free environment. Disabled visitors can there visit the Prague castle and the historical town with churches registered in UNESCO List of Cultural Heritage. It is possible to find there accessible accommodation facilities, adapted restaurants and cafés, suitable museums, galleries, sport facilities and also barrier-free transport.

In this article we were interested in accessible accommodation facilities. We have to say that number of accessible accommodation facilities in Prague increases but there are still not enough possibilities to stay for disabled visitors.

For the purpose of our research accessible accommodation facility means barrier-free access to the building and adapted room include suitable bathroom. Disabled visitors could use also accommodation facilities where is necessary staff or caregiver assistance e.g. access with one or two stairs, a close door etc.

In Prague there are located 621 accommodation facilities with 80.925 beds (2012 data). According to our analysis 114 from them are accessible, some of them with a little help of an assistant. The most full accessible accommodation facilities belong to the hotels in the First Class (46) and hotels in the Standard Class (31).

Table 2: Accessible accommodation facilities (AF) in Prague

Number of AF	Accessible AF	Hotel ***	Hotel ****	Hotel *****	Pension	Other	Share of AF
621	114	37	55	12	6	4	18,4 %

Source: Own research.

Majority of accommodation facilities has only one or two adapted rooms. To the accommodation facilities with more barrier-free rooms belong e.g. Ibis Praha Wenceslas Square***, Mövenpick Hotel Prague****, Top Hotel Praha & Congress Centre, Courtyard Marriott Prague Airport****, Hilton Prague*****, ILF***, Hotel U tří korunek***, Orea Hotel Pyramida****, Dorint Hotel Don Giovanni****.

A lack of information about accessible services is one of the biggest problems in the accommodation facilities in Prague. It is difficult to find information about adapted rooms, parking places etc. Some of accommodation facilities present accessible accommodation through web-portals, but a lot of hotels, hostels, guest houses do not inform about their accessibility. In many cases there is missing information about parking places, hotel restaurant, wellness etc. Majority of adapted accommodation facilities informs about adapted access or room, but more information are inaccessible.

Problem is also a lack of knowledge and ignorance. In many cases website informs about accessibility, but e.g. there is barrier-free access, but not barrier-free public toilet in the hotel hall, not adapted room or rooms are not usable for blind visitors etc. Also unqualified and unskilled staff is a problem. Hotel staff should to know how to behave to disabled visitor. In this area we see a big gap, which has to be reformed. We state that unqualified staff is problem not just in Prague but in other regions and towns of the Czech Republic.

Some of the hotels are also interested in blind and deaf visitors. In 23 hotels there are information boards and panels in Braille font and 26 hotels dispose of special equipment for deaf visitors e.g. light signalization for elevators or phones.

In Prague is also situated a local agency Accessible Prague for disabled visitors. They could find on its website information about barrier-free accommodation and catering facilities and also about monuments, museums, theatres and transport. The website offers a wide range of accommodation facilities, from Tourist class to Luxury Class. It states that a lot of accommodation facilities are situated in Prague historical centre near the Vltava River, which is easily accessible due to flat terrain. It is possible also to find some accommodation facilities in quiet residential locations.

Study limitations

It is significant to mention also about limitations of our research. We were interested in barrier-free accommodation facilities in Prague. The most important for us was accessibility for wheelchair users because they have the most exacting demands and requirements to the space. It is possible to clearly evaluate if accommodation facility is accessible for them or not. The accessibility for deaf visitors does not have clear parameters such as persons with physical disabilities.

In our research we used data from information offices, regional municipality and specialized websites. The problem is that not all barrier-free accommodation facilities present themselves on web-portals or through the information centres. The market also is developing, so we have to say that our results are not exhaustive and exact.

Conclusion

Disabled visitors are increasing market segment also due to ageing population. For accommodation facilities it is interesting the orientation for them, because these people are loyal customers and they often travel with personal assistant during the low season.

They consider as an important barrier-free access to the accommodation facilities, accessible room, suitable parking space, catering facilities etc. We state that in Prague there exist several possibilities to travel for disadvantaged persons.

Based on our research between years 2013 and 2015 we can state that Prague belongs to the region with highest share of barrier-free accommodation facilities. We assumed highest share in Prague but there are other region with higher share of accessible accommodation facilities e.g. Carlsbad.

Table 3: Share of barrier-free accommodation facilities in regions of the Czech Republic

Prague	Central Bohemia	South Bohemia	Hradec Králové	Pardubice	Moravian-Silesian	Pilsen
18.40	10.30	9.91	1.36	2.28	7.57	8.55
Carlsbad	Ústí nad Labem	Liberec	South Moravia	Vysočina	Olomouc	Zlín
20.10	22.00	22.00	8.70	11.30	11.70	16.30

Source: Own research.

We can say that the most significant failures in Prague are an unqualified staff, accommodation facilities with barrier-free access without suitable public toilets in the hotel hall, accessible rooms with bad spatial solutions, ignorance of requirements of blind and deaf visitors.

We highlight the importance of universal design and adequate approach of the staff. Universal design means the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design (UNWTO, 2013).

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Improving Environmental Sustainability in Freight Transport in Romania

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Abstract

Climate change represents a major issue for mankind as it directly affects its activity. One of the major activities that affect the amount of CO2 emissions is represented by transportation. Thus the purpose of this paper is to explore how CO2 emissions from transportation can be reduced. Therefore, the authors used the Engel Granger methodology in order to explore the long term relationship between the CO2 emissions and freight transportation; if data were not suitable for this kind of study, the authors have chosen to explore correlations. Next, environmental best practices within the transportation area in Romania have been analyzed, in order to have a clear diagnosis on the know-how gathered so far in reducing CO2 emissions from transportation. Finally authors' recommendations were stated.

Keywords: intermodal transport, freight transport, CO2 emissions

Introduction

Mobility is vital for both economy and quality of citizens' life. Road transport is recognized as being more flexible, cost-efficient, transparent and provides a good quality service (Dărăbanț, Ștefănescu & Crișan, 2012), European transport being at crossroad. Old challenges remain actual, but new ones also appear. It can be said that human activities such as intensive agriculture, industrial production and transportation could be nowadays (partly) responsible for climate change. The EU launched, with the agreement of the international community, a worldwide call concerning the drastic reduction in greenhouse gas emissions (GHG), in order to limit climate changes to less than 2 ° C. The achievement of this objective by the EU includes the reduction of emissions by 80-95% in 2050 compared to 1990 (European Commission, 2011).

The European Commission's analysis presented in "A Roadmap for moving to a competitive low carbon economy in 2050" shows that while in other sectors of the economy, further important reductions of emissions can be made, in the transportation sector a reduction in GHG emissions by at least 60% compared to 1990 is required until 2050. This will correspond to a reduction of 70% compared to the levels recorded in 2008 (European Commission, 2011).

This would mean that by 2030, the GHG emissions in the transport sector should be reduced by approximately 20% compared to the level recorded in 2008 (European Commission, 2011).

The first steps in this regard started since the 1st January 2007, date from which under the new legislation entered into force at that time, the permissible SOx level from fuels used in our country reduced from 150 mg / kg to 50 mg / kg in case of gasoline and 350 mg / kg to 50 mg / kg in case of gas oil (National Environmental Protection Agency, 2008).

The ways of achieving the GHG reduction levels would be implementing green logistics initiatives identified in the scientific literature (Tacken, Rodrigues & Mason, 2014).

Professor Alan C. McKinnon the Director of Logistics Research Centre at Heriot Watt University in Edinburgh, UK, in "Forecasting the carbon footprint of road freight transport in 2020" investigates the basic tendencies in logistics and supply chain management including the green logistics initiatives and the associated effects on the environment until 2020, based on the factors influencing the demand for freight transport services, fuel consumption and CO2 emissions related to trucks.

Professor Alan C. McKinnon argues that in order to achieve the growth limitation of the global average temperature below 2 ° C until 2100, the GHG emissions worldwide must be reduced by 50% until 2050.

These will require strong fuel pricing mechanisms than nowadays, as well as more stringent regulations for further reduction of carbon emissions.

Through the specific objectives of the Romanian National Strategy for Sustainable Development horizons 2013-2020-2030, on the six priority areas that integrate the sustainable development requirements, we find as second priority "Bringing the basic infrastructure to EU standards focusing on sustainable development and infrastructure means of transport by reducing environmental impact, promoting intermodal transport, improving traffic safety and the protection of critical infrastructure elements" (Romanian National Strategy for Sustainable Development Horizons 2013-2020-2030, 2015).

Also, in this document "the development of transport infrastructure with emphasis on rail, river and sea while maintaining a fleet of vehicles, including automobiles, physically and morally obsolete" is indicated among the main culprits for modifying the composition and ecological structure of Romania's natural capital.

However, it should be taken into account that the transfer of significant amounts of freight on short distances from road to rail or by intermodal transport could increase the transit time and the transportation costs by several times (Cutler, 2010).

Global warming and GHG emissions, such as carbon dioxide (CO2) lead in international climate change concerns. These emissions force and change the energy balance on earth and lead to a variety of climate problems (Corbett & Winebrake, 2010).

Figure 1 shows the share of CO2 emissions from economic activities in various fields. As can be seen, the transportation sector has a significant share in the total of CO_2 emissions in 2012, registering a value close to that generated by industrial processes. Also, considering the European level, Romania is a country with a very high level of CO_2 emissions in the transportation sector (Figure 2), it should make further efforts to meet the objectives of various environmental strategies.

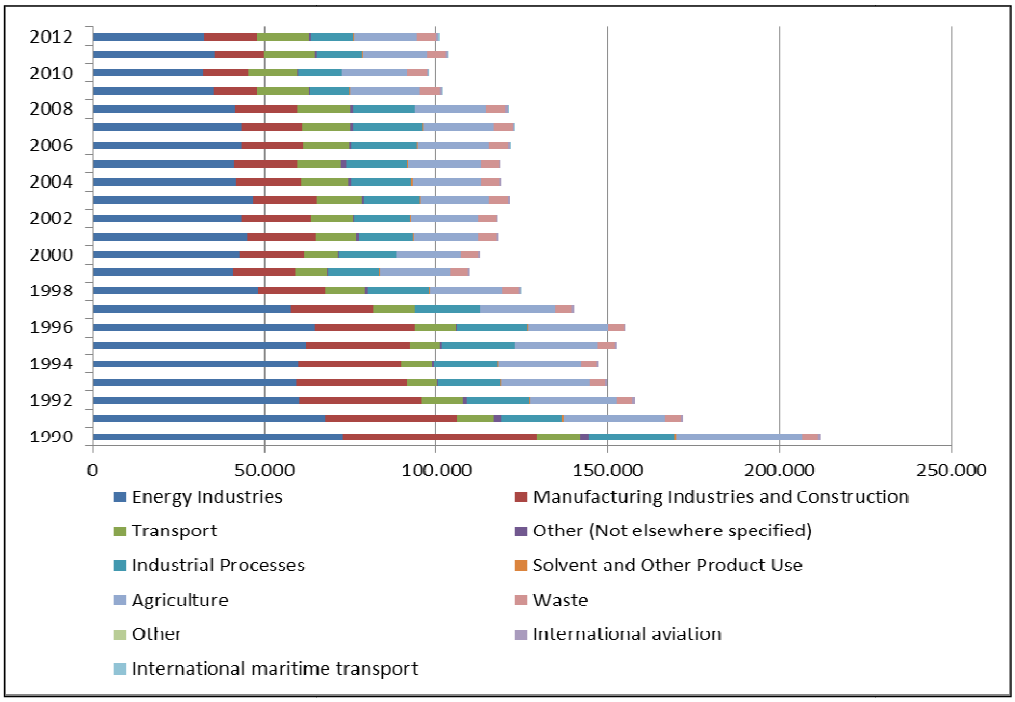

Figure 1: The share of CO_2 emissions from transport compared to other activities, data source: Eurostat databases

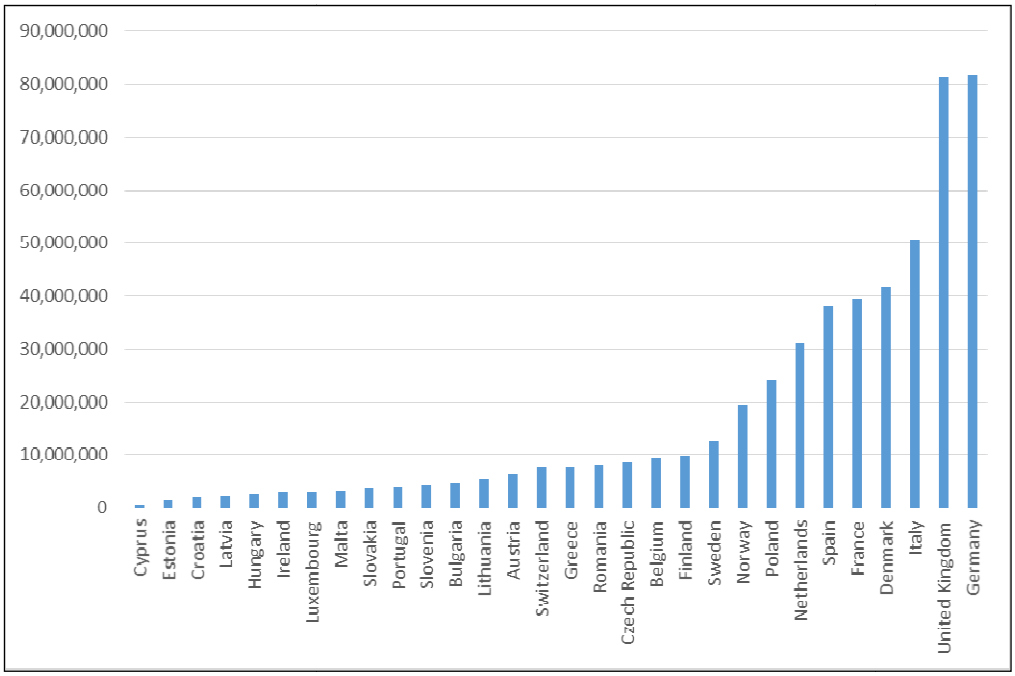

Figure 2: CO_2 emissions from transport (tonnes), data source: Eurostat databases

Therefore, the aim of this paper is to verify whether, beyond these figures from European countries, there is also a real interest for such an evolution of the intermodal mix in Romania.

In other words, if in the case of Romania there is a clear and stable correlation between the CO_2 emissions and the priority development of certain modes of transport (railway in particular).

If the answer is true, this means that the Romanian policy makers should study the leverages that could encourage the development of this priority modes, respecting at the same time the harmoniously intermodal mix. The purpose is to find possible solutions regarding the reduction of greenhouse gases and their effects.

There are many methods by which one can analyze the long-term dependency between CO2 emissions and the amount of transported goods, such as the combined cointegration test developed by Bayer C, proposed by Hancke C (Shahbaz, Khraief & Jemaa, 2015), or the available modeling tools to analyze the CO2 emissions from transport proposed in "Approaches and Techniques for Modelling CO2 emissions from Road transport" (Linton, Grant-Muller & Gale, 2015). However, the authors considered that in the case of Romania, the chosen calculation method is easier to apply and interpret for the existing time series.

Althought there is a long tradition of building large macroeconomic models with hundreds of equations and variables, recently, small models with only a handful of equations and variables have become more common (Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel, 2003). Thus, the authors chose to analyse the long term relationship between CO2 emissions and the amount of goods transported by road, railway and water throught the Engel-Granger framework, the most common and popular framework used in long run relationships analysis (Utkulu, 2012).

Chapter 3 illustrates the obtained results and their discussion (in particular that it has been found a long term relationship between the CO_2 emissions and the quantity of goods transported by rail in Romania). The last chapter presents the conclusions and suggests based on the literature review some possible lines of decision.

Methodology

The data used cover the 1990-2012 period in Romania. The CO_2 emissions have been gathered from the United Nations statistical database and the transportation related variables from the National Institute of Statistics TEMPO Online database.

In order to analyse the data series two methods have been used: the Engel-Granger two steps methodology and the Pearson coefficient. If the data series are non-stationary, then the Engel-Granger Methodology is suitable for the analysis, thus this has been employed; if the data series are stationary, then the Engel-Granger Methodology is not suitable for the analysis, thus the Pearson Coefficient has been employed. Both methods provide information on the relationship between the modal split of transports and the CO_2 emissions. Yet the first one verifies the existence of a long term relationship and the last one provides information on correlations.

Next a short description of the Engel-Granger Methodology, adapted from Lazăr (2011, p. 205-220) will be provided.

Firstly the series were tested for stationarity using the Augmented Dickey Fuller test.

The hypothesis of the test were:

$$H_0 = The\ data\ set\ has\ a\ unit\ root\ (is\ not\ stationary)$$

$$H_1 = The\ data\ set\ is\ stationary$$

The p-value set for the test is 0,05. The test was performed using the E-views package. If the p-value computed is lower than 0,05, then the null hypothesis is rejected, so the series are stationary;

Next the existence of a linear combination between the variable pairs was tested. The pairs were formed between the non stationary variables as follows: CO_2_emissions_vs_railway_transport, CO_2_emissions_vs_sea_transport, CO_2_emissions_vs_inland_waterways_transport.

A simple regression was calculated between these variable pairs.

The equations resulted were:

$$CO2\ emissions_i = \alpha * amount\ of\ goods\ transported\ by\ rail_i + \beta + r_{1i}$$

$$CO2\ emissions_i = \alpha * amount\ of\ goods\ transported\ by\ sea_i + \beta + r_{1i}$$

$$CO2\ emissions_i = \alpha * amount\ of\ goods\ transported\ by\ inland\ waterways_i + \beta + r_{1i}$$

The equations verify the influence of the modal split of transport on the CO_2 emissions. The resulted residual series were then tested using the Augmented Dickey Fuller test. If the respective residual series are stationary, one can conclude that there is a linear combination between the selected variable pairs; thus there is a long term relationship between them.

The lag chosen for implementing the Augmented Dickey-Fuller Test was 3, the maximum lag that the amount of data allows.

As the CO_2 emissions series was not stationary, in order to test the existence of a correlation between them and the quantity of goods transported by road (the case where the data series are stationary), the first difference was employed, in order to stationarize the time series.

The Pearson coefficient, employed when the Engel Granger methodology was not appropriate, was computed using the IBM SPSS 20 package. The p-value set for the test was 0,05.

If the calculated p-value was below 0,05, there was a significant correlation between the variables. Moreover, if the coefficient is positive, the correlation is direct; otherwise, the correlation is indirect.

Research results

Table 1 presents the results of the Augmented Dickey Fuller test, employed in order to test the series for stationarity. As one can observe, the series considering the CO_2 emissions, the quantity of goods transported by inland waterways, by sea and railways are not stationary at level, but are stationary in the first difference. The series considering the quantity of goods transported by road is stationary. The first set of series will be employed in the Engel-Granger methodology and the second one in the Pearson coefficient calculation.

Table 1: Augmented Dickey-Fuller test for the selected variables, source: designed by the author

Variable	Augmented Dickey-Fuller test P value of the equations' residuals and Equations' coefficients	P value Level	P value First difference
CO2 Emissions	Trend and intercept	0.1499	0.0003
	Intercept	0.9598	0.0000
	None	0.9886	0.0000
Railway_transport	Trend and intercept	0.1341	0.0152
	Intercept	0.3011	0.0026
	None	0.0840	0.0002
Sea_transport	Trend and intercept	0.6462	0.0102
	Intercept	0.5282	0.0026
	None	0.3252	0.0001
Inland_waterways_transport	Trend and intercept	0.1909	0.0013
	Intercept	0.7688	0.0002
	None	0.7730	0.0000
Road_transport	Trend and intercept	0.0000	0.0000
	Intercept	0.0000	0.0000
	None	0.0000	0.0000

Table 2 presents the results of the regressions performed between the pairs of non-stationary series: the Augmented Dickey Fuller test results for the residuals, the equation's coefficients and the p-value for the

coefficients' significance test. As one can observe, there is a negative long term relationship between the CO_2 emissions and the quantity of goods transported by railway.

A positive long term relationship could be observed only between the quantity of goods transported by sea and the CO_2 emissions. A similar relationship is registered between the quantity of goods transported by inland waterways and the CO_2 emissions.

Table 2: Augmented Dickey-Fuller test P value of the equations' residuals and Equations' coefficients using the selected variables, source: designed by the author

Equation name **(dependent variables stated first)**	**Augmented Dickey-Fuller test P value of the equation's residuals**			**Equation's Coefficient**
	Trend and intercept	Intercept	None	
CO_2_emissions_vs_railway_transport	0.1489	0.2171	0.0280	-0.0180
CO_2_emissions_vs_sea_transport	0.0034	0.3138	0.0472	0.0514
CO_2_emissions_vs_inland_waterways_transport	0.0382	0.0153	0.0009	0.1940

Next the authors calculated the correlation coefficient and the correspondent p-values. There is a significant correlation between the rhythm of CO_2 emissions and the rhythm of quantity of goods transported by road in Romania, which suggests that this mode, though indispensable, is less priority in the development of new intermodal mix.

Conclusions and recommandations

As indicated in the Romanian National Strategy for Sustainable Development as national objective for the 2030 time horizon the following will be necessary: "The alignment to the average performance of the EU's energy and climate change indicators; the fulfillment of the commitments regarding the reduction of GHG emissions and the implementation of some measures to adapt to climate changing effects, namely the promotion of a transport system that can facilitate the safe, fast and efficient movement of people and goods."

In accordance to what stated before, the functioning of the transport system should be ensured so that it meets the economic, social and environmental needs of society while reducing the unwanted environmental impact to the minimum.

Taking into account the outcome of the analysis of this paper, that between CO2 emissions and the amount of goods transported by rail there is a negative relationship on long term, it would be desirable for Romania to look for ways so that the freight transport to be done mainly using railways.

Given the current context, the main cause for the slow development of intermodal transport are the high costs charged by the main railway operator in the country and the relative rigidity of the intermodal transport system.

Despite all these potential drawbacks, one way to achieve the reduction levels of GHGs would be to implement EU standards for intermodal transport or for the combined transport through the development of logistics platforms in seaports and Danube ports, of multi-modal cargo platforms on international airports and on other airports specialized in goods operations. Another way can be the increase of the accessibility of rail transport in ports as well as multimodal logistics platforms at national border crossings, in order to reduce GHG emissions, ensuring the transit transport of freight vehicles by rail through Romania.

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Performance-Based Research Funding System at Higher Education Institutions

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Abstract

The funding practice of research today is allocated based on the real performance where it has become one of the major components of the funding mechanism in order to encourage R&D excellent. Research and development (R&D) is the basis of technology advancement for future developments in any field. The goal of research funding is clearly to finance the development of new ideas and technologies which include a wide spectrum of any research areas. The range covers all the research areas from the basic research in natural sciences, new technologies, information and communication technologies, environmentally friendly sustainable development, and research funding at Higher Education Institutions (HEIs) to support the transfer of the latest and recent innovation and technology.

Keywords: Research and development, funding, performance based grant

1. Introduction

In recent decades, universities research funding has changed in many countries. Despite the fact, financial support from the federal government is the biggest portion for research funding and will allow public universities to keep low tuition fees for students and thus can attract higher students' enrolment. Accordingly, Kuo and Ho (2008) added that government funding for public universities will help to train and guide postgraduate and professional students to produce innovation in research. In Malaysia, in order to enhance innovations and research development progress, government has provided financial support to the public universities. As highlighted in Malaysian Budget Speech 2013, RM 600 million was allocated to five research universities in Malaysia for the purpose.

However, in past few years, the trends have shown that there were decreasing in government financial support to the public universities. According to Auranen and Nieminen (2010), the shares of direct government funding for public universities has decreased gradually. Results from previous studies have shown that most public universities in many countries have faced declining trend of government funds to finance their operating expenses and research (Faridah, 2014). The shift into sharing the cost of funding higher educational sector

between the stakeholders comprises of the government, parents, students and institutions/philanthropists have been accepted and practiced in a number of countries. The method of totally dependent upon financial support from the government or public fund deem not feasible in the light of the global phenomenon of an increase cost of higher-education provision, and the diminution of expenditure allocated to the sector (Asharaf, 2013).

As pointed out by Malaysian Prime Minister, Datuk Seri Najib Tun Abdul Razak in 2016 budget speech, RM 250 million will be allocate for Ministry of Higher Education (MoHE) for their operation activities. The allocation shows decreasing about 15 percent compared to 2015 budget speech (Bank Negara Malaysia, 2015). Due to the decreasing amount of funds, public universities need to find other alternatives to find funding sources includes of research funding sources. According to Jongbloed (2008), a lot of universities in US and Europe looking at performance-based funding mechanism and the mechanism will enable universities to generate external income for their entrepreneurs' activities. In Malaysia, the government plans to introduce performance-based research funding with the aim to make public universities to become more competitive in their efforts to get external funding as a quality benchmark in research programmes (Ahmad and Farley, 2012).

Therefore, the current situation clearly demonstrates that funding of higher education in Malaysia shows the challenges in the provision of public funds to maintain the increase in operating costs and subsidize public university loan scheme to the student.

2. Research Funding Sources Categories

Research funding is divided into two groups which is commercial and non-commercial. For the commercial funding, the sources of funds come from the industrial and private companies which the research may covers the areas that needed by the industries for their technology advancement from time to time and specifically for the business purposes. In view of non-commercial categories, the funds normally come from the government in each countries and also known as public funding. The funds also may come from any research councils, charities unity or any internal scheme if any.

According to Faridah (2014), for non-commercial categories or known as public funding, it can divided into three categories; (1) government funds; (2) funds from private business entities; and (3) funds from other sources [funds received from foreign-based organizations and corporations and the internally-generated funds]. Further, Faridah (2014) added that government funds have contributed more than 60 percent of the total funds required by the universities. Refer to previous research, the research funding sources found similar with research conducted by Ahmad and Farley (2013) and Hagedoorn et. al (2001) that found out research universities will dependant largely on government funding for their operation activities than other sources.

Strehl, Reisinger and Kalatschan (2007) on their study of funding systems and their effects on higher education systems have summarise the overall effects of funding system in supporting the achievement of university goals and their strategic ways as follows:

i. The new funding system leads institutions behaviour in order to achieve desired goals;
ii. The proposed strategy aims at refining and providing institutions greater focus on improving the quality of teaching and research;
iii. The intention to achieve changes at greater degrees in a new era and knowledge- based; and
iv. With the complex challenges faced by institutions, implementation of new management instruments are seen as major overall goals and challenges to achieve the main university goals.

Funding mechanism and their impact on research and teaching however have shown different implications and effect. For the research universities, the key indicators of performance are the ability of the institutions to generate revenues from all sources. Therefore the funding research strategy is desired objectives for the research university (Litwin 2006). Therefore, funding system of higher education has an intended and unintended effect on the basic core tasks teaching and research in institutions (Tammi 2009). This effect has been summarised by Strehl, Reisinger and Kalatschan (2007) in their study on funding system and their effects on higher education systems. These includes as follows:

i. Positive effects of funding

- Greater autonomy, performance, and competition;
- Increase the level of effectiveness, efficiency, and transparent of HEIs;

- Increase the need to more internationalisation;
- Improved the quality services;
- Innovative in develop curricula;
- Enhanced better cooperation with other institutions;
- The attention to be more on customer orientation;
- Flexibility in budget; and
- Provide incentive for development and change.

ii. Negative effects of funding

- Reduce mix of research and teaching;
- Elimination of studies presently not in demand;
- Reduce incentives to do basic research;
- Negative steering effect through indicators in formulas; and
- Lesser quality of teaching and research

2.1 Definition of Research

In general, a research study is conducted to collect and analyse information for the purpose of understanding of a certain topic or any issue. According to Ellis and Levy (2008), research can contribute to a body of knowledge in four ways; (1) Establish cause and effect relationship between the study variables; (2) Make the assessment of an approach to deal with any problems; (3) In-depth study of the effectiveness of a new approach and (4) Develop a predictive model in the approach to solve problem that have been identified.

According to Tina (2009), research definition in the lens of higher education system is important because measuring research quality is a complex process and need deep understanding knowledge-based in each field involved. In line with PBRF concept, research can be seen as an independent in a way of long-term activity conducted by people with specialist knowledge about the theories, methods and information concerning their field of enquiry. Here, the research findings must be open to scrutiny and formal evaluation by others in the field, and this may be achieved through publication (Shin, 2009).

Changes in educational systems have lead many countries to restructure their resources to finance higher education and ensure it aligns with overall government strategic planning (Johnstone 1998), in order to compete in the competitive global environment. As a result, almost all countries today rely on large scale government funding to improve the quality of higher education (Roger 1995).

3. Overview of Performance-Based Research Fund

The PBRF is intends to increase the average quality of research, ensure that research continues to support degree and postgraduate teaching, ensure that funding is available for postgraduate students and new researchers, and to improve the quality of information on research outputs (PBRF Assessment Report, 2012).

In today, challenging environment, the cost of providing HE services is very costly. As per today, lots of countries in the worlds have come out with the funding reform to funding HEIs. To create more transparent funding system, the move to implement performance-based competitive funding mechanism is positive steps to improve the accountability and of HEIs.

3.1 Background to the Performance-Based Research Fund

In recent years, most of government are interested in performance based funding in the research institutions. As pointed out by Ahmad, Farley and Naidoo (2012), changes in the education system have caused many countries to restructure their resources in funding higher education institutions and to ensure that it is consistent with the government's overall objectives. The results from government decision in funding reforms have influences the decision of public funding, the universities development strategies and the academic's incentives and employment prospects.

In line with the reformations, performance-based research fund [PBRF] is one of novelties that have been introduced (Diana, 2011). In New Zealand, the PBRF processes have produced evaluations of HEIs based on the assessment by expert panels of the research portfolios submitted by individual academics. The outcomes and

the overall process have a very significant impact on the incentives faced by the academics, research outputs and the staffing of New Zealand's HEIs.

4. Conclusion

As stated before, PBRF is a new reformation of research assessment funding model designed by Ministry of Education in New Zealand. Nationally, various countries have introduced PBRF models in their HEIs for research activities; however it were designed differently according to the needs of each country (Siamah, 2009). UK was the the first country introduced the performance research funding system called Regular Research Assessment Exercises (RAEs) by the UK funding council in the mid-1980s. RAE described as an 'ex post evaluation' that based on 'informed peer preview' which it provides an assessment of the quality of academic units in all subjects where research was conducted, and these assessments are used in their funding determination (Guena and Martin, 2003). Furthermore, according to Hare (2002), the UK RAE model is version of PBRF model with longest track record since it were evaluated each 5 years and the latest, The British Government announced to replace RAE after 2008 with new developed system – the Research Excellence Framework (REF)- for the funding of research assessment.

In Australia, the research funding model known as Research Quality Framework (RQF) that launched in 2004, and further reviewed to a new system called Excellence in Research for Australia (ERA) in late 2007, both system defined as a framework model for assessing research quality and their impact, ensure that public funding has been invested in research field that will provide benefits to the community (Anderson, 1999). Further, Anderson (2009) added that RQF is to bring the public funding of research in line with government policy for funding determination by the results achieved. As used in UK and Australia, New Zealand is the country that the most recent country developed the system into their tertiary education called Performance Research Fund. PBRF is a funding process which assessing the research performance and the funding determination will be on the basis of their performance.

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Mathematical Models for Optimization of Tariffs in Risky Types of Insurance

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Abstract

We propose a model to calculate optimal tariff rate taking into consideration the correlation between the intensity of customer flow and tariff size. Two models were considered: the tariff rate depends on insurance sum and the tariff rate does not depend on insurance sum. Implementation of developed models will enable insurance companies to conduct competitive tariff policy.

Keywords: insurance, risk-related insurance types, tariff, tariff rate, optimal tariff rate. loss, insurance benefit.

Introduction

Insurance Companies In Their Activity Shall Take Into Consideration The Laws Of Market Economy Which Imply Competition And Fight For A Market Place. Competitive Insurance Market Affects Company Ability To Successfully Attract New Customers And Retain Existing Ones By Reducing Tariff Rates. Practically, The Lower The Tariff Rate Is, The More Attractive The Company Is. Accurate Tariff Calculation Has An Influence On Successful Performance Of A Company.

One of the major problems of an insurer is to calculate insurance costs for a particular property, particularly, to determine initial cost and the cost of insurance service. All calculations are based on insurance tariffs and tariff rates. Thus, the tariff has to be as correct as possible in relation to loss coverage per insured person or per exposure unit.

If a tariff rate reflects probable loss precisely, the loss is accurately allocated between insured people. Tariff rate also determines responsibility of an insured person. In other words, insurance tariff is a criterion to state insurance fund which guarantees profitability of insurance activity. An insurance company's main function is to make a profit and an insurer does his best to find an optimal solution to increase insurance responsibility and to minimize tariffs. Reasonable tariff rates ensure financial strength of insurance operations (balancing costs and revenues or raising revenues and cutting costs) and withdrawal of revenue fraction in the form of insurance payment which is acceptable for an insured person (Landsman Z., 2001., Washington S., 2011.). Consequently, scientifically calculated insurance tariffs make it possible to determine the optimal size of an insurance fund as a necessary condition for successful insurance business development (Paefgen J., 2013., Denuit M., 2013.).

This paper is aimed at calculation of optimal tariff rate for property insurance taking into consideration the dependence of its rate on the number of customers (Train K.E., 2003., Dhaene J., 2013., Diers D., 2013.).

Insurance model

For instance, a client wants to ensure his property for the sum *S*. Due to the fact that a client can choose between different amounts of insured sums, *S* is the random variable with the probability coefficient $p_s(S)$. A client has to pay for services provided by insurance company (the sum $T(S)S$ where $T(S)$ is a tariff rate which depends on the random variable).

Let us assume that probability of loss is *q*. In this case damage size equals *X*, and we may expect that the loss variable is random. Thus, the variable *X* is random as well, with the probability coefficient $p_x(x)$.Owing to the fact, that a client insured his property for the sum *S*, the following model may be used for insurance benefit variable (without franchise):

$$\mathrm{Y} = \begin{cases} \mathrm{X}, & if\ \mathrm{X} \prec S, \\ S, & if\ \mathrm{X} \geq S. \end{cases} \qquad (1)$$

Therefore, probability coefficient $\mathrm{P}_y(y)$ of the random variable *Y* is:

$$\mathrm{P}_y(y) = P_x(y) + \delta(y - S)\int_S^{\infty} P_x(x)\,dx, \qquad 0 \leq y \leq S \qquad (2)$$

Thus, conditional expectation of the damage compensation variable *Y* for fixed *S* equals:

$$\mathrm{M}\{\mathrm{Y}|S\} = \int_0^S x p_x(x)dx + S\int_S^{\infty} p_x(x)dx, \qquad (3)$$

and the expectation of loss payment variable equals:

$$\mathrm{M}\{\mathrm{Y}\} = \bar{\mathrm{Y}} = \int_0^{\infty} \mathrm{M}\{\mathrm{Y}|S\} p_s(S)dS\,. \qquad (4)$$

Fixed tariff rate

Tariff rate is the price an insurance company charges for its services, it is the cost of insurance coverage. Tariff rates make it possible to calculate insurance payments paid by insured people and the amount of payment (premium) taking into consideration total insurance sum. Calculating insurance tariffs is important to determine probable amount of damage per each insured person or per exposure unit (Varian H., 1988.). Thus, the tariff has to be calculated as accurate as possible so that payment amount would be enough to cover losses of an insured person taking into account prescribed terms of insurance contract. If a tariff rate reflects probable loss precisely, the loss is accurately allocated between insured people (Dutta J., 2002.). Tariff rates cover a one year period and are calculated and approved annually.

Calculating revenue per customer

Let us have a closer look at the case when the tariff rate $T(S)$ does not depend on the variable *S* ,it is constant. Then, revenue per customer equals $\Pi = TS - IY - \Delta$, where *I* is an indicator of loss occurrence. Thus:

$$\mathrm{I} = \begin{cases} 1, & \text{if the loss occurred,} \\ 0, & \text{if the loss did not occur,} \end{cases}$$

and Δ – customer service costs (cost per customer).

Let us find probabilistic characteristics of the variable Π. Generalizing we get:

$$\mathrm{M}\{\Pi\} = \mathrm{T}\bar{S} - q\bar{\mathrm{Y}} - \Delta\,, \qquad (5)$$

where $\bar{S} = M\{S\}$. Then, if Δ=0 (calculating variance, we do not take into consideration Δ, because it is constant). Thus, we have: $\Pi^2 = T^2S^2 + IY^2 - 2TSIY$, and in this case

$$\mathrm{M}\{\Pi^2\} = \mathrm{T}^2\mathrm{M}\{S^2\} + q\int_0^\infty \mathrm{M}\{\mathrm{Y}^2|S\}p_s\{S\}dS - 2q\mathrm{T}\int_0^\infty S\mathrm{M}\{\mathrm{Y}|S\}p_s\{S\}dS,$$

where

$$\mathrm{M}\{\mathrm{Y}^2|S\} = \int_0^S x^2 p_x(x)dx + S^2\int_S^\infty p_x(x)dx.$$

Consequently, we can calculate the profit variance per customer:

$$D\{\Pi\} = \mathrm{T}^2 D\{S\} - 2q\mathrm{T}\,\mathrm{cov}(\mathrm{Y},S) + q\int_0^\infty \mathrm{M}\{\mathrm{Y}^2|S\}p_s(S)dS - q^2\bar{\mathrm{Y}}^2, \quad (6)$$

where

$$\mathrm{cov}(\mathrm{Y},S) = \int_0^\infty \mathrm{MM}\{\mathrm{Y}|S\}p_s(S)dS - \bar{\mathrm{Y}}\bar{S}.$$

Calculation of insurance portfolio return and determination of optimal tariff rate

Let us assume that insurance field (the maximum number of customers who buy insurance) equals N_0. In this case a client may go to a particular company to buy insurance with a probability $\pi(T)$ and this probability certainly depends on tariff rate T and it is monotonically decreasing if T is increasing (ZhiYi Lu, LePing Liu, etc. 2012., Panjer H.H., 1992.).

Let us assume that the total number of customers who wanted to buy insurance is N. The following formula may be used to calculate the return of insurance portfolio.

$$\Pi_\Sigma = \sum_{i=1}^{\mathrm{N}} \Pi_i,$$

where Π_i –the return of i's customer. Thus:

$$\mathrm{M}\{\Pi_\Sigma|\mathrm{N}\} = \mathrm{N}(\mathrm{T}\bar{S} - q\bar{\mathrm{Y}} - \Delta), \quad \mathrm{M}\{\Pi_\Sigma\} = \mathrm{N}_0\pi(\mathrm{T})(\mathrm{T}\bar{S} - q\bar{\mathrm{Y}} - \Delta), \quad (7)$$

as $\mathrm{M}\{N\} = N0\ \pi(T)$. If we want to maximize our profit, we have to choose the tariff rate taking into consideration that:

$$\mathrm{N}_0\pi(\mathrm{T})(\mathrm{T}\bar{S} - q\bar{\mathrm{Y}} - \Delta) \Rightarrow \max_{\mathrm{T}} \quad (8)$$

If we set the T-derivative equal to zero, we can determine optimal tariff rate according to the following principle.

$$\mathrm{T} + \frac{\pi(\mathrm{T})}{\pi'(\mathrm{T})} = \frac{q\bar{\mathrm{Y}} + \Delta}{\bar{S}}. \quad (9)$$

To solve the equation we should know the dependence $\pi(T)$ which can be determined based on econometric measurements. Let us have a closer look at illustrative example when $\pi(T) = \exp(-T/\kappa)$. Then, equation (9) gives:

$$T = \frac{q\bar{Y} + \Delta}{\bar{S}} + \kappa . \qquad (10)$$

Ruin probability

Determining the probability of ruin and time to ruin are important problems in classical risk theory. The classical risk model (dynamic model) is widely studied in the actuarial literature. Possibility to sign an insurance contract at a particular point in time creating a random process is considered in the framework of this theory. Every contract has its duration and losses may occur within the contract period. Thus, major cash outflows affect the operations of an insurance company when we consider claims. To calculate ruin probability of an insurance company, we should know the distribution law of the amount of payments to insured people. It is possible to develop an analytic formula of ruin probability in some particular cases (for instance, when claim payments have exponential distributions). For other types of distributions ruin theory uses different methods of evaluation which are developed taking into consideration certain restrictions (Kudryavtsev A., 2009., Yang Yang, 2011, 2012.). Thus, a well-known Cramér–Lundberg approximation does not exist for payments that fall under lognormal distribution law. These models shall be analyzed applying simulation modeling.

Let us assume that company ruin is the event $\Pi\Sigma < 0$ and the probability $P\{\Pi\Sigma < 0\} = Pd$ of this event is called company ruin probability. Let us calculate this variable.

To calculate this variable, we have to calculate the dispersion of the variable Π_Σ. We have:

$$\Pi_\Sigma^2 = \sum_{i=1}^{N} \Pi_i^2 + \sum_{i \neq j} \Pi_i \Pi_j .$$

Customers are independent. We can denote it as follows:

$$M\left\{ \Pi_\Sigma^2 \middle| N \right\} = NM\left\{\Pi^2\right\} + N(N-1)M\{\Pi\}^2 .$$

Generalizing N we get:

$$M\left\{\Pi_\Sigma^2\right\} = M\{N\}M\left\{\Pi^2\right\} +$$

$$\left(M\left\{N^2\right\} - M\{N\}^2\right) M\{\Pi\}^2$$

Calculating $M\{\Pi_\Sigma\}^2$ and taking into consideration the properties of binomial probability distribution, we have:

$$D\{\Pi_\Sigma\} = N_0 \left\{ \begin{matrix} \pi(T) D\{\Pi\} + \pi(T) \\ (1 - \pi(T)) M\{\Pi\}^2 \end{matrix} \right\} . \qquad (11)$$

To calculate P_d let us denote that at larger $N_0\pi(T)$ due to central limit theorem, the variable Π_Σ can be considered as the normal random variable.

Let us assume that x is a normal random variable with $M\{x\} = a$ and $D\{x\} = \sigma^2$. In this case:

$$P\{x < 0\} = \int_{-\infty}^{0} \frac{1}{\sqrt{2\pi\sigma}} \exp\left(-\frac{(x-a)^2}{2\sigma^2} \right) dx =$$

,

$$\frac{1}{\sqrt{2\pi}} \int_{-\infty}^{-a/\sigma} \exp\left(-\frac{t^2}{2} \right) dt = \Phi\left(-\frac{a}{\sigma} \right)$$

where $\Phi(-)$ is Laplace's function. Ruin probability in this case:

$$P_d = \Phi\left(-\frac{M\{\Pi_\Sigma\}}{\sqrt{D\{\Pi_\Sigma\}}} \right), \qquad (12)$$

where $M\{\Pi_\Sigma\}$ and $D\{\Pi_\Sigma\}$ are calculated by using the formulas (7) and (11).

Variable tariff rate

Calculating revenue per customer

Let us assume that the tariff rate is the function of S and J is an indicator of an event (whether a potential customer signed the insurance contract or not). It looks as follows:

$$J = \begin{cases} 1, & \text{if a customer signed insurance contract,} \\ 0, & \text{if a customer did not sign insurance contract.} \end{cases}$$

In this case the probability of $J=1$ equals $\pi(\mathrm{T}(S))$.

Accordingly, revenue per potential customer can be calculated by the following formula:

$$\Pi = J\left(\mathrm{T}(S)S - \mathrm{IY} - \Delta\right). \qquad (13)$$

Probabilistic characteristics of this variable can be found. We have:

$$\mathrm{M}\{\Pi|S\} = \pi\left(\mathrm{T}(S)\right)\left(\mathrm{T}(S)S - qM\{\mathrm{Y}|S\} - \Delta\right),$$

having generalized S we get,

$$\mathrm{M}\{\Pi\} = \int_0^\infty \pi\left(\mathrm{T}(S)\right)\left(\mathrm{T}(S)S - q\mathrm{M}\{\mathrm{Y}|S\} - \Delta\right) p_s(S)\,dS \qquad (14)$$

Then,

$$\Pi^2 = J\begin{pmatrix} \mathrm{T}^2(S)S^2 + \mathrm{IY}^2 + \Delta^2 \\ -2\mathrm{T}(S)S\mathrm{IY} - 2\mathrm{T}(S)S\Delta + 2\mathrm{IY}\Delta \end{pmatrix},$$

Thus,

$$\mathrm{M}\{\Pi^2|S\} = \pi\left(\mathrm{T}(S)\right)(\mathrm{T}^2(S)S^2 + q\mathrm{M}\{\mathrm{Y}^2|S\} + \Delta^2 -$$

$$-2q\mathrm{T}(S)S\mathrm{M}\{\mathrm{Y}|S\} - 2\mathrm{T}(S)S\Delta + 2q\mathrm{M}\{\mathrm{Y}|S\}\Delta)$$

Generalizing S we get:

$$\mathrm{M}\{\Pi^2\} = \int_0^\infty \pi\left(\mathrm{T}(S)\right)\left[\mathrm{T}^2(S)S^2 + q\mathrm{M}\{\mathrm{Y}^2|S\} + \Delta^2 -\right.$$

$$\left. -2q\mathrm{T}(S)S\mathrm{M}\{\mathrm{Y}|S\} - 2\mathrm{T}(S)S\Delta + 2q\mathrm{M}\{\mathrm{Y}|S\}\Delta\right] p_s(S)\,dS \qquad (15)$$

and $D\{\Pi\} = \mathrm{M}\{\Pi^2\} - \mathrm{M}\{\Pi\}^2$.

Calculation of insurance portfolio return and determination of optimal tariff rate

Let us assume that insurance field (the maximum number of customers who buy insurance) equals N_0. In this case company profit can be determined in the following formula:

$$\Pi_\Sigma = \sum_{i=1}^{N0} \Pi_i, \qquad (16)$$

where Π_i – the return of i's customer. Thus:

$$\mathrm{M}\{\Pi_\Sigma\} = \mathrm{N}_0 \mathrm{M}\{\Pi\} =$$

$$= \mathrm{N}_0 \int_0^\infty \pi\big(\mathrm{T}(S)\big)\big(\mathrm{T}(S)S - q\mathrm{M}\{\mathrm{Y}|S\} - \Delta\big) p_s(S)\, dS \quad , \quad (17)$$

and the problem of determination of optimal tariff rate reduces to the problem:

$$\int_0^\infty \pi\big(\mathrm{T}(S)\big)\big(\mathrm{T}(S)S - q\mathrm{M}\{\mathrm{Y}|S\} - \Delta\big) p_s(S)\, dS \Rightarrow \max_{\mathrm{T}(S)} \quad . \quad (18)$$

Accordingly, it reduces to the problem:

$$\pi\big(\mathrm{T}(S)\big)\big(\mathrm{T}(S)S - q\mathrm{M}\{\mathrm{Y}|S\} - \Delta\big) \Rightarrow \max_{\mathrm{T}(S)} \quad . \quad (19)$$

If we set the $T(S)$ derivative of the left side (19) equal to zero, we obtain the equation that determines optimal tariff rate.

$$\mathrm{T} + \frac{\pi(\mathrm{T})}{\pi'(\mathrm{T})} = \frac{q\mathrm{M}\{\mathrm{Y}|S\} + \Delta}{S}, \quad (20)$$

In a particular case $\pi(\mathrm{T}) = \exp(-\mathrm{T}/\kappa)$ we get:

$$\mathrm{T}(S) = \frac{q\mathrm{M}\{\mathrm{Y}|S\} + \Delta}{S} + \kappa, \quad (21)$$

it can be defined as optimal tariff rate.

This relation can now be indicated as follows:

$$\mathrm{T}(S)S = q\mathrm{M}\{\mathrm{Y}|S\} + \Delta + \kappa S \quad (22)$$

we now can give clear economic interpretation of this relation: the amount of money an insured person must pay for services provided by an insurance company consists of three parts:

1. Mathematical expectation of loss coverage $qM\{Y/S\};$
2. customer service costs (cost per customer Δ);
3. «risk fees» in the amount of κS.

Ruin probability

As mentioned above, ruin probability is (Albrecht P., 1983.):

$$\mathrm{P}_d = \Phi\left(-\frac{\mathrm{M}\{\Pi_\Sigma\}}{\sqrt{D\{\Pi_\Sigma\}}}\right), \quad (23)$$

but $\mathrm{M}\{\Pi_\Sigma\}$ и $D\{\Pi_\Sigma\}$ shall be calculated by the following formulas:

$\mathrm{M}\{\Pi_\Sigma\} = \mathrm{N}_0 \mathrm{M}\{\Pi\}$ and

$D\{\Pi_\Sigma\} = \mathrm{N}_0 D\{\Pi\}$.

Conclusion

There have been few published research papers which put advanced theories into practical outcomes. However, these studies are in increasingly high demand. Implementation of developed models will enable insurance companies to conduct competitive tariff policy.

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Forecasting demand of specialists with higher education for Russian economy

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Abstract

This paper presents the study of the current situation in the labor market in Russia in respect to the level of education of the employed population. The study is based on materials of Russian Federal State Statistics Service. The dynamics of the number of students in professional education institutions in the period of 1991 – 2013 has been analyzed. Dynamic analysis of data on employees with higher education in the Russian economy for the period 2000 – 2014 was carried out. Based on the information on employment and real GDP, a forecast of future demand for specialists with higher education and real GDP for the period 2015 – 2025 was generated.

Keywords: labor market, forecasting, demand, specialists with higher education;

Introduction

In the 2000s, labor market in Russia has undergone major changes. One of the most interesting aspects of it is the ratio between supply and demand of highly skilled labor. Such authors as Schultz (1993), Hanushek (2013), Pelinescu (2015) reported that, there is a link between human capital and economic development. Also Gary S. Becker (1993), Kapelyushnikov R., Kuznetsov A., Kuznetsova O. (2012), Oppedisano V. (2014) mentioned that there is a strong relationship between education and labor market. Therefore, the question about the demand in workers with high qualification stands important in economy. Households invest in higher education because they hope to get a significant revenue growth due to better education. Companies tend to hire employees with better professional skills because generally they have higher productivity.

If demand exceeds supply, jobs with the high requirement to qualification are taken by low-skilled employees. In this case, labor productivity will decrease, and employee reward will exceed the efforts. If supply exceeds demand, highly skilled employees get jobs which don't require high skills. In this case, professional knowledge and skills remain unclaimed and efforts and investments in education don't pay off. Deviations from balance in labor market lead to considerable economic and social costs, both at the level of society, and at the individual level. Therefore, the level demand for high skilled employees for economy is very important. It also facilitates the development of national educational policy.

This paper presents the study of Russian economy demand for employees with higher education.

Analysis of current situation in the Russian economy

Supply of employees with higher education characterizes the current situation in the labor market. Table 1 presents data on the level of education among employees in 2014. (Russia in figures, 2015)

Almost a third of employees have higher education, three-quarters of the employees have a tertiary education. The share of low-educated employees is only 3.7%. Russian economy has a shortage of unskilled labor, which leads to employees with "excessive education" taking job positions below their professional level.

The structure of the educated labor force is characterized by significant sex asymmetry. Leaders are women, men are 5.6% behind. Women usually have higher motivation to pursue higher education. It is much easier for women with higher education to get a job. When it is easier for men to get a job and receive a decent salary without having higher education, especially at jobs which require physical labor.

Table 1: Distribution of the workers based on education level in 2014, in %

Employed in economy – total	100	100	100
Including workers who have education:	all	men	women
Higher education	32.2	28.5	36.1
Secondary professional education – total	44.8	45.2	44.5
- mid-level professionals	25.8	21.8	30.1
- skilled workers, employees	19	23.4	14.4
Secondary general education	19.2	21.8	16.5
Basic general education	3.5	4.2	2.7
Without basic general education	0.2	0.3	0.2

Data on the number of students provides insight into the dynamics of the potential labor supply in the future (Figure 1). The number of students enrolled in training programs for skilled workers and employees has been steadily falling. In the period 1991 – 2013 it fell by 2.3 times.

Different picture is presented by data on the number of students going through training programs for mid-level and higher education. The growth rate of the number of students on the programs of higher education is greater than the rate of growth in the number of students on training for mid-level professionals.

The number of students in higher education institutions in 2013 in comparison to 1991 increased twice from 2.76 million people to 5.65 million people whereas the number of students in training programs for mid-level professionals for the same period fell by about 2%. The maximum number of students in training programs for mid-level professionals was reached in

2004 and was 2.6 million people. And the greatest number of students in higher education institutions was in 2009 – 7.5 million people.

Data show that supply of skilled workers and employees was constantly decreasing, while the supply of mid-level and higher education was growing. Partially this dynamic can be explained by demographic situation. Studying in technical school for a lot of people of that period was the intermediate stage before study in higher education institution.

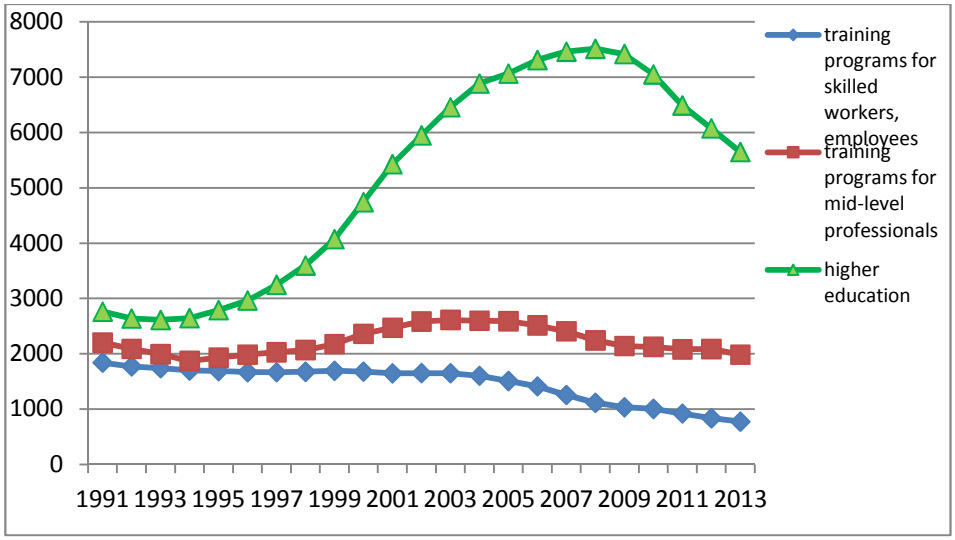

Fig 1. Changes in the number of students (in thousands of people) (Chart is built by authors and based on data of Federal State Statistics Service of Russia, 2014)

But significant decline of the number of students in training programs for skilled workers and employees is connected with falling of popularity of such kind of education, whereas attractiveness of the higher education sharply increased. People with higher education get considerable "reward" for it. So, according to the data provided by Russian Longitudinal Monitoring Survey (HSE) in the 2000 decade it fluctuated within 50-70%, and according to the data provided by National Survey of Household Welfare and Participation in Social Programs – 85%, according to the survey of wages by profession – 73-76%. For secondary professional education "reward" is much less – about 15% (according to survey of wages by profession). (Kapelyushnikov R, Gimpelson V. Russian worker: education, profession, qualification, 2011)

Forecasting demand for employees with higher education

Dynamic analysis of data provided by Federal State Statistics Service (Statistical Yearbook of Russia. 2010, 2014) generated following indicators: absolute growth, growth rate and rate of increase (table 2).

The results show that the proportion of employed and the number of employees with higher education have positive dynamics during the period 2000 – 2014. The greatest decrease in the number of employed with a higher education in the Russian economy, was in 2000-2001, -573,1

thousand people (-3,6%), and also in 2008-2009, -1372,2 thousand people (-6,6%). The greatest increase in the number of employed with a higher education was in 2006-2007, +1783,5 thousand people (9,4%).

The 2009 year "failure" is connected with decrease of the total number of employed due to crises in the national economy. In general, for the whole period under consideration the number of employed with higher education in the Russian Federation, increased approximately by 1,5 times. Detailed view of dynamics in the number of employed with higher education, is shown in the figure 2.

Table 2: The dynamic analysis of data on employed with higher education (Data is calculated by authors and based on data of Federal State Statistics Service of Russia)

Years	Number of employed in the Russian Federation, average per year, thousands of people	Share of employed with higher education, %	Number of employed with higher education, thousands of people	Absolute increase, thousands of people
2000	65 070.4	24.7	16 072.4	-
2001	65 122.9	23.8	15 499.3	-573.1
2002	66 658.9	23.4	15 598.2	98.9
2003	66 339.4	23.6	15 656.1	57.9
2004	67 318.6	24.9	16 762.3	1 106.2
2005	68 339.0	26.2	17 904.8	1 142.5
2006	69 168.7	27.4	18 952.2	1 047.4
2007	70 770.3	29.3	20 735.7	1 783.5
2008	71 003.1	29.5	20 945.9	210.2
2009	69 410.5	28.2	19 573.7	-1 372.2
2010	69 933.7	29.1	20 350.7	777.0
2011	70 856.6	29.8	21 115.3	764.6
2012	71 545.4	30.4	21 749.8	634.5
2013	71 391.5	31.7	22 631.1	881.3
2014	71 539.0	32.2	23 035.6	404.5

Fig 2. Dynamics of rate of increase in the number of employed with higher education, % (Chart is built by authors and based on data of Federal State Statistics Service of Russia, 2014)

In order to forecast future demand for specialists with higher education, it is necessary to build a trend based on the number of employed. Besides the forecast of real GDP needs to be calculated as the demand for specialists with higher education, directly depends on it.
To construct the trend, we will use simple linear equation:

$$y = a_0 + a_1 \times t \quad (1)$$

where the coefficients a_0 and a_1 are calculated by means of the system of equations:

$$n \times a_0 + a_1 \times \sum t = \sum y \quad (2)$$

$$a_0 \times \sum t + a_1 \times \sum t^2 = \sum t \times y \quad (3)$$

in which:
n – number of the periods according to which the trend is built;
$\sum t$ is defined by centering method and is equal to 0.
By means of extrapolation method it is possible to predict a rate of increase of specialists with higher education in economy and the forecast of real GDP.
For building the forecast, data from the table 2 was used.
As a result of the analysis linear equation was obtained:

$$y_1 = 19105{,}5 + 572{,}2 \times t \quad (4)$$

where y_1 – the number of employed in the economy, having higher education in thousand people, t - the year for which the calculation is carried out.

To predict the value of real GDP, the next equation is obtained:

$$y_2 = 35882{,}2 + 1438 \times t \quad (5)$$

where y_2 – the size of real GDP in billion rubles., t – the year for which calculation is carried out.
The forecast of the number of employed with higher education, and real GDP are presented in the table 3.

Table 3: Forecast data (Data is calculated by authors)

Years	The number of employed in the economy, having higher education in thousand people	Rate of increase of employed having higher education, in %	Size of real GDP in billion rubles	Rate of increase real GDP, in %
2015	23683.39	-	47385.96	-
2016	24255.62	2.4	48823.93	3.0
2017	24827.85	2.4	50261.9	2.9
2018	25400.08	2.3	51699.87	2.9
2019	25972.31	2.3	53137.83	2.8
2020	26544.54	2.2	54575.8	2.7
2021	27116.78	2.2	56013.77	2.6
2022	27689.01	2.1	57451.73	2.6
2023	28261.24	2.1	58889.7	2.5
2024	28833.47	2.0	60327.67	2.4
2025	29405.7	2.0	61765.63	2.4

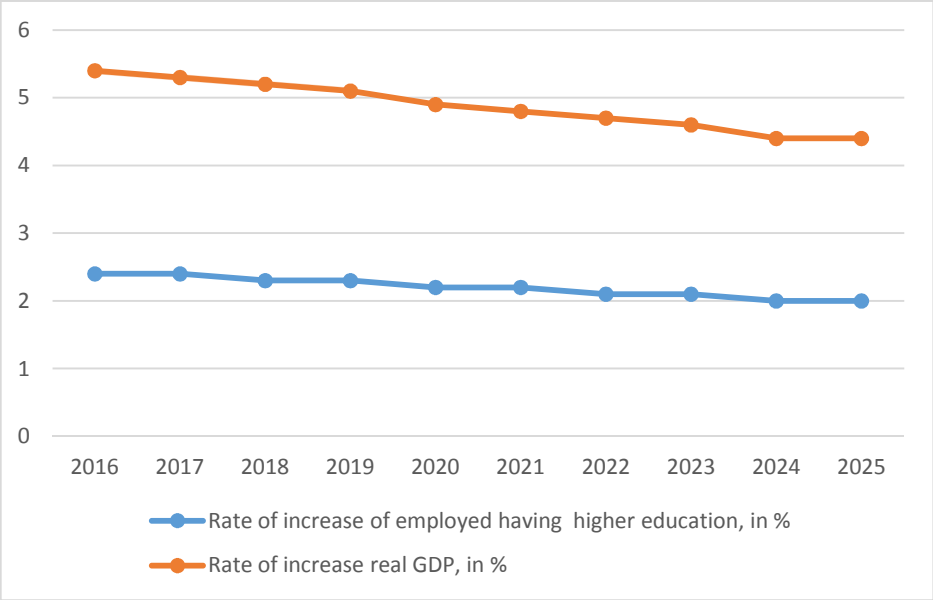

Fig 3. Dynamics of the rate of increase of employed with higher education and real GDP, in % (Chart is built by authors)

Having compared growth rates of employed with higher education and rates of economy development, it is obvious that increase in production is proportionate to the increase in the number of employed with higher education. So we can make a conclusion that the tendency of growth of employed with higher education will remain, but rates of increase will be slowing down.

Conclusion

In the 2000s, the demand and supply of workers with higher education grew very fast. It is explained, to a certain degree, by rapid growth of the Russian economy during this period. It is also necessary to consider that the demand for specialists with higher education in 90s due to the crisis fell sharply and people with higher education were forced to take jobs with low skills. If that fall didn't happen, growth rates of people with higher education later on wouldn't be so substantial.

Formally, Russia is among the most highly educated countries in the world. On the other hand, quality of Russian education remains low. This is supported by the development of intra-extramural forms of study, correspondence and remote forms of education, and also combination of study and work among students of full-time tuition. Moreover a lot of workers who obtained higher education don't work in field of their professional specialization and take jobs which don't require high skills level.

Thus, the analysis shows that the number of employees with higher education and their share is steadily growing. The forecast shows that the tendency of growth of people with higher

education will remain, but rates of increase will start to slow down. There is no reason to expect that the demand for labor with higher education will grow as quickly, as supply. This can lead to an imbalance in the labor market. It is necessary to correct educational policy in order to reduce the number of students who are trained in programs of higher education.

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The Cyberspace in relation to the cultural memory

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Abstract

The aim of the article is to analyze the relationship of the modern Internet space and the cultural memory. The analysis of cultural memory at the beginning of the XXI century underwent essential changes. The modern space of the cyberspace even more often acts as a source of obtaining the information, which has a decisive impact on the formation of mental structures of the modern society. The beginning of the third millennium is marked by basic change of research trajectories of the cultural memory. Specific research projects are put in the forefront. Nowadays the modern world considers the cyberspace as an independent component of the contemporary everyday life. So this work builds upon the given overview and establishes a theoretical construction between cyberspace and cultural memory. The study argues that cyberspace potentially constitutes an external memory. The contemporary status of the cultural memory is elaborated, and a discussion is given to emphasize the importance of the sustainability of the cultural memory and collective identity.

The research of the cultural memory and the identification of mechanisms of the influence on it becomes the matter of the state importance for many countries. In our modern century of high technologies many politicians, scientists, actors involve the most powerful instrument of influence – the Internet resources.

Keywords: Cyberspace, cultural memory, the Virtual World

Introduction

The transformation processes of the maintenance of the cultural memory in the cyberspace act as the dominating way of the formation of the cultural identity. The time of the common memory and, respectively, undifferentiated identity has lost its positions. In modern society there is a gap in understanding, estimating and interpretations not only the remote past, but also the actual present. For the maintenance of a steady condition of society the events of cultural memory have to be built and interpreted so that members of a social group felt participation in the past as to the vital space.

The modern Internet society allows joining into the processes of collective identity formation to almost unlimited number of subjects. Thereby it promotes the formation of its active participation and partnership in processes of understanding of the valuable and semantic world of the cultural memory (Loiko & Dementieva 2014). The cyberspace is available to all people, that is why it is capable to make popular and/or unpopular some social contexts in which the phenomenon did a way from drowsiness to life and an event.

Analyzing the current situation, it is possible to draw an idea about the impossibility to be fenced off from so-called “virtual world”, “cyberspace” or so. It is necessary to analyze advantages and shortcomings, as well as to reveal the potential of the Internet technologies for the further development of the country, for the preservation of cultural identity of the society.

The phenomena of the Cyberspace and Virtual world

The Internet forms a new community, which unites people of different nationalities, beliefs, cultures and the social status. The society for which there are no frontiers. It gives the opportunity to hold global referenda on actual problems of the mankind which will allow to hear the opinion of the certain person where it wouldn't be and to provide feedback. The Internet gives us a new way of a social vision, transition to new ways of the interaction and development of progressive achievements of all mankind. For the intellectual life of mankind it has not smaller value than opening a publishing introduction hundreds years ago. Most likely the mankind didn't realize the information power and opportunities of the Internet yet.

The term cyberspace is non-uniform and has some levels. D. Clark offered a model in which there are four levels of a cyberspace (Clark 2010). The physical level contains all hardware devices that include routers, switches, carriers and satellites, sensors and other technical connectors, both wire, and wireless. The logical level in general belongs to a code, which includes both the software, and protocols, which are included in it. The level of content describes information all created, taken, stored and processed in a cyberspace. The social level consists of all people who are using and building up the phenomenon of a cyberspace. It is the actual Internet of people and the potential relations, but not the implied Internet of hardware and the software. In fact, the social group includes the governments, the private sector, civil society and subjects of technical community.

The opinions expressed on the Internet become available and achievable for perception by other persons. The Internet creates local communities of people as alternative to “grey rubble” or a standard layer (Sak 2013).

The term cyberspace had no differences with the term “virtual reality”. J. Lanier who coined the term “virtual reality” considered it like a “new reality” but without confines. J. Lanier considers being the father of virtual reality believed technology promised infinite possibilities. He explained that each of humans has an astonishing liquid infinity of imagination on the inside; that butts up against the stark reality of the physical world. That the baby’s imagination cannot be realized is a fundamental indignity that we only learn to live with when we decide to call ourselves adults. With virtual reality, you have a world with many of the qualities of the physical world, but it does not resist us. It releases us from the taboo against infinite possibilities. That is the reason virtual reality electrifies people so much (Novak 2011). Then architect M. Benedict considers that the cyberspace is the realization of our ancient dreams of overcoming the ‘impediments of the matter’. He assured that “the design of cyberspace is after all a design of another life-world, a parallel universe, offering the intoxicating prospects of actually fulfilling – with a technology very nearly achieved – a dream thousands of years old: the dream of transcending the physical world” (Benedict 1991, p.131). Then M. Novak (1991) shares his idea about cybernetic understanding of information as a pure pattern: “A liquid architecture in cyberspace is completely dematerialized architecture” (Novak 1991, p.251). These studies were the beginning of serious study of cyberspace.

Cyberspace challenges the cultural memory

The emergence of a wide variety of machines, trains and media like a radio, phones, afterwards the Internet marked the start of the fundamentally new time – electrification era of the city. This phenomenon marked the beginning of the obvious parallel shift in the social relationships of space and time, on which the Newton’s world was based. It is a long time since inhabitants perceived the city and urban space as motionless and static substance. Nowadays individuals are immersed in the electric light; they cannot imagine themselves in the center of this system even from a subjective point of view. The modern city is a media-architectural complex, so the spatial order has lost its undeniable power.

Nowadays there is a phenomenon called cyberspace, which is able to keep and save cultural memory as architecture. Cyberpunk science fiction writer W. Gibson first introduced the term in the 1980s. In academic circles the term "Cyberspace" started to become a synonym for the Internet and during the 1990s the World Wide Web. W. Gibson (1996) marked later: “All I knew about the word cyberspace when I coined it was that it seemed to be an effective buzzword. It seemed evocative and essentially meaningless. It was suggestive of something, but had no real semantic meaning, even for me, as I saw it emerge on the page” (Gibson W., quoted in R. Vamosi, 2015).

G. M. Ageeva considers the influence of social networks on the cultural memory in the thesis "Mediatization of memory: memoirs certificates in blogs and social networks". She investigates the representation features of memory images in the media sphere, as well as virtualization of the social mechanism of storing/oblivion, analyzes forms of accumulation and broadcast of the past during a digital era. Investigating the most popular network memorial projects, G. M. Ageeva pays the main attention to the content of entries in blogs and social networks (Ageeva 2012). It is worth to consider that information published in blogs and social networks is formed by the ordinary people and is controlled by nobody. It is only possible to assume, what consequences wait for us in the future when the contents of modern blogs are investigated by scientists of the future generations as we investigate rock paintings nowadays. It is a real challenge for the cultural memory. Our generation should try to be wise and fair to leave the qualitative information.

The interrelation of memory and media can be tracked in the book "Silence, the screen and a performance: Reconsideration of cultural memory during an era of information and new media" which represents the collection of articles of different modern scientists on this subject (Freeman 2014). His originators – L. Freeman, B. Nyenas and R. Daniel – note that "new technologies of mass communications and social media changed the character of our involvement into the present and the past, there were new calls for ethics of memory". According to A. Vasil’ev, authors of the collection managed to give a number of fine examples of research "ways by which the past is told, presented, taken out on the screen, it is placed on Facebook and it is presented in the Twitter, and also it is reflective and it is considered in new contexts" (Vasil’ev 2014).

S. Mcquire (Mcquire 2005) titled one chapter of his book “The Media City: Media, Architecture and Urban Space” as “Immaterial architecture”. He considers the cyberspace from the position of the urban space and architecture. Thus, nowadays architecture has not ceased to be an enormous system of the city and the custodian of individual memory and cultural memory as well. However, at the same time the phenomenon called cyberspace builds up another kind of architecture, immaterial one. This phenomenon marked the beginning of the obvious parallel shift in the social relationships of urban space and time. Both the interpretation of the term and the place of this phenomenon in real life make many contradictions about the meaning of the cyberspace.

S. Sak completely enough and with deep arguments explores cyberspace in her dissertation “Cyberspace as a locus for urban cultural and collective memory” (2013). Her investigation shed the light on links between cyberspace and memory. The apparent advantage of this research is the analysis of cultural memory within the context of cyberspace. S. Sak notes that “cyberspace is more than a storage space of those figures of memory and individual memories. In addition, the data that this memory holds is broadcasted and is accordingly accessible. Cyberspace enables collection, copying and consumption of this data independently of the physical and chronic limitations, and opens the way for global sharing” (Sak 2013, p. 69). The author substantiates the idea that the urban environment of the modern city can become a place of recreating a sort of "locuses" of cultural memories. Memory space is constructed by pre-designed aesthetic canons. Primarily the design of this construction must correspond positive memories of a man. Building cyberspace of the cultural memory and placing it on the Internet, make it more accessible to the majority of users. Further, S. Sak notes that cyberspace as cultural and collective memory should be

regarded from two positions: internal and external. In her investigation clearly defined that “cultural memory is internal to groups of people which the memory is of. That is to say, cultural memory is the image of past in the totality of collective thought and behavior. Cyberspace is external to the same groups of people, as a notepad that helps remembering is external to human mind” (Sak 2013, p. 70).

W. Gibson (Gibson W. quoted in Vamosi, R. 2015) connected the term “cyberspace” with the existence of the individual in completely new conditions of computerization. New conditions are all IT-industry products, which build up state unlike anything we had known before. Thus, this aggregate of phenomena gave a rise to conditions of the interpersonal interaction. Every era has its own revolution: the industrial revolution, the scientific-technical revolution and etc. Then, our generation has experienced a digital revolution. As a result, we are in the New Media Age consequently faced “cyberspace”. A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical concepts... A graphic representation of data abstracted from banks of every computer in the human system. Lines of light ranged in the non-space of the mind, clusters and constellations of data.” (Gibson W. quoted in Vamosi, R. 2015). Cyberspace, due to its emergence, marked a new era of computerization and created new space for human existence. Nowadays, even the streets as a common space for communication have lost their function. The cyberspace and IT technologies, in which a person is completely immersed and located, replaced public places. Perhaps, cyberspace is a phenomenon that will allow us to get rid of our "mortal body" and immerse into the surreal world, which exists, but in the abstract, like a hallucination. But is it the vocation of cyberspace? This phenomenon was not invented artificial and it is not an integral datum of the human being at all times. Thus, we should figure out how to understand and use intelligently this phenomenon, so that it has brought benefits in our lives, not chaos and demoralization of mankind. W. Gibson’s book “The Neuromancer” (1984) made a splash in understanding cyberspace. He convicts this phenomenon in the form of a night city. Cyberspace owes much its existence to experience of the visual perception of the night city. The electric light helped to turn modern city in the bait, which attracts hundreds of thousands of people. The massive electric illumination became the means by which the whole map of the city at night can be reduced to a few large centers, flooded with spotlights, and other objects are simply erased. This is a simplified scheme.

The analysis of the Russian-speaking sites (it was investigated more than 50 sites) directed on preservation of cultural memory showed the following. Today the whole departments deal with a problem of cultural memory, so the Ministry of Defense contains references to four own virtual products devoted to military achievements of the Russian army and works with the grants actively. The key project of 2014-2015 is, certainly, the Great Patriotic War. Practically all similar sites have a forum where it is possible to lay out the information. The museums and libraries create the archival sites. The Ministry of Culture, also as well as the Ministry of Education and Science give out different grants under these purposes.

However, this variety of the presented material has a reverse side. It is impossible to forget that today any person can make the contribution to preservation of the cultural memory by means of the Internet. One has the right to create his/her own site or to work through the popular social networks. The result of similar activity is a huge number unchecked (perhaps, doubtful) information, on the one hand, and a network contamination small household information through social networks and often the illiterate speech of the author, on the other hand.

Thus, it is necessary to look for the balance between the official and personal information. The aim for the government of any country is to build an effective program of the preserving the cultural memory in the cyberspace.

Conclusion

In summing up the place and the role of the cultural memory in contemporary cyberspace we conclude: the importance of the cyberspace in the transmission of values and meanings of the world of the cultural memory increases. The content of the cultural memory is moved to the Internet and, so it provokes arising problems of "filling" the Internet with accurate and reliable information about the realities of social life and society. With the emergence of the phenomenon of cyberspace, we can say that a man more and more rarely communicates with other individuals in the real life, now all social interactions have moved into the area of the IT-technologies. Cyberspace, not public places, which is the area of social interaction nowadays. Today, the researchers of cultural memory raise the question how to present the content of the cultural memory in conditions of cyberspace.

An analysis of studies on the problems of cyberspace allows putting forward the hypothesis: the study of this phenomenon should specify and clarify its use for the humanities in the nearest future.

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Digital Skills for Communication of Government and Society on the Internet

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Abstract

The existence of the communication gap between society and authorities calls for the need for specific scientific analysis of information processes occurring through the Internet communications, since the latter have a significant influence on the structuring of civil society and its active position in the areas important for Russia.
The research identified the following problems of communication: absence of trust among citizens to the authorities and managers, lack of necessary information for citizens on the official websites of authorities, technological unpreparedness of the areas – the official websites of authorities, lack of competence of civil servants of government agencies providing communication, formal approach to responding to the complaints of citizens, non-public communication of civil servants and citizens, underdevelopment of activities of public organizations and distrust to them in society, low level of legal awareness and digital literacy of on the whole.
The conditions for the further development of models of communication between the authority and society:
• the presence of two-way communications
• the presence of common semantic information space
• competitiveness of opinions and ideas
• vision of general common future
• generation of consolidated action
• provision of the possibility of public expertise (including independent anti-corruption, gender, ecological expertise, etc.)
• providing regulatory documents to citizens, non-profit organizations and public associations.

Keywords: Internet communications, network society, dialog model of communication

Introduction

The Internet has become not just a new type of communication for society, it is obvious that communications in virtual reality have tendency to objectification. Real life evolves in the virtual space.

Literature Review

New opportunities for communication, business and creativity provided by the Internet were understood and described by Howard Rheingold in his book Smart Mobs: The next social revolution [2002]. He predicted that development of network communications would change public habits. Putting together all the components: technical, economic and social ones – we get an infrastructure allowing human actions which were impossible before. Smart mob is becoming an important actor of social processes, which consists of people who are able to act in concert not knowing each other. Modern technologies are becoming an absolutely new information environment which will be used by the government and corporations to control our habits and creeds on a scale larger than it was possible before the advent of the Internet. However, citizens will also find new opportunities to unite and resist to government institutions.

The question is how everything will go and if these technologies will be used as an instrument of social control or protest?

The theorist of the Network Society emphasizes [Castells, 2000] that spread of the networked organization of social community changes production techniques, the character of power relations, features of the transfer of social and cultural experience. This is a network of hosts of a new type, decentralized and connected by horizontal links, built on a voluntary basis, able to expand indefinitely by the inclusion of more and more cells. It is worth mentioning that the form of this new system is not a pyramid, but a rhizome. The decentralized nature of links in the network generates a non-linear response to an external stimulus. In his work Network Theory of Power [Castells, 2011], the author analyzes how social network can generate new forms of power, which is relevant to social communications:

1. Networking Power: the power of the actors and organizations included in the networks that constitute the core of the global network society over human collectives and individuals who are not included in these global networks.

2. Network Power: the power resulting from the standards required to coordinate social interaction in the networks. In this case, power is exercised not by exclusion from the networks but by the imposition of the rules of inclusion.

3. Networked Power: the power of social actors over other social actors in the network. The forms and processes of networked power are specific to each network.

4. Network-making Power: the power to program specific networks according to the interests and values of the programmers, and the power to switch different networks following the strategic alliances between the dominant actors of various networks.

Analysis & Findings

Against the theoretical study of the problems of the network society and its influence on changing the way of social system organization, solution of some applied problems becomes of current relevance. In particular, the prospects which new network technologies provide for the development of communication of all the forms and levels of the organization of power and community. We will try to tackle this problem in the article.

Reynolds shows that new technologies and network communication can be used to involve the society in decision making initiated by the authorities and to organize a protest against these decisions and the authorities themselves.

What should be done to make these communications evolve in a positive way?

Firstly, what is the potential for development of a constructive dialogue? What are the prospects opening up in case of its implementation?

- People are involved in the search for most optimal solutions of the problems which exist in society; coordination of opinions on most important positions is performed
- The gap of communication between society and government is reduced; the government becomes more open
- The level of protest moods in society decreases
-

All of these points can help to consolidate positive forces of society for the development of the country through the Internet-interaction of government and society, which should be more open, public and constructive.

What can hinder the development of a constructive dialogue? According to the research, citizens [Vasilenko, 2014: 18] mention obstacles such as formal replies from the authorities to the citizens (56.4%), lack of or inefficient feedback function on specialized websites (43.6%), non-public communication of public servants and citizens (requests and answers are not published on the website) (38.5 %), lack of opportunity to continue the dialog after getting an answer (35.9 %).

Civil servants attribute these problems to technical and technological reasons which reinforce citizen complaints of the formalism of their activities.

In addition to the indicated reasons, it is necessary to note "digital disparity" among citizens and regions and low awareness of Internet projects such as "Russian public initiative", where people can put forward their ideas or just vote for other initiatives registered there. If an initiative reaches 100000 votes, it will be considered by experts for its presentation at a state government meeting. There is also a project "Open government", where everyone can get access to documents and activities of the government to exercise efficient social control. Disuse of communication opportunities provided by the Internet is caused by ill-preparedness of both sides – government and society. It is also connected with distrust of citizens to government authorities and to their managers or often the lack of necessary information for citizens. It is also caused by technological disadvantages of the areas, i.e. lack of official sites of government authorities, weak competence of government employees responsible for communication.

As a result, the probability for public intelligence to affect government decisions is very low. For these reasons, experts from both sides, civil servants and common people, assess the dialog between them as unsatisfactory. It means there are no citizens who are fully satisfied with the dialog with government. According to the statistics, on the regional level, 15.4% of civil servants and citizens answered "almost satisfied", however, on the state level, this number was even lower, only 10.3% [Vasilenko, 2014: 19].

Not only common people but non-profit and social organizations as well do not use all the opportunities of social control. The authors of "Dialog between government and society through the Internet-communications" note that social organizations acting as intermediaries are not ready to actively defend the interests of society. Those organizations working in close contact with government authorities often heavily depend on them. This tendency emerged during the creation of such institute of civil society as public chambers. It was created for organization and support of interaction among government authorities, public and social associations and local government to defend interest of Russian Federation citizens. However, the procedure of voting for social chamber members was discredited in Internet-communications. A social chamber in essence is only a deliberative institute of civil society.

The capabilities of the government-society communication model at the present time are limited. The conditions to be developed to carry out a constructive dialogue are as follows:

- the presence of two-way communications
- the presence of common semantic information space
- competitiveness of opinions and ideas
- vision of general common future
- generation of consolidated action
- provision of the possibility of public expertise (including independent anti-corruption, gender, ecological ones, etc.)
- providing regulatory documents for citizens, non-profit organizations and public associations.

Conclusion

According to the results of the public opinion survey, the principle of compulsory meaningful response from representatives of authorities becomes especially significant; otherwise it will cause immediate and widely replicated comments about incompetence of a manager or responsible officer, which will be

redirected to the state authority. Traditional closeness of Russian authorities is not the only obstacle to a constructive dialogue. Current socio-economic problems cause citizens to be concerned with finding means of subsistence for themselves and their families, additional earnings rather than improving the system of management at the local level and in the centre. Lack of legal awareness and civic responsibility should be also taken into account. A certain part of the population is not used to trusting the authorities; they do not believe in the efficacy of laws, and furthermore, they continue to believe that these institutions are created primarily to lobby for the interests of those who come to power, or are close to it, but not ordinary citizens.

Insufficient information on the activities of such organizations or even suspicious attitude to them leads to necessity of development of interaction between government and society through these organizations, as well as application of most actual and efficient models of the "government-society" dialog in social practice.

These tendencies will inevitably be implemented as a new generation of people reaches its active age, because their socialization takes place in the digital era. A new generation of people were born at the time when the Internet became an integral part of life, they communicate via mobile phones, YouTube, Facebook, etc. It is not hierarchical but network structure of their social communication implemented through social networks that requires similar models of interaction with them, management technologies and their involvement into the state and civil life.

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Entrepreneurial Ecosystem of Small Medium Industries (SMEs): A Preliminary Study in Malaysia

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Abstract

Small Medium Enterprises (SMEs) particularly those from emerging countries presence significant roles to the economic development. Despite of their constraints, SMEs are struggling to expand into the international market and compete internationally. This study aims to explore the SMEs from emerging countries by examining the ecosystem of the SMEs in Malaysia. Based on qualitative methods specifically personal interviews using open ended questionnaire involving 35 SMEs' owners, the study discovered that the development of entrepreneurial ecosystem of Malaysia required all the six elements; finance, market, human capital, business culture, business support and policy. Nevertheless, the importance of the six components slightly differ from Iceberg Model (2010). Although the Iceberg model stated policy as the first or the most important component of the entrepreneurial ecosystem, in Malaysia the SMEs have emphasized more on the importance of finance and market. . As the majority of Malaysian SMEs are still smaller and operate locally, they need more market and financial resource to expend their business globally. This study provide basic information for future research of the entrepreneurial ecosystem development for the enhancement of SMEs Masterplan 2012-2020.

Keywords: Entrepreneurial Ecosystem, Entrepreneurship, Small Medium Industry, Malaysia

Introduction

Today's firms especially the Small Medium Industries (SMEs) are very much exposed to market pressure. SMEs are also often constrained by many problems such as the lack of human capital (skilled workers and technical know-how), little or no innovations though research and development (R&D), limited economies of scale, and difficulty in getting rid of traditional operation methods (Chin, 2004). In addition, SME's often have others weaknesses including the limited utilization of technology, limited involvement in R&D activities, the lack of technical professional and management expertise and entrepreneurial skills, and the inability to explore market opportunity (Haq, Ha & Said, 2009).

Similarly, in Malaysia, some of the existing literatures highlighted many challenges facing the SMEs, such as the lack of financing, low productivity, lack of managerial capabilities, lack of access to management and technology as well as the heavy regulatory burden (SME Corp, 2012; Saleh & Ndubisi 2006). The major obstacles to entrepreneurship development are lack of access to credit, lack of access to formal business and social networks (Teoh & Chong, 2008). The SMEs in Malaysia also lack of knowledge regarding marketing techniques, branding, customer loyalty, as well as lack of good contacts with others local and international enterprises (Hashim 2012). Therefore, SMEs are frequently at a disadvantage relative to their larger counterparts regarding their abilities to attract, retain, and motivate the best human resources (Beaver & Hutchings, 2005).

Despite extensive studies on SMEs, it has been found that the study that focus on overall components of entrepreneurial ecosystem of the SMEs rather limited. Hence, lack of model or framework that provides the overall entrepreneurial ecosystem of Malaysian SMEs. An analysis of entrepreneurial ecosystem among the Malaysian SMEs is vital to develop a foundation for collective strategies, innovation and value changer mechanism for national SMEs knowledge-based competitive guidelines (Yusoff, Ghafar & Shafie, 2015). Therefore, this paper provide preliminary finding on the entrepreneurial ecosystem of Malaysia SMEs.

Entrepreneurial Ecosystem

What is Entrepreneurial Ecosystem?

The term 'entrepreneurial ecosystem' was used by other researchers such as More (1996), Prahalad (2005), and Bernardez (2009) to describe conditions in which the individual, enterprise and society come together to foster the generation of economic wealth and prosperity. Moore (1996) specifically, defined entrepreneurial or business ecosystem as "an economic community supported by a foundation of interacting organizations and individuals which is the organisms of the business world." (Moore, 1996, 9). This includes customers, lead producers, competitors, and other stakeholders. The concept of an 'entrepreneurial ecosystem' was brought into prominence in 2010 by Professor Daniel Isenberg from Babson College through an article in the Harvard Business Review (Isenberg 2010). The impact of entrepreneurship ecosystem to entrepreneurial performance is the value created by entrepreneurs, and entrepreneurship, which normally refers to macroeconomic variables to identify the impact on business performance such as GDP growth, employment, to measure income distributions, or the size of the formal sector and the informal sector (Theodotou, 2012). As a conclusion entrepreneurial ecosystem is a nature of organization in one business system containing of customers, lead producers, competitors, and other stakeholders can provides a powerful analogy for understanding build up a business network.

Components of Entrepreneurial Ecosystem

Iseberg (2010) has introduced six key components of entrepreneurial ecosystem which are policy, finance, culture, support, human capital and markets. All six domains of entrepreneurship ecosystem have their role respectively, critical and must grow concurrently and in parallel. For example, (1) Culture, supportive to entrepreneurs and accepting of failure, (2) Customers and market, (3) Entrepreneurs and entrepreneurs' start-ups, (4) Financing: angel investors, venture capitalists and private equity firms, (5) Legal and regulatory framework, (6) Liaisons, (7) Media (social media, publications, newspapers, magazines, blogs, TV, radio, etc.), (8) Private sector and professional services providers such as accountants and auditors, lawyers and fiduciary services amongst others, (9) Universities and Research & Development (R&D) Centers and (10) Voice of the industry which includes associations such as the Chamber of Commerce, business associations, non-governmental organizations, informal entrepreneur groups, incubators, accelerators, etc. (Mazzarol, 2014). The interconnectivity of entrepreneurial ecosystem component is presented in Figure 1.

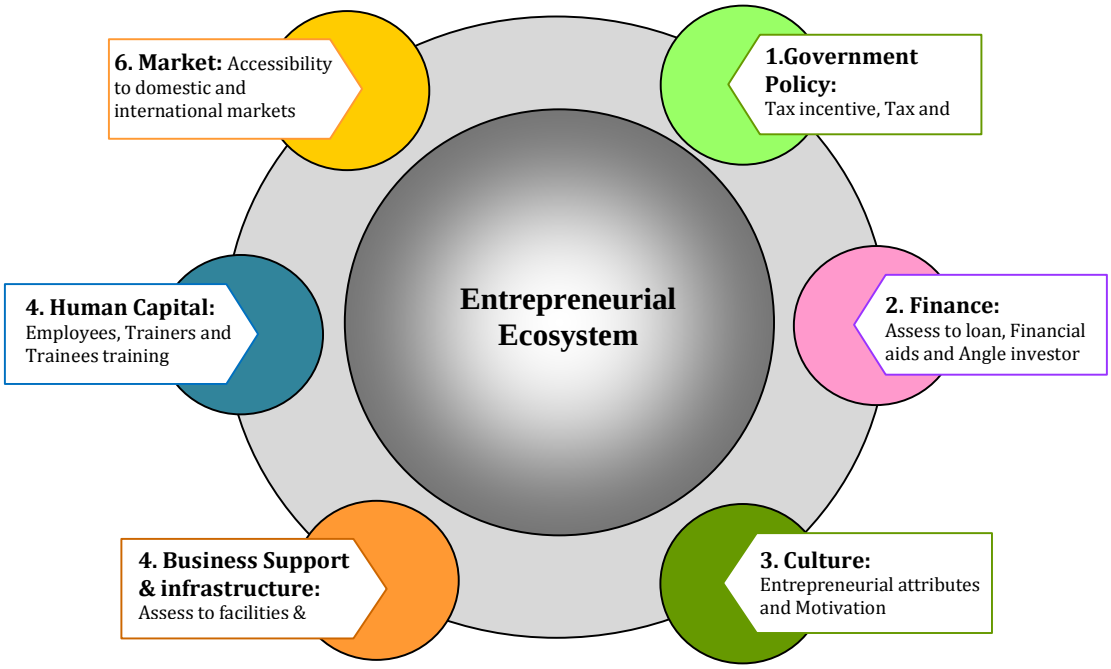


Figure 1: Entrepreneurial Ecosystem Measurement
Adapted from Isberg (2010)

Each of the components is briefly explain as follows:

(1) Government policy: Government policy is the first and perhaps most important component of an entrepreneurial ecosystem. The policy include laws and regulations friendly and supportive to entrepreneurs, which protect intellectual property, facilitate access to capital and human capital Development (Robles,2014). Mason and Brown (2014) suggested that government policy relating to the development of entrepreneurial ecosystems should be developed based on seven general principles as (1) Cannot create something from nothing; (2) Policy approaches need to evolve over time; (3) No one size fits all; (4) Each component is of equal importance and if any component is missing the system will fail or fail to grow; (5) require a 'top down' and 'bottom up' approach; (6) Distinguish between small business and entrepreneurship policies; and (7) should reflect the diversity of such firms. As a conclusion the government policy has to be developed as holistic as possible, with attention given to both macro and micro-level policy settings so as to facilitate the entrepreneurial ecosystem via a simultaneous 'top-down' and 'bottom-up' approach.

***(2) Finance*- Source** of funding is one of the most importance component in every business because there is none of one business can start without any funding. An inclusive financing ecosystem is a significant element in this composite development which is including the establishment of effective institutional arrangements for financing and development through the establishment of specific schemes and providing avenues for information, advice and redress as well as debt resolution and management, and outreach programs. (Cyproman & KPMG, 2012).

(3) Culture - A culture that fosters entrepreneurship is characterized by innovative and disruptive ideas, accepts failure and encourages calculated risk taking, sees entrepreneurs favorably, gives failed entrepreneurs a second chance and encourages the feasibility of their aspirations (Klamer, 2006).

(4) ***Business Support*** **-** those services that aim to assist enterprises or entrepreneurs to successfully develop their business activity and to respond effectively to the challenges of their business, social and physical environment (Mathibe, 2010). In Malaysia the infrastructure plays a key role in promoting and sustaining rapid economic growth (Nath & Bhattacharyay, 2010). The support of infrastructure includes telecommunication, transportation, logistics and energy. Of equal importance is the availability of business mentoring, advisory and support services, the engagement in the system by universities and the provision of education and training for entrepreneurs and employees (Mazzarol, 2014).

(5) Human Capital **-** refers to the labor, employees or manpower (Thaib, 2013). The important and significant of human capital development in the achievement of development sustainable business growth have been extensively acknowledged in many studies. For example, Eigbiremolen and Anaduaka (2014) and Erluwua (2007) revealed that human capital found to be influence business development and economic growth of the country.

(6) Market **-** The growth and start-ups within an entrepreneurship ecosystem need an access to customers and markets. Influential marketing function appears to make no tangible difference performance-wise in entrepreneurial firms and their findings were perhaps consistent with marketing influence business performance (Merlo & Bell, 2007) For example, the value of the marketing function within the firm as the degree to which it is perceived to contribute to the success of the firm (Christine & Rust, 1999). Nowadays, with the power of the internet, accessing customers and markets is targeted, specific and instantaneous (World Economic Forum, 2013).

Methodology

This study employed a qualitative method since this method found to be the most suitable method to captured new issue that has not yet explored. The purposive sampling involving 35 owners of Malaysian SMEs of the two states in Malaysia (Johor and Selangor). Both have been chosen as samples of the study since they have the highest number of SMEs in Malaysia (SME Corp, 2014).

Personal interviews using semi-structured questionnaire had been chosen as a primary data collection technique. The respondents were asked three important questions; (1) What are the component of entrepreneurial ecosystem that is important to their business; (2) Why do the entrepreneurial ecosystem important?; and (3) How to develop effective entrepreneurial ecosystem. Based on Iceberg (2010) Business ecosystem framework, the data gathered from the interviews were organized and analysed using thematic analysis methods.

Findings

Entrepreneurial Ecosystem that perceived to be important for SMEs

The entrepreneurship ecosystem model (Isenberg, 2010) has introduced six components; policy, finance, culture, support, human capital and market. In this study, the SMEs were asked the components of entrepreneurial ecosystem that they think is important to their business. Based on interviews, of the six components, all SMEs (35 respondents) in the opinioned that market and finance are the two most important components that effect their businesses. The next component are; support (, human capital policy and culture (see Figure 2).

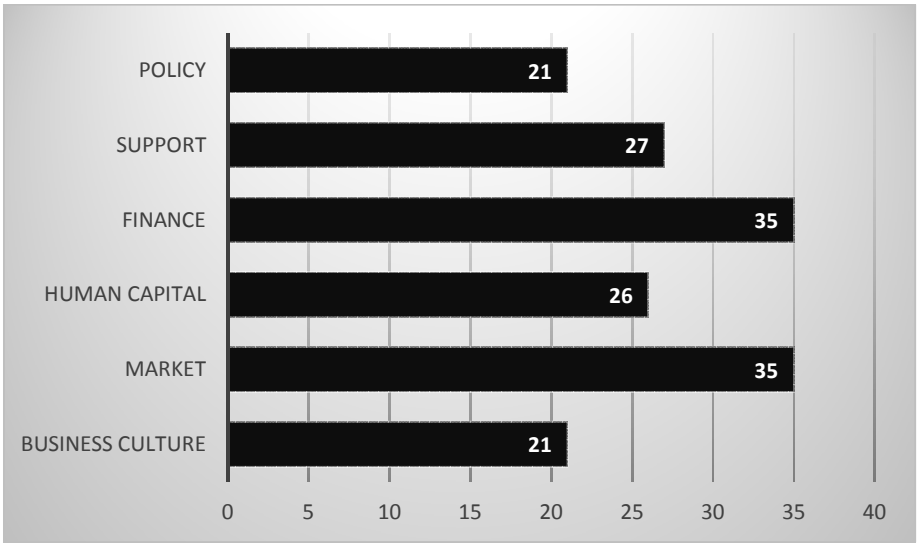


Figure 2: A summary of component of entrepreneurial ecosystem

Some of the statements mentioned by the respondents:-

"If I were to choose, I would say three most important components for me are; finance, market and support" (Owner of SMEs in Johor)

"All SMEs in Malaysia, especially in the early stage, need all components. But what important for them are; financial, support from agencies and market" (Owner of SMEs in Johor)

I have been in this business for almost 10 years. What I can say without strong financial and market we can't survive especially in the global economy" (Owner of SMEs in Selangor)

"We do need good government policy and support but more importantly we need money to run our business" (Owner of SMEs in Selangor)

Why do the entrepreneurial ecosystem important to the SMEs?

It has been acknowledged that entrepreneurial ecosystem is important to sustain any business particularly to compete in the global economy. The impact normally can be seen in term of business performance, GDP growth and employment (Theodotou,2012). The respondents of the study found to have in the same opinions that the entrepreneurial ecosystem is important for the SMEs for four main reasons; to expand and sustain their business; to go for global market; to generate more revenue; to establish more business network (see Figure 3). The findings similar to previous literature which shows that the ecosystem is important for business performance which finally contribute to the economic growth of the country.

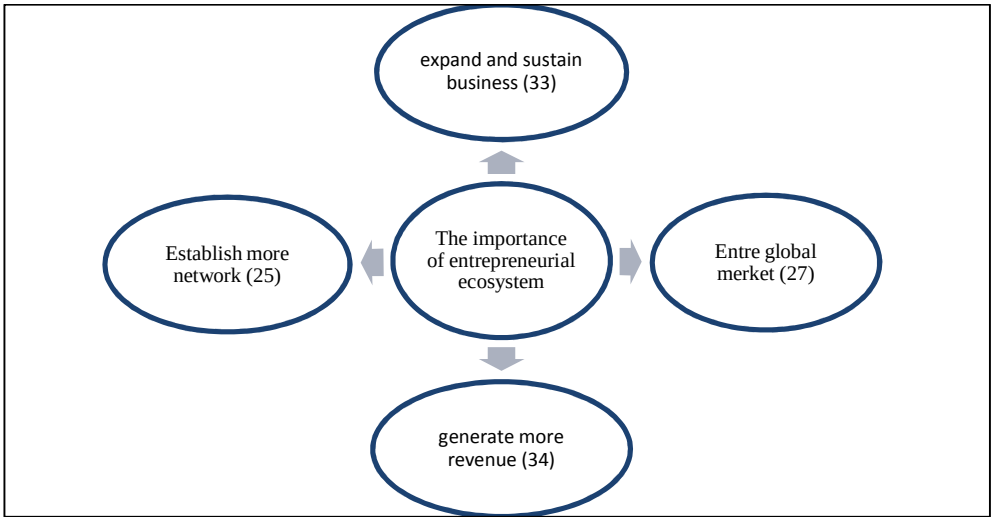


Figure 3: A summary on the importance of entrepreneurial ecosystem

For example two respondents said:

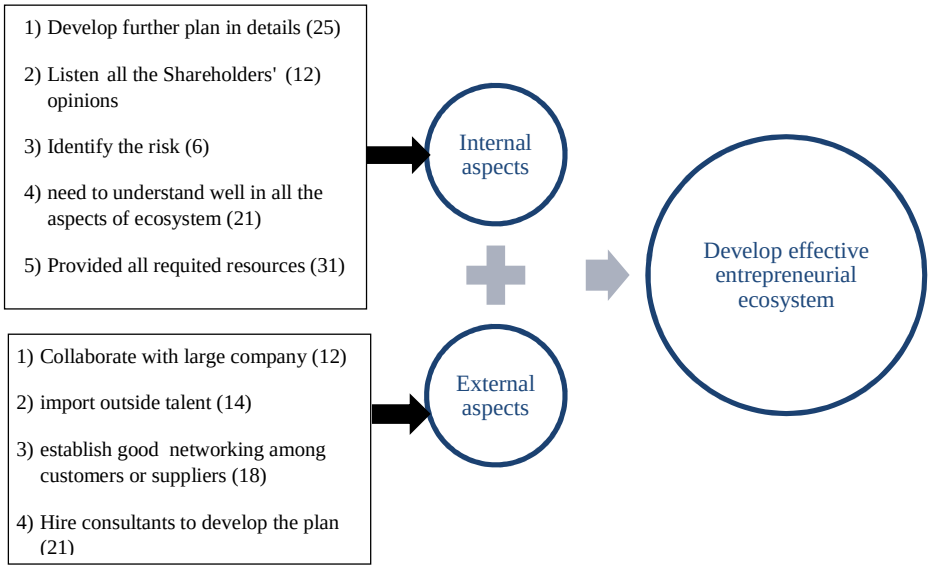
"My business need all components especially financial and market, so that I can expand my business in other country, and in a long term sustain it"

"Nowadays we get all supports from the government. But why many SMEs failed? I believed because we are still having many problems especially market and business network. So, market and business network to me is really important not only to get more revenues, both can sustain my business.

How to develop effective entrepreneurial ecosystem?

In relation to develop good entrepreneurial ecosystem, many of the SMEs in the study believed that the effort should be a combination of both internal and external aspects as illustrated in Figure 4. However, the emphasis has been given more on the internal aspects. In term of internal aspects, majority of the companies stated that they need to allocate all required resources, develop detail plan, as well as should understand the meaning of ecosystem, listened to shareholders opinions and identify risks.

At the same time they also need support from external aspects especially they have to hire external consultants to develop the plan and establish good networking with customers and supplies, important outside talents and collaborate with large companies. The results imply that the to develop effective entrepreneurial ecosystem Malaysian SMEs need supports from both internal and external aspects of the business



Conclusion

As a conclusion entrepreneurship is about a value added aspiration, and when successful, distinctively improves the overall economy of nations. Hence, developing Malaysian entrepreneurship ecosystems required intercalated input from various parties and resources. Particularly the SMEs in Malaysia required financial and marketing aspects In fact, entrepreneurial resourcefulness is not limited to edifice of tangible/physical companies but depends on capacity building in human capital. For instance, entrepreneurs intertwine exchange of ideas (networking), solve resource constraints (effective utilization of scares resources), and fill institutional gaps in the entrepreneurship reorientation. To get the appropriate entrepreneurial framework in place Malaysian SMEs need to invest both internal and external aspect particularly they have to have in-depth understanding on the concept of entrepreneurial ecosystem itself and synergies that boost entrepreneurship as a realistic paradigm rather than an idealistic trend. These collectively could provide the desirable and holistic reform and educate government policymakers about real entrepreneurial ecosystem require to enhance the actual SMEs development in Malaysia. Therefore, a comprehensive national entrepreneurial ecosystem needs to be constructed through rigorous and robust research process of this nature.

This study has provided basic information entrepreneurial ecosystem of Malaysians SMEs that can be used for any reforms to reduce the stumbling block to starting, operating and managing as well as growing borderless entrepreneurial exposure in Malaysia towards the enhancement of SMEs Masterplan 2012-2020.

Acknowledgement

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Sustainable Development Challenges in Transportation in European Countries during the Economic Crisis

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Abstract.

The climate debate and action often focuses on energy and industrial activity as the key sectors contributing to greenhouse gas emissions. However, transportation, with its fast increasing rate of harmful emissions, should also be included in any holistic policy addressing climate change and sustainable development. This paper aims to perform a critical analysis on this sector at European level within three critical economic periods: 2008, 2010 and 2012. A cluster analysis will be employed. The first objective of the paper is to analyze the comparative migration of countries within the resulted clusters. The second objective is to find justifications regarding the remain in a performant cluster or the migration in a less performant cluster of certain countries. Last, but not least, based on the experience of EU countries, to propose measures and best practices for Romania and simmilar countries, so that in the future to occupy a place in a more performant cluster and increase their chances to achieve the objectives for the 2020 horizon, imposed by the EU.

Keywords: sustainable development, transportation, sustainability

Introduction

"Sustainable development is recognized as an endeavor to harmonize the growth of urban territories with a social progress by reducing waste of non-renewable natural resources and negative impacts on ecological equilibrium. The cohesion of economic, social and ecologic aspects constitutes the foundation for developing a sustainable city. The quality of transport systems, specifically technical infrastructure and functionality, ensures the existence of economic and social spheres and is treated as being very important to sustainable urban development." (Griškevičiūtė-Gečienė & Burinskienė, 2012).

The European Council of Ministers of Transport (ECMT, 2004) describes sustainable transport as follows:

" - It allows the basic access and development needs of individuals, companies and society to be met safely and in a manner consistent with human and ecosystem health, and promotes equity within and between successive generations.

- It is affordable, operates fairly and efficiently, offers a choice of transport mode and supports a competitive economy, as well as balanced regional development.

- It limits emissions and waste within the planet's ability to absorb them, uses renewable resources at or below their rates of generation, and uses non-renewable resources at or below the rates of development of renewable substitutes, while minimizing the impact on the use of land and the generation of noise."

The impact of transport has crucial importance for sustainable development (Litman, 2008).

The EU developed a transportation-specific strategy, described in the European Transport Policy for 2010 (COM, 2001b). In this strategy, the priorities of the transport sector are laid out in four broad categories: 1) shifting the balance between modes of transport, 2) eliminating bottlenecks, 3) placing users at the heart of transport policy, and 4) managing the globalization of transport. (European Commission, 2001)

Moreover, according to the European Commission 2009 there are some FP7 and FP7 projects relevant to indicators for the EU Sustainable Development Strategy, which are considering sustainable transport objectives, such as: INDI-LINK, FORESCENE, TISSUE, HEATSCO, WET-H2, TRANSFORUM, TRANS-TOOLS, REFIT and ELME.

The complexity of the EU framework means faces significant challenges in coordinating the implementation of strategies in all member states. The EU has included many attributes for a robust framework in its strategies; however, it is important to link the objectives to actions that can be realistically implemented by member states. (European Commission, 2001).

Therefore, in the next chapter the author wants to conduct a Cluster Analysis in the EU countries, based on the indicators for sustainable development in freight transport, for critical economic periods. The aim of this research is firstly to analyze the comparative migration of countries within the resulted clusters, secondly to find justifications regarding the remain in a performant cluster or the migration in a less performant cluster of certain countries and last but not least, based on the experience of EU countries, to propose measures and best practices for Romania and simmilar countries, so that they will occupy a place in a more performant cluster and increase their chances to achieve the objectives for the 2020 horizon, imposed by the EU.

Methodology:

In order to perform the comparative analysis among the European countries, data for year 2008, 2010 and 2012 have been taken from Eurostat. The reason for choosing these years is the author's desire to carry out an analysis regarding the main indicators for sustainable development in freight transport at EU's level, for 2008, the year when the economic crisis began, year 2010, during the crisis and 2012, the first in which the majority of European countries have emerged from the crisis.

In order to analyze the transport sector among the European Union the author has chosen 12 variables as follows:

a) Energy consumption of transport relative to GDP;
b) Modal split of freight transport roads;
c) Modal split of freight transport railways;
d) Volume of freight transport relative to GDP;
e) Energy consumption of transport, rail;
f) Energy consumption of transport, road;
g) HICP - annual average indices for transport prices;
h) Greenhouse gas emissions from transport;
i) Emissions of nitrogen oxides (NOx) from transport non-road;
j) Emissions of nitrogen oxides (NOx) from transport road;
k) Emissions of particulate matter from transport non-road;
l) Emissions of particulate matter from transport road.

Firstly, in order to perform the Cluster Analysis, the countries that registered missing data regarding the indicators for the three years mentioned above have been removed, namely: Greece, Cyprus, Croatia, Malta, Islandm Norway and Spain. The 12 variables were selected based on their relevance for a sustainable development in the transportation sector and also on the correlations that can be done by comparing them. For example a high demand for freight transportation generates more energy consumption. Depending on which type of transport is being used, whether railway or road, the annual average indices for transport prices may fluctuate. Gas emission is also an indicator that shows the relationship between the economic and environmental sector of that particular country, in order to measure the consumption levels and at the same time forecast the production capacity that needs to be in line with the pollution reduction targets.

The hierarchical cluster algorithm was applied as follows:

The methods to determine the distance between the items was the Squared Euclidian Distance, as it is the most appropriate for the data set;

The author has chosen the Ward Hierarchical Clustering Method, because it does not need to predict the number of clusters;

As the variables are expressed in different unit measures, the author has chosen to standardize them using the Z Scores Method.

Research results

After performing the Cluster Analysis for 2008, one can observe that the countries taken into account are divided into four clusters according to the Dendogram (Figure 1):

- *The first cluster:* Belgium, Czech Republic, Denmark, Ireland, Luxembourg, Netherlands, Austria, Portugal, Slovakia, Finland, Sweden;
- *The second cluster:* Bulgaria, Lithuania, Hungary, Poland, Romania, Slovenia;
- *The third cluster:* Germany, Spain, France, Italy, United Kingdom;
- *The fourth cluster:* Estonia, Latvia.

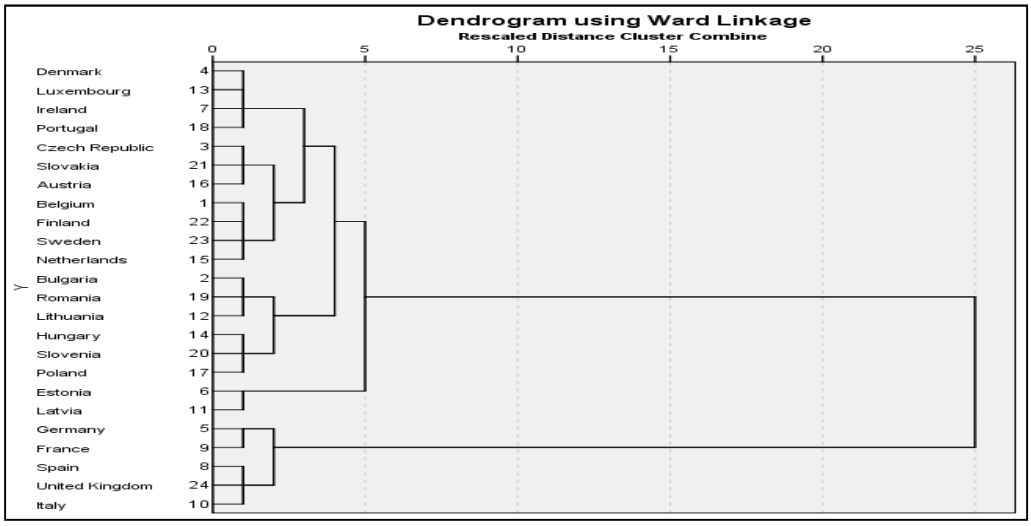

Figure 1: Dendogram for 2008, resulted from the Cluster Analysis

Source: developed by the author

The table containing descriptive statistics for each cluster is presented below:

Table 1: Mean by cluster for 2008, Source: designed by the author

Variable Name	Mean Cluster 1 (11 countries)	Mean Cluster 2 (6 countries)	Mean Cluster 3 (5 countries)	Mean Cluster 4 (2 countries)
Energy consumption of transport relative to GDP	100.5182	106.6667	89.3200	92.7000
Modal split of freight transport road	77.6727	71.3167	83.7000	47.0000

Modal split of freight transport railway	16.7727	23.9667	13.1400	53.0000
Volume of freight transport relative to GDP	90.5455	132.4500	97.8200	82.3000
Energy consumption of transport rail	125.1545	162.6833	951.3200	55.3500
Energy consumption of transport road	5864.7091	5046.8000	40356.4800	919.6000
HICP annual average indices for transport prices	108.3555	118.6150	108.2460	129.2600
Greenhouse gas emissions from transport	18.4145	15.5420	127.3262	2.9734
Emissions of nitrogen oxides NOx from transport non-road	12776.0909	7384.6667	87888.8000	3907.0000
Emissions of nitrogen oxides NOx from transport road	73550.9091	92334.8333	532427.0000	14148.5000
Emissions of particulate matter from transport non-road	573.0000	355.3333	4979.0000	131.5000
Emissions of particulate matter from transport road	4159.7273	6056.0000	27959.2000	708.0000

Regarding the volume of freight transport relatively to GDP, one can observe that the countries in the second cluster have registered a significant average growth in 2008, compared to 2000.

From the energy consumption of transport by rail point of view, one can observe that the lowest energy consumption is registered for countries from the fourth cluster, and the highest for the ones in the third cluster. Regarding the energy consumption of transport by road, one can observe that the lowest energy consumption is registered for countries in the fourth cluster, while the highest for the ones in the third cluster. However the countries in the third cluster have registered the lowest energy consumption relative to GDP. Regarding the energy consumption, countries from the first and second cluster are relatively closed.

Analyzing the HICP annual average on transport prices, one can observe that countries in the third cluster are the most competitive, registering the lowest value. Regarding the greenhouse gas emissions, the emissions of nitrogen oxides NOx and the emissions of particulate matter, countries in the third cluster register the highest values. This analysis indicates that Estonia and Latvia represent two atypical cases regarding transportation, because their pollution level is the lowest compared to the countries in the other clusters.

Next the Cluster Analysis for 2010 has been performed. One can observe that the countries taken into account are now divided into three clusters according to the Dendogram (Figure 2):

- *The first cluster:* Belgium, Czech Republic, Denmark, Ireland, Luxembourg, Netherlands, Austria, Poland, Portugal, Slovenia, Slovakia, Finland, Sweden;
- *The second cluster:* Bulgaria, Estonia, Latvia, Lithuania, Hungary, Romania;
- *The third cluster:* Germany, Spain, France, Italy, United Kingdom.

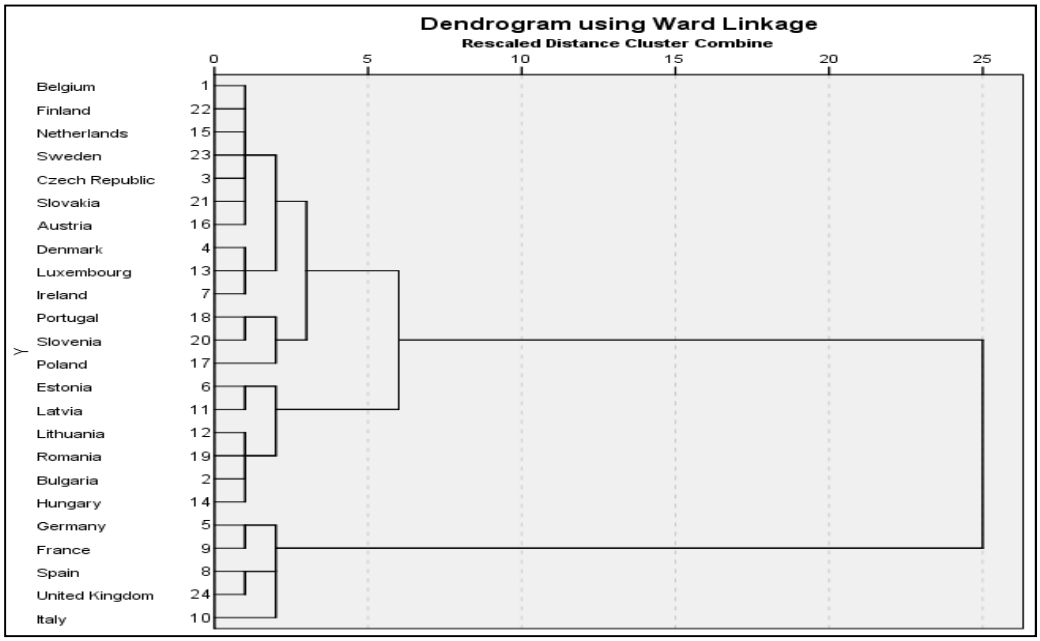

Figure 2: The dendogram for 2010, resulted from the Cluster Analysis, Source: designed by the

In 2010, as a result of the crisis deepening, the volume of the transported freight has reduced for the third cluster (in this cluster belong the same countries, which in 2008 were in the third cluster). In the first cluster belong now Slovenia, while Latvia and Estonia have formed a cluster together with Romania, Bulgaria, Hungary and Lithuania. The highest energy consumption, both rail and road transport has been registered for countries in the third cluster, but these countries have registered the lowest energy consumption relative to GDP.

Regarding prices, countries in the third cluster are the most competitive, registering the lowest HICP, which means that although they consume less, they still produce more. Analyzing the volumes of greenhouse gas emissions, emissions of nitrogen oxides NOx and the emissions of particulate matter, one can observe that the highest values are registered for countries in the third cluster and the lowest for the ones in the second cluster.

The table containing descriptive statistics for each cluster is presented below:

Table 1: Mean by cluster for 2010, Source: designed by the author

Variable Name	Mean Cluster 1 (13 countries)	Mean Cluster 2 (6 countries)	Mean Cluster 3 (5 countries)
Energy consumption of transport relative to GDP	101.6154	100.6667	87.9800
Modal split of freight transport road	77.5769	55.9000	84.4200
Modal split of freight transport railway	17.3538	35.1333	12.1200
Volume of freight transport relative to GDP	92.8154	115.9500	90.8600
Energy consumption of transport rail	134.6000	100.2833	930.7600
Energy consumption of transport road	6238.0846	2342.6000	39079.9400
HICP annual average indices for transport prices	111.1577	132.4850	111.0380
Greenhouse gas emissions from transport	19.1014	7.3107	123.1970

Emissions of nitrogen oxides NOx from transport non-road	11765.8462	5711.6667	82402.4000
Emissions of nitrogen oxides NOx from transport road	79836.0000	41856.5000	467089.4000
Emissions of particulate matter from transport non-road	548.5385	214.6667	4283.6000
Emissions of particulate matter from transport road	5078.6923	2177.0000	25463.6000

Finaly the Cluster Analysis for 2012 has been performed. One can observe that the countries taken into account are also divided into three clusters according to the Dendogram (Figure 3):

- *The first cluster:* Belgium, Czech Republic, Denmark, Ireland, Luxembourg, Netherlands, Austria, Portugal, Slovakia, Finland, Sweden;
- *The second cluster:* Bulgaria, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia;
- *The third cluster:* Germany, Spain, France, Italy, United Kingdom.

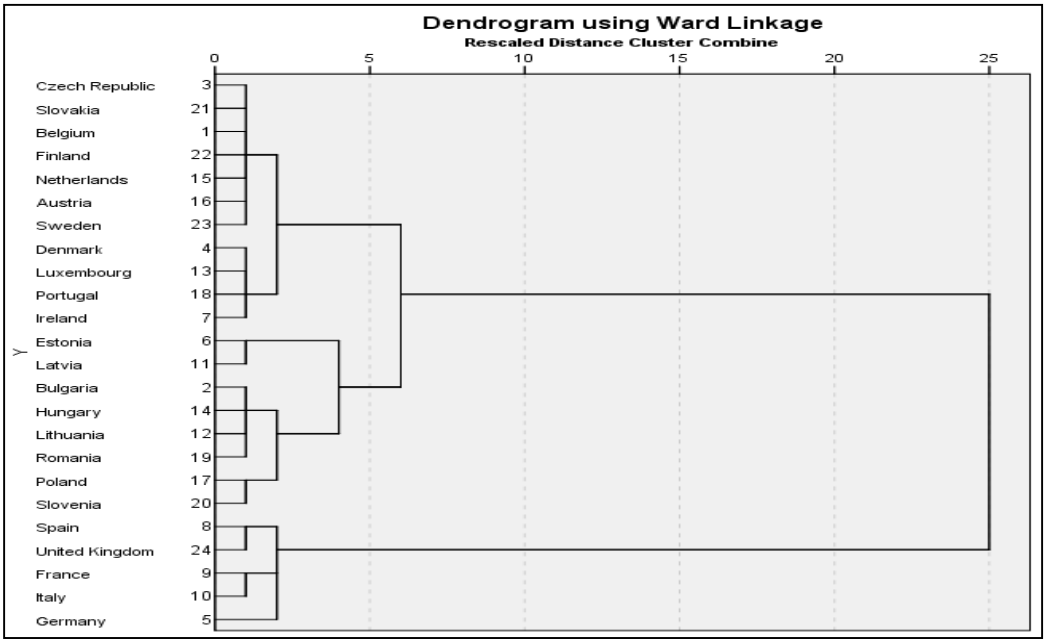

Figure 3: The dendogram for 2012, resulted from the Cluster Analysis, Source: designed by the

In 2012 the volume of transported freight has lowered in the third cluster (in this cluster belong the same countries, which in 2008 and 2010 were in the third cluster) and the first cluster and the second cluster has registered an increase in values. In the second cluster now belong Poland and Slovenia. The highest energy consumption, both on rail and road have registered countries in the third cluster, but these countries registered the lowest energy consumption relative to GDP. Regarding prices, after the crisis, the most competitive countries are now in the first cluster, and no longer in the third one, registering the lowest HICP. With regard to the volumes of greenhouse gas emissions, emissions of nitrogen oxides NOx and the emissions of particulate matter, the highest values are recorded for countries in the third cluster, and the lowest for the ones in second cluster, with the exception of emissions of particulate matter from road transport, where the lowest value is registered for the first cluster.

The table containing descriptive statistics for each cluster is presented below:

Table 3: Mean by cluster for 2012, Source: designed by the author

Variable Name	Mean Cluster 1 (11 countries)	Mean Cluster 2 (8 countries)	Mean Cluster 3 (5 countries)
Energy consumption of transport relative to GDP	92.2273	98.8375	84.2600
Modal split of freight transport road	76.1727	64.7750	82.9200
Modal split of freight transport railway	17.3818	29.8000	13.7400
Volume of freight transport relative to GDP	78.3364	127.4375	85.0000
Energy consumption of transport rail	123.2545	126.4000	913.3000
Energy consumption of transport road	5413.1364	4010.1375	37608.6600
HICP annual average indices for transport prices	116.5636	138.1138	117.3860
Greenhouse gas emissions from transport	16.6738	12.0678	117.7147
Emissions of nitrogen oxides NOx from transport non-road	11597.4545	5953.5000	75915.0000
Emissions of nitrogen oxides NOx from transport road	58382.0000	64765.5000	419073.8000
Emissions of particulate matter from transport non-road	509.3636	274.2500	3951.2000
Emissions of particulate matter from transport road	3282.2727	4291.6250	21485.4000

For a better interpretation of the results gathered from the Cluster Analysis, the author has also verified the means of transport used to carry the freight volumes in each country, for 2008, 2010 and 2012, see *Figure 4*, *Figure 5* and *Figure 6*. The source of these data was the Eurostat database. Due to the lack of data and the fact that some countries do not dispose of all four means of transport, for countries like Germany, Estonia, Ireland, Spain, Italy, Latvia, Lithuania, Portugal, Slovenia, Finland, Sweden and United Kingdom transport by inland waterways is not mentioned for 2008 and the same happens for Denmark in 2010. Lithuania registered missing data for road transport in all three years. The same happened with Czech Republic, Luxembourg, Hungary, Austria, Slovakia and for Portugal (only in 2012) for sea transport.

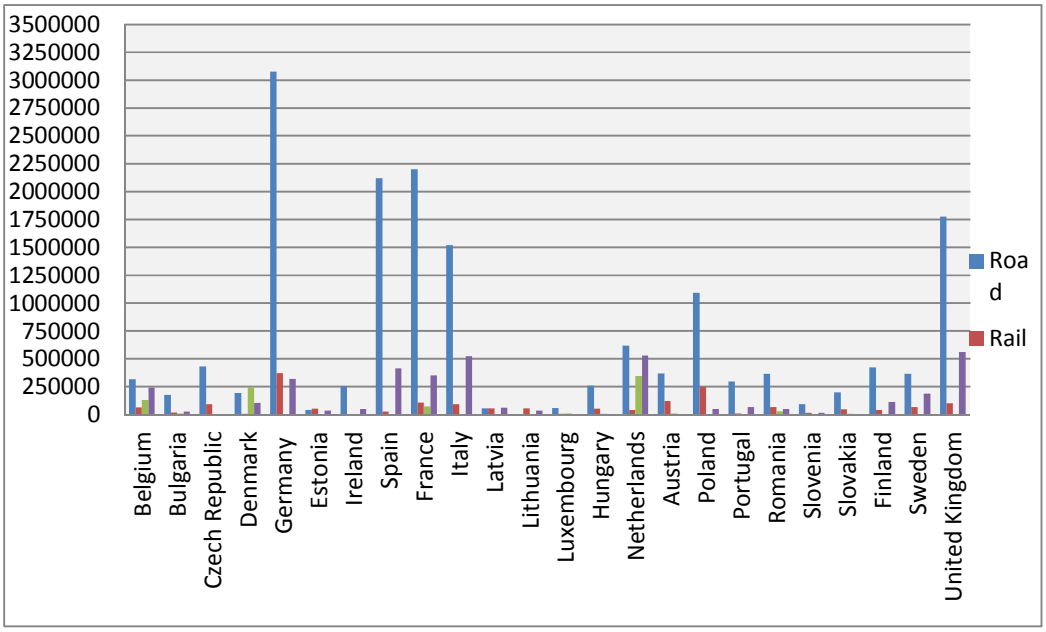

Figure 4: Freight volumes by mean of transport in 2008 (thousand tonnes), data source:

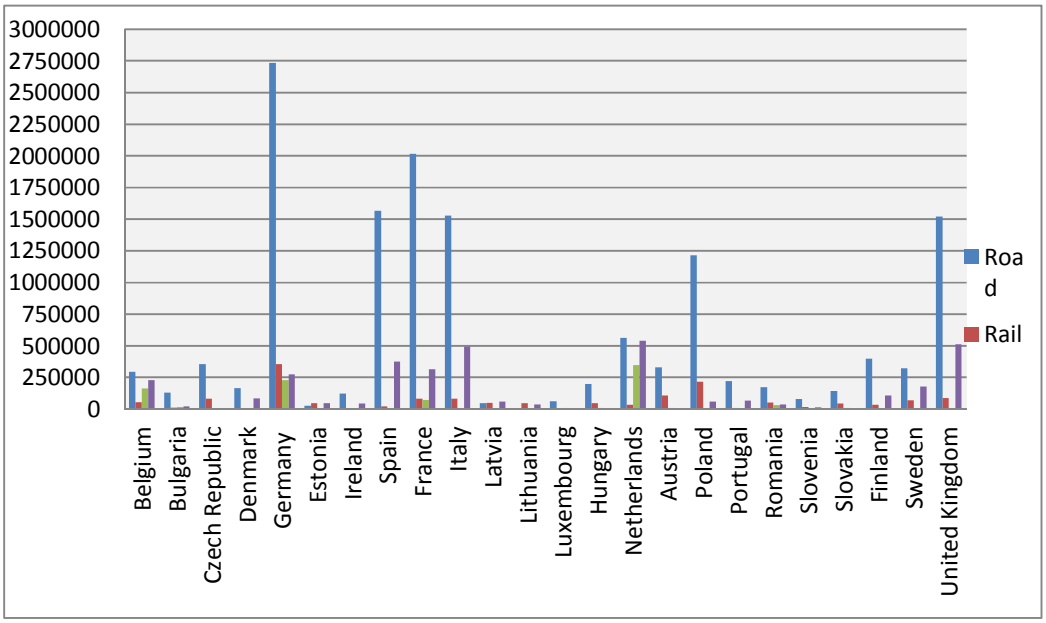

Figure 5: Freight volumes by mean of transport in 2010 (thousand tonnes), data source:

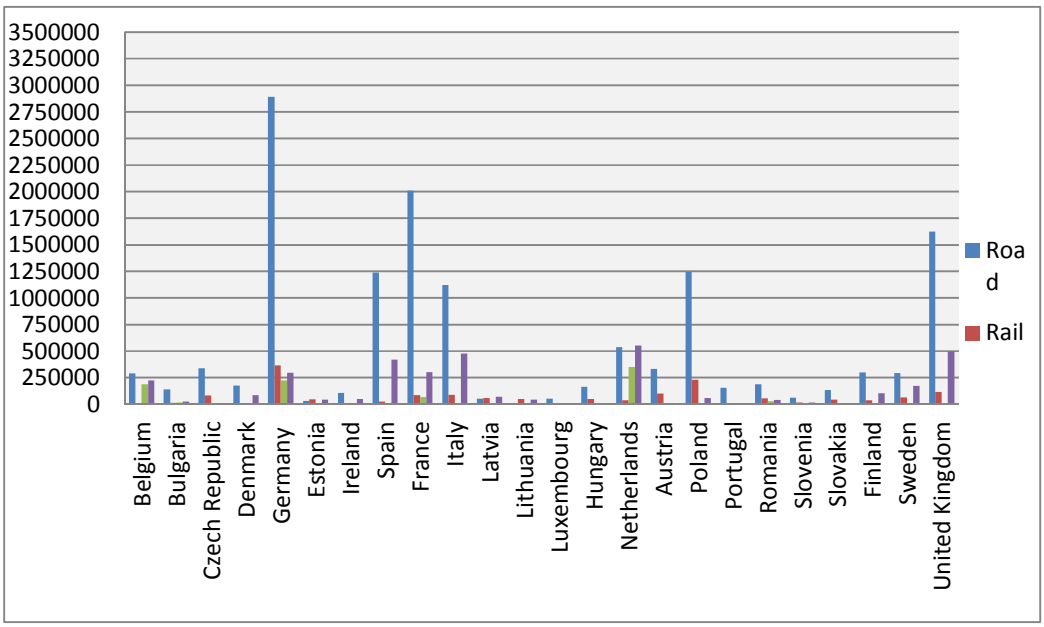

Figure 6: Freight volumes by mean of transport in 2012 (thousand tonnes), data source:

The results for all three years show that freight volumes in countries from the third cluster are predominantly transported by road, which justifies the high level of emissions resulted from the Cluster Analysis. This trend was to be expected. According to Amekudzia, A.A., Khistyb, C.J. and Khayesic, M. (2009) *"at the G8 Meeting of leaders of the world's most economically developed countries, held in June*

2007 in Hieligendamm, Germany, there were ''no hard goals on climate change." Poland's transportation is also based on road transport, although the country positioned itself in less polluting clusters. As second transportation choice, countries like United Kingdom, Netherlands, Italy, France, Spain, Belgium, Sweden or Finland chose sea transport, while Germany, Poland, Austria, Czech Republic and Romania rail transport. The Cluster Analysis for 2008, the first year of economical crisis, revealed that Estonia, which according to Kobus, D. (2005) *"experienced a rapid transition, from an autocratic command-and control system to a liberal market economy"* and Latvia were building alone the most performant cluster regarding energy consumption and were the less polluting. A reason for these results is the efficient and balanced modal split of freight transport, respectively road, rail and sea transportation. Moreover, in 2008 Estonia was the only country which transported it's most freight volumes by rail, which is less polluting compared to road transport. During the crisis, in 2010, despite moving into a less performant cluster, both countries began developing their sea transportation, which in Estonia almost equaled rail transport, while in Latvia had overtaken it. This trend remained valid also for 2012, both countries remaining less polluting than others. Going further with the analysis, despite the significant impact of the crisis on transported freight volumes in 2010, it is interesting to see the way countries react in reorganizing their means of transport. One can observe, that during the crisis, road transport was the most affected in all countries, although it still remained the most preffered mean, while in countries like Germany, France, Italy, Poland and United Kingdom, rail transport registered yearly almost the same values and in Ireland and Netherlands sea transport registered an increase. The same uptrend was registered also for IWW (inland waterways) transport in Belgium, which in 2012 positioned itself into the less polluting cluster, regarding particulate matter and the most competitive cluster regarding HICP.

Conclusions and discussions

The role of transport in sustainable development was first recognized at the 1992 United Nation's Earth Summit and reinforced in its outcome document – the Agenda 21. Several chapters, as for example Chapter 9 on Atmosphere and Chapter 7 on Human Settlements recognize Transport as a key development issue. This paper analyzed the transportation sector within the European countries from a sustainable development perspective. Within the framework of the cluster analysis, several indicators concerning economic and environmental dimensions of the sustainable development process were employed. This paper is a valuable policy tool for countries like Romania, which dispose of more than two means of transport and which are in the process of improving their sustainable development indicators until 2020.

Oberhofer, P. and Fürst, E. (2013) explore "*the implementation of environmental management in the Austrian road freight transport sector."* According to the same authors "*'environmental management' usually refers to activities aimed at reducing the unfavourable impact of a company on its environment."* This includes its products throughout their entire life cycle (Klassen and McLaughlin, 1996, p.1199; Santos-Reyes and Lawlor-Wright, 2001; Ammenberg and Sundin, 2005). Thus it has both an organisational and a product-related dimension (Tibor and Feldman, 1996).

According to Griškevičiūtė-Gečienė, A. and Burinskienė, M. (2012) Lithuania's "Project Funding" concentrated itself with help of a financial support from the European Union on *"investment projects related to reconstruction of priority urban bypasses, bridges, one level and multimodal crossings, highways together with the anticipated funding"*. The same objectives were find also for the country's "State Investment Program".

France introduced "multi-modal schemes" for collective transport services for both passengers and freight, which according to the European Conference of Ministers of Transport (2004) *"strike a new balance between modes of transport and travel, to frame a new approach to public choice and to strengthen transport policy in terms of multi-modality and the quality of the services offered."*

Lai, K.H., Lun, V.Y.H., Wong, C.W.T. and Cheng, T.C.E. (2011) mention in their work "green shiping practices (GSPs)" as solutions for transport companies *"to green their operations."* Some examples are given and include: *"counting the carbon footprint of shipping routes and using alternative transportation equipment with the aim of reducing environmental damage in performing shipping activities."* The International Chamber of Shipping and International Federation put pressures with the use of Environmental Compliance on shipping companies to adopt GSPs. This regulation act helps in ensuring compliance with MARPOL, The International Convention for the Prevention of Pollution from Ships. Moreover Lai, K.H. et al. also give some examples of transportation companies from different countries, that made themselfes a priority in becoming more sustainable. One example is French Company CMA CGM, a leading container shipping group. *"The firm offers the River Shuttle Container service to transfer goods between main and secondary ports by feeder ships that have a higher carrying capacity than trucks. Using feeder ships to provide shuttle service reduces carbon emission in terms of gram/tonnes-km versus road transportation using trucks."* (Lai, K.H., Lun, V.Y.H., Wong, C.W.T. and Cheng, T.C.E., 2011) the company tries to limit it's environmental negative impact generated by CO2 emissions and at the same time to reduce fuel and oil consumption by *"acquiring new ships and incorporating the latest technologies."* (Lai, K.H., Lun, V.Y.H., Wong, C.W.T. and Cheng, T.C.E., 2011) *"To reduce sulphur oxide emissions, CMA CGM uses a low sulphur fuel that has an estimated sulphur content of only 2.7%. Furthermore, CMA CGM introduces an "eco-speed" program to reduce the speed of its vessels. This program allows the reduction of fuel consumption and CO2 emissions while optimizing vessel utilization."* (Lai, K.H., Lun, V.Y.H., Wong, C.W.T. and Cheng, T.C.E., 2011) Due to the environmental expectations of their stakeholders, shipping firms green their operations via satisfying various requirements such as obtaining ISO 14000 certification in compliance with the ISM Code (Celik, 2009). In order to give more examples on how to green shipping activities Lai, K.H., Lun, V.Y.H., Wong, C.W.T. and Cheng, T.C.E., 2011 present the example of a Danish leading shipping firm, A.P. Moller-Maersk Group (Maersk). Examples of the use of GSPs include: *"the Voyage Efficiency System (VES) to identify the most fuel-efficient route and pursue a just-in-time steady running strategy."*

Krozer, J., Mass, K. and Kothuis, B. (2003) give an example of policy designed to reduce SO2 and NOx substances in Sweden, which *"charges NOx and SO2 emissions, in port"*. Moreover, the same authors consider that "*air pollution by NOx can be reduced by pollution control equipment like low-NOx burners with water injection and selective catalytic reduction."*

Awasthia, A. and Chauhanb, S.S. (2011) present some measures proposed by transportation experts: *"Clean fuels like electricity, biodiesel, etc.; Energy efficient vehicles options like Stop-and-Start engines, etc.; Trip reduction in private vehicle movements in the city, for example, carsharing, park-and-ride, access control zones.;Restrictions on the entry time and size of vehicles entering the city.; Pricing measures like carbon tax.; Regulatory policies on passenger and freight transportation.; Technology adoption like intelligent transportation systems."*

Anderson et al. (2005) present means and measures through which freight transport can be made more sustainable. This includes development of low emission zones, congestion charging, weight restrictions and time restrictions. Green logistics and green supply chain management are other examples on how to improve logistical performance while remaining sustainable.

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Analysis of Kids Apparel Market Segmentation Amongst Millennial Moms (an Implication for Kids Apparel Retailer in Jakarta)

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Abstract

Over the past 2 decades, Generation Y, which is often called Millennials, has become an important market segment. A phenomenon that emerged lately is the millennial moms are busy uploading photos of their children in such a way they dress through various social media like Facebook, Instagram, and Path. Although Millennials form a potential market segment, but Millennials is not a homogeneous group, so that millennial moms' shopping behavior can not be uniform due to the diversity of characteristics, both demographic and psychographic. To that end, it is important for marketers, especially kids apparel retailer, to divide this market into segments that are more specific, so that each segment can obtain a different treatment from marketers. The purpose of this study was to establish a kids apparel market segmentation based on the behavior of the millennial moms and determine whether there are differences in demographic characteristics between the segments formed, to eventually be able to provide recommendations for marketers of kids apparel retailer in Jakarta related to the differences in the character of the segments exist. Data was collected by survey method through questionnaires which are distributed to 306 people millennial moms in Jakarta. The analysis technique used is Cluster Analysis and Multiple Discriminant Analysis. Results from this study stated that there are 4 segments formed, namely shopping maniac moms, buy whatever moms, too much thinking moms, and reasonable choice-making moms, where there are significant differences in shopping behavior among the four segments.

Keywords: Kids Apparel Market Segmentation, Millennial Moms, Shopping Behavior

Introduction

Recently, based on the results of surveys that have been conducted, it is one of the leading manufacturers of baby products in the UK, My1stYears.com, claimed Suri Cruise (daughter of Katie Holmes), Blue Ivy (daughter of Beyonce), and Kai Rooney (daughter of Mary Coleen Rooney) as the most fashionable children, where the three mothers are millennial moms (Katie Holmes was born in 1978, Beyonce was born in 1981, and Mary Coleen Rooney was born in 1986).

In Indonesia too, the millennial celebrity moms are busy showing off their children by dressing them to follow fashion trends, one of which is Almira Tungga Goddess Yudhoyono (daughter of Annisa Pohan, who was born in 1981), who also participated in a fashion show her mother held later. From the observation of researchers that has been done before, this phenomenon is also coupled with the increasing of photos uploaded by the millennial moms showing their children dressed in such a way through various social media like Facebook, Instagram, and Path.

Over the past two decades, Generation Y or millennials, has become an important market segment (Noble et.al, 2009). Currently, 21% of millennials have discretionary consumer purchases which are estimated at more than 1 trillion dollars in direct purchasing power and greatly affect the older generation (Butler, 2014). Within a period of ten years, 80% of the millennials will have a family, and 83% of "new moms' have now been located in this age group (Butler, 2014). By doing so, it can be said that this age group is a large-sized segments with greater spending power (BabyCenter 21st Century Mom, 2014).

Due to the characteristics of each generation is different, it is important for marketers to treat customers in a variety of different age groups (Rempel, 2009). For example, the buying process of the baby boomers begins with the consumer trust to retailers who provide advice to choose the right product, whereas the millennials buying process begins with the selection of products (Parment, 2013).

Despite millennials form a potential market segment, but further, Butler (2014) mentions that millennials is not a homogeneous group. This is in line with the exploratory research that has been conducted by previous researchers, that the millennial moms shopping behavior can not be uniform due to the diversity of characteristics, both demographic and psychographic.

To that end, it is important for marketers, especially kids apparel retailer, to divide this market into segments that are more specific, so that each segment can obtain a different treatment from marketers. And in the end, the strategy adopted by the kids apparel retailers can be better targeted and lead to an increase in purchasing decisions made by the millennial moms for their children, given the huge potential market in this industry.

In terms of academic, previous research has been done by Mafini, et.al (2014) produced a typology of millennials consumer spending on apparel market. However, researchers have not found other studies that have been done on segmenting millennial moms in Jakarta on kids apparel market. To that end, the researchers want to apply the spending typology on kids apparel market to produce kids apparel market segmentation in the millennial moms, supported by the results of exploratory research that has been done by Gunawan, et.al (2014), which reveals millennial moms shopping behavior throughout the buying decision process. Further, after the obtained results of millennial moms market division into different segments, it is necessary to know whether there are differences in shopping behavior between the segment as a whole, as well as what factors that distinguish character of the four segments most. From the results of these studies, the researchers can ultimately provide recommendations for kids apparel retailers in Jakarta regarding the appropriate treatment for each segment.

Thus, the purpose of this study was to determine the segmentation for kids apparel market based on behavioral characteristics of the millennial moms and to determine whether there are significant differences between segments that are formed on kids apparel market.

Literature Review

Millennial Moms is defined as a mother who was born in 1978 to 1994. The women who are classified in the millennial mom use social media more than mothers in general, and they utilize technology to assist them in managing their lives (Goggin et.al, 2014). As the first generation to grow up with the Internet and mobile devices, Millennials are also the first generation that did not feel strange toward the behavior of foreign tweeting and texting with Facebook, Google, Wikipedia, and YouTube, but as a normal aspect of their social life in the search for information (Aquino, 2012). As Kotler et.al (2012) stated the following: "They do not just embrace technology, it's a way of life".

Millennial Moms applying different ways in what way they were raised, they feel more relaxed and happy as parents and they eliminate all the pressure that they get when they grew in the past (BabyCenter 21st Century Mom, 2014). This relates to the buying behavior of the children goods made by the millennial moms who doesn't only meet the needs, but it is also a pleasure for them. Children's apparel products are more creative in terms of style and design to provide more alternatives for the millennial moms to 'dress' their children, even is already started when their child is still a toddler.

Related to the children fashion needs who do not spend little money, Peter et. al (2010) have stated that the children indeed had a considerable effect on the family budget allocation decisions and purchasing choices made within the family. According to the survey conducted by Marketing Charts (2014),

millennial moms identified 18% more than other mothers as 'spenders' rather than as 'saver'. This is the result of individuals who belong to a group of millennials who grew up in contemporary society-oriented consumption, and they have more money in their youth than the previous generation (Kennedy, 2001).

One of the unique shopping behavior of a group of millennial moms is that they prefer to purchase apparel products in the store, but by looking for previous information in advance about the products to be purchased. A study by Forest City and Alexander Babbage revealed that 71% of monthly expenditure of millennials group made physically in the store, and 60% of their shopping time spent to find out about the products to be purchased before visiting a store to interact directly with the product (Loboda, 2014). According to a statement from Solis (2011), that millennial moms seeking information as much as 9.2 times per month when buying a product.

There is diversity in the typology of consumer spending, as mentioned by Butler (2014) that millennials are not a homogeneous group. Consumers tend to show a different shopping orientations, based on personality and individual characteristics (Bae, 2004). Mafini et.al (2014) typology divides Millennials consumer spending on apparel products into 7 groups, as described in the following table:

Table 1: Typology of Millennial Consumers on Apparel Products

Research Methodology

The research population is all women aged 21-37 years who were included in the millennial generation, who already have children, and live in Jakarta. The researcher use questionnaires distributed to 306 samples taken randomly, weighted by using Likert scale as below:

a. Value 1 = Extremely Agree (EA)
b. Value 2 = Agree (A)
c. Value 3 = Neutral (N)
d. Value 4 = Disagree (D)
e. Value 5 = Extremely Disagree (ED)

Variables in this research can be operationalized in the Table 2 and Table 3 below. The indicators of millennial moms shopping behaviour variables are adapted from Mafini's millennial consumers typology on apparel products (Table 1).

Table 2: Operationalization of Shopping Behaviour Variables

Table 3: Operationalization of Demography Variables

Results and Discussion

To analyze the data in this research, some techniques are used. After validity and reliability test are done, Cluster Analysis and Multiple Discriminant Analysis are used to answer the research questions.

Profile of Respondents

The profile of respondents in this research can be shown through Figure 1, Figure 2, Figure 3, Figure 4, Figure 5, and Figure 6 below.

Fig 1. Age of Moms

Fig 2. Age of Kids

Fig 3. Gender of Kids

Fig 4. Occupation of Moms

Fig 5. Expenditures for Kids

Fig 6. Shopping Frequency for Kids

Validity and Reliability Test

All statements of the questionnaire have been tested, and the final results obtained are all of the items included in the calculation are valid and reliable. The result of validity and reliability test can be shown on the Table 4 below.

Table 4: Result of Validity and Reliability Test

So, all variables can be processed further in the Cluster Analysis and Multiple Discriminant Analysis.

Segmenting of Millennial Moms with Cluster Analysis

Table 5: Output of Final Cluster Centers

Based on Table 5, it showed shopping behavior characteristics of each segment. Members of segment 1 rate more positively against the fashion conscious, hedonistic, brand conscious, and novelty-seeking, compared to members of segment 2, segment 3, and segment 4. Members of segment 2 rate more positively against confused by over-choice and impulse buying than members of segment 1, segment 3, and segment 4. Members of segment 3 rate more positively against the budget concern compared to members of segment 1, segment 2 and segment 4. Meanwhile, members of the segment 4 assess more positively to quality-conscious and habitual than members of segment 1, segment 2, and segment 3. By doing so, it can be said that the first segment is 'shopping maniac moms', segment 2 is 'buy whatever moms', segment 3 is 'thinking too much moms', and segment 4 is 'reasonable choice-making moms'.

From the acquisition of SPSS output, it shows that from 306 respondents, 35 people entered the segment 1, 106 people entered the segment 2, 60 people enter the segment 3, and 105 people entered the segment 4. Of the four segments formed, it can be seen that most respondents are divided into segment 2 and segment 4. Meanwhile, the first segment is the segment with the least number of members.

Regarding the difference in distance between each cluster, from Table 5.4., it can be seen that the longest distance is between segment 1 (shopping maniac moms) with segment 3 (thinking too much moms), which means the difference between the two segments is the most significant. Meanwhile, the shortest distance is between segment 1 (shopping maniac moms) with segment 4 (reasonable choice-making moms), which means that both segments are the most resemble. However, out of the four existing segments, segments 3 (thinking too much moms) is a segment with the most prominent difference between the other segments.

Analysis of Between-Segment Difference with Multiple Discriminant Analysis

Table 6: Output Test of Equality of Group Means

From Table 6, it is known that there are differences between the four millennial moms segments based on factors fashion conscious, hedonistic, brand conscious, novelty seeking, quality conscious, confused by over-choice, habitual, impulse-buying, budget concerns, spending on the needs of kids, and

kids apparel shopping frequency. Meanwhile, in terms of age of moms, age of kids, gender of kids and moms' occupation, there is no difference between the four segments.

In addition, from the results of SPSS output, it is known that there are variance differences between the four segments in the millennial moms. Given also that the most dominant variables that can be used as an indicator that determine where the millennial moms should be segmented, are brand conscious, budget concern, and hedonistic variables.

With the data obtained at this time, the membership of millennial moms that fall into the category of shopping maniac moms can be predicted correctly by 71.4%, and membership of millennial moms that fall into the category of buy whatever moms can be predicted correctly by 90.6%, while membership of millennial moms that fall into the category of too much thinking moms can be predicted correctly by 96.7%, and membership of millennial moms that fall into the category of reasonable choice-making moms can be predicted correctly at 97.1%.

Implication of Research Result for Kids Apparel Retailer

From the results of processing and interpretation of the data above, the segment division of millennial moms can be summarized in the following table:

Table 7: Millennial Moms Segmenting on Kids Apparel Market

Shopping Maniac Moms

This segment consists of millennial moms from 25-32 years old with toddler sons (> 3-5 years), but has enough budget allocation for the needs of their children (over Rp 3 million) although they only work as a housewife, then it is likely this segment is the wife of the upper-middle-income men. Millennial moms in this segment consists of women who are concerned with appearance and follow fashion trends for themselves, so that they also apply it into their children as well. In addition, because they have sufficient budget to support their shopping hobby, this segment is quite often make purchases of kids apparel products (4-6 times in 3 months) to explore new arrival models.

However, they are quite selective in choosing kids apparel products to be purchased by a brand. In harmony with their social class and fashionable character, then this segment is very brand concerned with the goal of maintaining pride, including for their children. Not only being the fans of the famous brands, but this segment also requires diversity in the selection of models and colors of kids apparel, because their character is looking for variation (novelty-seeking).

Thus, kids apparel retailers that target this segment is not enough to 'sell' quality only to this segment, but also require model and color varied apparel, mannequin models arrangement and display that follow the trend, attractive and comfortable shopping atmosphere to support the activity of shopping, as well as short time stores stock turnover and display of new arrival models at the spot that could attract the attention of shopping maniac moms.

Buy Whatever Moms

Not too much difference from shopping maniac moms, this segment also consists of millennial moms aged 25-28 years who is a housewife and has children aged >3-5 years. The difference is that this segment of moms do not have as much as shopping maniac moms budget. This segment often buy kids apparel products (4-6 times within 3 months) due to the encouragement of diverse offers or promotions from retailers. They are easily motivated by impulse when passing through a store that seems to offer

many choices of apparel models. However, because of its limited budget, then buy whatever moms are not too brand oriented and looking for a product that looks nice but tend to be cheaper.

Thus, kids apparel retailer that targets this segment relies heavily on display and store layout that could expose various selection of models and colors to stimulate buy whatever moms. In addition, retailers can also take advantage of the active shopkeepers that can act as a problem solver for consumers who visit the store, by offering options of existing products according to customer needs.

Thinking Too Much Moms

Thinking too much moms are dominated by the millennial moms moms aged 25-28 years who are just starting their role as a mother, in which their children are aged >1-3 years. In contrast to other segments, this segment consists of millennial moms who work as staff-level employees, so that the budget allocated for the needs of young children are also limited (> Rp 1 million - Rp 3 million). Moreover, their time isn't as much as housewives', then this segment also do less shopping in kids apparel products, which is only 1-3 times within 3 months.

This segment is the most different segments of its own with the three other segments (Table 5.4), because they make the price as a primary consideration in the selection of kids apparel products and don't think of other factors. Most important for this segment is efficiency, because of limited time and budget. It is also due to the age of the children who are smaller, so they can not be too explored to be fashionistas, so what is important is the low price.

Kids apparel retailer that makes this segment as its target market depends only on a competitive price, or at least 'look' cheap for thinking too much moms. The one that is exposed in the store is the price or sale board, this is what can attract this segment to visit the store. In addition, the bundling strategy could also be applied, because this segment seldom take the time to shop kids apparel products and just spend as needed, so it is possible for this segment to implement a system of 'stocking' apparels for their children.

Reasonable Choice-Making Moms

This segment consists of millennial moms aged 33-37 years and their children had passed the age of kids (> 5-8 years). Their profession is a housewife and they have large enough budget for the needs of their children (> Rp 3 million), but only spend kids apparel product as much as 1-3 times. It could be said that this segment is a mature version of the segment shopping maniac moms.

Reasonable choice-making moms basically like shopping and supported by a large budget, but because they are already mature, then they no longer focus on trend or just a hobby of shopping without direction. They are oriented towards product quality for children, and is not concerned with the model. Because they are quality oriented, then they usually have subscription brand or store to shop kids apparel products.

Kids apparel retailer that targets reasonable choice-making moms depends on the trust that can be embedded in customers. Trust is based on consistent quality which is maintained by retailers, mainly about product material used. To that end, retailers should be able to highlight the superior quality in its products and maintain the credibility of its brand. In addition, retailers who play in this segment need to maintain a good relationship with reasonable choice-making moms, because they are a potential market to be a loyal customer over the long term.

Comparison Among Segments

Overall, the four segments have different shopping behavior and characters, except in the case of age of moms, age of kids, gender of kids and occupation of moms, no significant differences were found among the four segments. But beyond that, if seen from the factor fashion conscious, hedonistic, brand conscious, novelty seeking, quality conscious, confused by over-choice, habitual, impulse-buying, budget concerns, spending on the needs of kids, and kids apparel shopping frequency, the four segments are each have a difference.

Despite the difference in each segment, between segment shopping maniac mom, buy whatever moms, and reasonable choice-making moms tend not to have much difference. Segment thinking too much moms are the most different segments than the three other segments. This is because the most dominant variable that acts as a determinant of the distribution segment is a budget concern. This can be a consideration for kids apparel retailer to determine its target audience, mainly based on price.

However, it turns out that age of moms and gender of kids did not really give an impact on shopping behavior of millennial moms in general, because the two variables aren't found to be correlated with the distribution segment. Factors that are more appropriate to be used as the basis for determining the target market is age of kids, occupation of moms, allocation of expenses to the needs of kids, and kids apparel shopping frequency products. It could be said that the reasonable choice-making moms is not a mature market in terms of age of moms, but growing age of kids and time range of millennial moms being the mother that makes her shopping behavior is more stable.

In terms of the number of members of the segment, the segment buy whatever moms and reasonable choice-making moms are the segments with the largest size, so they are more potential for being targeted. What should be noted is that both segments are conflicting, making it more difficult to target both these segments simultaneously. Next, segment thinking too much moms are the second largest segment which is potential for targeted, as well as fashion-maniac moms have the fewest members. In other words, most of the millennial moms in Jakarta is not oriented on the trend or brand, but the models that are varied (buy whatever moms) and guaranteed quality (reasonable choice-making moms).

Conclusion

There are two points of conclusion that can be taken from this research. First, there are 4 segments of millennial moms formed on kids apparel market, which is shopping maniac moms, buy whatever moms, too much thinking moms, and reasonable choice-making moms. Overall, there are significant differences in shopping behavior among the four segments of the millennial moms on kids apparel market, as well as a very dominant variables that can be used as an indicator that specifies the determination of segmenting millennial moms is budget concern variable.

Figures and Tables

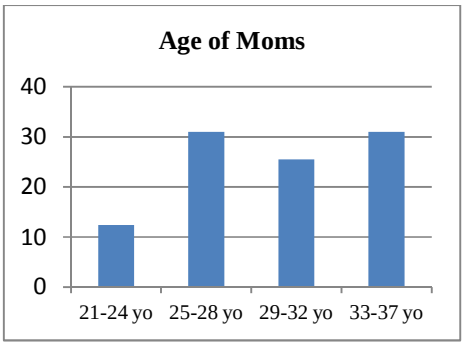

Fig 1. Age of Moms

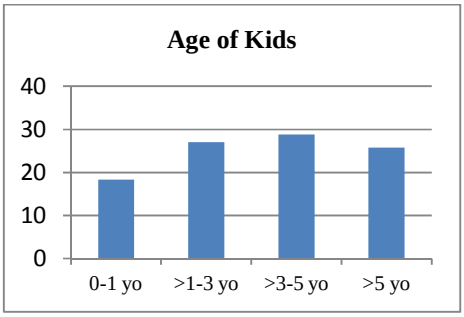

Fig 2. Age of Kids

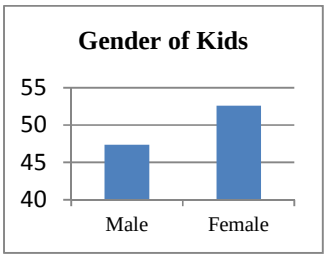

Fig 3. Gender of Kids

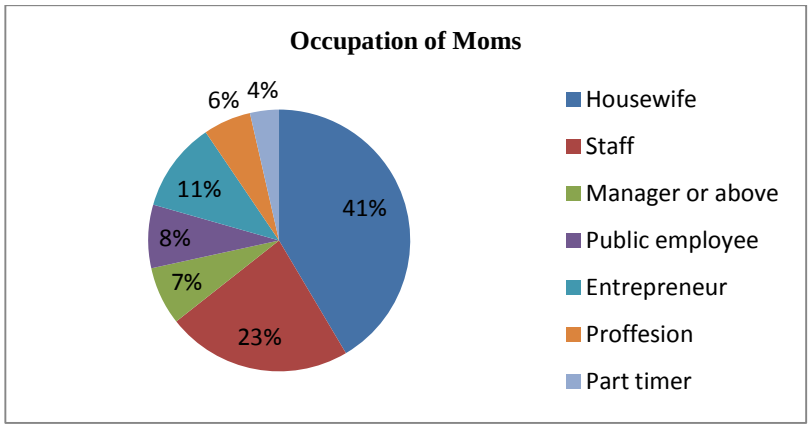

Fig 4. Occupation of Moms

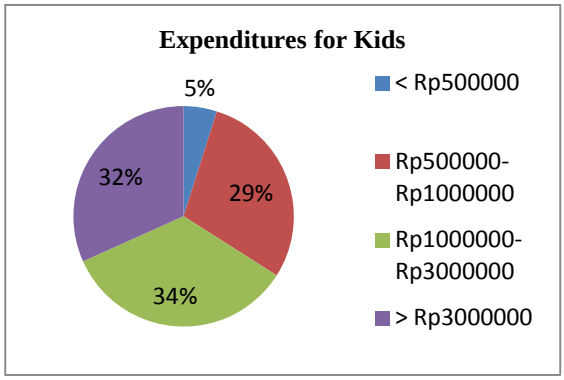

Fig 5. Expenditures for Kids

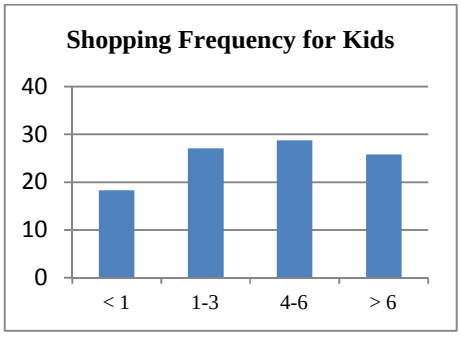

Fig 6. Shopping Frequency for Kids

Table 1: Typology of Millennial Consumers on Apparel Products

Factors label	Factor description
Fashion conscious	A characteristic representing a consumer who is motivated to keep up to date with styles and fashion trends.
Hedonistic	A characteristic measuring the degree to which a consumer finds shopping activity enjoyable and shops for the fun of it.
Brand conscious	Measuring a consumer's orientation to buying the more expensive, well-known brands.
Novelty seeking	A characteristic identifying consumers who appear to like new and innovative products and gain excitement from seeking new products.
Quality conscious	A characteristic measuring the degree to which a consumer searches carefully and systematically for the best quality in products.
Confused by over-choice	A characteristic identifying those consumers who perceive too many brands and stores from which to choose, experiencing information overload in the market.
Habitual, brand loyal	A characteristic indicating consumers who have favourite brands and stores, who have formed habits around these.

Source: Mafini et.al (2014)

Table 2: Operationalization of Shopping Behaviour Variables

Variables	Indicators	Measurement Scale
Fashion Conscious	Buying kids apparel products because they always want to make their children look fashionable	Likert
	Buying kids apparel products because they always want to make their children follow trends	
Hedonistic	Usually buying kids apparel products because they have a hobby of shopping	
	Often shopping kids apparel products without taking much account on budget	
Brand Conscious	Buying kids apparel products based on well-known brand products	
	Buying kids apparel products based on famous brand stores	
Novelty-Seeking	Like to buy kids apparel products because likeliness with the new models offered	
	Often buy kids apparel products because get bored quickly with the old models	
Quality Conscious	Buying products with kids apparel products quality as a primary consideration	
	Always buy kids apparel products whose quality is guaranteed	
Confused by Over Choice	Usually confused with a variety of information on kids apparel products which are very diverse	
	Usually confused with the various offers on kids apparel products are very diverse	
Habitual	Has favorite brand in purchasing kids apparel products	
	Has favorite store in purchasing kids apparel products	
Impulse Buying	Buying kids apparel products because of interest in store displays	
	Often buy kids apparel products without planning before	
Budget Concern	Make the price as one of the main considerations for buying kids apparel products	
	Often prefer kids apparel products whose price tends to be more affordable	

Table 3: Operationalization of Demography Variables

Variables	Variables Definition	Answer Classification
Age of Moms	Age of millennial moms	1 = 21 – 24 years 2 = 25 – 28 years 3 = 29 – 32 years 4 = 33 – 37 years
Age of Kids	Age of kids of millennial moms	1 = 0 – 1 years 2 = > 1 year – 3 years 3 = > 3 years – 5 years 4 = > 5 years
Gender of Kids	Gender of kids of millennial moms	1 = Male 2 = Female
Occupation of Moms	Occupation of millennial moms	1 = Housewife 2 = Private employee (staff level) 3 = Private employee (manager or above) 4 = Public employee 5 = Entrepreneur 6 = Proffesion (teacher/ lecturer/ doctor/ lawyer/ dll) 7 = Part timer
Expenditure for Kids	The average of expenditure spent for all children needs	1 = < Rp 500.000 2 = Rp 500.000 – Rp 1.000.000 3 = Rp 1.000.000 – Rp 3.000.000 4 = > Rp 3.000.000
Shopping Frequency for Kids	The average of frequency of expenditure on kids apparel products within 3 months	1 = < 1 time 2 = 1 – 3 times 3 = 4 – 6 times 4 = > 6 times

Table 4: Result of Validity and Reliability Test

Variables	Corrected Item-Total Correlation	Table R	Result
Fashion Conscious	0.582	0,0942	Valid
Hedonistic	0.525		Valid
Brand Conscious	0.479		Valid
Novelty Seeking	0.692		Valid
Quality Conscious	0.369		Valid
Confused by Over Choice	0.492		Valid
Habitual	0.480		Valid
Impulse Buying	0.292		Valid
Budget Concern	0.362		Valid
Cronbach's Alpha	0.749	0,0942	Reliable

Table 5: Output of Final Cluster Centers

Variables	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Fashion Conscious	3.67	3.08	1.98	3.54
Hedonistic	3.64	2.90	1.65	3.17
Brand Conscious	3.86	2.80	1.62	3.03
Novelty Seeking	3.81	2.82	2.28	3.67
Quality Conscious	4.00	3.16	3.72	4.09
Confused by Over Choice	2.82	3.69	2.60	3.64
Habitual	3.50	2.97	2.82	3.70
Impulse Buying	2.87	3.50	3.09	3.15
Budget Concern	3.01	3.13	4.34	4.14

Table 6: Output Test of Equality of Group Means

Variables	Wilks' Lambda	F	Sig
Fashion Conscious	0.560	79.159	0.000
Hedonistic	0.545	84.046	0.000
Brand Conscious	0.480	109.271	0.000
Novelty Seeking	0.550	82.259	0.000
Quality Consicious	0.759	31.919	0.000
Confused by Over Choice	0.711	40.881	0.000
Habitual	0.756	32.442	0.000
Impulse Buying	0.913	9.627	0.000
Budget Concern	0.543	84.788	0.000
Age of Moms	0.979	2.111	0.099
Age of Kids	0.977	2.344	0.073
Gender of Kids	0.999	0.087	0.967
Occupation of Moms	0.987	1.351	0.258
Expenditure for Kids	0.940	6.385	0.000
Shopping Frequency for Kids	0.948	5.553	0.001

Table 7: Millennial Moms Segmenting on Kids Apparel Market

	Segment 1 (Shopping Maniac Moms)	Segment 2 (Buy Whatever Moms)	Segment 3 (Thinking too Much Moms)	Segment 4 (Reasonable Choice-Making Moms)
	Fashion-conscious	Confused by over-choice	Budget concern	Quality-conscious
	Hedonistic			
	Brand-conscious	Impulse-buying		Habitual
	Novelty-seeking			
Age of moms	25 – 32 years	25 – 28 years	25 – 28 years	33 – 37 years
Age of kids	> 3 – 5 years	> 3 – 5 years	> 1 – 3 years	> 5 – 8 years
Gender of kids	Female	Female	Male, Female	Female
Occupation of moms	Housewife	Housewife	Private employee (staff level)	Housewife
Expenditure for Kids/ month	> Rp 3 million	> Rp 1 million – Rp 3 million	> Rp 1 million – Rp 3 million	> Rp 3 million
Shopping frequency for Kids in 3 months	4 – 6 times	4 – 6 times	1 – 3 times	1 – 3 times

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Downshifting: Escaping the Rat Race

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Abstract:

The paper discusses the concept of downshifting and the attitude of various authors. The analysis of the main reasons for downshifting is given, the most common reason is shown - the desire of the employee to have a harmonious balanced life. It is shown that there are different types of downshifting in Russia, such as a brief timeout, as well as a retreat from the world of business; passive and active types of downshifting. Examples of downshifting in Russia and abroad are given.

Keywords: downshifting, downshifted, "voluntary simplicity", corporate rebel, spontaneous and deliberate types of downshifters, active and passive downshifting

The concept of downshifting

Just a few years ago in Russia appeared a new western term “downshifting”. Downshifting (switching a car into a lower gear and slowing or weakening of any process) is a term denoting philosophy of life as "a life for me", "abandoning the goals of someone else". Synonyms of this term in English-speaking countries are a "simple life” and "voluntary simplicity". In practice, this means that successful people leave their very successful career, full of stress and time constraints, and head for a remote village or in some warm country. A historical example of the first downshifter may prove to be the Roman Emperor Diocletian who voluntarily retired from public life into seclusion and found "happiness in the cultivation of vegetable garden". The greatest number of downshifters are in the US (30% of Americans) and Australia (26% of Australians). Moreover, there is a pattern: the higher the average standard of living in the country is, the more people will reconsider their attitude to career, earnings and income.

This strange idea has aroused great interest in the Russian HR community. Number of materials about downshifting started appearing in the business press and at various specialized portals. One of the first in Russia was the article "shorting" of the magazine "Secret of Firm" by Sokolov A. (2008). The article presents the results of a study of dissatisfaction of western downshifters: 34% are completely satisfied with their new life, 37% are satisfied but sorry about the decline in revenue, 16% were seriously affected by the loss of former wages, and only 7% were not satisfied with changes in their lives.

The term downshifting and the phenomenon of downshifting were popularized in an article posted on 31 December 1991 in the newspaper "Washington Post" by Sarah Ban Breathnach “Living in A Lower Gear: Downshifting: Redefining Success in the '90s. The heroine of the publication (Amy Saltzman) meets with friend and colleague on the street. Friend is in a hurry at full speed and casually asked how things were going, to which the heroine replied: "All is well, the work is interesting, but I don't allow it to fully absorb me. Several times a week I volunteer in the evenings, read a lot, and also I am writing a story: it is unlikely to be released, but I still like it." It puzzled her friend, and Salzman

explains: "I made a conscious decision to slightly reduce the pace of life... I deliberately did not seek promotion because I realized that the new job would take too many evenings and weekends".
From this quote it is clear that the essence of downshifting is not life in the village but in life for himself. Not that you quit your job and move to a village house, but that you rely on your own wants and needs, not on what society imposes on you.

Attitude to downshifting

Attitude to downshifting is quite ambiguous. Some authors, such as Antropov S. (2015), believe that "downshifters are people experiencing temporary psychological difficulties, those who lost the meaning of life under severe stress at work and the burden of problems and therefore are vulnerable to various kinds of ideas and ways to "solve the problem in one fell swoop". They are clutching for downshifting as a solution to their difficulties, or simply call themselves downshifters following fashion". Therefore, the authors of this position believe that, "if you are inconvenienced by the office, the boss, the way of earnings – you might want to change jobs or to try freelancing. Maybe it's just only temporary difficulties, and tomorrow you will wake up in a good mood and will be glad that you have not quit your job for the illusive "happy life without money".

Other authors, such as Kholopov A. (2008), believe that these difficulties are not temporary, but they indicate a deep inner value conflict between the goals imposed by society - career, wealth, status - and internal values — self-knowledge, hobbies, communication with relatives etc. Downshifter is aware of the illusory nature of imposed goals, because as more wealth is acquired, the more you want. The problem is not so much in status and wealth, but in what price for them often has to be paid in society: stress, illness, lack of free time, family conflicts, etc. Choice of downshifter is a conscious refusal to participate in "the rat races", which implies the reduction of material income and is often perceived harshly by the loved ones and society. As the award downshifter gets internal satisfaction from life, the opportunity to do what he likes, to live as one pleases.

The authors - Petlin A. (2011) - of the third direction called downshifting a disease "affecting the areas of the brain responsible for the pursuit of social advancement and career ladder. The person becomes indifferent to the work, career, acquisition of new things, familiar to all normal people for being pleasant". Proponents of this position believe that the disease brings significant economic damage for individual companies and the industry itself. Even an example is provided: a talented young manager of a large energy corporation has been proposed a serious promotion. The management believed (not without reasons) that for the ambitious employee this will be a good incentive, but they were miscalculated - the young man was a downshifter: he said he was tired, then resigned and retired. It caused extensive damage to the company - the employee was engaged in three important projects and when he left, two of them closed. In the end $19 million, which the corporation invested in projects, were impossible to return.

Since 90’s this social and cultural phenomenon was widely circulated throughout the world, especially a lot of downshifters appeared in Australia, USA, UK. For example, Hamilton C. and Mail E. (2003) mention that in Australia the proportion of downshifters is 26%, and by the end of 2015, according to some forecasts, it will reach 50%. The most common among Australians methods "of descent on the social ladder» is to reduce the number of working hours (29%), transition to a less paid job (23%), refusal to work at all (19%), changing the scope of activities (19%). In the UK, the downshifting is closely connected with the environmental movement (the cultivation and consumption of ecological products), and is manifested not only at individual but also at the corporate level - use of recyclable materials, transfer of old office furniture instead of its destruction, etc. In the U.S. and Europe downshifting is manifested in the process of moving from cities to the villages to quiet family life. Women’s career refusal in favour of homemaking is also a common widespread practice of downshifting.

Russian downshifters are much smaller part in society (4-5%), due to several reasons:

- economic factors: the Russians unlike people in the developed world relatively recently started to live more or less decently and have not had time to feast upon the fruits of the consumer society;
- the standard of living in Russia is much lower than in the countries with the largest number of downshifters, confidence in the future is absent in almost all social layers;
- territorial issues - Russian villages are not civilized European villages.

However, it should be noted that downshifting has not only individual but also a social dimension, as studied by Fateeva M. (2012). In this case we are talking about the strategy of sustainable development of humanity, when the quality of life is not an end in itself, but the life is not achieved at the expense of future generations (environmental degradation, resource depletion, etc.). Many rightly believe that for the survival of humanity we need to seek new paradigms that will meet the high level of technical and spiritual development. Downshifting is one of the examples of such way to be happy, not taking efforts for it and not to be involved in a struggle with competitors.

Reasons for downshifting

According to research by Hamilton C. and Mail E. (2003) conducted in Australia, people who strive for downshifting have four main reasons.

The first reason is the human desire to have a harmonious balanced life without stress factors.

The second reason can be attributed to the reaction to contradiction between personal values and values imposed in organizations.

The third reason include the search for a more satisfying life. Downshifters believe that the realization of oneself in the career does not lead to positive results.

And finally, the last, fourth reason can be attributed to human health. In the downshifting they see a direct source of health.

Research conducted in England showed that the main reasons for downshifting can be attributed to people's desire to spend more time with their family. For older people downshifting is perceived as the main source of health, and for young - as self-realization without any imposed organization ideas. In the U.S. this social phenomenon is called differently - "voluntary simplicity". This term was coined by D. Elgin in the 60-70 years of the twentieth century. Under a voluntary simplicity he meant a stable balanced lifestyle.

Here should be added that in the west downshifters are mainly people aged 35-40 years and wealthy. Therefore, the western model of this phenomenon is quite different than in Russia, by the meaning. Classic western downshifting (lower income) is always a revolution in response to the requirements of the company. Downshifter is a corporate rebel, he suddenly puts his company in a disadvantage (and the industry as well). Such people are not welcome in large companies, as in Procter&Gamble, Mars and other citadels of commercial stability. The most interesting thing that these companies are the main producers of downshifters – corporate ethics requires much, giving only money and status in return, meaning not everything for some employees, in a research study by Kholopov A. (2008).

As shown by studies in Russia by Antropov S. (2015), downshifting for the Russians can have the following causes:

- family is above career – it is necessary to create or preserve one;
- constant stress, debilitating and, as the last straw, a nervous breakdown, and then the doctor's advice to take a calmer job;
- high level of responsibility for the management, there is not enough time not just for family and friends, but also to recover and relax;
- economic crisis for people that lost the usual level of income or jobless people who are looking for opportunities for self-realization and a place to survive unfavorable period.

Although all individual and depends on the temperament and character of a person, we can distinguish between two types of downshifters in Russia based on behavioural characteristics.

The first type is characterized by a spontaneous desire to join this course, which can be caused by some external events (such as severe stress) and represents a subconscious desire to hide, to run away from the problem, to be alone. Such people often come back into the profession.

The second type involves an informed choice that is based on the understanding of why we live. This is an informed decision, to which the man who has achieved significant career successes came for a reason. Being tired of the lifestyle that he leads, person realizes that for what he really loves and appreciates there is no free time for him. All of his powers and energy are spent almost for nothing and compensated only as the material goods that are essentially worthless. Ultimately, this kind of people change their lives, focusing on their inner world. Hence, we distinguish between the following types of this phenomenon.

Types of downshifting in Russia

Short timeout. As a rule, people who have achieved success in their careers but are pretty tired for this period of time, eager for new experiences and sensations, tend to go to a distant country to study its culture, lifestyle of locals, or just for a long vacation. Often these people prefer not to think about how long will such vacation last, however, they still expect to return home sooner or later.

The advantages of such breaks can be health for the body, the ability to listen to yourself, the vivid impressions of the journey and the realization that you have the courage to take risky decisions and to fulfill your desires. After such breaks, many people change their job or even a activity as a whole: instead of a corporate business, for example, they start their own projects. And sometimes the relaxation and new experiences can give a boost to career growth.

Withdrawal from the world of business. This is the most extreme and "real" view of downshifting, which implies a complete rejection of the goods. There are people who deliberately leave the property in the cities and move to an exotic country or to the Russian heartland without a return ticket. Popular destinations for "travellers" — countries of Asia, India, Tibet. There they can join, for example, different religious groups, monasteries or just find like-minded people. And there they can organize their own small businesses, as a rule associated with a favourite hobby that will generate income and not take up too much time. The duration of such trips can reach several years, and for some they continue through their life.

For example, as mentioned by Fateeva M. (2012), the marketing director of a manufacturing company moved to Goa, took up yoga and meditation, revised her values and understood how to find peace of mind. After two years she decided to return home, but didn't want to work in a corporate environment anymore and she has just organized a children's charity.

Sociologist Ovechkina Y. V. (2013) basing on the degree of activity distinguishes between active and passive downshifting.

The main ideology of a passive type focuses on internal, individual needs, the desire to reject society's values. Describing this type, we can distinguish between 2 degrees of care: "easy" downshifting and "deep" downshifting. "Easy" downshifting is a decrease in work hours, transition to a free, flexible schedule (freelance), reducing the level of consumption and, as consequence, reduction of expenses, the transition to a more "economical" version of life. Thus, the workers, who earlier held the position of top managers, begin to devote more time to leisure, family and their inner world, changing expensive cars to bicycles, urban dwellers migrate to the villages and third world countries, they are switching to organic food and to the so-called style of "simple living" (a simple life). Followers of this movement are characterized as people who are trying to consume less and wiser, thinking about the environment, the energy, their internal, psychological health. This type is

especially well developed in the US and the UK. For the passive type we can attribute an emerging movement of downshifters in Russia.

Active downshifting is a type of complete rejection of the values of society, a sharp decrease on the social ladder. Proponents of this method tend to a drastic change of the place of work and positions: from a position of senior manager to the paperboy or cleaner (funds are perceived not as an indicator of status but only as a means to survive). In the U.S. and Europe, a community of "active" downshifters is growing and developing. Antiparasitaire activism of downshifters connects with homogeneous ecological activism, the fight against globalization and activism for animal rights, environmentalism. The society of consumption is gaining tremendous momentum and this momentum itself is causing people to "reduce speed" of life and consumption as a part of it. New values emerge - values that have been previously replaced in society by consumerism and careerism. Active downshifters may organize political parties in the future to influence public opinion, attracting a growing number of people to their own ranks.

An example of such active downshifting is a boom of ecovillages around the world. There are over 2000 successful communities on Earth, 420 eco-villages and settlements of kin's domains are active in Russia – all of this suggests that we live in a transitional time. Why? This question is well attributed to Dianne Christian, researcher of the world's settlements in her book "Creating a Life Together: Practical Tools to Grow Ecovillages and Intentional Communities" (2003), translated in 2012 to Russian language. In her book she writes that at the moment we are experiencing some cultural and deeply personal phenomenon – as if something "clicked" in the psyche of many thousands of people. Many realize that we live in an increasingly fragmented, shallow, corrupt and frankly dangerous society; many are tired of the reality, where there are guns in school yards and crooks at high positions, so we yearn for a different life - a more holistic, meaningful, more accessible, a life where one can find warmth, kindness, togetherness and cooperation.

The division of priorities was, is and will be the main task of each man, and learn to manage yourself and your time is a skill not given to everyone. Downshifting is an example of the crisis of internal resources of the person trying to find a point of harmonious combination of material and spiritual needs and the resources they provide. In the modern pace of life, many attempt to keep up with some pointless objectives and often forget about the basics – and are too immersed in a career. People who replace personal life with work are often too sensitive to failure, which then results in nervous breakdowns. Therefore, it is important to the employer that the employee could not only work well, but for him also to have a wide variety of interests – so he probably can find a proper balance for himself, and his appeal to the downshifters is less likely than for a workaholic. It is needed to fill the employee with a sense of value and give him greater opportunity for self-realization, creativity and professional growth – and, for many, "horizontal" growth is acceptable. Therefore, the Russian business will only benefit if more people will be doing things they love and enjoy, without depriving themselves of the benefits of civilization.

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Organizational mechanism of regional socio-economic welfare monitoring

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Abstract

The relationship of socio- economic well-being from the applicable institutional mechanism for monitoring the well-being of this region is highlighted in article. Certain stages of institutional monitoring mechanism allow time to identify the problems of socio -economic development of the region and to identify ways to address them. The applying of different types of analysis which used in the monitoring, provide surveillance of the conservation and maintenance of successful social and economic sphere of the region.

Keywords: socio- economic well-being , institutional mechanisms for monitoring the functional cycle of monitoring, control monitoring;

Introduction

Socio-economic prosperity of the region depends on socio-economic development programs, which are developed, adopted and executed in the region. The monitoring process of these programs is based on the use of appropriate methods and principles of implementation. Logic of its realization formalizes the nature, content and importance of its functions. All this together forms a monitoring toolbox that is extremely diverse. Organizational mechanism of monitoring includes tools which greatly vary in complexity, significance, purpose, conditions of use and other features (from the principles of the formation and implementation of the monitoring process to construction of its organizational system). Organizational mechanism for monitoring can be defined as a set of elements of the monitoring process, which is expressed in the instrumental, informational, regulatory and staff support for this process, its organization in space and time, in order to obtain reliable information on the implementation of socio-economic development of the region (see. Fig. 1).

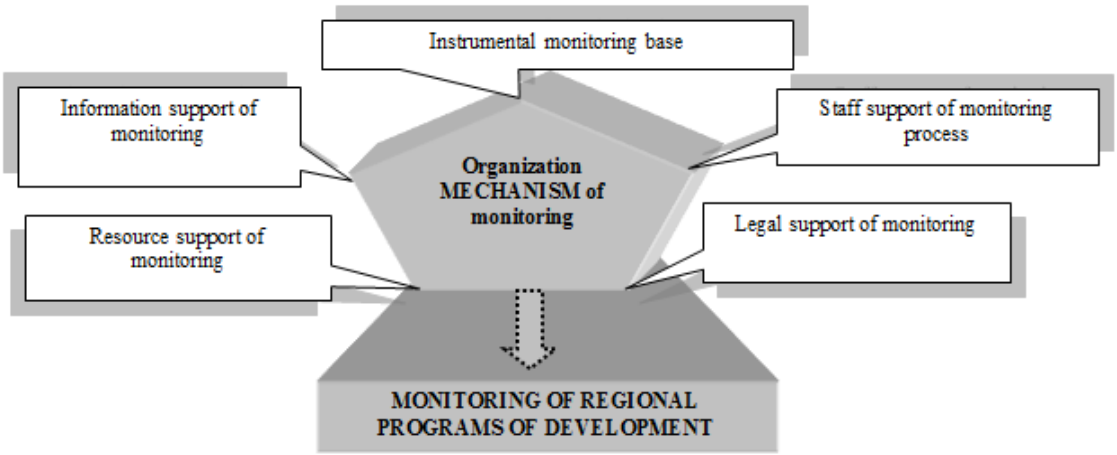

Figure 1. Organizational mechanism of monitoring of regional development programs

1 Functional monitoring cycle stages

Organizational mechanism of monitoring of regional socio-economic development is formed and operates within the framework of the monitoring cycle, which consists of 4 stages (Fig. 2). They can be identified as a functions of the monitoring process:
At the diagnostic function it is necessary to collect information, which will to explore the socio-economic condition of the region, the dynamics of the properties, characteristics and parameters of this state.

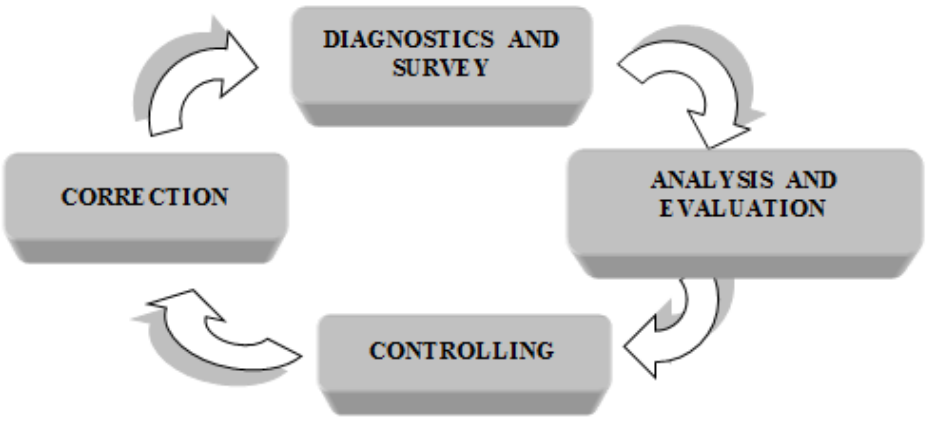

Figure 2. Functional stages of monitoring cycle

At the stage of *function of analysis and evaluation* of socio-economic development programs implementation, the information received is subjected to a thorough and comprehensive treatment, which consists of, first, comparison of the actual performance of the observed object with the plan. Secondly, the information is subjected to the system analysis. Third, all of the figures obtained are evaluated. Evaluation of complex systems can be carried out for different purposes, but in all cases, the general approach is based on the fact that the concept of "evaluation" and "evaluating" are considered separately and assessment is carried out in several stages. The sequence of evaluating of complex systems is as follows:

- Defining the purpose of evaluation. In system analysis there are two types of indicators of achievement. Qualitative indicators are those whose achievement is expressed in nominal scale or scale of the order ("better", "worse", "satisfied", etc.). Quantitative indicators of performance objectives expressed in numerical scales. Determining the purpose should be relative to the entire system (in this case, the program).
- Measurement of the properties of the program, essential for the purposes of evaluation. To do this appropriate indicators of properties are chosen. They should unite all areas of the program, which in the future will be guided by indicators of performance of all areas of the program.
- Justification of preference criteria of quality and performance criteria of the program on the basis of selected indicators of program properties.
- Evaluating itself. All indicators of different areas of the program are compared based on formed criteria and depending on the purposes of assessment are ranked, selected, optimized, etc.

Any system operates without significant disruptions and problems only if control function has been established to monitor its activities. This function allows to identify violations and take measures to rectify the situation (see. Fig. 3). ln regard to time factor, control can be divided into pre- and post-control. Of course, the effectiveness of the pre-control (especially if it is carried out at the stage of program development in the region) is much higher: one can not just simply identify violations, but to find their causes and eliminate them, not allowing a violation itself. The preliminary control in the

monitoring system may include control of objectives, projections and threats. Subsequent control is control of the implementation of plans, gaps between planned and actual program indicators.

Once all the information received has been carefully analyzed and systematized, control of plans, goals and projections has been implemented, it is necessary to develop a plan of action for further adjustments. These are changes that should improve the situation if it worsens, or consolidate positive trends.

Once all four functional stages have been fulfilled, the monitoring cycle is repeated. Therefore, monitoring is understood as a continuous process, which is not desirable to carry out only in a particular period of the program.

2 Methodological framework of institutional monitoring mechanism

Organizational mechanism of monitoring of regional development programs region has a specific methodological framework, which is based on formal methods of monitoring (Rayzberg B., Lobko A., 2002):

- economic analysis;
- discriminant analysis of program areas;
- analysis of documents of statistical information;
- analysis of executives' reports concerning program activities;
- monitoring interviews;
- monitoring survey;
- monitoring survey;
- surveillance of the monitored object, carried out based on the system the most important indicators characterizing its condition;
- etc.

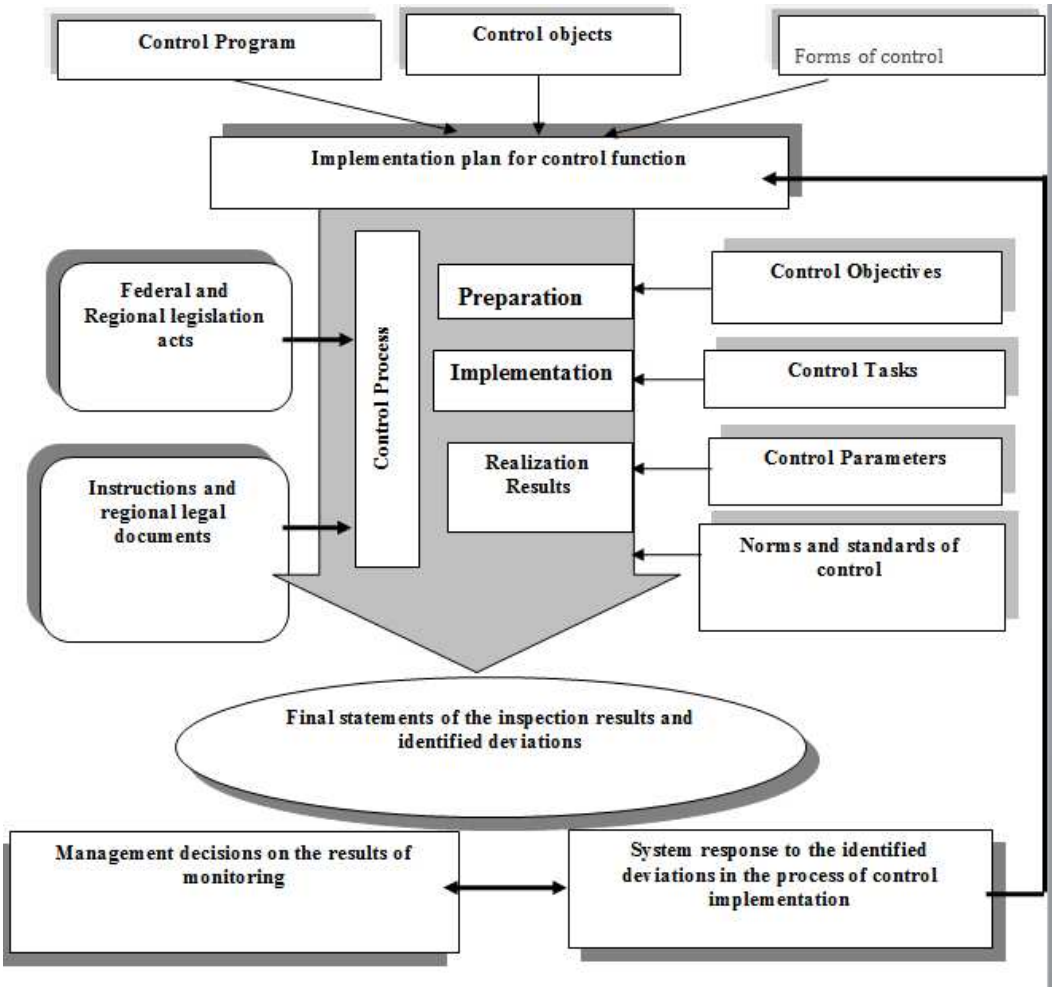

Figure 3. Formation of control function in monitoring

Organization of the monitoring functions consistently in the framework of target-oriented structure, which operates in the existing management system of the region. That is why during the systematic monitoring of the program steady vertical communications with the regional administration should be kept. However, connections of target-oriented structure with all the departments and executives of regional linear-functional structure should be primarily functional. This ensures the unity of command on the part of senior management of the program prevents the occurrence of serious contradictions in the performance of various programs, making the system stable under conditions of changing and diverse objectives and ensures the quality of monitoring.

One of the main requirements for quality of the monitoring is the presence of a single structure, coordinating the flow of information in the performance of the program among the structural units of administration, municipalities and businesses. In most of the existing government structures of regional administrations, these features are closest to economic services (economic departments / committees / offices) which may act as such coordinators.

As a rule, regional programs monitoring is carried out by program-target management body. However, it is also common when monitoring is carried out by an external organization, embedded into the existing organizational structure of the management of the program. In the framework of the monitoring this organization interacts with structural divisions of regional administration of the region, companies and organizations that are implementing

program activities, regional office of the State Committee of Statistics, concerning information on the progress of implementation of the program.

3 The flexibility of process control monitoring

It should be noted that one of the main problems of the organization of monitoring is a problem of flexibility of management process. This problem can be solved by creating new versions of the combined structures by introducing new program elements, such as committees, controls the program, expert working groups, etc. into the backbone of the existing program management structure. Thus, when designing an organization of monitoring system one should pay attention to the parameters of flexibility and adaptation to the regional development program. This includes:

- setting priorities for the strategic development in the work of program activities executives or departments of the regional administration;
- the degree of adaptation to changes in the development program in management decision-making;
- the degree of program activities focus, responsibilities, powers and subordination;
- the level of entrepreneurial abilities of program executives and regional administration in addressing the problems of development;
- Mobility in the formation of groups, coping with new challenges of development;
- the degree of effective coordination among monitoring participants;
- the ability of the organizational structure of the program to "compress" data as it moves up the hierarchical level.

Conclusion

The results of the practice of monitoring and evaluation of programs of social and economic development make it possible to draw important conclusions on the formation and functioning of the monitoring system in Russian regions:

- In use today organizational and management structures of regional administrations there are no divisions which carry out systematic monitoring functions. The lack of such services leads to the fact that the administrative structures use only current information and its external, surface layer, which only reflects the results of yesterday's activities and does not allow them to look into the near future.
- The results of the program monitoring are not always available to the general consumer, causing a negative attitude to the programs themselves. Therefore it is necessary to publish indicators of program effectiveness in the regional media.
- Program effectiveness criteria are often in conflict with each other, because they are not ranked by relevance to the development of the region.

In conclusion, we should point out that one should not neglect the importance of the organizational mechanism of monitoring of socio-economic development carried out on the territory of the Russia. This mechanism allows you to keep track of deviation from the objectives of social and economic development, to identify corrective actions necessary to preserve the well-being of regions.

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What Drives the Decision to Switch to Islamic Banking? Evidence from the UAE

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Abstract

Islamic banking has witnessed remarkable growth in the last few years. The purpose of this study is to explore the factors (religious or secular) which are more important in the decision of consumers to switch to an Islamic bank. A questionnaire was designed to collect data from the regular users of banking services in the United Arab Emirates. A total of 500 questionnaires were distributed, out of which 388 returned questionnaires were suitable for further analysis. The respondents were asked to complete a survey on consumer attitudes towards Islamic banking. Specifically, they were asked to rank several factors (either religious or secular) that would influence their decision to switch to Islamic banking. Responses were analyzed using descriptive statistics, analysis of variance as well as regression analysis. Results indicate that superior customer service, reputation, ability to survive, geographical proximity, and personal familiarity with Islamic banking concepts do not have a significant influence on the decision to switch to Islamic banking. Expectations of financial security, social responsibility, advanced banking technology and Arab-language skills are significant factors. Interestingly, though, the single most significant factor influencing the decision to open an account at an Islamic bank was found to be expectations regarding the bank's conformance to Islamic principles. This finding has important implications for Islamic banks operating in a predominantly Islamic environment. By identifying the specific areas where financial product awareness may be lacking, the paper will assist educators, regulators and financial institutions to design financial planning courses in helping young consumers to achieve greater financial freedom.

Keywords: Islamic banking and finance, conventional banking, consumer attitudes, switching behavior, religious, secular, UAE

Introduction

From modest beginnings, Islamic banking has witnessed remarkable growth over the last few years. According to the World Islamic Banking Competitiveness Report 2011 published by Ernst and Young, Islamic banking assets in the Middle East and North Africa (MENA) region increased to $416 billion in 2010, representing a five year annual growth of 20 percent compared to less than 9 percent for conventional banks. Globally, Islamic banking assets with commercial banks are expected to $1.1 trillion in 2012, representing a jump of 33 percent from their 2010 level of $826 billion (Ernst and Young, 2011). Licensed Islamic banking institutions operate in over 75 countries, both Muslim and non-Muslim (Al-Ajmi et al., 2009).

Islamic banking and finance (IBF) first began in 1963 through the Mit Ghambr Savings Bank in Egypt which offered interest free banking for the very first time (Karim, 2012). From these modest beginnings, Islamic banking has witnessed remarkable growth over the last few years. According to the World Islamic Banking Competitiveness Report 2011 published by Ernst and Young, Islamic banking assets in the Middle East and North Africa (MENA) region increased to $416 billion in 2010, representing a five year annual growth of 20 percent compared to less than 9 percent for conventional banks. Globally, Islamic banking assets with commercial banks are expected to $1.1 trillion in 2012, representing a jump of 33 percent from their 2010 level of $826 billion (Ernst and Young, 2011). Licensed Islamic banking institutions operate in over 75 countries, both Muslim and non-Muslim (Al-Ajmi et al., 2009).

Islamic banking and finance serves up financial services or products that are designed to comply with the main tenets of Shariah or Islamic law. An Islamic bank in particular has been defined by the Organization of Islamic Conference (OIC) as "a financial institution whose statutes, rules and procedures expressly state its commitment to the principles of Islamic Shariah and to the banning of the receipt and payment of interest on any of its operations" (Hassan, 1999). The Shariah derives its authority from various sources, including the Holy Quran, Hadith (the deeds and sayings of Prophet Muhammad), Sunna (the habitual practices of Muhammad during his lifetime), Ijma (consensus among religious scholars on issues not touched upon in either the Holy Quran or the Sunna), Qiyas (providing an opinion on a case not covered in either the Quran or the Sunna by using an analogous case referred to in either of the two), and Ijtihad (a jurist's independent reasoning relating to the applicability of Shariah to cases not mentioned in either the Quran or the Sunna) (Gait & Worthington, 2008).
Islamic banks offer a wide variety of products, summarized in the table below (Al-Ajmi et al., 2009):

Product/Service	**Explanation**
Murabaha	An instrument used for financing the purchase of goods and services where the Islamic bank purchases these on behalf of the customer
Mudarabah (joint venture)	The provision of capital to a partial-equity partnership in return for a share of profits, but when the losses on funds lent are borne by the financer (bank's client)
Musharakah (equity participation)	Full-equity partnerships where the provider of funds and the entrepreneur directly and wholly share in the business
Bai Salam	Advance or pre-paid sale contracts of agriculture products
Istisna	Manufacturing contracts to cover work in progress and paid by the Islamic bank on behalf of the customer
Ijarah	Lease financing in the form of operating leases only
Ijarah Muntahia Bittamleek	Lease financing in the form of financing (capital lease) leases only
Quard Hassan	Benevolent loans offered interest free

It is evident from the table above, that Islamic banks offer a wide variety of services and products. In doing so, they compete strongly with commercial banks. The objective of this paper is to determine what factors influence university students to make the decision to switch from conventional banking to Islamic banking. The researchers aim to explore relevant literature, and provide a critique of the findings and link it to the outcome of this study. The outcome will not only be of interest to Muslims but also to the banking regulators and others in the UAE.

The remainder of this study is organised as follows. Section 2 presents relevant literature which evaluates the Islamic banking paradigm and assesses the underlying rationale for Islamic banking in Islam. Both the Islamic paradigm and the major products and services are analysed in terms of their practical implementation in the UAE and other national settings. Section 3 provides a description of the research methodology and data. Section 4 reports results of the survey findings and provides a detailed commentary on the outcome of the study. Finally, Section 5 concludes the study by reporting the main findings, limitations and avenues for future research.

Literature review and hypothesis development:

Consumers' choice of conventional banking: There is a sizeable literature on consumer choice with respect to banking preferences. More recent studies on this important are of research are briefly presented here. Hedayatnia & Eshghi (2011) examined the bank selection criteria being employed by

bank customers in Iran. They found that the important factors determining customers' choice of bank were quality of services and new banking methods, innovation and responsiveness of the bank, friendliness of staff and confidence in the manager, price and cost, staff attitudes and convenience of bank location and services. Mokhlis et al. (2011) examined the selection criteria used by university students for selecting a bank. Their results suggest that students appear to be very concerned about the security aspects, ATM service and financial benefits when selecting a bank. Locational convenience and recommendations from others were not given much importance. In another study, Aregbeyen (2011 investigated the determinants of banks selection criteria by banking and business customers in Nigeria. The study found that the safety of funds and the availability of technology-based services are the major reasons for customers' choice of banks. Katircioglu et al. (2011) examined bank selection criteria of customers in Romania. The most important factor in bank selection was found to be the number of ATM (automatic teller machines) booths. Other important factors were the availability of extensive ATM services, availability of telephone and internet banking, giving personal attention to customers, reputation and image of the banks, confidentiality of the bank for customer records, appearance of staff to be presentable and the number of branch offices around the country. Rumanian customers were not much interested in other factors such mass media advertisement, gifts provided by banks, fast and efficient service and recommendation by other people in their environment.

Consumers' choice of Islamic banking: Rashid & Hassan (2009) studied customers of Islamic banks to ascertain their bank selection criteria. They found that non-Islamic factors such as corporate efficiency, the availability of core-banking services, confidence, etc. were given higher weights by a majority of the respondents. Abduh & Omar (2012) investigated Islamic-bank selection criteria in Malaysia, with special reference to the region of the Klang-valley. They found that the Shariah-compliant attribute is the highest criterion for deciding to patronize an Islamic bank. Other important factors in Islamic bank selection are profitability, the bank's reputation, the bank's status, facilities and services, and the presence of friendly personnel. Subhani et al. (2012) studied bank selection criteria among customers in Karachi, Pakistan's financial hub. They identified ten factors including convenience, service quality, religious motivation, availability of ATMs, privacy and confidentiality, the bank's reputation and image, the existence of a variety of financing options, high bank profitability and low service charges, recommendations from friends and family, and the friendly and responsive attitude of the banking staff as primarily influencing the customer's choice in selecting an Islamic bank. The most important of these factors were high bank profitability and low service charges, followed by religious considerations and the quality of service.

In a 2012 paper using a mixed methodology, Echchabi & Olaniyi studied the preferences of Malaysian banks' customers for Islamic banking attributes. The quantitative approach consisted of the collection of primary data through a self-administered questionnaire distributed to 500 Islamic banks' customers in Malaysia. In parallel, a qualitative approach was used in the form of semi structured interviews with ten Islamic banks' customers. The results of both approaches were then reported accordingly. The quantitative approach revealed that the preference for Islamic banking attributes in Malaysia is a combination of the quality of services offered by the Islamic banks, as well as the convenience associated with it. On the other hand, the qualitative approach revealed that choosing Islamic banks was mainly due to the religious motivation of the customers. In another study, Al-Tamimi et al. (2009) investigated how bank customers in the UAE view Islamic banks versus conventional banks and whether this image affects customer loyalties or selection of a bank. Their study focused on five areas: bank image, bank products, service quality, cultural aspects and religious factors, in addition to demographic attributes of the sample. They found that most UAE bank customers prefer banking with Islamic banks, although they are not satisfied with the quality of products and services. Customers generally have a positive image of whatever bank they dealt. The most important factor in choosing a bank was bank products followed by service quality and then religious factors. Interesting enough, they found a significant difference between how customers perceive UAE Islamic banks versus conventional banks. In addition, they observed a significant difference in how customers perceived UAE Islamic banks based on their gender, education and duration of the relationship; and finally, there was a significant difference in how customers perceived UAE conventional banks based on their gender. In Bahrain, Buchari, Rafiki and Al

Kassab(2015) found that there are statistically significant differences in the awareness and attitudes of employees towards Islamic banks' products and services when they are grouped according to gender and education level while age and income both have insignificant differences.

The literature on attitudes, perceptions and knowledge of Islamic financial products and services in comparison with those conventional banks empirically had been analyzed extensively by Gait and Worthington (2008). Based on their review of the relevant literature, they found that religious conviction was a key factor in the use of Islamic products and services. The consumers also identified that bank reputation, service quality and pricing as being relevance to this matter. In another study on Islamic banking selection criteria from Bangladesh, Rashid et al. (2009) found that while religion was a critical factor in choosing Islamic banking, other factors also play a significant role in selecting a service provider. The study found that in addition to religion, factors like depositors' desire to achieve highest return, convenient financial transactions system, consistency in service with uniformity, and higher cost-benefit implications were substantially important to clients in choosing their intended services. Saini et al. (2011) studies the level of consumer awareness and use of Islamic banking products in South Africa in an attempt to understand what factors are important in the choice between Islamic or conventional banks. It was found that Muslims are aware of Islamic banks, but their rate of use is low, as Muslim customers regard efficiency, lower bank charges, the availability of automatic teller machines and an extensive branch network as important factors when it comes to choosing a bank, rather than religious motivations for compliance with Islamic conventions. The study concluded that, if Islamic banks wanted to attract and retain customers and remain relevant in the South African context, they would have to develop relevant strategies designed to meet customers' needs. Religion as the sole motivation for choosing Islamic banks is inadequate. Hamid & Masood (2011) examined the selection criteria of customers for Islamic home financing in Pakistan, focussing on gender, age, income, and occupation. Data were gathered from the customers of Islamic banking who use the services of Islamic home financing. Their results indicate that the Shariah principle, fast and efficient services, price, bank reputation, and terms and conditions of product flexibility are the five most important factors considered by customers in choosing Islamic mortgages.

In an earlier study, Erol & ElBdour (1989) examined some factors that customers use in choosing between conventional and Islamic banks. They concluded that in considering motives responsible for selecting Islamic banks as depository institutions, religious motives did not stand out as being the only significant ones. Bank customers were found to be profit-motivated. They also found that peer group influence plays an important role in selecting Islamic banks as depository institutions and there is a high degree of awareness on the part of bank customers of the advantage of the profit/loss sharing modes of investment and of the economic and social development role of the Islamic banking system.

A critique of the current Islamic banking practice

Researchers such as Lewis and Algaud (2001), Kuran (2004), Yousef (2004), and Iqbal and Molyneux (2005) also agree that the usage of PLS instruments such as Mudaraba and Musharaka financing has declined in recent years. Instead of PLS instruments, asset portfolios, short term financing and other debt based contracts constitute a great bulk of investments in Islamic bank accounts (Akbar, Shah and Kalmadi, 2012). Previous researchers (Siddiqui, 2002; Rosly and Bakar,2003a) highlighted that Islamic banks can hardly claim superiority over an interest based system. Khan (2004) argues that just because the products of Islamic and conventional banks are identical, it does not mean that Islamic products are impermissible. It is just one of the criticisms often used against Islamic banking practices. He argues that the majority of Islamic banking products have a strong resemblance to their conventional counterparts; however, what distinguishes Islamic instruments from conventional ones is nothing but a set of processes.

The above discussions have made us familiar with the relevant literature and the basic concept of the Islamic banking practices. The outcome of these discussions highlights the need to investigate user perceptions of the Islamic banking practices, which is explored through our empirical analysis.

Research Methodology

The study sample comprised of graduate and undergraduate students from a private higher educational institution in Abu Dhabi, United Arab Emirates. A total of 500 questionnaires were distributed in-person and through electronic survey, however, 388 respondents well-responded. The survey questionnaire items are measured via a five-point Likert scale. Both descriptive and inferential analysis are adopted to assess the demographic and independent variables. The instruments designed in nominal and interval scale where the average of respective three and five responses are calculated.

Findings and Discussion

Descriptive Analysis

Frequency of Demographic Profile

The demographic profile consists of age, religion, education level, occupation and nationality etc. Out of 388 respondents, there are 148 males and 219 females with a missing value of 21. Out of which, 13.7% of them are less than 20 years of age, 71.9% are in 20-25 years age category, while 9% and 3.1 % of the respondents are in age of 26-30 years, and 31-35 years respectively. 26.8% respondents were Emiratis and 70.1% were non-locals. Majority of the respondents (94.1%) were Muslims. For the occupational level, 147 respondents were currently working and had the experience of 1-5 years. Most of the respondents (81.2%) were registered in business major program at the University, and possessed college degree (153) and graduate degrees (178), and had fluent Arabic language skills.

Table 1: Demographic Profile

Respondent' age category	N	% of full sample
Less than 20 years	53	13.7
20 to 25 years	279	71.9
26 to 30 years	35	9.0
31 to 35 years	12	3.1
36 to 40 years	3	0.8
Missing values	6	1.5

Respondent' gender	N	% of full sample
Male	148	38.1
Female	219	56.4
Missing values	21	5.4

Respondent' highest level of education	N	% of full sample
High school	6	1.5
Some college	12	3.1
College degree	53	13.7
Graduate school	78	20.1
Missing values	21	5.4

Respondent' nationality	N	% of full sample
Emirati	104	26.8
Non-Emirati	272	70.1
Missing values	12	3.1

Respondent' religion	N	% of full sample
Islam	365	94.1
Other religion	13	3.4
Missing values	10	2.5

Respondent' major program of study	N	% of full sample
Business	315	81.2
Other program	57	14.7
Missing values	16	4.1

Respondents' Arabic language skills	N	% of full sample
Fluent	308	79.4
Somewhat fluent	29	7.5
Minimal	34	8.8
None	9	2.3
Missing values	8	2.1

Respondents' work experience in years	N	% of full sample
None	233	60.1
1 to 2 years	70	18.0
2 to 5 years	45	11.6
Over 5 years	32	8.2
Missing values	8	2.1

Respondents' willingness to learn more about IB	N	% of full sample
Yes	298	76.8
No	32	8.2
Not sure	49	12.6
Missing values	9	2.3

Respondents' opinion about where IB should be taught	N	% of full sample
High school	92	23.7
College	162	41.8
Graduate school	36	9.3
Private institutes	63	16.2
Other	25	6.4
Missing values	10	2.6

Table 2: Results of Familiarity with Islamic Banking

	N	% of full sample
Not at all familiar	121	31.2
Somewhat familiar	204	52.6
Very familiar	63	16.2
Total	388	100

How was respondents' familiarity with IB acquired?

	N	% of full sample	% of "familiar" sample
I have an account at an IB	121	31.2	45.3
A family member has an account with an IB	214	55.2	80.1
A friend has an account with an IB	153	39.4	57.3
The co. I work for has an account with an IB	31	8.0	11.6
The co. a family member works for has an account with an IB	72	18.6	27.0
The co. a friend works for has an account with an IB	71	18.3	26.6
I took one/more courses on IB	32	8.2	12.0
I learned about IB by talking to knowledgeable people	147	37.9	55.1
I learned about IB from newspapers, magazines, and social media	114	29.4	42.7
I learned about IB by other means	40	10.3	15.0

As found in descriptive data analysis, it shows the responses of 388 respondents on the familiarity of Islamic Banking products and services, probability of using Islamic Banking in 1-3 years in United Arab Emirates. Below are the highlighted responses:

1. 31.2% of the respondents were not all familiar with IB.
2. 52.6% of the respondents were somewhat familiar with IB.
3. 16.2% of the respondents were very much familiar with IB.
4. 31.2% had an Islamic Banking account.
5. 55.2% respondent’s family member had an account in IB.
6. 39.4% respondents reported that their friends have an account in IB.
7. 8.2% respondents took one/more courses in IB.
8. 37.9% respondents learned about IB by talking to knowledgeable people.
9. 29.4% learned about IB through print media and social media.

Table 3: Respondents knowledge about various Islamic Banking Products

IB Products	Mean	S.D.
Mudaraba	1.99	1.179
Murabaha	2.19	1.298
Musharaka	1.76	1.066
Baisalam	1.56	0.936
Istisna	1.52	0.881
Ijarah	1.74	1.091
Qard Hassan	1.95	1.252
Sukuk	2.32	1.37
Takaful	2.17	1.302

The above table exhibit that majority of the respondents have the satisfactory knowledge/ familiarity about the various Islamic banking products. Out of which respondents demonstrated better knowledge about Sukuk, Murabaha and Takaful IB products.

Table 4: Religious or secular factors that would influence respondents decision to switch to Islamic banking

Religious/ Secular Factors	Mean	S.D.
Customer service	4.28	0.906
Bank's financial stability	4.23	0.899
Bank's Reputation	4.15	0.968
Innovative products	3.87	0.974
Conformance with Islamic Principles	4.08	1.026
Bank's CSR policy	3.95	1.087
Respondents personal familiarity with IB	3.88	1.036
Profit sharing with customer	3.81	1.083
Bank's ability to survive in recession	4.08	1.01
Bank's location near home or work	3.517	1.214

Results indicate that superior customer service, reputation, ability to survive, geographical proximity, and personal familiarity with Islamic banking concepts do not have a significant influence on the decision to switch to Islamic banking. Expectations of financial security, social responsibility, advanced banking technology and Arab-language skills are significant factors. Interestingly, though, the single most significant factor influencing the decision to open an account at an Islamic bank was found to be expectations regarding the bank's conformance to Islamic principles.

Conclusion, Limitations and Scope for Future Researches

Students' awareness of Islamic Banking products and services shows that most of the respondents believe that Islamic banks' products and services are unique and have a sense of dealing with others. In addition, they believe that Islamic banking laws are derived from the Holy *Quran* and *Sunnah*. This concludes that more than 68.8% of respondents are aware of the Islamic banks products. Meanwhile, majority of the respondents (78.5) have positive attitudes towards Islamic banking products and services, are highly likely to open an account or continue with Islamic Banking. This finding has important implications for Islamic banks operating in a predominantly Islamic environment. By identifying the specific areas where financial product awareness may be lacking, the paper will assist educators, regulators and financial institutions to design financial planning courses in helping young consumers to achieve greater financial freedom. Some strategies may be considered to increase and promote awareness campaigns on the products offered by the Islamic banks. The banking and educational institutions also would find some ways to educate their customers and students about the Islamic banking thoroughly. Meanwhile, this study consists few limitations such as; (i) skewness of population that limit to the students of the selected University, thus the final result may not represent the population in this sector.The forthcoming researchers could perhaps add other factors of assessing the choice and preferences of students, while covering many UAE Universities as the sample of the study should be taken into account.

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Statistical analysis of the human and financial resources of cluster

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Abstract

The article analyzes the personnel and the financial recourses for evaluating the efficiency of cluster performance. The paper identified the relationship between the number of employees engaged in research and development and the number of clusters as well as domestic spending on research and development and the number of clusters. Analytical method is used for the equation of the line showed a trend of the number of R&D employees, as well as an analysis of the percentage of internal expenditure on R & D to GDP.

Keywords: personnel recours, financial recours, R&D employees

Introduction

Currently, the urgent purposes of economic policy in both developed and developing countries are the growing of national competitiveness, expansion of the share of national companies in the domestic and international markets, increasing effectiveness of these companies.
At the same time, the management of competitiveness is becoming increasingly difficult due to the exhaustion of the capacity of a traditional industrial policy, which caused the development of technological and industrial specialization and cooperation within the framework of network structures - clusters.

Clusters "as points of growth" of the world economy

Cluster is a group of geographically adjacent, interconnected companies (suppliers, vendors, and others) and linked with them organizations.

World practice shows that in the past two decades, the process of cluster formation has been developed actively. In general, according to experts clustering covered about 50% of the economy of the leading countries of the world Table 1.

In modern Russia, the emergence of regional clusters was supported by State solution based on the current state of the innovation situation of the market. The reason for this were the scientific potential of certain region in promising scientific and technological areas, major research centers, university and factory (production) science. According to specialists, in Russia in 2013 26 pilot cluster initiatives were registered.

Cluster policy allows you to focus and intensify the resources to build an efficient economy in the country and the production of competitive high-tech products.

Table 1. The number of clusters in the leading countries (2013)

Country	The number of clusters
United Kingdom	168
Germany	32
Denmark	34
Italia	206
India	106
Netherlands	20
Untied States	380
France	96
Finland	9
Poland	61

Considering the active process of clusters formation, one of the key factors of the effective performance is social capital, as well as the internal costs on research and development in the leading countries which were mentioned above.

In the database of the world (Russia or any other country) official statistics there is no definition of cluster. This means that the "cluster" is not statistical units, i.e. Statistical Office do not assemble, form, and, therefore, do not analyze any data of clusters. It means that the "clusters" can not be measured, estimate, compared on the basis of available official statistics.

The paper examines the impact of the number of R&D employees, as well as domestic spending on research and development on the number of clusters in the leading countries. It is important because human and financial recourses are the most important factors in cluster system functioning.

Analysis of the personnel and the financial recourses of cluster

In paper the correlation analysis and direct relationship between the number of clusters and the number of R&D employees are found. Dependence on crowded average (0.68). Also in the paper we analyzed the dynamics of the number of R&D employees for 2004-2012 based on Eurostat data, which are presented in Table. 2.

Table 2. The number of R&D employees

Years	Germany	Italia	Netherlands	Poland	Finland	France	Russia
2004	…	255,535	122,801	127,356	76,687	424,588	839,338
2005	673,414	277,370	116,982	123,431	77,275	429,387	813,207
2006	…	306,088	121,531	121,283	79,911	452,924	807,066
2007	721,712	334,503	113,723	121,623	79,507	447,391	801,135
2008	…	353,367	117,372	119,682	79,289	471,975	761,252
2009	777,327	354,513	105,217	120,923	79,475	478,857	742,433
2010	…	348,215	127,154	129,792	79,979	523,648	736,540
2011	835,127	347,005	170,913	134,551	80,817	542,447	735,273
2012	…	364,315	185,287	139,653	79,372	564,527	727,263
The growth rate for the period, %		42,6	50,9	9,7	3,5	33,0	-13,4

… - no data

Calculate the growth rate for the period from 2004 to 2012 for all countries included in the study, positive dynamics is observed. Finland and Poland have no high growth rate in 2012 compared with 2004; Russia according to this indicator has negative growth.

Trend to increase (except Russia) by the number of R&D employees (Fig. 1) in the countries are revealed by graph line.

The graphs depicted Y - the numerical value of the index, the data presented in Table. 2, and calculate the equation of the trend. Making a prediction for 2013 and 2014 with a probability of 85% can be expected to increase the number of R&D employees, which can not be said about Russia.

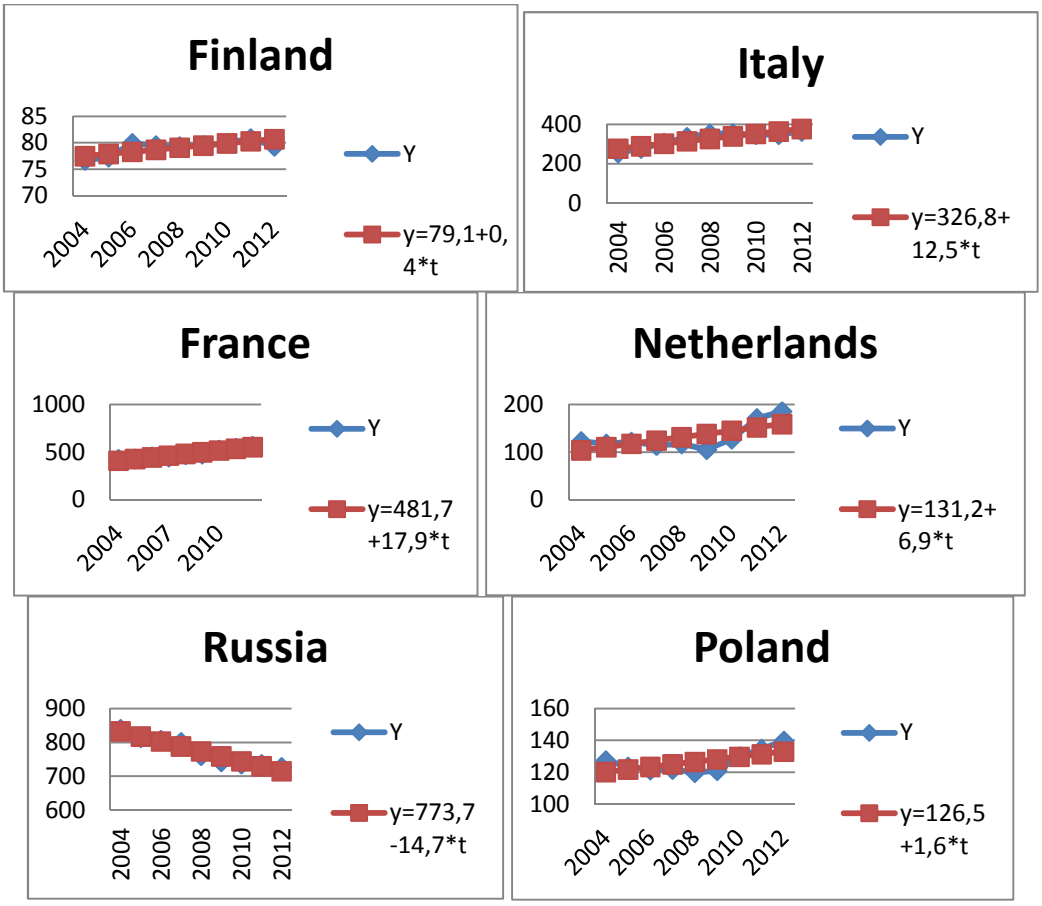

Fig. 1. Alignment of time series for the graph line in the countries.

As for the correlation analysis between the number of clusters and domestic spending on research and development, as well as staff engaged in research and development. Dependence on crowded average (0.68).

The main indicators of the financial resources of science are the costs of research and development, including the internal costs of the work performed by its own organization, and external costs for work performed under the contracts by third parties.

The OECD Frascati Manual (2002) defines gross domestic expenditure on R&D (GERD) activities as the total intramural expenditure on research and development performed on the national territory during a given period. This includes both current costs and capital expenditures. It includes R&D performed within a country and funded from abroad but excludes payments for R&D performed abroad.

The indicator is calculated by dividing gross domestic expenditure on R&D by GDP and expressed as a percentage. Both data on R&D expenditure and GDP can be expressed in current values and in the national currency.

The indicator provided is GERD (Gross domestic expenditure on R&D) as a percentage of GDP. "Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society and the use of this stock of knowledge to devise new applications" (Frascati Manual, 2002 edition, § 63).

Table 3: Gross domestic expenditure on research and development
(Millions of US dollars, based on the parity of purchasing power parity of national currencies)

Country	1991	2000	2013
United Kingdom	18812,0	27891,8	39109,8
Germany	39430,6	52411,0	102238,4
Italia	12450,6	15266,7	26320,5
France	24293,9	33000,7	55351,9
United States of Amerika	161387,8	269513,0	453544,0
Russia	19991,3	10726,9	38829,5

The indicator does not show the proportion of expenditure on R&D which contributes specific ally to sustainable development. To date, most developed and a few developing countries are able to regularly collect and provide internationally comparable and timely data. This indicator is widely used to measure the so-called R&D intensity. However, it is not always the most appropriate indicator when measuring S&T in developing countries. Researchers as a percentage of population, labour force, or employment, might be more pertinent indicators, since they focus on human capacities and skills rather than on expenditure.

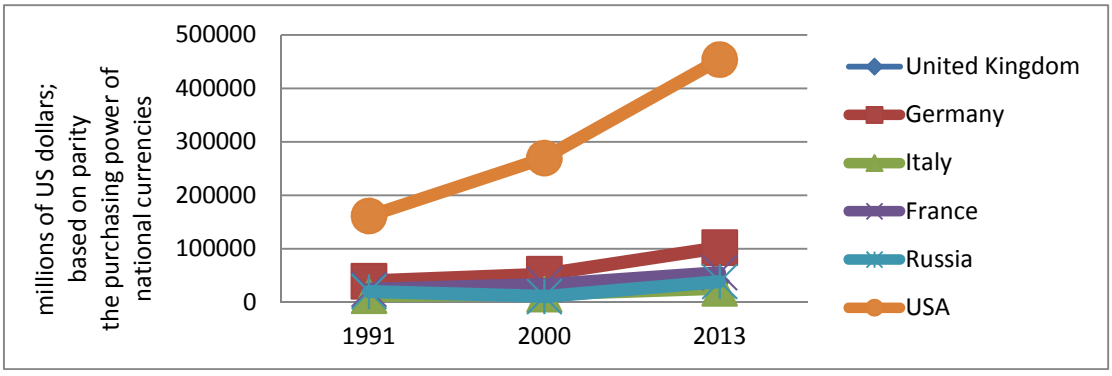

Fig. 2. Gross domestic expenditure on research and development

The graph shows that the US domestic expenditure on research and development in several times bigger than one of other countries, for Russia, in 2013 it was higher than the same one in Italy and almost reached the level of the UK.

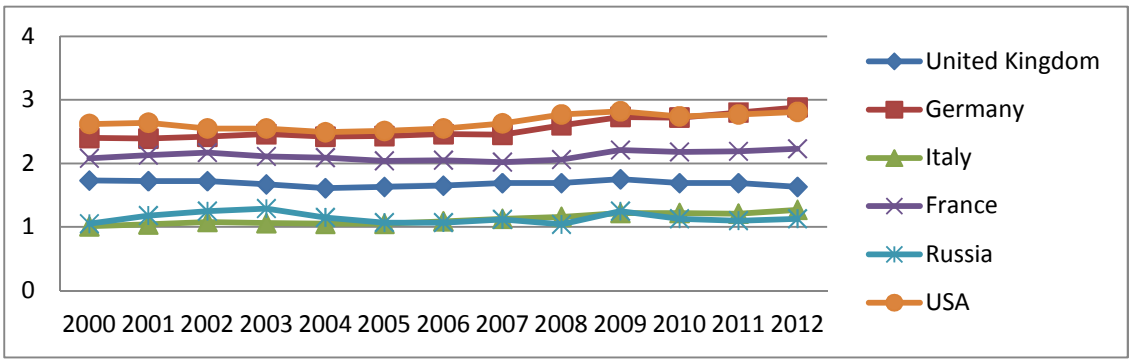

Fig 3. Gross domestic expenditure on R&D as % of GDP

The index of domestic spending on research and development in percent of GDP (Fig. 3) Russia lags behind countries such as the US, Germany, France.

Conclusion

Based on analysis, one can say that science is not a priority in Russia, considering the Russia's state policy of clusters, perhaps this is due to the reforms that have been taken place in the past decade. Implementing the cluster approach one cannot ignore the fact that economic success is possible beyond the clusters, and some companies may be more competitive than the clusters.

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The Effect of Clarity of Business Vision and Top Management Support on the Quality of Business Intelligence Systems: Evidence from Indonesia

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Abstract

This study aims to examine the effect of clarity of business vision and top management support on the quality of business intelligence systems at financial institutions in Medan City, North Sumatra, Indonesia. Survey conducted on 54 operational managers to gather information and to test the hypothesis of a study. Data was collected using questionnaires. The data analyzed with multiple regression analysis while hypothesis testing used was t-test. Results of this study shown that clarity of business vision and top management support have significant effects on the quality of business intelligence systems. However, the top management support has negative relationship with quality of business intelligence systems. The implication of this study is, in order to get better quality of business intelligence system top management should give socialization about business vision to subordinates and they should have a good technical skill on business intelligence systems.

Keyword: Business Vision, Top Management Support, Business Intelligence Systems

1. Introduction

Business intelligence systems are the subject of an extensive discussion in the literature (Olszak and Ziemba, 2012). The implementation of a business intelligence systems (BI) system is a complex undertaking requiring considerable resources (Yeoh and Koronios, 2010). Furthermore, the main purpose of business intelligence systems is to provide knowledge workers with tools and methodologies that allow them to make effective and timely decisions (Carlos, 2009). Moreover, Business Intelligence helps a company to create knowledge from that information to enable better decision-making and to convert those decisions into action (Chuck *et al.*, 2006). Whereas, benefits of business intelligence systems: improving business efficiency and productivity, enhancing business relationships, increasing business value, and the reduction of costs (Deepak, 2007). This study aimed to examine the effect of clarity of business vision and top management support on quality of business intelligence systems at financial institutions in Medan City, North Sumatera, Indonesia. Hence, the research question for this study is "do the clarity of business vision and top management support have an impact on quality of business intelligence systems?"

2. Literature Review

2.1. Clarity of Business Vision

According to Carpenter and Sanders (2007), vision is a simple statement or understanding of what the firm will be in the future. A vision for a firm is regarded as the ideal

future state of the total entity. It is a mental image of a possible and desirable state of the firm (Fitzroy and Hulbert, 2005). Furthermore, Hoque (2004) stated that an organization's vision statement provides the vision of what top management sees as the reason for the firm's existence. That is, it describes what the firm would like become. It is a description of ideal, and as such is a picture of the potential future, which it is, hoped employee, perhaps scattered around the world, can really round, understand, be committed to, and be motivated to help attain. Furthermore, Carpenter and Sanders (2007) state, statement of vision is forward looking and identifies the firm's desired long-term.

Based on some previous statement it can be concluded that business vision is a simple statement about the picture of the ideal state of the desired company in the future, be understood by all people in the company as well as their commitment and their motivation to achieve it.

Goal or vision clarity refers to the precision and detail of the objective (Lynn *et al.,* 2000). A clear vision provides the foundation for developing a comprehensive mission statement (David, 2011). Collin and Poras (1996) stated the critical point is that a vision articulates a view of a realistic, credible, attractive future for the organization, a condition that is better in some important ways than what now exists. According to Stacey (2011), the word 'vision' is usually taken to mean a picture of a future state for an organization, a mental image of a possible and desirable future that is realistic, credible and attractive. Fitzroy and Hulbert (2005) stated that a vision needs to be realistic, credible, and attractive and should provide a bridge from the present to the future. Furthermore, Madu (2013) explained that a realistic vision means should be relevant to organizational goal and achievable, credible vision mean having believed could lead to a better future while attractive vision to inspire and motivate everyone in the organization to implement that vision.

Dimensions of business vision used in this study are: realistic, credible, and attractive (Collin and Poras, 1996; Stacey, 2011; Fitzroy and Hulbert, 2005). Furthermore, indicators used to measure clarity of business vision in this study is relevant to organizational goal and achievable, having believed could lead to a better future, inspire and motivate everyone in the organization to implement that vision (Madu, 2013).

2.2. Top Management Support

According to Hussein *et al.* (2007), top management support is conceptualized as the involvement and participation of executive or level management of the organization in Information Technology (IT)/Information Systems (IS) activities. Kanter (1984) stated that management participation and involvement are the objectives; evidence supports the need to convince them why they should want MIS. Moreover, Zaied (2012) stated that management support refers to management approval and continuous support not only during the IS project implementation but also throughout the operational phase of the system.

Based on some previous statement it can be concluded that top management support is continuous support in the form participation and involvement of top management during information system activity. Dimensions of top management support used in this study are: participation and involvement (Hussein *et al.*, 2007; Zaied, 2012).

According to Compean and Higgins (1995), the management support is the extent to which assistance was available in terms of equipment selection, hardware difficulties, software difficulties and specialized instruction. Gottschal (1999) stated top management support measured by knowledge, expectation, participation, the time needed, enthusiasm, monitoring for the implementation. Nathan *et al.* (2004) stated that top management support of information system refers to the degree to which top management understand the importance of the IS function and the extent to which it is involved in IS activities. Ifinedo (2008) stated that top management support is the extent to which top managers in the organization provide direction, authority, and resources during and after the acquisitions of IT system. Weill (1992) stated that

support from top management facilitates many of the operational and strategic IT management activities. The activities include negotiation, IS planning, project management, and similar tasks. Zaied (2012) operated measurement of management support such as management encouragement, providing all necessary resources, discussing problems associated with the system, appreciating the optimal use of the system, and having sufficient knowledge of the system. Ifinedo (2008) stated top management support refers to the extent to which top managers in the organization provide direction, authority, and resources during and after the acquisitions of IT system. Khan *et al.* (2013) use 7 indicators to measure the top management support: 1. Top management involvement with IS function is strong, 2. Top management is interested in IS function, 3. Top management understands the importance of IS, 4. Top management supports the IS function, 5. Top management considers IS as a strategic resource, 6. Top management understands IS opportunities, and 7. Top management keeps the pressure on operating units to work with IS.

Indicators used to measure of management support in this study is: understand the importance of the IS function (Nathan *et al.*, 2004) and Khan *et al.* (2013), interested in IS function (Khan *et al.*, 2013), providing all necessary resources (Zaied, 2012) and (Ifinedo, 2008) provide direction (Ifinedo, 2008), involvement with IS function (Khan *et al.*, 2013) and monitoring of the implementation (Gottschal,1999).

2.3. Quality of Business Intelligence Systems

Sadikun, *et al.* (2016) stated that systems consist of many components, namely: hardware, brainwave, procedure, database, and software, the infrastructure of information technology, internal control and security measures and performance of system developer. Those things are interacted to build a synergy related one to each other. The Interactions among those arrangements are intended to support the organization. According to Gelinas and Dull (2008), business intelligence systems is the integration of statistical and analytical tools with decision support technologies to facilitate complex analyzes of the data warehouse by managers and decision makers. Laudon and Laudon (2012) stated that business intelligence systems is a contemporary term for data and software tools for organizing, analyzing, and providing access to data to help managers and other enterprises user makes more informed decision. ISs whose purpose is to glean from raw data relationships and trends that might help organizations compete better are called business intelligence systems (BI) systems (Effy Oz (2009). Turban and Volonino (2011) stated that business intelligence systems refer to a collection of ISs and technologies that support managerial decision-making or operational control by providing information on internal and external operations. Valacich and Schneider (2012) stated business intelligence systems can provide business decision makers with a wide variety of analyzes to support decision-making

Based on some previous statement it can be concluded that business intelligence systems system is a collection of ISs and technologies that support managerial decision-making or operational control by providing information on internal and external operations and help organizations compete better.

Adamala and Cidrin (2011) mentioned the most obvious first choice when trying to discover BI success factors is to look at information systems (IS) in general. Bailey and Pearson (1983) use dimensions: system access time, system flexibility, system integration and system response time. Srinivasan (1985) use dimensions: response time, system reliability, and ease of access. Todd (2005) stated, characteristics of a quality information system is reliability, flexibility, integration, accessibility and timeless. DeLone and McLean (2003) stated system quality refer to adaptability, availability, reliability, response time and usability. DeLone and McLean. (2008) explained that system quality-the desirable characteristics of an information system. For instance: ease of use, system flexibility, system reliability, and ease of learning, as well as system features of intuitiveness, sophistication, flexibility, and response time. Gorla *et al.* (2010) stated the indicators of system quality are flexibility and sophistication. Zaied (2012) explained

that measures of system quality typically focus on the performance characteristic of the system under study. In this work, the selected system quality elements are reliability, usability, adaptability, trust, and maintainability. Petter *et al.* (2013) stated that system quality considers the technical aspect of the system, including the convenience of access, system functionality, reliability, response time, sophistication, navigation ease, and flexibility among other. In this study, four indicators were used to measure of the quality of business intelligence systems system: flexibility, reliability, accessibility and integration.

3. Theoretical Framework and Hypotheses Development

3.1 The Clarity of Business Vision and Quality of Business Intelligence Systems

Clarity of vision or purpose refers to the accuracy and the detailed objectives Lynn *et al.* (2000). A clear vision provides the basis for developing a comprehensive mission statement (David, 2011). It is difficult to execute the strategy if the vision and mission are unclear or can not be understood, a company with a clear vision and mission and widely understood find it easier to make strategic decisions (Carpenter and Sanders, 2007).

Business intelligence systems are an information system that processes data about the internal and external operations are complex into useful information for managers in decision-making managerial or operational control more precisely so as to help organizations better compete. Adamala and Cidrin (2011) stated business intelligence systems are very closely tied to the strategic vision of the company. Yeoh and Koronois (2010) explained if the business vision is not fully understood, it will eventually affect the use and the results of business intelligence systems. As a business intelligence systems, initiatives drive business, so the business strategy vision is needed immediately for the implementation of business intelligence systems.

Some researchers have tested the effect of business vision on information systems or business intelligence systems. Yeoh *et al.* (2008) found evidence that business vision is an important factor that affects on the implementation of business intelligence systems. Ifinedo (2008) obtained evidence that when the implementation of enterprise resource planning system in accordance with the business vision, then the system success is high too. Yeoh and Koronios (2010) found evidence that the clarity of the business vision is an important factor that affects the implementation of business intelligence systems. Adamala and Cidrin (2011) stated that the business intelligence systems are closely linked to the company's strategic vision. Al-Busaidi and Lorne (2005) found evidence that the clarity of business vision associated with knowledge management system. Dawson and Van Belle (2013) found evidence that business vision is an important factor affecting the success of business intelligence systems.

3.2 Top Management Support and Quality of Business Intelligence Systems

The supports provided by the top management in the organization of information systems are very important in determining the success of all information system activities (Lucas, 1998; Raghunathan *et al*, 2004). Experience of successful organizations reveals that managerial involvement and broad and meaningful users are the main ingredients to improve the quality of information system performance (O'brien and Maracas, 2010).

Some researchers have tested the effect of top management support on information systems or business intelligence systems. Sharma and Yetton (2003) found evidence that top management support through task interdependence affects the successful implementation of information systems. Ragu-Nathan *et al.* (2004) found results that there is a relationship directly or indirectly between top management supports with information system performance. Yeoh *et al.* (2008) found evidence that top management support is an important factor that affects the successful implementation of business intelligence systems. Ifinedo (2008) obtained evidence that when top management support is high, the rate of successful implementation of enterprise resource

planning system too high. Yeoh and Koronios (2010) found evidence that top management support is an important factor that affects the successful implementation of business intelligence systems. Zaied (2012) stated that top management support plays an important role in improving the quality of information systems. Dawson and Van Belle (2013) found evidence that management support is a critical factor affecting the success of business intelligence systems.

However, the level of skills from top management is needed to use Business Intelligence tools were highlighted as key factor in hindering its use in organizations. (Hartley and Seymour, 2015)

Based on the description before, the framework of this study can be seen as follows:

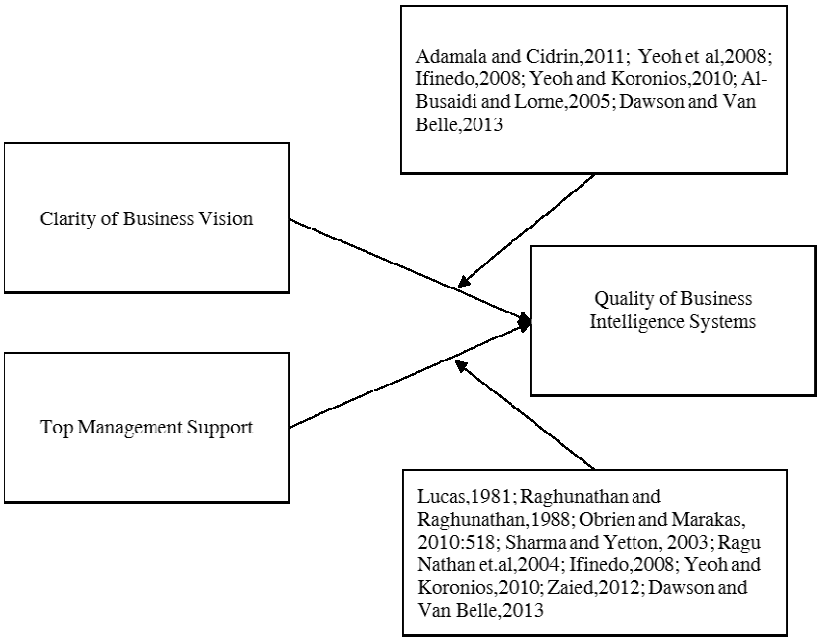

Figure 1: Theoretical Framework

Furthermore, the hypotheses proposed in this study are as follows:

1) Clarity of business vision have effects on quality of business intelligence systems.

2) Top management support have effects on quality of business intelligence system.

4. Methodology

This study uses explanatory survey method. The population in this study was financial institutions at Medan City, North Sumatera, Indonesia. The companies chosen in this study have been implementing business intelligence systems application. The participants of the study were operational managers. Eighty questionnaires were distributed to the numbers of the sample, 54 questionnaires were returned and used in the statistical analysis by using Statistical Product and Service Solutions. The instrument used for the collection data was a questionnaire. The questionnaire included 3 dimensions: clarity of business vision, top management support, and quality of business intelligence systems system. This study used a Likert five-point scale ranges from “strongly disagree” to “strongly agree” to examine participants responses to questionnaire statements. The questionnaires to be used previously tested for validity and reliability. Furthermore, the analysis method used multiple regression analysis, while

hypothesis testing used t-test. All analyzes were performed using the program Statistical Product and Service Solutions.

5. Finding and Conclusion

Before the data will be analyzed, all indicators in this study had been through test and the results were valid and reliable as it meets the criteria. Furthermore, the results of multiple regression analysis using as seen in the following table:

Table 1: Multiple Regressions analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8,409	2,267		3,709	,001
	Clarity of Business Vision	1,361	,310	1,518	4,394	,000
	Top Management Support	-1,654	,393	-1,455	-4,212	,000

Dependent Variable: Quality of Business Intelligence Systems

Based on the Table 1 we can concluded that multiple regressions equation as follow:

$$QBIS = 8{,}409 + 1{,}361\ CBV - 1{,}654\ TMS + e$$

The multiple regression equations above can explain the role of clarity of business vision and top management support on quality of business intelligence systems as seen from the magnitude of the regression coefficients. The above equation shows that the regression coefficient clarity of business vision is 1,361 and top management support is -1,654.

The result explained that more clear the business vision, the better quality of Intelligence systems. The impact from clarity of business vision on the quality of the business intelligence systems depends on how far management can realize the vision of the strategy in accordance with the conditions of the company. This supported by Adamala and Cidrin (2011) that stated business intelligence systems are very closely tied to the strategic vision of the company. As business intelligence systems are business driven, the vision of the business strategy is compulsory for the implementation of business intelligence systems (Yeoh and Koronois, 2010). Hence, results of this study supporting previous studies that stated clear business vision has an effect on implementation business intelligence systems, for instance research from Yeoh *et al.* (2008), Ifinedo (2008), Yeoh and Koronios (2010), Adamala and Cidrin (2011), and Dawson and Van Belle (2013).

On the other hand, the result of this study for top management support variable is contrary with most of previous research. Although the result is statistically significance, the sign showed negative value. It means that the less top management support, the better quality of business intelligence systems. Top management can demonstrate its support by providing the necessary resources and leadership, by setting goals and policies for Business Intelligence systems and showing interest by participating in business intelligence system design and development. Internal support including the availability of experienced Business Intelligence system staff, training opportunities and a network of supportive colleagues. Due to insufficient internal technical expertise, especially in developing countries, the availability and quality of top management support might be an important determinant of business intelligence system

effectiveness (Elbeltagi, McBride and Hardaker, 2005). This may explain this negative relationship between top management support and quality of business intelligence systems. When top management have a lack of knowledge in systems, it is better for them to less involve in implementing business intelligence system due to the might be make the process of implementation more complicated. As mentioned by Elbeltagi *et al* (2005) the developing countries including Indonesia the internal support have insufficient technical expertise.

Furthermore, to measure ability of model to explain effects of independent variables on dependent variable seen from the magnitude of the coefficient of determination as shown in the following table:

Table 2: Summary of Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,525	,275	,247	3,23551

The Table 2 above shows the value of R square is 0.275 means ability of independent variables in explaining dependent variable is 27,5%, on the other hand, 72,5% of independent variables described other variables that are not included in this study.

6. Conclusions and Implication

Generally, the current study has aided to develop groundwork for the study of Business Intelligence System implementation. More or less, the developed basis has generated some knowledge and arguments to organization stakeholders such as top management and Business Intelligence user to understand the factors that affecting Business Intelligence systems. From the findings of this research, it has found that factors such as top management support and clarity of business vision have significant relationship with Business Intelligence implementation. From employer's point of view, the significant effect of clarity business vision indicates that socialization from top management about business vision to subordinate is a crucial issue to successful of business intelligence system implementation.

In term of top management support, that should provide some indications to organization stakeholders who wish to expect the high quality business intelligence. The findings from this study indicate that the top management supports is negatively related to quality of business intelligence systems. That means Top management support is a barricade to those potential Business Intelligence Systems adopters. If that is the case, the result of this study suggested that when the technical skills from top management about business intelligence is low, more less their involve (giving support) on business intelligence systems implementation, the better quality of business intelligence systems. Vis-à-vis the organization intend to get better quality of business intelligence systems, it should make sure that top management has good technical skills on business intelligence systems.

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Development of Accessible Educational Environment For Students with Special Needs

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Abstract

In the modern world the accessible education for people with special needs is of high importance. Students with special needs get new ways to the educational roots; they can use variety of on-line services, but not always have a possibility to attend lessons personally. The authors of the article try to exam the existing situation at the Tomsk Polytechnic University.

Keywords: accessible educational environment, inclusive education, students with special needs, monitoring

Introduction

The development of the modern Russian educational system should take into account the principles of humanization and individualization. The new educational models, basing on these principles, include possibilities for different people to learn and to study together, independent from their physical and health statement. The modern situation shows some improvements in building of free educational space for especial students, the legal basis was already made, but there are a lot of questions which need solutions.

1. Creating accessible educational environment

1.1. Legal basis of accessible educational environment and tools for checking up

At the present time there are fixed requirements to the terms, conditions and results of university functioning in Russia. These requirements are specified in the Federal Law of the Russian Federation on Education N 273 and are evaluated by the following effectivity criteria: educational activities, science and research activities, international activities, financial activities, infrastructure, graduate employability, student body, staff and additional criteria for educational organizations (The Order of Federal Education and Science Supervision Agency).

The university is recognized effective if minimum 4 criteria are fulfilled (it means, the fixed indexes are reached). The effectivity of the university includes also criteria of implementing the high quality education for people with special needs. To make an assessment two main criteria are taken into account: developing of infrastructure for accessible environment (wheelchair ramps and elevators, access to the study rooms, personal working places for students with special needs etc.), teaching and learning aids for implementation of the educational activities for people with special needs.

1.2. Monitoring accessible educational environment

The whole educational activity of the university relates to the requirements of the Ministry of Education and Science for improving the educational environment, from enrollment campaign to graduate employability. 57 universities in 8 federal districts were inspected during the period of May, 12 to June, 10 in the year 2015. The monitoring purpose was to ascertain readiness and reliability of universities to enroll students with special needs into every educational form and level.

The monitoring criteria included the following:

- majors in educational forms and levels with enrolled students with special needs;
- list of adapted educational programs for disabled students and students with special needs,
- staff, able to work with disabled students and students with special needs;
- department, responsible for working with disabled students and students with special needs;
- accessible environment for students with different ICD codes from architectural point;
- teaching and learning aids for implementation of the educational and research activities for students with special needs;
- readiness of the university to use educational on-line technologies;
- system of graduate employability for students with special needs;
- etc.

2. The situation at the Tomsk Polytechnic University (TPU)

The Tomsk Polytechnic University (TPU) took part in monitoring procedure to estimate terms and conditions for implementation of educational activities for disabled students and students with special needs. The results of monitoring could serve for revision of existing educational system at the university and its readiness to implement adapted educational programs for students with special needs. TPU has already gained experience in educating such students – at the moment about 50 students with different ICD codes are studying.

The main monitoring results show that TPU is partly ready to implement educational programs for students with special needs. Speaking about partly readiness is first of all about intramural form, because extramural (distant) form is already implemented with taking into account students with special needs.

There are some urgent questions to be answered in the nearest time.
The university created the plan for developing accessible educational environment till 2020. The responsibilities of different departments were shared. Among the main directions of developing there are the next:

- to make one norm-methodical base for managing and implementation of inclusive education;
- to develop material and technical basis as well as teaching and learning aids for implementation of the educational and research activities for students with special needs;
- to modernize architectural environment for students with different ICD codes;
- to make a list of partner-enterprises with places for practices and employment for students with special needs.

2.1. Development of one norm-methodical basis and teaching and learning aids for implementation of the educational and research activities for students with special needs

To solve this problem it is necessary to collect specialists able to work in the sphere of inclusive education. The main requirement to these specialists includes experience in working with disabled people and people with special needs, especially for intramural educational forms. It is important to take into account not only stuff of TPU, but to use experience of other educational organizations, to work in net-form. It could help to gain experience quickly, to get interesting ideas and share our experience.

One norm-methodical basis can help to systemize existing experience of TPU and give the united requirements to the inclusive education at the university.

The next important step is stuff training for working with students with special needs.

2.2. Modernization of architectural environment for students with different ICD codes and development of material and technical basis

Among the most complicated questions there are the following ones:

1. University campus takes a broad area in the city center which is not tolerant to people with disabilities and special needs. There are not any special bus stops and equipped pedestrian zones; there are a lot of inaccessible areas like stairs on the way.
2. It is problematical to modernize historical study buildings and study rooms for inclusive education.

The problem of modernization of architectural infrastructure could be called the most difficult. Part of the university buildings has the statues of cultural heritage. It means, it is not allowed to bring some changes into the building construction.

To start solving the problem TPU made the list of "new" buildings without statues of cultural heritage. This list of buildings and study rooms was made from the point of being ready to modernization in the shortest time and with minimal volume of constructing and funding.

The next parameters were taken into account:

- Way and difficulty of moving from the public transport stops and roads to the buildings;
- Acceptance of the building to the sanitary standards (having a ramp or possibility to construct it, accordance of doors and corridors; possibility of using the multimedia equipment or possibility of installation of such equipment; possibility of fixing the extra toilet rooms for people with special needs etc.)

But solving this problem of modernization of architectural infrastructure depends on the city authorities, because TPU is located in the historical city center. The problem solving includes such questions as: converting the pedestrian zones, fixing the information boards, modernization of public transport stops, converting the system of traffic control and installing the special traffic lights, making parking places for transport of disabled people etc.

2.3. Partner-enterprises with places for practices and employment for students with special needs

This problem cannot be solved isolated from the society. At the moment the system of interaction between the university and enterprise is under reconstruction. It brings to complications in finding places for practices and employment for students with special needs. It should be legally ordered, that the enterprise should make working places for students and graduates with special needs.

Now there is a dilemma: the university should give possibilities for inclusive education, but enterprises are not motivated to take students with special needs for practices and graduates with special needs for work. The only one exception is some enterprises which traditionally use as workers people with disabilities. But it makes the way to inclusive education not consecutive, because inclusive education should give people with special needs equal chances with other people.

Conclusion

In conclusion we can constant that TPU is implementing the accessible educational environment for people with special needs. There are some steps done and problematical field was drawn up. This way is

not easy, it is necessary to combine efforts of authorities, enterprises, stuff, students to make successful system of inclusive education.

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Systematic Development of Ontology-Based Decision Support System for Solving Emergency Incidents

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Abstract

Emergency incidents endangering human lives require fast and faultless decision making. Rescuers have to deal with various, often hardly predictable situations. These situations can be effectively solved on the basis of the complex knowledge that is received during education and emergency missions. Complex knowledge can be represented by the formal ontologies that are suitable for machine-processing. The main aim of the paper is to propose systematic approach for building of the OWL ontology-based decision support system that recommends suitable strategy for provision of the immediate first-aid. Preliminary phases of the systematic approach are practically demonstrated.

Keywords: Ontology, Emergency Management, First Aid, Concept Mapping.

Introduction

Emergency management is a multi-disciplinary area applying science, decision-making, planning and technology for dealing with potential or actual threats able to negatively influence human lives. Efficient decision-making (often under uncertainty and time limits) is inevitable for sustaining quality of lives. The paper investigates the potential of ontologies – the information and knowledge-based structures that could offer "knowledge platform" for decision-making during emergency incidents. The paper proposes the conceptual framework for building ontology-based decision support system for the assistance during the provision of the first aid. Non-professional rescuers are a primary target group because they have a problem to decide which step in which order have to be done in case of seriously injured person. The proposed decision support system is going to be used as an education tool or advisor during provision of the first aid. The preliminary steps in building ontology-based application are practically demonstrated in the paper. The paper is structured as follows. The section 2 introduces ontologies in the context of the emergency management. The section 3 proposes the conceptual framework for building ontology-based decision support system. The preliminary phases of the conceptual framework are explained and their content is practically demonstrated in the section 4. The paper mentions future directions and conclusion in the section 5.

Ontologies in Emergency Management

Ontologies are knowledge-based schemas able to represent knowledge for their sharing, reuse and problem solving. Ontologies play the role of the vocabularies of "things" with the meanings that can be used by intelligent agents as a knowledge base for problem solving and communication with other intelligent agents. Decision-making often requires the usage of diverse information or knowledge sources that can be spatially distributed. Ontologies are able to represent relations between knowledge coming from these various resources and to offer detailed and complex view on the application domain. Emergency management is the managerial activity highly dependent on efficient, fast and reliable problem solving and decision-making where the aim is to minimise vulnerability to hazards and cope with disasters (Iaem, 2007). Literature review shows that formal ontologies can offer one of the paths how to deal with complexity of problems solved during emergency incidents. The authors of the paper (Javed, et al., 2011) proposes the usage of the OWL ontologies for improving shared situation awareness among teams of rescuers during emergency situations. Described conceptual framework is practically demonstrated on the case study of the mass evacuation in the tsunami event. Han, Y. and Xu, W. introduces the five-layer framework-based decision support

system that is applied for solving crisis emergency situations (Han and Xu, 2015). Practical usage of the framework is demonstrated with Tianjin port explosion case study. The paper (Fan and Zlatanova, 2011) is aimed at the ontology-based solution for resolving semantic heterogeneity of data in case of emergency responses. The authors of the paper explain how to build the ontology for the needs of the emergency management. Emergency situation ontological model (ES_Ontology) is introduced in (Shan, et al., 2012). ES_Ontology is a conceptual schema for solving semantic conflicts and inconsistent problems occurring during particular emergency situations. The ontology is based on the upper-level ontology - ABC ontology defining fundamental concepts providing basic building blocks for domain-specific metadata vocabularies (Lagoze and Hunter, 2001). ES_Ontology offers semantics understanding of the emergent situations for prediction of future emergent events. Practical usage of this ontology is presented in the Fukushima nuclear radiation event. The ABC ontology (i. e. eABC ontology for the emergency management) is also extended in the paper (Cui, 2015) by the concepts from the coal production application domain. The coal mine emergency case ontology model provides a solution for solving problems during knowledge sharing and semantic conflicts in the coal mine emergency field. The paper (Cech, et al., 2011) focuses on designing general schema for decision support in response operations during biological (biochemical) incidents. Combination of ontologies, expert systems and their inference abilities, are the core of the schema.

Provision of the first aid is the activity that should belong to the fundamental ability of each person. Giving the first aid requires fast reactions, decisiveness depending on specialised body of knowledge, experience, and the ability to apply them during critical and often stressful events. Knowledge is often unstructured and fragmented in various resources in case of the first aid. Decision making during provision of the first aid often depends on the context. As the example, Gordon manoeuvre cannot be applied for all situations. Its usage depends on the state of the basic life functions of the human. Ontologies are knowledge structures that can be used for context modelling (Krummenacher and Strang, 2007). They are able to represent knowledge formally and in a structured way. These are the reasons why the ontologies are deeply investigated in the context of the first aid conceptualisation.

Systematic Approach for Ontology-Based Decision Support System Development

It is inevitable to apply systematic approach for modelling complex knowledge, not only in case of ontological modelling. The proposed conceptual framework is composed of activities (phases) that are systematically ordered according to the priorities, see fig. 1. The other parts of the framework (tools, content) are dependent on the particular needs of the intended software solution. These parts are mentioned in the context of the investigated application domain – giving the first aid in case of this paper.

The knowledge acquisition is the first phase of the conceptual framework, because it has to be obvious which part of the reality is going to be represented in the ontology. Concept maps are knowledge representation schemas that are used for analysis of the application domain (Novak, 1990). Concept maps are then used for the ontology building. If the aim is to only develop the taxonomy of ontology without the inference, the expression of semantics of ontological classes or rules integration are not necessary. Consistency of the ontology has to be checked for the prevention against the occurrence of the logical discrepancies. Syntactic and semantic correctness of the inference rules has to be also tested because of the occurrence of an undesirable advice. The software solution has to be tested also during the instance data integration because of the incorrect “communication” with the application as a whole.

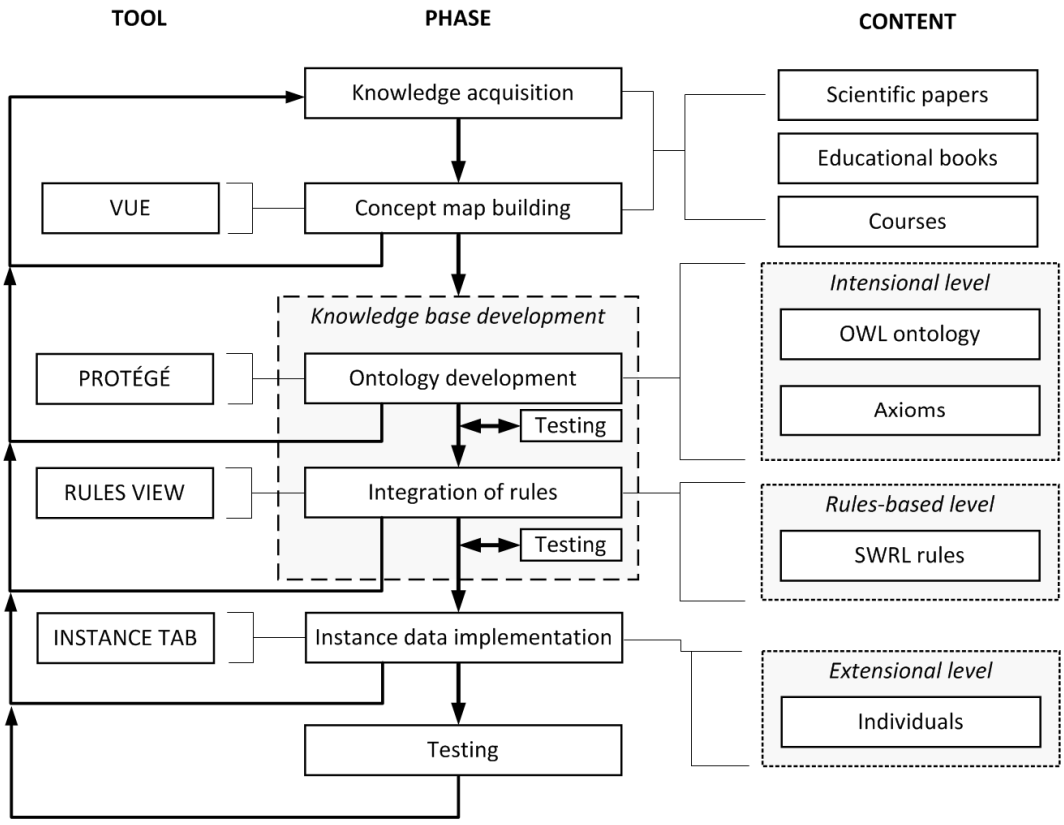

Fig. 1: Conceptual framework for ontology-based decision support system development

Preliminary Phases of OWL Ontology Building

Knowledge Acquisition

Provision of the first aid is critical activity consisting of many interrelated operations. Non-professional rescuer encounters a lot of diverse facts relating with the first aid. It is very difficult to distinguish which step has to be applied as the first and what have to be done after that. (C-)ABCDE is a treatment procedure that systematically solves emergency events requiring the first aid (Thim, et al., 2012). The algorithm consists of six phases in the extended version. The first phase (C - Catastrophic Haemorrhage Control) is focused on the control of the haemorrhage. If the haemorrhage is external it can be detected and controlled. The stopping bleeding has the highest priority because loss of blood can cause the occurrence of the shock or death. If the blood stream is under control, it is necessary to check the state of the air passages (A – Airway). If the air passages are free, but injured person cannot breath insufficiently, the artificial respiration is applied (B – Breathing). The fourth phase is focused on monitoring of the blood circulation (C – Circulation). The blood circulation is evaluated on the basis on the indirect signs – state of the consciousness, breath and hearthbeat. The fifth phase (D – Disability) is aimed at checking the level of consciousness (a level of neurologic state). It is obvious that this characteristic is often monitored during each of the previous states. The final phase Environment (E) is the secondary examination where the global examination is applied.

Concept Mapping

Each phase of the (C-)ABCDE algorithm consists of series of partial steps (decisions) that has to be done. This is the reason why the systematic approach has to be applied also for the conceptualisation

of the first aid. Systemic approach is based on the concept maps that visualise key concepts (relations) related to the each phase of the (C-)ABCDE algorithm. The backbone of the whole concept map is depicted with the VUE (Visual Understanding Environment) tool, see fig. 2 (see bold concepts and relations). The backbone of the concept map has been substantially extended on the basis of the knowledge acquisition phase. If all concepts and relations would be included into the only one concept map, the concept map would be very complex and probably useless. The four concept maps have been developed. Each one is focused on the conceptualisation of the only one characteristic that has to be monitored by a rescuer: consciousness, haemorrhage, breathing and blood circulation. Fig. 2 depicts only one of them – unconsciousness (see the concept in the grey scale).

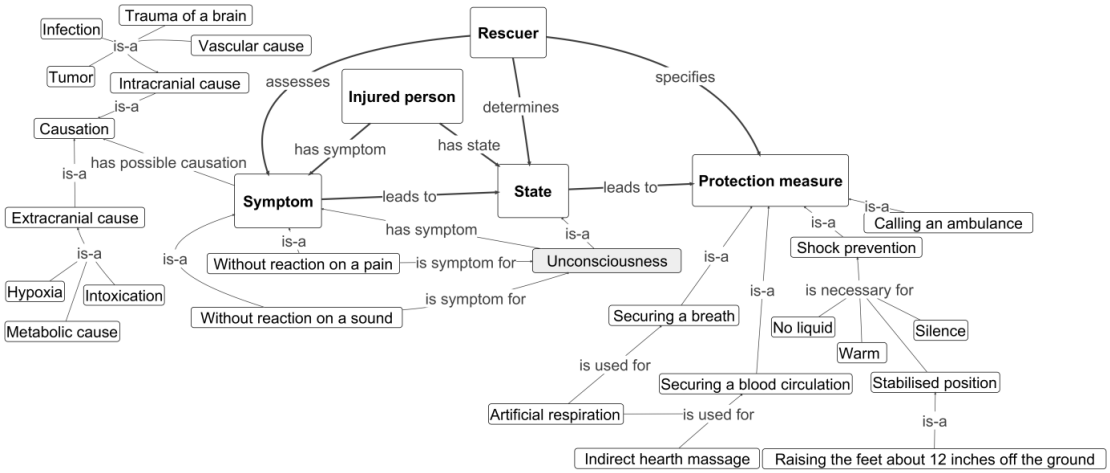

Fig. 2: Backbone of the concept map and its extension (Unconsciousness)

Future Directions and Conclusion

The paper proposes systematic approach for building ontology-based decision support system in the field of the emergency management – for provision of the first aid. Giving somebody the first aid requires complex knowledge that is often fragmented in different knowledge sources and expressed in unstructured format that is not easily managed by a computer. Preliminary phases of the ontology-based decision support system have been already completed. The four developed conceptual maps (labouring under (C-)ABCDE algorithm) are going to be used for the knowledge base development, i. e. for the identification of the fundamental ontological concepts (ontological classes and object (datatype) properties). The ontological concepts are going to be integrated into the OWL ontology with the ontological editor Protégé 4. Pellet is going to be applied for checking consistency of the OWL ontology. SWRL rules will propose particular recommendation on the basis of the actual state of the injured person. Actual state will be represented by individuals of the OWL ontology. It is known that the Protégé ontology editor is not used for building and usage of the fully-fledged decision-support system (e. g. expert system). On the other hand, the Protégé can help to demonstrate which technologies can work together and can be used for building more sophisticated semantics-based application, e. g. with the assistance of the Jena framework or OWL API.

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Intangible Assets, Economic Models and Neural Network

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Abstract

In the knowledge society, learning and knowledge have become key factors of success internationally and intangible resources are of vital importance. This topic is addressed by us by the prospect of consequences induced by the current global crisis and bearing in mind that resource called "knowledge" has become a driver of global competition. In other words we propose estimating the risk of bankruptcy by recourse to techniques of Artificial Intelligence (AI) and inclusion in the model of estimation of what we call intangible assets of the company. Part of the work is expected to provide some answers / clarifications both on using AI techniques for predicting the risk of bankruptcy of companies and on the assumption of including intangible assets of a company in the equation given by economic models Altman, Conan-Holder for predicting the risk of bankruptcy of the companies. It is difficult to say succinctly, we believe, what is knowledge and which of financial accounting indicators better reflect the share of this "active" in the value it has at one time a certain company. In other words, we believe that our research topic is one of interest in what we call the knowledge economy / society, since knowledge condition today in an increasingly way progress and prosperity of countries / companies

Keywords: intangible assets, business models, neural network, multilayer perceptron, concessions, patents, licenses

Introduction

Analysis of the path taken by a firm during its existence has been and remains a major topic of study in microeconomic theory and management. This is because the progress and prosperity of a country remains dependent on microeconomic realities, namely the success or failure of entrepreneurs in an economy based on market mechanism. Statistics on the number of bankruptcies of companies, GDP growth, unemployment or other similar indicators show that some business organizations are able to consolidate its position in the marketplace at a time when other business organizations are obliged to withdraw from the market or go bankrupt. Certain questions arise such as: How do you explain this current situation encountered in the business world? To what extent can or cannot be predicted the bankruptcy of a firm? What is the support offered by computer to substantiate decisions taken by top management?

Both the '29 -'33 Great Depression and the 2008 global crisis show, we believe, that relatively tortuous national economies evolve over time; Economic growth has become a better individual in theory and leads to the conclusion that periods of progress / prosperity are followed by recession or economic crisis. From a microeconomic perspective, it is widely accepted idea that each company follows a certain cycle itself and that similar to economic dynamics, macroeconomic firms face period less favorable or more restrictive (on turnover, market share, profit , dividends etc).

In the context of exponential evolution of the Internet and computer networks, major changes have occurred, we believe, on the management applied by firms and the types of resources that underpin innovation, new products and market success. In particular what we call knowledge has become an essential resource for innovative activities within firms and competitive position that these organizations have at some point in markets where they locate. Especially in the corporate world it was found that the market value of a company came to depend increasingly on the volume of knowledge it holds that organization and less of its tangible assets (this becomes evident during acquisitions, mergers, reorganisations etc.).

There are some economic models on predicting the risk of bankruptcy of a company and based on their various groups and organizations they have established their own tools to assess the health of a company. There are especially known economic models such as Altman and Conan-Holder which have been and remain the basis of models applied by commercial banks in the ordinary procedure which these entities apply in relation to various categories of customers (commercial banks have their own tools to assess / determine the creditworthiness of a customer, the risk accompanied by placing a credit, etc).

In the context of pronounced socio-economic instability, as the release of the Romanian economy from 2009 to the present, the market value of held by a company at a time tends to move in contradictory ways (especially for listed companies, reliability and the structure of social capital highly influence the exchange of shares). The struggle between competing firms moved from the plan of tangible resources (capital, raw materials, land, machinery and equipment etc.) to intangible resources plan, in which elements such as knowledge and ability to use them (knowledge management) have a crucial role . Knowledge became the basic resource of companies, the way they manage to obtain power, prestige and wealth in the economy and in modern society. The generation, acquisition and use of knowledge are extremely important for economic development.

Literature review

In our opinion, the problem of estimating the bankruptcy risk of a company remains one of major interest on microeconomic theory and the business organizations (whether or not the use of AI techniques to solve this problem).

The original version of the Altman model proposed in 1968 is as follows (Altman, 1968, p. 594):

$$Z = .012X_1 + .014X_2 + .033X_3 + .006X_4 + .999X_5 \quad [1]$$

Z = Overall Index
X_1 = Working capital/Total assets
X_2 = Retained Earnings/Total assets
X_3 = Earnings before interest and taxes/Total assets
X_4 = Market value equity/Book value of total debt
X_5= Sales/Total assets

According to the model proposed by Altman the original weighting coefficients of the 5 variables can be weighted in turn by 100, in which case the score function of the model is as follows (Iancu, 2011):

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + X_5 \quad [2]$$

Using Conan-Holder model, as scope and interest in financial world and stock market in different countries, did not remove significantly move away from the path of the Altman model during which I had Altman model.

The general form of the function score on which the Conan-Holder model is based (Conan-Holder, 1979) approaches in form and structure of the score function of the Altman model; but the weighting coefficients and variables of each structure are different; general form of the function score is as follows (Guizani, 2014 pp.22):

$$\mathbf{Z = 0,24*X_1 + 0,22* X_2 + 0,16X_3 - 0,87* X_4 - 0,1* X_5} \quad \mathbf{[3]}$$

where:

X_1 = gross operating surplus / total debt
X_2 = Permanent capital / total assets
X_3 = (Current Assets - Inventories) / total assets
X_4 = Financial Expenses / turnover
X_5 = personnel expenses / added value

Another model is the score function developed by the Central Bank Balances France (CBBF), model which has seen development / adaptation over time; in the initial version there were analyzed 19 indicators for accountability and a large number of companies (some of them have gone bankrupt or have had a difficult situation and some of them had a normal situation or have thrived).

Scoring method included a total of eight distinct installments for indicators of accounting and certain weights to each installment (note that the working principle enunciated by Altman in the subject of economics is in all models and tools for predicting bankruptcy).

According to estimates given by different authors based on scoring method applied in this case is the following function score (Galesne 1995, pp.76-82):

$$100\ Z = -85{,}544 - 1{,}255X_1 + 2{,}003X_2 - 0{,}824X_3 + 5{,}221X_4 - 0{,}689X_5 - 1{,}164X_6 + 0{,}706X_7 + 1{,}408X_8 \quad [4]$$

where:

R_1 – gross exploitation result/ total debt - indicates own debt of financing capacity;
R_2 – Total equity / total liabilities - indicates patrimonial solvency;
R_3 – Cash and investments / total assets - quantifies the performance of the assets;
R_4 – Financial expenses / turnover - indicates the level of financial charges
R_5 – Staff costs / value added - shows the degree of remuneration of staff;
R_6 – equity / total assets;
R_7 – gross operating result / total assets;
R_8 – The need for working capital / turnover

Among the first models to estimate the risk of bankruptcy in our country was that of Camasoiu Negoescu which is based on an analysis of financial indicators analyzed during 1993-1994 in seven state-owned companies. Score function of this model is the following (Negoescu, 2003, pp.103-107)

$$z = \frac{\sum k_i \cdot R_i}{100 \cdot \sum k_i} \quad [5]$$

where:

k_i are weighting coefficients that have values:3,6,4,3,6,3,3,5,5,5;
R_i rates obtained from reporting on certain indicators taken into account.

Later, Gheorghe Băileşteanu, starting from models Altman, Argenti, Conan and Holder, proposed in 1998 for Romanian companies a model of four installments which comprises the following structure: G1 - general liquidity, G2 - solvency, G3 – client recovery and G4 – cost effectiveness (Anghel., 2002, pp.89-90); the four installments are:

G1 = current assets / current liabilities
G2 = solvency = (net profit + depreciation) / (credit + interest rate reimbursed)
G3 = recovery clients = turnover / customers
G4 = cost-effectiveness = profit / cost x100
The score function associated to these rates is:

$$B = 0{,}444\ G_1 + 0{,}909\ G_2 + 0{,}0526\ G_3 + 0{,}0333\ G_4 + 1{,}414 \quad [6]$$

Ion Anghel proposes in 2002 a model using a sample of 276 economic entities in 12 branches of the national economy. These entities were chosen at random for each economic entity there have been processed accounting information in the 1994-1998 period based on data from the annual accounts. They used a total of 20 indicators grouped into five groups of users as follows: activity, liquidity, indebtedness, profitability and other information. Finally they were detained four installments (Anghel, 2002, pp.139-152):

X1 = Net Income / Revenue - represents revenue performance

X2 = Cash Flow - debt coverage ratio of cash flow;

X3 = Debt / Assets - asset leverage;

X4 = (Liabilities / Sales) * 360 - the period for payment of obligations

The score function associated with this model is:

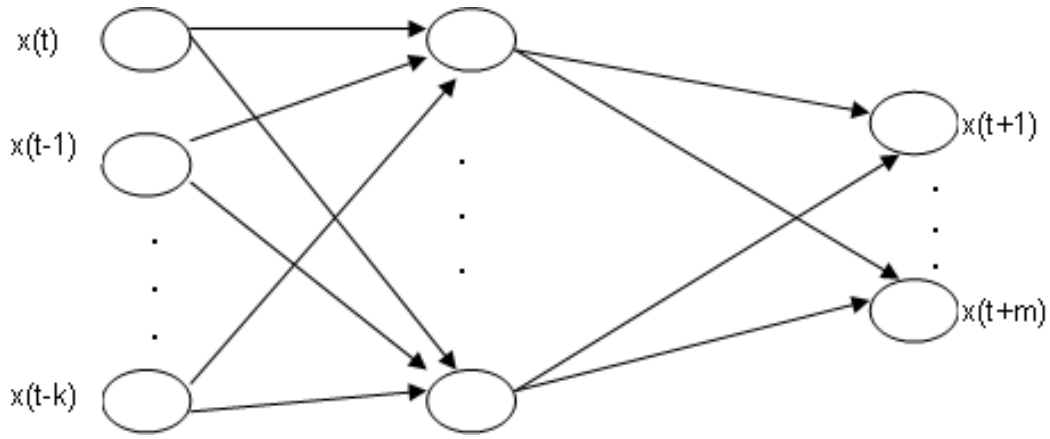
$$A = 5,676 + 6,3718\ X_1 + 5,3932\ X_2 - 5,1427X_3 - 0,0105\ X_4 \quad [7]$$

Artificial neural networks, also called connectionist systems appear as a smart solution of last resort, where other methods of computer assistance are difficult to apply due to the poor structuring of the decision-making problem. These so called connectionist models were considered by some researchers as "direct competitors" to traditional models (Russell, 2003 pp.25). What can neural networks do today? A concise answer is difficult to give because there are so many activities in so many subfields that it is hard to say. From the point of view of our research we mentioned that Expert Systems (Iancu, 2011) and Neural Network are suitable for assessing the risk of bankruptcy of a firm by appealing to models Altman, Conan-Holder etc (it is difficult to say which of the two tools would be appropriate to Economic resolve this issue, some opinions on this subject will result implicit in our study of applied research). Operation of neural networks is based on two fundamental concepts:

- Parallel operation of multiple independent processors of information (we discuss further network Multilayer Perceptron itself a distinct processor or J48 it to be used as a "control key" for the results obtained Neural Network);

- The existence of a law of learning that allows these processors to adapt to the specifics of a given informational context.

The neural network (NN) for time series prediction shows univariate general working principle for solving economic problems (Figure 1).



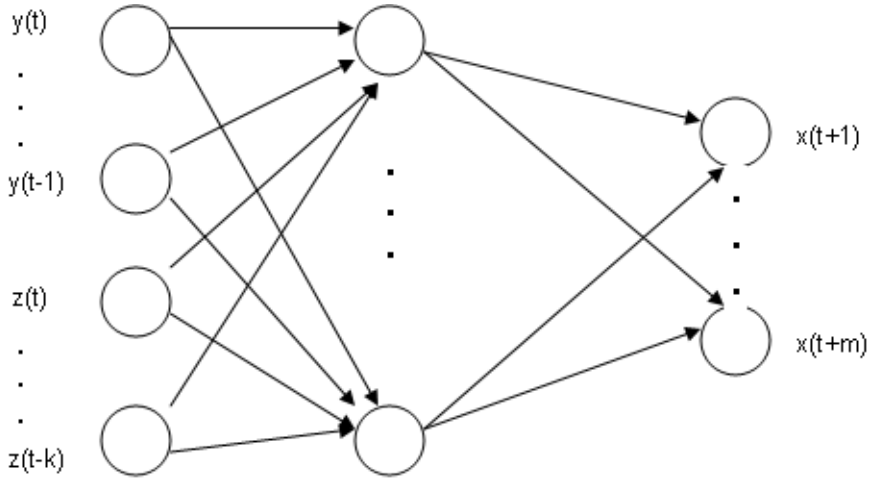
Source: Morariu N., Iancu E., Vlad S. (2009)– *A Neural Network Model for Time Series Forecasting,* Romanian Journal of Economic Forecasting

Figure 1. Neural network for time series prediction univariate

The dependent variable subject for prediction may be different to independent variables, but both are a function of time.

• Neural network for time series prediction multivariable

Multivariate prediction involves predicting the output of dependent variable x and the prediction of independent variables y, z at the time t + 1 based on their previous values. In this case, the prediction of the variables y and z can be performed with univariate prediction neural network (it is used a network of networks function of the number of existing variables).



Source: Morariu N., Iancu E., Vlad S. (2009)– *A Neural Network Model for Time Series Forecasting,* Romanian Journal of Economic Forecasting

Figure 2: Neural network for time series prediction multivariable

Predictions for 2014 based on NN and the past for the two firms

As resulted from the applied research carried out by us until this moment (values in accounting firms, the previous tables, data clustered / grouped) we had reliable data only until 2013 inclusive. Theoretically, any of the two types of NN used by us can support decision-maker to make predictions for at least one year for each company that is studying BCF (Business Cycle of the Firm), predicting the risk of bankruptcy and foreshadowing the desired / possible future for that organization.

Unlike the ES, when using NN it is possible that the software itself to be likely to provide a prediction of the phenomenon analyzed, prediction resulted from a mathematical extrapolation of the trend from the past (Iancu, 2011).

This prediction of NN is to be interpreted by human experts and who featuring other information will be able to intuit the foreseeable future of the company.

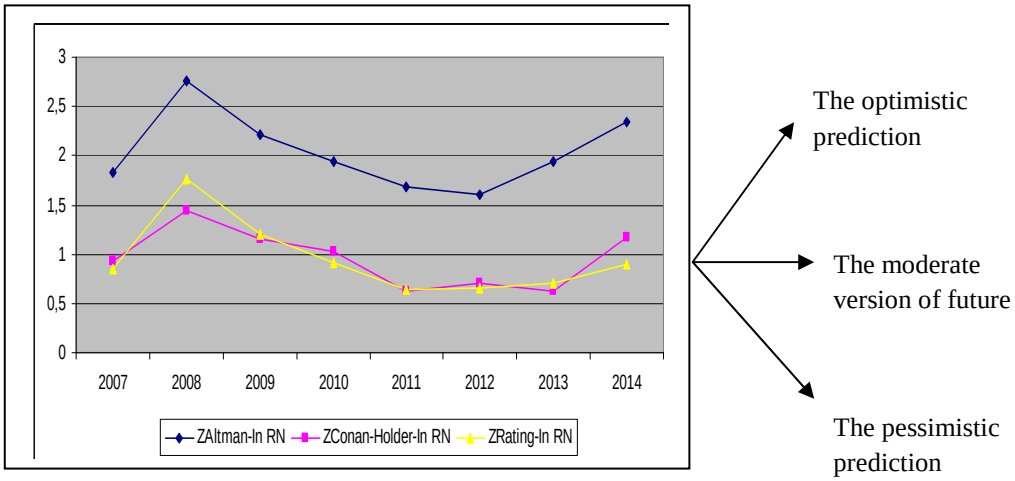
Perioada	R1	R2	R3	R4	R5	ZAltman	ZAltman-In	ZAltman-In RN
2007	0,109968	0,004249	0,007032	0,371042	1,220611	1,603131034	1,81957	**1,823456**
2008	0,089197	0	0	0,270205	1,345406	1,613220434	2,748384	**2,763456**
2009	-0,00581	0,008519	0,011872	0,312985	1,39953	1,63004986	2,248541	**2,2198076**
2010	0,006024	0,014481	0,020679	0,252219	1,349186	1,59490903	1,936121	**1,9456778**
2011	0,036857	0,025027	0,033144	0,328805	1,248861	1,633537497	1,699721	**1,678956**
2012	0,030856	0,002795	0,034484	0,26312	1,198205	1,509617928	1,591818	**1,608976**
2013	0,02659	0,018915	0,02173	0,338734	1,492902	1,824748123	1,924046	**1,945679**
2014	**0,041954**	**0,010569**	**0,01842**	**0,305301**	**1,3221**	**1,627987**	**2,335679**	**2,342563**

Perioada	T1	T2	T3	T4	T5	ZConan-Holder	ZConan-Holder-In	ZConan-Holder-In RN
2007	2,084172	0,999537	0,057912	0,15639	0,895177	0,702185672	0,918624	**0,923896**
2008	1,491923	1,000228	0,072587	0,75643	0,046299	0,331075737	1,466239	**1,4467894**
2009	2,311589	0,999539	0,031641	0,561047	0,124681	0,536043776	1,154535	**1,15578**
2010	3,226881	1	0,014975	0,608465	0,087408	0,683404637	1,024617	**1,024894**
2011	2,415874	0,953799	0,009524	0,565829	0,102244	0,55604527	0,622228	**0,6221345**
2012	2,814904	0,981176	0,003155	0,633805	0,069698	0,616845311	0,699045	**0,699046**
2013	2,308995	0,997232	0,004571	0,725018	0,056948	0,526019119	0,625317	**0,626798**
2014	**2,379191**	**0,990216**	**0,027767**	**0,572426**	**0,197494**	**0,546739**	**1,167432**	**1,1676**

Perioada	vRt1	vRt2	vRt3	vRt4	vRt5	vRt6	vRt7	vRating	vRating-In	ZRating RN	**ZRating-In RN**
2007	1,155189	119,597	0,577402	0,254213	0,348139	37,10418925	0,302263	0,63	0,846438496	0,6300	**0,846446**
2008	1,134937	113,1371	0,636787	1,200881	0	27,02053403	0,22058	0,63	1,765163097	0,628161	**1,764589**
2009	0,99229	136,6484	0,711808	2,846443	0,608696	31,29846784	0,123355	0,58	1,198491216	0,576229	**1,198675**
2010	1,007573	159,5861	0,768935	1,935413	1,073279	25,2219134	0,210301	0,57	0,911212236	0,5678	**0,911237**
2011	1,049786	153,6641	0,767557	2,737	2,003977	32,88050468	0,114515	0,58	0,646183041	0,5793	**0,646579**
2012	1,039639	165,0659	0,75801	2,848164	0,23325	26,31198085	0,166997	0,58	0,66220011	0,5848	**0,662197**
2013	1,036131	122,5247	0,720851	1,517817	1,266999	33,87340796	0,001639	0,61	0,709297602	0,5918	**0,709368**
2014	**1,059363**	**138,6033**	**0,705907**	**1,905704**	**0,79062**	**30,53014257**	**0,162807**	**0,67**	**0,8973569**	**0,897342**	**0,897659**

Figure 3: Data derived from the 3 economic models of prediction for BCC (Business Cycle of the Company)

In figure 3 we present data resulted for Company A, during 2007-2014, these data being the base for predicting bankruptcy score for 2014 (among other matters we remember: rates resulted in ES (Expert Systems) for each economic model were taken into account; it was calculated an average for the years considered, determining the average rate, we included in the analysis the RIn rate of intangible assets, intermediate scores calculated by NN, etc). In the same annex we include similar data for Company A except that we focus our attention only on the first set of data.



Source: by author based on data from www.bvb.ro

Figure 4. BCC versions prediction for human decision-maker (Company B)

Based on data from Figure 3, we present only the graph offered by NN for the Company B for 2014 (Fig. 4). This figure includes the three directions in which the decision maker studying the path followed by this company can direct its predictions.

Conclusions

As shown in the issues raised by us on the basis of actual data that define the course of the two companies studied, it must be concluded that the intangible assets of a company has become in recent decades increasingly important / significant in the route followed by the organization over time. This is because the market value of any firm is given in an increasingly matter by the ability / skill of employees, the innovative capacity, the stock of knowledge available to it (infer implicit that human decision maker must take account of intangible assets in an attempt to foreshadow the future of a company). Simply put, the higher decision maker within the Company B (due to the use of ES and NN applications based on intangible assets without such intangible in the structure of the three economic models) will have three distinct directions on the future of the organization:

a) Where an optimistic variant is chosen on the BCF for the next 2-3 years the human decision-maker must take into account the values offered by NN for 2014 and in addition to carefully analyze the market situation and the socio-economic conjuncture at a time;

b) In the context of socio-economic instability of the business environment in Romania, including the pharmaceutical industry seems to be recommended a moderate variant of predicting BCF (it is the result of an intuitive average calculated by decider by aggregating the three graphs in Figure 4);

Finally, if the domestic situation regarding cash flow, previous investments in technology, its market position and similar issues lead to relatively negative conclusions, the human decision-maker may consider a pessimistic variant of prediction for the BCF for the following 2-3 years.

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The Dichotomy of Business and Society through the Lens of Strategic Philanthropy: Mapping the Influences of Socio-Cultural Context

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Abstract

Problem of the research is mapping the social context and identifying how a set of determining socio-cultural factors determine managerial solutions in favour of transectorial dimension of strategic philanthropy? What socio-cultural factors play the most important role in transectorial managerial decisions in different parts of the world? Is strategic philanthropy, as a constituent of CSR, equally acknowledged across the global business community? Main findings of this research reveal a correlation between multiple factors of the social environment, stemming from its cultural context, and managers' philanthropic choices, related to strategic objectives of organizations and society. A theoretical framework for managerial decisions in favour of transectorial strategic philanthropy, developed through this research suggests a set of solutions, capable to evaluate the strength of each factor and to mitigate the influence of the negative ones. This framework proposes new possible avenues for research of relationships between business and society, moving managers and decision makers beyond the intrinsic assessment of cost benefit ratio of the overall company revenue and encourages scholars to further investigate how transectorial managerial decisions- which can be justly taken for strategic philanthropy- contribute to the betterment of society and at the same time ensure sustainable development of the company itself.

Keywords: socio-cultural context; transectorial strategic philanthropy; corporate social responsibility; managerial decisions; transectorial philanthropic decisions

Introduction

Relevance of the research

The global challenges of today make a strong pressure on companies to shift from formal declaration of corporate social responsibility to intrinsic and factual application of its values, with adequate responses to strategic needs of societies in which they operate. This means systematic change in business collaboration with other sectors, such as social security, social welfare, research and education. Throughout decades the dichotomy of society and business has by default been viewed as antagonistic, however, philanthropic initiatives, as a constituent of CSR strategy, are embraced by enhancing numbers of top management. These managerial choices seem to vary according to the capabilities and propensities of the players involved and are at large determined by the cultural context, in which they operate. This article presents an overview of the development of academic thought in the field with the focus on different socio-cultural contexts as determining factors for multifaceted relations between business and society. The

authors introduce a theoretical framework for CSR companies and their managers, which can facilitate transectorial philanthropic decisions.

The discourse of corporate philanthropy was evoked by the academia of social sciences long before signing the famous UN Global Compact, which delineated the main universal principles organizations should abide to in order to be considered socially responsible. Since then, empirics continue to debate the universal dimension of these principles (Wood, 1991; Amaeshi et al., 2006; Athanasopoulou & Selsky, 2015; etc.), stating that they are neither unique nor universal in their meaning and rather depend on given cultural or organizational context and are operationalized through the political and symbolic processes of that context. Conceptual research classifies three dimensions of the social context: individual, organizational and external (environmental) (Athanasopoulou & Selsky, 2015). We maintain that these three dimensions in reality intermingle, and through managerial decisions manifest themselves in specific empirical macro-organizational phenomena, depending on the social context in which they operate (Vveinhardt & Zygmantaite, 2015a).

Empirical investigation proves the fact that the giant global companies and international firms, having installed most instruments for CRP (corporate social performance) in their operating and internal regulating documents and practices (Bruch & Walter, 2005; Strand, 2012; Kania et al., 2014; Grancay, 2014; etc.), make the pillar of the global CSR community. At the same time SMEs, operating at international, regional and local levels usually need a stronger push for taking additional obligations in the sense of their dues for the development of societies (Amaeshi et al., 2006; Jamali et al., 2009). Taking Carroll's (1991) four-folded pyramid of CSR as the datum line for this investigation, we contradict some critics of this approach as proposing the hierarchy of values within the concept and suggesting that economic component of the CSR construct is the most important or highly valued domain (Reidenbach & Robin, 1991; Ameshi et al., 2006). We argue that the discretionary (philanthropic) category is the manifestation of the ultimate responsibility and correlation between company's performance and the society. Focusing on the socio- cultural dimension of the corporate strategic philanthropy, we propose, that transectorial managerial decisions are required for companies not to confine their philanthropy to the cases of cause-related marketing, and get involved into strategic philanthropy.

The aim of this research is to map the social context of business operation from the cultural perspective as it is presented in the scholarly depository in the field, to conduct a comparative analysis with the perspective what vectors for empirical investigation in the socio-cultural context of post-soviet economies could be created which could culminate in creating a frame for managerial choices, leading to transectorial managerial decisions.

The objectives of the research are: (1) to conduct a comparative analysis of the scholarly findings up to date, focusing on the social context of CSR organizations and its impact of on managerial decisions in favour of transectorial philanthropic activities; (2) to map the domain of cultural context, with the aim of identifying a set of strongest factors; (3) to design a theoretical frame for managerial decisions in favour of transectorial strategic philanthropy.

Limitations of research.

This research focuses exclusively on theoretical analysis of the problem, without involving into empirical study of specific cultural environment and social context.

Methods of research:

analysis and synthesis of scientific literature, analysis of secondary data, content analysis.

1. Comparative analysis of the scholarly findings up to date, focusing on the social context of CSR organizations and its impact of on managerial decisions in favour of transectorial philanthropic activities

Reflections on Strategic philanthropy: predominant cause related marketing perspective

Until recently the predominant cause-related marketing perspective appeared to be sufficient for defining company strategic philanthropic performance (Vveinhardt & Zygmantaite, 2015a). Company philanthropy, as a tool for cause- related marketing is neither peccant, nor idle, because it's most sophisticated cases, as stated by Porter and Kramer (2002) can improve the reputation of a company by linking its identity with the admired qualities of a chosen non-profit partner or a popular cause. However, the confusion in terminology and the concept of strategic philanthropy has reached unimaginable heights of *omnium-gatherum* since Friedman's (1970) observation in New York that „few phrases are as overused and poorly defined as "strategic philanthropy." Thus it is necessary to specify the boundaries of the term and its application: if it is "strategic", it has to be identifiable and synergistic with the company's mission, goals and objectives, become a part of the company's code and culture (Post & Waddock, 1995; Fombrun et al., 2000; Vveinhardt & Andriukaitiene, 2014; etc.). However, to outreach cause-related marketing, it must embed strong philanthropic vector and transcend the boundaries of the sphere of company's activity. In other words, to be strategic, the philanthropy must possess transectorial dimension, because, according to Porter and Kramer (2002) "true strategic giving, addresses important social and economic goals simultaneously, targeting areas of competitive context where the company and society both benefit".

The importance of socio-cultural context in strategic philanthropy

The construct of corporate social responsibility stems from company's relations with society's institutions and nature's ecosystems (Frederick, 1997) thus the role of management studies is to describe, analyse and evaluate these complex societal and ecological linkages (p. 48). In his earlier studies he defined two perspectives in which businesses tackle their societal obligations, i.e. CSR as a philosophic-ethical dimension, arguing that "business corporations have an obligation to work for social betterment" (Frederick, 1994, p. 151), and its empirical side, as a summation of tools and instruments, which companies should apply in trying to respond to the pressure, placed on them by the social environment. The main variables in the discourse of strategic philanthropy being of three-folded nature – socio-cultural, individual and that of the organization,- not only individual values of top managers and other decision makers, but factors of social context in particular (Wood, 1991; Athanasopoulou & Selsky, 2015; etc.) come into play. This perspective emphasizes the important role which social context plays in companies' choice for strategic philanthropy in communication with society as the most significant stakeholder. Though, as stated by Johnson (1987) until recently, social context was treated by most scholars "as a background noise" and not as a central constituent of the problem, nowadays many researchers admit the important role, which social context plays in companies' choice for strategic philanthropy in communication with society as the most significant stakeholder (Granovetter, 1985; Porter & Kramer, 2002; Streuter et al., 2005; Jamali et al., 2009; Hansen, 2010; Athanasopoulou & Selsky, 2015; etc.). However, the field for the studies of socio-cultural context is extremely broad and diverse, thus consequently it is essential to specify the boundaries and vectors for its classification.

Although the analysis of the scientific literature and empirical research data suggest a wide range of classifications of companies, in this study we focus on the typology, where socio-cultural context, as specific determinant criterion is distinguished. Thus the size and scope (multinational companies, giant firms with international branches, SME's functioning nationally, locally or regionally); location (country, region), political system and economic structure of the company's operation, the level of its economic

development, as investigated by scholars were in the focus of our investigation. Specific historical factors were taken into consideration as well.

2. Mapping the domain of cultural context

Determinant factors: political- economic structure of the country

One of the main variables for studies of companies' involvement in CSR, as stated above, being the socio-cultural context, more researchers engage in studies of specific socio-cultural environment of the organizations, which in one way or another determine their attitude towards corporate social responsibility. However, the researches focus exclusively on the construct of CSR or corporate citizenship without specific emphasis on strategic philanthropy, or in many cases treating the concepts synonymously.

Main differences can be traced in the scholarly works between companies, operating in Western type of democracies (Jenkins, 2004; Strand, 2012; Kania et al., 2014; etc.) and the context of the developing countries (Amaeshi et al., 2006; Jamali et al., 2009; etc.). Though the processes of globalization amalgamate company's performance in the broad sense, when registered in one continent, the company may operate in another, recruit employees from the third and have impact on the fourth, giant companies and their branches, operating in different countries, apply diverse methods and operating regulations. According to Langlois and Schlegelmilch (1990) even the codes of ethics of e.g. USA, European and Latin American (Grancay 2014) organizations differ strikingly, referring to the specific cultural context. According to Grancay (2014), even airlines, which operate globally, apply different customer- service rules and terminology, due to the different cultural context and corporate cultures of their home-country. From the perspective of the Western type democracies, organizational studies are unimaginable from the holistic sustainable development approach, which, according to Streuter and Martinuzzi (2005) is a well-known societal guiding model that asks for integration of economic, social and environmental issues in all societal spheres and levels in the short and long term. Western societies have sufficient instruments to control firms' performance, thus to ignore this social pressure, according to Granovetter (1985) would be simply a misunderstanding.

After 1990's transformational processes in Europe, new democracies appeared, thus entirely different and complicated socio-cultural context emerged on the spotlight of researchers, with its peculiarities, conditioned by many-folded economical heritage and experiences, which still lack in depth analysis. Although separate cases of CSR application are available in the academic domain (Mazurkiewicz & Crown, 2005; Elms, 2006; Kooskora, 2006; Apostol et al., 2008; Navickas & Kontautiene, 2011; etc.), the majority of them don't reflect the local perspective and are not an outcome of local societal expectations but, rather, are brought from abroad and introduced to the local community (Apostol et al., 2008). In addition, their perspectives reflect an overall situation of the existing domain of the CSR in transforming economies of Europe and its limitations. The content of CSR concept, as it is understood in industrial countries of Western democracies may sound as the celestial choir in countries with deep gaps between societal groups (Vveinhardt & Zygmantaite, 2015a). Prakash and Potoski (2011) maintain that firms' CR portfolio and its beneficiaries' is likely to vary across industries, time, and institutional and cultural contexts.

Promoting strategic philanthropy in the strong economies as the best model for company-society relations, where the benefit for both sides is guaranteed, Porter and Kramer (2002) concentrate on the competitive social context, where they distinguish four elements: factor conditions, demand conditions, context for the strategy and rivalry, related and supporting industries. Some of these elements may be directly associated with strategic philanthropy, as, for example, supporting education in the field of their business, companies invest in long-term targets, related to the benefit not only for company, but for society as well.

Determining factors: different socio-cultural context for global companies and international firms.

Differences in the size and scope of companies is one of the determining factors for company's resolution to engage in strategic philanthropy. Most giant companies and international corporations have specific positions for CSR in place in their administration and governing structures, usually with strong mandate for decision making (Strand, 2012). Apart from accounting for abiding to the legal and environmental laws and regulations of the country of operation, they focus on transmitting the positive message about the organization and its performance to the external and internal stakeholder community (Porter & Karmer, 2002; Strand, 2012; Kani et al., 2014; etc.). Companies, like Cisco Systems, Apple, Safeco, Rockfeller, Carlsberg, ABB, Alstom Power Service, Lufthansa, Hilti, RWE, Tata Steel and Unaxis and many others are directly involved in community programmes in their own countries, aimed at transectorial collaboration and development of societies (Porter & Kramer, 2002; Sandfort, 2008; Porter & Kramer, 2011; Strand, 2012; Kani et al., 2014; Liket & Maas, 2015; etc.). However, according to Bruch and Walter (2005), "although the relevance of corporate philanthropy is widely accepted, few companies achieve significant, lasting societal impact because most lack a cohesive strategy. Effective philanthropy must be run no less professionally than the core business (Bruch & Walter, 2005). On the other hand, although the sores of society were in focus of companies in the last century, and many of them have played essential roles in identifying social problems, such as poor education and limited public communication, and developing viable solutions for them, supporting larger social movements in civil rights, children's rights, and environmentalism (Sandfort, 2008; Foster et al., 2008; etc.), the peculiarity of the present day businesses' investments in strategic philanthropy is the focus being shifted towards the sphere of the "opulence", i.e. support for art, culture, historical heritage, sports, ecology of the body, NGO's etc., as opposed to the still existing needs in developing countries (Ameshi et al., 2006; Prakash & Potoski, 2011; etc).

While operating in underdeveloped countries, many giant companies invest in community programmes, such as education, self-governing structures, creating networks of local NGO's (Ameshi et al., 2006; Visser, 2008; Jamali et al., 2009; Prakash & Potoski, 2011; etc.), and thus social context of underdeveloped countries is the determining factor of such company's "overseas" philanthropic activities, which can be classified as strategic, i.e. aimed at long-term targets, related to development of societies, and not usual cause-related marketing (Vveinhardt & Zygmantaite, 2015a). Namely in such countries global companies' investments don't conclude with image and sales related donations, they transcend the boundaries of the company's sphere of activity and are the outcome of transectorial decisions of the company's management. However, such type of strategic philanthropic initiatives, when oriented not to local societal needs, but to the benefits of other countries, even though important in company's economic goals, contribute to the target country's strategic development, not those of the company itself and of its home country (Ameshi et al., 2006; Jamali et al., 2009; Prakash & Potoski, 2011; Vveinhardt & Zygmantaite, 2015a; etc.).

Determining factors: the size of a company.

Global business statistics shows, that 99 % of worlds business is small and medium enterprises; respectively EU Annual Report on European SMEs 2013/2014 states, that more than 20 million SMEs in the EU represent 99% of businesses, and are a key driver for economic growth, innovation, employment and social integration (European Commission, 2015a, 2015b). However their perspective on strategic philanthropy scarcely investigated, as philanthropy is traditionally attributed to the sphere of the rich, the big and the famous, hence the exceptional focus of most researchers on giant companies or brand names (Bruch & Walter, 2005; MacKenzie et al., 2011; Liket & Maas, 2015; etc.). Strategic philanthropy of SME's, operating nationally, regionally or locally, though can make biggest impact on communities and on the betterment of society, are excluded of scholarly research focus, otherwise the concept of CSR is used synonymously with any "doing good". On the other hand, smaller companies argue, that due to their size and insufficient recourses, they can't afford investing in social projects, however, many of them

benefit from social funds, while participating in social programmes for creating new jobs or employing people with different kinds of physical or social disadvantage, they benefit from tax reduction, different grants etc.

Most researches of CSR in the sector of SMEs agree that that the nature of doing business in SMEs is largely personal and argue that the embeddedness of the business within its stakeholder community plays a large part in shaping socially responsible behaviour (Granovetter, 1985; Fuller & Tian, 2006; Jamali et al., 2009; etc.). This perspective is peculiarly relevant to enterprises, operating on the regional or local level, because, according to Fuller and Tian (2006) their legitimacy with immediate stakeholders, employees, customers, suppliers, and their local community is at stake in a far more direct and personal way than it is with major corporations.

Due to their often very personal relations with local community members through family or school relations, not only negative managerial situations, such as nepotism, cronyism, and favouritism in organizations are evident (Vveinhardt & Zygmantaite, 2015b). This also relates to the sphere of positive acts of direct responsibility to the local communities, as, according to Murillo and Lozano (2006) interpersonal and personal relationships are very important in the context of SMEs.

However, the imperative of local communities doesn't always affect philanthropic deeds of companies, as they uphold the view of contributing to social development through the system of taxation. Thus, their philanthropic engagement is usually unrelated to their core activities, is mainly oriented to gaining a better position within their competitive environment, and they are merely attempting to translate positive reputation effects into concrete bottom-line impacts (Bruch & Walter, 2005).

Determining factors: religious orientation and traditional socio-cultural heritage

A strong determining socio-cultural factor for a company's involvement in CSR in the developing countries is their size and regional political and religious orientation. In such countries, peculiar relational attributes of SME's owners and managers to the local communities is dominant (Vives, 2005; Amaeshi et al., 2006; Jamali et al., 2009; Prakach & Potoski, 2011; etc.). In countries with Islamic roots local SME's owners and managers tend to identify themselves and their core business as an integral part of the local community, thus the obligations towards the community prevail over economic goals (Jamali et al., 2009). Communal obligations are treated as part of their religious duties, while any CSR related activity in their understanding is purely philanthropic. According to Griffin and Prakash (2013), if firms' philanthropic activities in such countries are determined by the institutional and cultural context, tithing and charitable activities aligned with religious beliefs are often considered expressions of corporate obligations and duties to others. Contrary to Western type structured and assessed (strategic) philanthropy, in countries, where religious obligations as part of the traditional socio-cultural heritage dominate, they are the driving factor for any philanthropy deed. At the same time these activities are usually not advertised, not structured; they are rather hidden, and the companies often unknowingly act in a socially responsible way (Amaeshi et al., 2006; Jamali et al., 2009) Philanthropy is therefore conceived "within the moral economy of kin-based solidarity and reciprocity" (Amaeshi et al., 2006). However, the predominant feature of such economies is high level of corruption and on the whole insufficiently developed regulating tools and control mechanisms to evaluate company's performance in regards to its congruity with legal, environmental and ethical the CSR principles.

Determining factors: specific context of post-soviet economies.

The overview of socio-cultural context as a determining contributor to the managerial decisions, related to strategic philanthropy or the absence of this type of activities in company's agenda in post-soviet economies is based on the recent researches (Elms, 2006; Kooskora, 2006; Apostol et al., 2008; etc.) as well as data analysis available on the website of unglobalcompact.org and the Lithuanian Association of

Socially Responsible Business (2015). The researches of the CSR domain with specific focus on the transforming economies of the Eastern Europe, though increasing in scope and thematises, hardly make up the leeway, deepening with each year due to the speed, with which they are catching up with the rest economies of the wealthier EU old-timers. However, regardless the rapid changes in the GNP and living standards of these countries, the specific socio-cultural context, in which businesses operate in this EU region, is at large determined by the heritage of more than 50 years of the so called "planned economy". The connotation of this construct, while arising certain economic allusions to Western scholars in the field, differs enormously from the real socio-cultural content it evokes for any citizen of such societies, hence the businesses in particular. Taken by countries and geographical regions, the socio-economic factors reveal rather striking differences of development in such fields as fighting corruption, unemployment, emigration, demographical figures etc. However, there are numerous factors, terms and conditions for businesses to operate, which draw these economies into one line. What is peculiar to the context of the post-communist countries in general, is that corporate social responsibility is rather new and emerging idea, which is not clearly defined or understood (Mazurkiewicz & Crown, 2005; Elms, 2006; Apostol et al., 2008; etc.).

According to the data of unglobalcompact.org, in 2015 only 71 companies, registered in Lithuania, are members of UN Global Compact. 10 of them hold membership since 2005, with 6 -8 new members on the average joining the organization each year. The composition of this small group of global and national actors from perspective of size and the sphere of activity is rather diverse, ranging from universities and branches of global companies, to SMEs and micro firms (EU SME and micro firm definition, March 2015). Lithuanian Association of Socially Responsible Business (LAVA), established in 2013, has only 34 members, with just half of which being private equity companies, and most having joined the organization not earlier than 2011-2012. The discourse on CSR and strategic philanthropy in Lithuania is still rather virgin land in organization and management researchers. Strategic philanthropy lacks relevant respect from the businesses, hence it is not in the spotlight of scholarly and empirical researchers either. After 25 years of functioning as an independent country and a member of the EU since 2004, Lithuania has all respective laws and regulations in place, thus the first three constituents of the CSR concept, which fall into the field of governmental regulations, are more or less in compliance with societal issues. Moreover, present day companies tend to redound to society and its needs, however, in the sphere of any companies' giving, traditional cause-related marketing cases prevail This evidence is supported by the yet thin theoretical reasoning and empirical research data available (Navickas & Kontautiene, 2011; Diskiene & Seiliute, 2014; etc.) A research on the Lithuanian enterprises performance in connection to their application of CSR reveals, that philanthropic activities of most Lithuanian enterprises are determined by corporate policies, culture and other factors, and not by increase in revenue, (Navickas & Kontautiene, 2011). Hence, the set of determining factors of socio-cultural context in which businesses operate in Lithuania still needs to be identified and is a matter of further investigation. The main emphasis lays on the socio-cultural factors' in correlation with the individual and organizational values and their embeddedness in managerial decisions on macro-societal level, "for companies do not function in isolation from society around them" (Porter & Kramer, 2002). Up to date, the investigations in modern socio- cultural context don't provide vectors, suitable for investigations in business society relations. According to Granovetter (1985), most behavior is closely embedded in networks of interpersonal relation, thus in local communities, where smaller companies operate, the network of natural societal structures, such as charity, volunteers' and local communities, local clubs and circles, etc., usually act as strong moral watch-dogs. However, this network being demolished during the soviet occupation and fighting its way back to the social life in the broad sense, Lithuania though a small country, has no community traditions, peculiar to either Scandinavian type of communities, no community kinship, which determines CSR activities in countries with strong religious influence. Although the principles of citizenship are strong within Lithuanian society, and donating and charity activities are speeding in application among citizens and firms, these are not systematic, planned or structured activities, aimed at long-term strategic synergistic targets of companies. Investigation of the construct of strategic philanthropy, its tendencies and correlation with socio-cultural context in Lithuania should focus on

SMEs, as the structure of business in this country shows, that 99.8% of enterprises are SMEs and micro firms.

Nowadays nobody would deny the importance of top managers' and owners'/shareholders' position in decision making and their influence on macro-organizational processes (Vveinhardt & Zygmantaite, 2015a), in particular those related to transforming the company into a socially responsible one *de facto*. According to Bruch and Walter (2005), most managers and executives in favour of philanthropy maintain, that a company's level of giving is all that matters, rather than its level of strategic engagement with philanthropic activities. Thus, even though the empirical evidence shows, that top managers lack systematic approach to strategic philanthropy, there are no relevant researches in this area. In other words, the area of cognitive managerial perspective on CSR and strategic philanthropy, and their response to social pressures (positive and negative), still needs to be explored.

3. Designing a theoretical frame for managerial decisions in favour of transectorial strategic philanthropy

Since the concept of "society" is embedded in the roots of CSR construct, there are no stages of the CSR "pyramid" in which society has no interest in the broad perspective, as society is the most important stakeholder of every business. Sandfort (2008) maintains, that although private, institutional philanthropy can be an engine of significant social change, however, due to the low level of SME involvement, this potential is not brought into play as it should. To be socially responsible *de facto*, organizations have to undergo the process of organizational learning, which according to Zadek (2004) consists of several stages. Zadek's perspective on corporate social responsibility initiatives relates to larger changes in organizational learning, in other words, with strategic changes in the organization itself. He distinguishes five transformational stages, related to implementation CSR strategies in organization, transmuting its performance from defensive reaction to a responsible citizen: (1) defensive; the organization denies its responsibility for societal shortcomings and only acts to defend reputational attacks; (2) compliance; the company sees CSR activities only in the context of protecting its reputation, reducing the risk of litigation and the cost of doing business; (3) managerial, responsible business practices become embedded into core management processes; (4) strategic; being socially responsible is viewed as a competitive advantage and is integrated into core business strategies; and (5) civil; the organization becomes an advocate for CSR in the broader marketplace. Bruch and Walter (2005) produced a classification of companies' approaches to corporate philanthropic activities, consisting of four types: peripheral philanthropy, constricted philanthropy, dispersed philanthropy and strategic philanthropy. They stress the importance of strategic philanthropy as the most efficient type, pointing substantial benefits from such activities to both, company, stakeholders and society on the whole. Foster et al. (2009) maintain, that depending on motivation, response to social context and with regard to community goals of philanthropic initiatives, companies can be classified into donors, sponsors, and partners, the latter being closest to strategic philanthropy and transectorial decisions, as "partner companies accept a collective responsibility to improve society by leveraging their organization's key competencies and resources to develop a philanthropic agenda that contributes to broad, positive social outcomes".

Several frameworks to promote implementation of CSR are on offer in the scientific literature, most of them oriented towards the SME sector. Grayson (2006) acknowledged the importance of small companies' role for CSR and created a "Seven Step Model for Corporate Social Opportunity". He stresses the important role top managers/owners play in taking decision in favour of CSR. His model suggests a seven-stage process to implement and evaluate engagement in CSR and its measuring its performance: business case; evaluation of the company's resources; investigation and identification of motives for social responsibility commitment; committing to social responsibility; strategizing CSR; recognition and engagement of stakeholders; measurement and reporting (Grayson, 2006). We suggest the model can be adapted to put forward managerial consideration for strategic philanthropy and transectorial philanthropic decisions. It is essential to keystone the society, as the most important stakeholder and to synergize the

strategic goals of the organization with those of the society. Most researchers acknowledge that financial resources are the determining agent in decisions for or against the managerial decisions in favour or against strategic philanthropy. In the majority of cases the choice is related to the individual context, no less than the shareholders'. In this context Kurucz et al. (2008) concentrate their focus on company's choices for CSR as a means to reduce costs and risks to the firm. They present a business case for CSR, putting forward four hypotheses, each of which can be translated into social, environmental and economic values: including: the trade-off hypothesis, the available funds hypothesis or slack resources theory, and enlightened value maximization.

In 2009 Jenkins adapted Grayson and Hodges (2004) big company CSR opportunity model and created "A 'business opportunity' model of corporate social responsibility for small and medium-sized enterprises", where he described steps, an organisation should take for embracing the opportunities, CSR offers for an SME. A strong potential in store of the SMEs towards transectorial managerial decisions is manifested through the results of his research, because the managers "cited ethical or moral reasons as the key driver for undertaking environmental or social initiatives" (Jenkins, 2009). He lays strong emphasis on manager's role and strategic integration of the processes.

The studies of the theoretical and empirical researches on socio-cultural context and managers choices for strategic philanthropy, led us to pinpointing several ideas, which we translated into a theoretical framework for managerial decisions in favour of transectorial strategic philanthropy. The proposed frame (Fig. 1) is a four-stage pathway to facilitate the process of adjusting expectations of all internal and external stakeholder groups. The findings present a map of how these expectations correlate with the socio-cultural context (political, geographical, cultural, historical, religious) and other main factors, such as size and the scope of the company. It offers a set of solutions, capable to evaluate the strength of each factor and to mitigate the influence of the negative ones. The concept of the frame presents different socio-cultural operational contexts with specific stakeholder interests, which are either apparent (clearly expressed) or hidden (suppressed). Consequently, identification of socio-cultural values- external as well as internal, - and tuning them to the organizational values and societal expectations comes on the scene as the determining and essential condition for planning and implementing transectorial philanthropic activities.

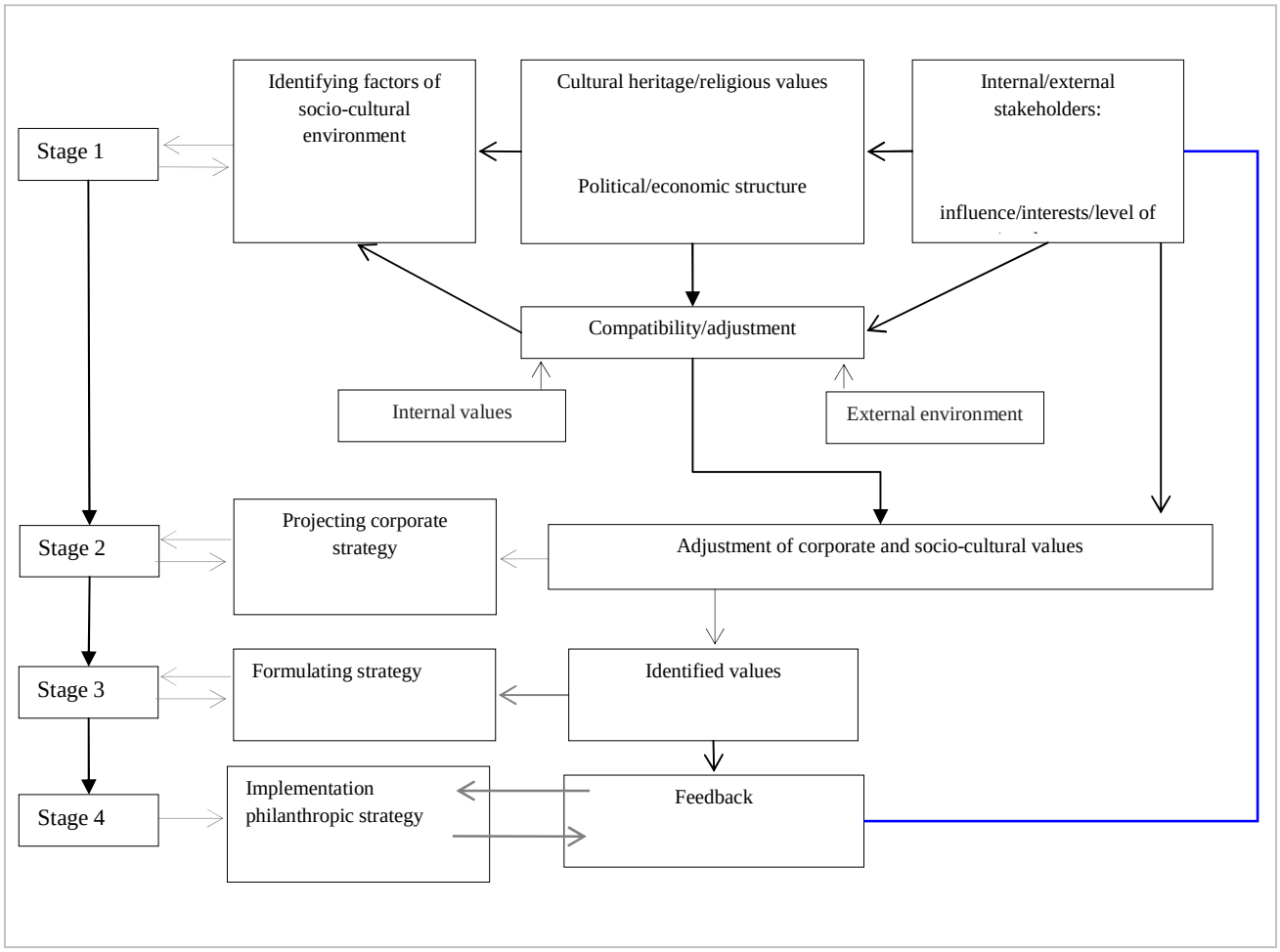

Fig.1 Incorporating factors of socio-cultural context into transectorial philanthropic activities

The studies of the theoretical and empirical researches on socio-cultural context and managers choices for strategic philanthropy, led us to pinpointing several ideas, which we consider appropriate for creating a theoretical frame. The above observations confirm the fact, that most academic work focuses at length on the CSR implementation of in SMEs or strategic philanthropy of big companies.

Conclusions and recommendations

Main findings of this research reveal a correlation between multiple factors of the social environment, stemming from its cultural context, and managers' philanthropic choices, related to strategic objectives of organizations and society. However, these multiple factors as determining variables for philanthropic initiatives of companies, fostering transectorial managerial decisions should be investigated transversely, in correlation with individual values of top managers/decision makers as well as organizational settlement.

A theoretical framework/model for managerial decisions in favour of transectorial strategic philanthropy, developed through this research suggests a set of solutions, capable to evaluate the strength of each factor

and to mitigate the influence of the negative ones. This framework proposes new possible avenues for research of relationships between business and society, moving managers and decision makers beyond the intrinsic assessment of cost benefit ratio of the overall company revenue and encourages scholars to further investigate how transectorial managerial decisions- which can be justly taken for strategic philanthropy- contribute to the betterment of society and at the same time ensure sustainable development of the company itself.

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Rethinking the Nature of Firm: New Paradigms

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Abstract

The theory of the firm should take into account certain specific realities of post-capitalist economies (state regulations, the importance of knowledge as a distinct resource, the implications of technological factors, such as computer networks, and so on). Some theoretical studies on the emergence of a firm in a market focus on the transaction costs (macroeconomic perspective); other studies suggest the type of rules/principles whose application could become a model for the organization of a business (microeconomic perspective). Our study suggests some connections between the two different approaches in the theory of the firm.

Keywords: firm theory, transaction cost, business excellence, reengineering, knowledge-based firm

JEL: D21; E00

1. Introduction

The global economic crisis (of the end of 2000s) surprised the entire world by its intensity, contagion, and economic and social consequences. For the first time, economists have begun to compare the current period of crisis with the Great Depression of the '30s (Roubini, 2011; Krugman, 2009). Study of business cycles, the relationship between the capitalist state and business world, monetary policies of central banks and other similar topics suddenly became much debated. In fact, we can say that the old dispute between Keynes's view (who claimed direct state intervention in the economy through investment, monetary policies and other instruments) and Hayek's view (who believed that government intervention is an error and that only the market can restore the economic balance) returns in economic theory; it is difficult to say which of the two views are more suitable to be considered by policymakers today (Hayek, 1933; Keynes, 1973; Keynes, 2009). In an attempt to diminish the effects of the global crisis and mitigate its social consequences (bankruptcies, unemployment, panic spread over large social groups, loss of income, etc.), states have adopted different measures from one case to another. Most economists agree that during a moderate recession or even a severe economic crisis the capitalist state must react adopting appropriate macroeconomic strategies to limit social effects of such economic phenomena. But there is no theoretical model to be followed by the state and by companies to get out of a deep recession. In other words, the behaviour of large social groups and the reaction of firms during a recession or a crisis requires new theoretical analysis. This is because the realities of the world in which we live (with its main characteristics: technical/technological factors, computer networks, EU integration processes, interdependence between individuals and organization, education, scientific research, knowledge as a distinct resource, etc.) differ fundamentally from the realities over seven or eight decades ago. Furthermore, economists have been forced to accept the idea that the current economic crisis reveals the need for reconsideration/redefinition of classical views in economic theory. Among such issues, we believe, the theory of the firm gains more importance in scientific and empirical research; however, the classical economic theory provides only a few answers on this subject.

In our point of view, approaches of the theory of the firm can be differentiated to some extent, depending on the perspective in which it was located by authors:

- Studies on the nature of the firm from a macroeconomic perspective (emphasizing market and resource allocation mechanism to outline a theoretical model of the firm);
- Opinions and studies on the theory of organization predominantly from a microeconomic perspective (the emphasis is on rules/management principles applied by firms that tend to excellence

or peak performance; we understand that the description of such rules may provide an answer to the theory of firm, meaning that other less efficient firms will be inspired by the model described).

2. Macroeconomic view on the nature of firm

During more than two centuries of economic theory, from *The Wealth of Nations* by Adam Smith (1776), economists have failed to fully and concisely answer the question "What is the optimal/ ideal model for organizing a business?". We understand a firm like any type of economic "actor" (enterprise, company, corporation, etc.) acting/performing in a competitive environment; this means that economic resources are allocated through the market mechanism, in terms of competition. In connection with the previous question, we could formulate another question: "What kind of management leads to performance?"; in other words, which are the principles/rules to be applied by the owners/managers to achieve success in business?

Given the very large diversity in which we can find companies in business environment (by sectors, by activity, by size, etc.) we believe it is extremely difficult to "cover" a diverse reality through a single abstract model of firm (Anderson et al., 2002). And if this diverse reality cannot be simplified enough to be included in a single theoretical model, then, as Lipsey stated, economists would require dozens of different theories or even "... a theory for each type of company ", in which, perhaps, it would reach some consensus on this topic (Lipsey, 1990, p. 177). In the capitalist economy, during a turbulent period a company can reach bankruptcy, which means negative consequences for the owners, employees, banks, and other *interest groups (stakeholders)* (Cooper, 2005).

Any company has two “dimensions” which are in a deep interdependence:

- The human dimension, namely managers, employees, including various types of knowledge like know-how;
- The material dimension, i.e. buildings, equipment and other tangible assets.

It is noticeable that the various approaches or studies focusing on macroeconomic perspective have attempted to explain how a company strengths its position in a given market. As mentioned before, certain elements of external environment of the company (such as market, competition, industry, government strategies, macroeconomic trends, etc.) are largely generated by the specific of capitalist economy. Therefore, the founders and/or managers of a company cannot manage (possibly only to a minor extent) the external factors of a company that could affect the flow of business. The current global crisis shows that even corporations with a history of a century or more may go bankrupt (e.g. Lehman Brothers, Freddie Mac in the USA, etc.), due to an increased competition and instability in the business environment; the lifespan and average longevity of global corporations tends to decline in the last three or four decades (de Geus, 1999). Also, due to a deeper interdependence between countries, companies and economic sectors, some technological, social or market trends amplify uncertainty and volatility/chaos of the environment in which companies emerge and develop (Kotler and Caslione, 2009). However, many large companies, but also some of those in the small business sector, managed to overcome the crisis from 2008 to the present and even to identify opportunities in a chaotic environment of business (Kotler and Caslione, 2009). How is this situation, statistically confirmed in the US, but also in some European countries, explained? Which one would be the optimal corporate model today?

During the past decades the literature on the types of companies and the role of entrepreneurs in the capitalist economy shows a variety of approaches. Some authors discuss about industrial enterprise, and mainly about the relationship between costs of such an organization, the importance of entrepreneurs and performance obtained (Hay & Morris, 1986). Like these authors, we agree on the fact that only individuals can propose goals and achieve them. Other authors highlight the importance of the human factor in any type of organization. As Galbraith states, "in any large organization, above all else, there must be a highly developed sense of common purpose” (Galbraith, 1921, p. 67).

After the Great Depression of '29 -'33, a growing body of literature have focused on the theory of the firm from various points of view. (Anderson et al., 2002). Some "atypical" views were initially ignored, as was the Coase's ideas about the nature of the firm. He proposes – as expressed - *a realistic and innovative theory* to tackle the apparent contradiction between resource allocation through price mechanism and the role of the entrepreneur in a competitive economy (Coase, 1937). In his most notable and ground-breaking work, *The Nature of the Firm*, Coase developed the concept of *transaction costs*; the costs of organizing a specific activity vary from one company to another, so a firm enters and remains in business as long as its operational costs to achieve its goals are lower than the similar costs of other firms and those related to market transactions (Coase, 1937). We believe that in order to achieve lower transaction costs, certain rules/principles of management have to be applied within the company. So, the focus on microeconomic perspective could explain the way any business organization can gain and strength its position in certain market (Coase, 1937).

Another noticeable point of view is developed by Williamson; based on Coase's concept of transaction costs, he focuses on the organization of production, transaction costs, vertical integration of production in certain sectors, the behaviour of "actors" in business environment, i.e. entrepreneurs and employees, etc. (Williamson, 2010). We believe that the main Williamson's contribution to the theory of the firm lies in the fact that it raises new questions (Williamson, 2010): "What is the size to which a firm can increase in a certain market?"; ""How do operating costs evolve with the increasing of specific hierarchical bureaucracy in any company?". Yet, we don't have coherent answers to such questions, so that further research/approach in theory of the firm is desirable.

3. Developments in organization theory: microeconomic view

We want to emphasize that emerging of an enterprise and strengthening its position in a certain market cannot be fully explained without taking into account the company principles of management. This is because any type of firm must manage a certain amount of "operating" costs to achieve its long-term goals. Today, it is quite widely accepted the idea that investors, founders or managers of any company should have a moral behaviour when allocating resources to establish a new company; the achievement of company goals should sustain the achievement of the common interest, so it goes beyond managing costs and gaining profit.

In order to open some new areas in the theoryof the firm we can follow a parallel view to those of Coase (1937), Williamson (2010) and other authors on this topic. In other words, it would be desirable to be able to state a core set of rules/principles for an ethical management, which could be a "model" of gaining performance for any company.

We will briefly bring to the fore some views enshrined in practice of business economics which may provide some answers in the theory of the firm.

In the theory and practice of business organizations a distinct, coherent, and very pertinent point of view belongs to Peter Drucker and it has been developed about six decades ago, starting with his works *Concept of the Corporation* (1946), *The Practice of Management* (1954), etc. After a comprehensive study on General Motors Corporation (on the constitution, internal organization, structure, key principles applied in daily practice, divisional organization and decentralization of power, the adaptability of the company in an unstable business environment etc.) Drucker lays down certain rules/principles of management that became later an "organizational model" for other companies, government agencies, universities and other organizations (Drucker, 1946). Later, the author proposed the concept of *management by objectives and self-control (MBO)* as a principle that should underpin the internal organization of any company. Essentially, an MBO program starts by negotiating objectives from the CEO to the bottom, at all levels, reaching, if possible, to every employee (Drucker, 1954). Therefore, we conclude that any employee who voluntarily accepts certain annual targets will be by default self-motivated to achieve maximum performance in their daily work (i.e. company's operating costs lower than other competitors, etc.). Finally, Drucker made over time other valuable opinions about the mission of the company, the market in which it operates,

the knowledge economy, etc.; between such views we mention (Drucker, 2001; Drucker, 2002; Drucker, 2008):

- The purpose of a company should be sought in society and refers to the common interest, in the sense that the company should add social value by products/services performed;
- Gaining profit is just a condition for the lucrative company and not an end in itself (companies must comply ethics / moral rules imposed by society);
- Performing firms tend to control the entire value chain of a product/service, so to cooperate in the context of competition for customers (organizing alliances/partnerships strategic alliances after the keiretsu model of Japanese firms practice);
- Knowledge has now become essential resources for any business, and computer networks have become a major asset to jointly acquire and share this resource;
- Employees in a modern company must accept the idea of lifelong learning individuals and as members of a management team (lifelong learning).

Drucker's perspectives on the context in which a firm appears within a capitalist economy, as well as the ways in which it gets time performance, are quite broad. We conclude that the rules/principles of management underlying the capitalist company have a dynamic character and therefore change according to evolutions of the capitalist society. Secondly, it follows that any model in the theory of the firm must take into account the current realities of capitalist society; since the early 1980s to the present, computer networks have become a vector of social progress and, consequently, should be included as a constituent in the theory of the firm. Thirdly, we conclude that the capitalist state must "reinvent" itself to manage failures that occur in the market mechanism.

The concept of *business excellence*, proposed by Peters and Waterman (1982) is based on a survey of a sample of 43 high-performance companies, a study through which it was attempted to answer the question "What rules/principles of management apply in practice performing companies?" In fact, the authors develop a model of the ideal firm; moreover, if we can answer pertinently the question raised, we can then generalize those rules/principles. Following the study, Peters and Waterman concluded that there are eight management principles that lead to business performance in the capitalist economy (creating a favourable climate for quick action, the company is targeting customers and their needs, new ideas from employees are encouraged, business innovation is used simultaneously with decentralization of powers, members of the organization share common values and are self-motivated in the daily work etc.) (Peters & Waterman, 1982). If we generalize the conclusions of the two authors, we can say that there are eight rules, which we can note R1, R2, ..., R8, which can be implemented by companies outside the reference sample; these rules can become a guide and/or a "model" for other firms in any capitalist economy (Burciu, 1999). Among other findings, we conclude that firms that tend to excel in their field get lower operating costs compared to other competitors (in time was found, however, that such firms can withstand only a limited time as part of the performance sample; therefore, any model in the theory of the firm has a dynamic character).

Another concept, namely the *reengineering* of the company, argued by Hammer and Champy (1993) proposes certain criteria for establishing / redesigning of a business, starting from the "white sheet"; businesses, say the two authors, should be designed based on processes and not on the basis of separate operations, which would increase the company's performance by 100% (Tacu, 1998; Hammer, and Champy, 1993). More specific, the concept of reengineering of a firm places knowledge and computer networks at the centre of the proposed criteria for setting/redesigning a company (when the company is already in a market, decision makers can redesign the entire organizational structure based on processes by leveraging advantages brought by IT and knowledge revolution) (Tacu, 1998; Hammer, and Champy, 1993). Theoretically, if a newly established company and/or an existing one on the market increases its performance by 100% compared to the average of its domain, it would, consequently, lead to a major reduction in operating costs. Among the various advantages that the computer brings is the exploitation of knowledge as a distinct resource for any business (applying one Business Process Reengineering -BPR), we mention the following (Hammer & Champy, 1993):

- Information/knowledge occurs simultaneously in as many places as needed in the structure of the company;

- A general employee can perform the work of an expert (to some extent);
- Can be simultaneously harness the advantages of centralization and decentralization of competencies?
- Decision-making is part of the duties of each employee;
- Staff in the field can transmit and receive information/knowledge wherever they are.

So, this concept of BPR suggests some principles of management applied on the basis of which a company can significantly reduce operating costs through process-based organization of all activities within its structure (about the product/service, technology used, market and management structures).

Finally, the so-called "holonic firm/network" can be, in our opinion, another contribution to the foundation of the theory of the firm. This concept of *holonic company* was proposed by Mc.Hugh and other authors (1995) in the field of theory of organizations; it constitutes a kind of extension of the concept of our previously mentioned BPR. When a firm achieves the status of "excellence" in its activity (whether or not it applies a BPR program), it can opt for the establishment of strategic alliances with other firms in the industry; all *n* companies must take into account the wishes of their common customers and can propose adding social value to products/services developed. In other words, holonic networking must not be motivated by getting extra profit; on the contrary, such networks should target the common good and the fulfilment of social responsibility (*Corporate Social Responsibility*) (Drucker, 2008). However, through the joint exploitation of new knowledge, extensive use of computer networks and by creating strategic partnerships of "holonic network", companies can reduce their operating costs. (McHugh et.al, 1995). In fact, we believe that the concept of holonic firm/network approaches clearly the Drucker's idea about controlling the entire value chain of a product/service for businesses and consumers to obtain mutual benefits (Drucker, 2001). In other words, different theoretical developments often reach a common point in trying to propose / suggest some management rules/principles that can be applied by a company to strive for optimal model of organization of a business.

Among other findings, we conclude that there are multiple approaches to microeconomic theory of the emergence and consolidation of modern organizations from different markets; we believe that only a synthesis of different opinions mentioned can support us in trying to build a model of optimal firm. However, we believe that modern capitalist state today should be included in any theoretical construction regarding the optimal model of the firm; companies are required to accept the idea of building *a moral capitalism* (Young, 2003), and this goal cannot be conceived without the active role of the state/government.

4. The need for a new approach: knowledge-based model of the firm

One of the recent developments in the theory of the firm is called *knowledge-based firm*, in which case theorists believe that what we call knowledge plays a major role in explaining how a company appears on the market and how it strengthens its position in time. In other words, this theoretical concept considers that various questions in the theory of the firm (its existence, transaction costs, organization and management applied, the performance obtained, etc.) can be adequately explained on account of knowledge as a resource exploited by business organizations. The concept of *knowledge-based firm* has occurred in economic theory recently, with the establishment of what we call the knowledge economy /society; more precisely, since the 80s, several areas were highlighted in theory, such as KM (*knowledge management*), LO (*learning organization*), etc. The concept of the LO is argued mainly by Peter Senge (2006) and is based on certain courses of action for decision makers in any firm to establish lifelong learning for individuals and per organization (mental models applied, common vision of the company, team learning, etc.). In the KM, a distinction is made between *explicit knowledge* (those found in textbooks, books, etc.) and *tacit knowledge* (those obtained through direct experience and practical skills). An extremely popular topic in KM is the SECI model (Socialization, Externalization, Combination and Internalization) which explains the mechanism of conversion of tacit knowledge into explicit and vice versa. From this perspective, we understand that explicit knowledge is available to all employees and/or companies, while tacit

knowledge is highly personal in nature; the latter depends on the ability and effort of each employee to learn, on KM and HRM strategies of the company, and also on the relationship between groups and teams of employees and other similar factors. In other words, we believe that any attempt to explain the emergence and consolidation of a company in a particular market should refer especially to tacit knowledge; particularly the quantity and quality of this kind of knowledge could explain different actions and performance of firms in the same sector and/or in different ones.

In the most general sense, one can say that any firm performs a particular product or service that should have value for customers, resorts to some technical process /technology, relates to a real market where there are other competitors and applies certain rules/principles of management. Ideally, the founders and/or managers of any company should aim at a long-term mission of the organization, identifying core competencies of the company and keeping in mind that any business organization must add value in the social sense (it is not sufficient managing operating/trading costs). An indirect argument about knowledge-based firm is the fact that in the OECD countries, since 2008, most new entrants have targeted knowledge-based industries and services (OECD, 2014). Therefore, we believe that various studies and developments in firm's theory will relate in the future directly or indirectly to the qualification of employees in companies and highly specialized knowledge that every business organization must have.

In our opinion, describing an *optimal knowledge-based model of the firm should follow two tracks of study*. Firstly, it can be said that any firm appears and consolidates in a given market when its founders or managers manage to identify a set of *new tacit knowledge* and also when it has qualified employees to exploit this set of knowledge into products/services required by customers. Theoretically, if such knowledge is identified, we can hope that the company will be able to have lower costs than other competitors in the development of a product/service desired by customers. Secondly, it can be said that the company appears on the market when the decision maker manages to identify new ways of combining *explicit knowledge* that exist and are known in society at a time. Intuitively, we understand that the distinction between the two lines of analysis in theory can be only methodological, whereas the separation of the two classes of knowledge is purely theoretical. In other words, also for identifying new ways of combining explicit knowledge, there is a need for skilled employees and their tacit knowledge available to them as individuals and management teams.

On the other hand, identifying a set of new tacit knowledge and/or new combinations of explicit knowledge may relate to product/service developed by the company, the technology used, market analysis or management structures applied (in Figure bellow we separate the four issues of interest for any business organization).

Various studies on the *knowledge-based firm theory* relate directly to Coase and Williamson, who wrote on transaction costs and internal organization of a company; we conclude that this approach attempts to take into account both macroeconomic perspective and microeconomic theory of the firm (such studies emphasize the role of knowledge to improve the company's organizational structure, operation of hierarchy in the flowchart, relations between departments or groups of employees etc.) (Grant, 1996; Kirsimarja, and Aino, 2009). In our opinion, the model proposed by Nonaka and some authors analysing how to create knowledge remains of reference on this topic (they discuss several components of the model, namely: application of SECI process through dialogue and practice in the firm, senior management vision regarding the exploitation of knowledge; inter-organizational context in which employees and corporate groups relate; assets of knowledge type; business relationship with the environment to create knowledge, etc.) (Nonaka, Toyama, and Nagata, 2000; Nonaka, and Toyama, 2002; Nonaka, and Toyama, 2005). It can be said that this last concept in the theory of the firm emphasizes very fair the subjectivity of decision makers of organizations on the creation of new knowledge, the relatively high cost of this process, the difficulties of transforming tacit knowledge in explicit and vice versa etc. However, we understand that any model in the theory of knowledge-based company has inevitably a dynamic character; from this point of view, we can suggest a framework to underpin knowledge-based companies (Figure 1).

From our research perspective, this general framework of the theory of the firm can contribute to joining the firm's two perspectives of analysis and some future developments on this topic.

As noted in Figure bellow, the general framework proposed by us includes several elements (the values the managers believe in, the relationship between explicit-tacit knowledge, social capital, core competences, etc.) but we believe that certain relationships that occur between such elements are significant.

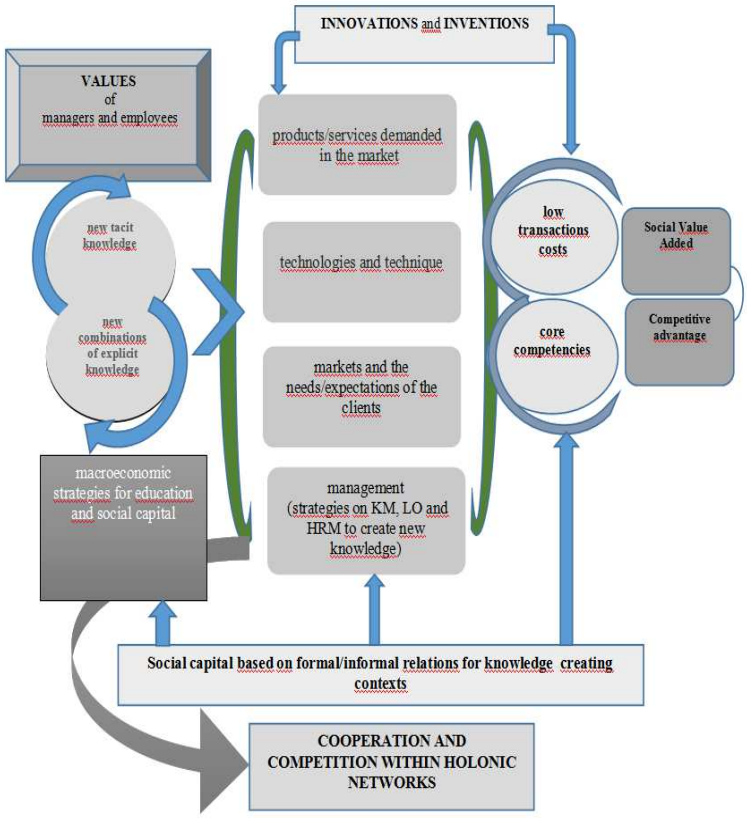

Fig 1. Knowledge-based model of the firm

Source: Created by authors

Every company should focus on identifying the new tacit knowledge and / or new combinations of explicit knowledge to impose on the market and meet the *client needs/expectations*. The premise from which founders/managers of a company start remains essential, we believe, in all economic theory; we believe that the value managers and employees of emerging market companies believe in will finally make the added value of the firm, i.e. fulfilling the mission proposed (the mission of any business organizations should aim at the common good and not just getting profit).

Theoretically, it is sufficient for the firm to identify new knowledge and, respectively, innovations/inventions in any of the four specific aspects of an entity of such type (product/service, applied technologies, market and customers; rules/principles of management). We understand that it is ideal when the founders and/or managers are able to identify new knowledge and/or new ways of combining them on all four specific aspects of this type of organized structure. To remain on the market, the company must achieve permanent inventions/innovations meaning lifelong learning (LO) and distinct strategies in KM, HRM to create new knowledge continuously.

To be successful in a market, every company should have a long-term mission, which should aim at adding social value, that is, to make a small contribution to the social good. Since the modern capitalist economy now includes three major distinct sectors (corporate, social and the state's economy) the theory of the knowledge-based firm will develop in the future, we believe, with certain characteristics from one sector to another. In other words, accomplishing the firm's task on a long term remains conditioned by certain costs of operations (but the purpose of the company is to add value and cannot be reduced to management of costs).

Acquisition and processing of knowledge by a firm require relatively high costs, as well as qualified, motivated employees, willing to participate voluntarily in the permanent creation of new knowledge. Consequently, we need appropriate strategies in KM, HRM to minimize the cost per "unit" of newly created knowledge (piece of new knowledge or information) and, thus, to build "key skills" by any business organization.

The firm will minimize the annual operating costs to the extent that has appropriate strategies in KM, LO and HRM and manages to become a permanent entity that creates new knowledge. Fulfilling this conditionality should confer the firm a long-term competitive advantage. It is understood that the acquisition and permanent creation of new knowledge turns simultaneously into inventions/new innovations that enable decision makers to improve their key skills and, on this basis, to better respond to its customers' requirements.

It is the obligation of the capitalist state, we believe, to build appropriate macroeconomic strategies to support individual education, lifelong learning and social capital to support the production of new knowledge in all social groups. Perhaps the most important contribution of government to new firms in the corporate sector lies in the social climate networks based on trust and formal/informal intensively exploitation of existing knowledge in society (by default, it supports the conversion of tacit and explicit knowledge and the SECI model).

A key element that would play an important role in the theory of the firm is given by the values in which founders, managers and employees of any business organization believe. Such values are important in the very first attempt to identify new knowledge (tacit-explicit) and are associated with subjectivity in the process of creation/operation of knowledge; including the context in which employees interrelate to share knowledge. SECI model of operation and other issues in KM can be explained on account of values in which members of the organization believe (Nonaka et. al, 2000, 2002, 2005). Moreover, the values remain essential in capitalist society to build formal/informal networks and a social capital to foster economic performance (the distinction between good and evil, right and wrong, the redistribution of income, by the state, between social groups, social protection for certain people or families etc.).

In our opinion, a distinct element of the overall framework in knowledge-based firm theory is given by the relationship between any company and state/government since the modern capitalist state influences the market through many direct/indirect instruments. Therefore, macroeconomic strategies for education and social capital may promote or restrict, as appropriate, the emergence and/or strengthening the position of any company in a market. The ideal situation which may tend to be, we believe, is that the state gradually builds social capital consisting of formal/informal relations between groups and organizations that support the creation of new knowledge. So, theoretically efficient firms should constitute alliances/strategic partnerships ("holonic network" type) to share common knowledge in a particular field and be of benefit to joint customers (ideal is when companies cooperate in a competitive context and aim to build a moral capitalism).

5. Concluding remarks

There are many studies on the importance and/or role of knowledge in the functioning and progress of the modern capitalist state and on the performance that business organizations can obtain in different markets. Also, in the sense relied on, the term knowledge is used by some theorists to

explain the mechanism by which countries/companies manage to achieve competitive advantage globally. On the other hand, the acquisition and exploitation of knowledge as a resource by separate firms will always be dependent, we believe, on the mechanism of thought and values of employees in which they believe. In other words, the notion of knowledge remains quite fluid, unclear and, consequently, difficult to define and include in the structure of a theoretical model.

Various theoretical studies on the firm argues quite pertinently, we believe, the idea that a modern company remains directly/indirectly subject to exploitation of this resource called knowledge, so as to satisfy a number of customers and obtain a profit. From this perspective, our study suggests only a general framework to link the known issues from the theory of the firm from a macroeconomic and microeconomic perspective. But this study goes beyond the theoretical corpus because it could have important implications for future practice. Today, in this more and more dynamic and competitive business environment, knowledge has become a vital strategic asset for both individuals and organizations. Companies are more aware of the great importance of knowledge acquisition and knowledge sharing; we believe that these goals are better served by a closer cooperation through business networks, strategic alliances and other types of holonic structures/networks. In the other words, during the next decades, such structures will be models of knowledge-based business entities, boosting their competitive advantage by exploiting the knowledge.

Meditating to Andre Malraux`s well-known quote, we could say that *the 21st century will be a century of knowledge or will not be at all.*

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Financial Risk Management by Means of Financial Options

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Abstract

F. Black and M. Scholes model comprise the adequate approach to the European options assessment in case when the process of risk asset price change is described by Samuelson model. The paper reports, that in case of the volatility dependence on the price increments, the results differ from the Black-Scholes model, which assumes that the stock price in a short period has a normal distribution. In this case authors recommend applying the imperfect hedge methods.

Keywords: option cost, hedging, financial market, price change, volatility

Introduction

The interest towards the stock market generally and the futures market particularly has grown up recently in the Russian Federation. The financial risk protection and management have also growing importance especially after the world finance crisis that dented the economics of many countries. One of the risk management tools is hedging. Derivative products, such as options and futures, are more frequently used by the economic entities as risk management tools as means of protection against potential financial losses. Competition, formed among the futures trade organizers, contributes to the technically efficient trading mechanism creation and the variety of financial tools expansion.

The goal

To prove that the Black-Scholes model cannot be applied in case when volatility depends on the price increment and to suggest methods that can be applicable for the case, such as imperfect hedge methods.

Perfect hedge methods

Unlike the futures market, the market of financial options, that provide more opportunities for financial risk management, has recently began its formation in our country. There is a necessity to broaden the choice of instruments of risk management and market introduction of new methods, which are based on a rigorous formalization of the decisions of the investor. Currently, perfect hedge methods are used as the main financial risk management tool. Its most important valuable feature is that the value of the option is calculated regardless hedger's preferences (Hull J., 2001). The imperfect hedge methods comprise the new risk management approach. The most distinctive feature of the imperfect hedge method is the generation of the hedging strategy, which deliberately assumes the possibility of loss occurrence (Merton R.C. 1992). Through this process a capital under the controlled level of risk is being released and enables new financial operations. The traditional solution to the problem of financial options hedging is described in the perfect hedging theory (Bachelier L., 1964). The foundations of this theory are laid down in the famous research papers of Black and Scholes, Merton, Cox, Ross and Rubinstein. The theory of a perfect hedging is applicable to the market assets portfolio creation, which generates payments that correspond to derivative ones. The idea of an efficient market is the basis of mathematical models for calculating the option rate.

Equitable option rate is the situation when neither the buyer nor the seller, on average, do net get profit. Equilibrium process functions are used to calculate the option rate. They model the change of price of the risk assets, which are in the option basis. One of the most important statistic variables influencing the option rate is the price volatility of assets that form the basis of the option. The higher it is, the higher risk of incorrect predictions of asset prices in future periods and, therefore, the premium rate increases and the option seller earns more money. The second important parameter is the option expired date. The further this date, the higher the premium rate (at the same price of the asset delivery, specified in advance in an option contract). The parameters of such an option-pricing model are calculated on the basis of historical dynamics. Wildly spread Black–Scholes Option Pricing Model (OPM) defines a theoretical price of a European option, by implying an implicit market option rate adjusting, if the assert underlying the option is traded on the market. This model is widespread in practice and, moreover, can be used to estimate all derivatives such as warrants, convertible securities, and even for own capital estimate of financial affiliates. According to this model, a key element in determining the option price is the volatility of the asset underlying the derivative instruments (Neil A.C., 1997). The asset price increases or decreases depending on the volatility rate, and it is in direct ratio to the option rate. Thus, it is possible to calculate the market volatility with the given option rate. There are several assumptions underlying the Black-Sholes model:

- The underlying stock does not pay dividends during the option's life.
- The Black-Scholes model assumes that there are no fees for buying and selling options and stocks and no barriers to trading.
- Interest rates are also assumed to be constant in the Black-Scholes model. The risk-free rate is used to represent this constant and known rate.
- It is possible to borrow and lend any amount, even fractional, of cash at the riskless rate.
- The Black-Scholes model assumes that markets are liquid and there is possibility to purchase or sell any amount of stock or options or their fractions at any given time (Black F., Scholes M., 1973).

The instantaneous log returns of the stock price are an infinitesimal random walk with drift; more precisely, it is a geometric Brownian motion, where its drift and volatility are constant. The Black-Scholes model is based on the riskless hedging model. The model implies that we hedge the option by buying and selling the underlying asset in just the right way when the profit covers the losses and conversely. Riskless hedged position should bring a return that equate to riskless interest rate, otherwise there would be an opportunity to extract arbitrage profits. Investors would lead the option price to the equilibrium level, which is determined by the model, in order to take advantage of this opportunity.

The case of volatility dependence on price increment

It is worth to mention that the results differ from the Black-Scholes formula, which is based on the assumption that changes in stock prices over a short period have a normal distribution, when the volatility depends on the prices increment (Shiryaev A. H., 1998).

Let S_t – the price of a stock at time t. Let's turn from the process S_t to the process

$$h_t = \ln\left(S_t / S_0\right)$$

The Sumuelson model assumes that the process h_t is described by the stochastic differential equation

$$dh_t = \left(\mu - \frac{\sigma^2}{2}\right)dt + \sigma dw_t$$

Where μ – coefficient trend, σ – volatility coefficient, w_t – wiener process. Assuming that volatility coefficients depend on h_t , the equation changes to: $dh_t = a(h_t,t)\,dt + \sigma(h_t,t)\,dw_t$. The Black and Scholes formula is the following (Karatzas I., Schreve S.E. 1998):

$$\frac{\partial V}{\partial t} + \left(r - \frac{\sigma^2}{2}\right)\frac{\partial V}{\partial h_t} + \frac{\sigma^2}{2}\frac{\partial V}{\partial h_t} - rV(h_t,t) = 0$$

The solution to $\frac{\sigma^2}{2} = Ah_t + B$ the equation assuming that the volatility is a linear function of the increment of prices, is the following:. After Laplass conversion the equation changes to:

$$\frac{\sigma^2}{2}\frac{\partial^2 V}{\partial h_t^2} + \left(r - \frac{\sigma^2}{2}\right)\frac{\partial V}{\partial h_t} - (r+s)V(h_t,t) = -V(h_t,0)$$

$V(h_t,0)$ – the initial condition which is assumed to be given. This is the second order inhomogeneous linear differential equation. Its corresponding homogeneous equation can be integrated via the confluent hypergeometric function:

$$V_1 = \Phi\left(-\frac{r+s}{A}, \frac{r}{A}, h_t + \frac{B}{A}\right)$$

To write the solution down to the inhomogeneous equation, another linearly-independent solution is taken:

$$V_2 = \Phi\left(1 - \frac{2r+s}{A}, 2 - \frac{r}{A}, h_t + \frac{B}{A}\right) \cdot h_t^{1-r/A}$$

Wronskian determinant for the solutions:

$$W = \left(1 - \frac{r}{A}\right) \cdot h_t^{1-r/A} \cdot e^{h_t}$$

Consequently, the solution to the original equation would be:

$$V(h_t,t) = -V_2(h_t,t) \cdot \int \frac{V_1(h_t,t) \cdot V(h_t,0)}{(1-r/A) \cdot h_t^{1-r/A} \cdot e^{h_t}} dh_t +$$

$$+V_1(h_t,t) \cdot \int \frac{V_2(h_t,t) \cdot V(h_t,0)}{(1-r/A) \cdot h_t^{1-r/A} \cdot e^{h_t}} dh_t + C_1V_1 + C_2V_2$$

This means that the Black-Scholes model cannot be applied in the case when the volatility depends on the price increments. Although it is often the case in the real life.

Imperfect hedge

Identified problem can propose to be solved by applying the imperfect hedge method. Imperfect hedge method is the newest tool of risk management (Hull J., 2003). The theoretical comprehension of the method was initiated only in the 1990s, by Richardson and Duffi (1991), Nechaeva and Melnikova (1998), Fellmer and Leickert (1999, 2000) (Hull J., 2008). Moreover, the studies are focused on the search for the mathematical solution to the problem of an imperfect hedge strategy construction. The issues of economic efficiency justification and practical applicability of the methods are not considered in the researches. Imperfect hedge methods allow reducing the cost of

risk protection by adopting a controlled risk of losses. The traditional model of decision-making suggests that, rational economic actor will always prefer greater profits smaller. Rational market actors also avoid excessive risk and ready to take it just in case of remuneration or high rate-of-return compensation. That is why option contract risk management comprises expected return maximization at a controlled risk level, or risk minimization of the desired level of profitability. That is the key idea and main feature of the methods of option imperfect hedging. The source of the risk is the open option position structure. Risk manager is able to control the ambiguity level by changing the structure. Assuming option payments sometimes being not fully paid or not paid at all means that replication strategy implementation expenses in such cases are reducing due to the default risks. The most important issue in such cases is to define such situations when the replication failure will cause inconsiderable risk increase and considerable increase in the desirable returns on investments. The use of a number of different type option combination and different strike prices is a significant practical difference of the imperfect hedge Black-Scholes model (Bouchaud J.-Ph., Potters M., 2003). It should be noted that the combination depends on such model parameters as the volatility, the average growth and the bank interest rate. Hedge strategy might be optimal on the following criteria: success probability maximization and expected losses minimization with regard to volatility, average growth and bank interest rate. The exact relationship form varies and depends on the option type and parameters.

Conclusion

The article illustrates that in case when volatility depends on the price increment, the Black-Scholes model shows different result. The model is based on the assumption that changes in stock prices in a short period has a normal distribution. This model is practically widespread and can be used for derivatives evaluation and even the evaluation of the stakeholders' equity financial affiliates. The imperfect hedge method application is suggested in case of the volatility dependency on the price increment. The current Russian derivatives market development allows using the new imperfect hedge methods effectively.

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The Demographic Pressures on Public Pension Systems

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Abstract

One of the basic components of social security of a state is the national pension system, it providing virtually the true image of the political, economic, demographic and cultural evolution of a state. The importance of the pension system is enhanced by its direct link with both labor cost developments and the stock market or individual savings. The paper tries to capture the pressure on pension systems in the medium and long term, the future of pension policy in the context of social protection policies in Romania, also making a series of projections on the future evolution in different assumptions of economic and social context.

Keywords: standard age, massive aging, life expectancy, conditions of probation, seniority, fertility rates, social protection system

Introduction

Pension systems in all countries have been affected by the economic and financial crisis broken out globally, especially in 2008-2010. Its effects were felt mainly in Defined Contribution (DC) pension schemes, participants in these plans being increasingly skeptical about their ability to ensure decent pensions. The plans of contributions type defined require, on the one hand, periods and greater odds of contributions, and secondly investment plans and strategies for managing longevity risk appropriate to the market in which it operates and the characteristics of the participants in this market.

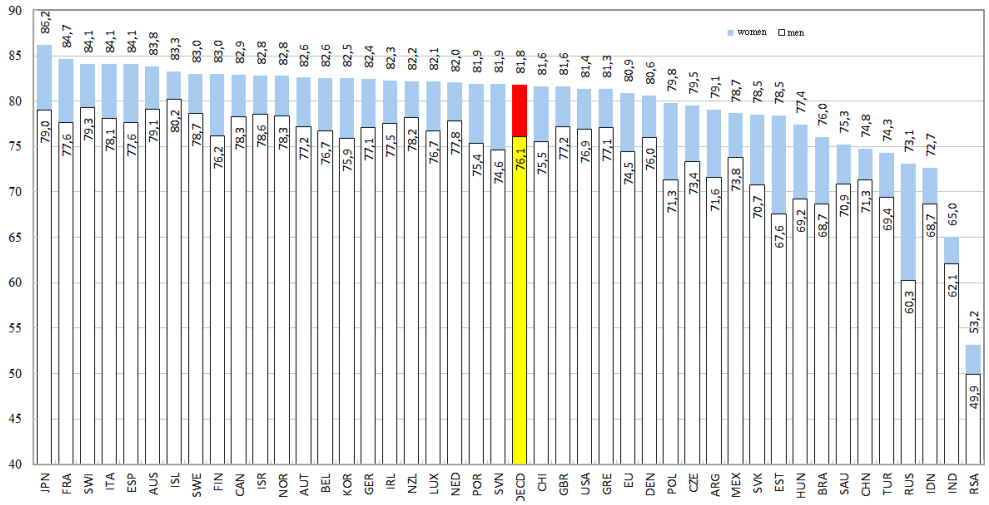
The most visible parameter of the pension system is standard retirement age. Increasing the retirement age in activity proved to be among the most controversial measures of the pension reform. As the main trend in the evolution of the average retirement age is observed a decrease in the second half of last century, reaching an average of 62.5 years for men and 61.1 years for women in all OECD countries. As a result, existing laws provide for its growth to at least 65 for both sexes by 2050.

Data analysis

Economic and fiscal pressures on public pension systems will become even more severe in the future because of demographic trends that will lead to a massive aging of the population from 2020. British organization "Help the Aged" announced that "worldwide in 2011 about 1 in 10 people has more than 60 years. In 2025 this ratio will be 1 in 5". (www.ageuk.org)

Population aging is a global phenomenon, manifested by two demographic trends particularly important: increasing life expectancy and decreasing fertility rates.

In Figure no. 1 we have represented *life expectancy at birth* for both men and women in some countries of the OECD (Organization for Economic Cooperation and Development) and others. It is noted that the average life expectancy worldwide was 76.1 years for men and 81.8 years for women. The highest life expectancy was 86.2 years for women in *Japan* and 80.2 years for men in *Iceland.* The opposite situation was for *South Africa*, with a life expectancy of 49.9 years for men and 53.2 years for women.



Source: www.oecd.org

Figure no. 1 The average life expectancy at birth (years)

In Europe in 1990 were 500 million people over 65, while the number will reach 1.4 billion by 2030. Life expectancy will also increase by nearly five years in 2050, compared to 2000. Thus, starting from the current life expectancy of persons aged 65 years of 15.5 years for men and 19.5 years for women, the mentioned 5-year growth will push up costs by 25- 30%. Considering that it would retire generations born after the Second World War, an aging population causes increasing concerns among European states.

Increasing life expectancy was driven by improved living standards and education, and medical science breakthroughs (Antolin, 2011). They are obviously a social benefit, but at the same time require extra effort from governments and active individuals in order to support pensions for a longer period. Reduce fatalities phenomenon which can not be predicted is called longevity risk. Longevity risk has a major influence on the state, employers, employees and the businesses of life insurance, which "must ensure that longer life is a benefit to society and does not turn into a financial burden," said Christian Mumenthaler expert of the reinsurance company, SwissRe.

In addition to increasing life expectancy, another cause of aging was the downward trend in recent years of fertility rates. According to UN projections currently available in all countries in the world, age structure of the population will age over the next fifty years. This can be seen very well in Table no. 1, which presents projections for the share of population over 65 in total, during 2008 and 2060 in EU countries. The process takes place at different speeds in the various regions of the world and starts at different levels, but affects every country. The potential impact of demographic changes in age and size structure of populations is dramatic. According to UNO (United Nations Organisation) projections, the average age of the population of *Japan* is expected to grow by eight years between 2000 and 2050, from 41 to 49 years. In *Italy*, the average age is expected to reach 53 years by 2050, the proportion of those aged over 65 will exceed 35%.

Table no. 1. Share of population aged over 65 in the total population during 2008-2060 (%)

	2008	**2035**	**2060**
Belgium	17	24,3	26,5
Bulgaria	17,3	24,7	34,2
Czech Republic	14,6	24,1	33,4
Denmark	15,6	24,1	25
Germany	20,1	30,2	32,5

Estonia	17,2	22,8	30,7
Ireland	11,2	17,6	25,2
Greece	18,6	26,3	31,7
Spain	16,6	24,8	32,3
France	16,5	24,4	25,9
Italy	20,1	28,6	32,7
Cyprus	12,4	19	26,2
Latvia	17,3	23,7	34,4
Lithuania	15,8	24,3	34,7
Luxembourg	14,2	21,3	23,6
Hungary	16,2	23,1	31,9
Malta	13,8	24,8	32,4
Netherlands	14,7	25,9	27,3
Austria	17,2	26,1	29
Poland	13,5	24,2	36,2
Portugal	17,4	24,9	30,9
Romania	14,9	22,9	35
Slovenia	16,1	27,4	33,4
Slovakia	12	23	36,1
Finland	16,5	26,4	27,8
Sweden	17,5	23,6	26,6
UK	16,1	21,9	24,7
Norway	14,6	22,6	25,4
Switzerland	16,4	25,2	28

Source: United Nations (2008). *World Population Prospects* – The 2008 Revision

A similar evolution is assessed that will have an indicator called the age dependency ratio (ADR - Age Dependence Ratio), which is the number of people over 65 reported 10 active people (aged 15 to 64 years). While currently this rate is set around a 4 average for EU countries (ie 24%), it is expected to reach 8 people over 65 every 10 active persons by 2045 (or percentage 49%), an increase far greater than foreseen, for example, US. Consequently, the financial transfers channeled from the active to the retired population will have to double in the coming decades, so that future retirees to maintain their current standard of living. However, for the reasons given above, it is very unlikely that this increase in transfers between generations can be achieved by doubling contributions. It will consider other measures that limit the consequences of aging on pensions (Arza, 2011).

In addition to aging, many countries will be faced with the phenomenon of decreasing population number. *European Union* as a whole is expected between 2000 and 2050, to lose 10% of its population. For example *Italy*, a country of currently 57 million inhabitants, will have a population of only 41 million by 2050. The population of *Germany*, currently 82 million, is projected to decline to 70 million by 2050.

The paces of demographic change, together with the current and projected size of the older population, presented below, are important variables in terms of financial sustainability of pension systems (Colomeischi, 2014).

The data presented in Table no. 2 show that it is possible to identify three *types of demographic transitions*, each of them corresponding to one of the three major regions of the world. In *Western Europe*, aging occurs at relatively moderate pace, but by 2040 the population over 65 is expected to exceed 25% of the population in all countries. In *North America*, aging also occurs in relatively moderate pace, and the US is unlikely to reach such extreme levels.

Table no. 2 Proportion of people over 65 in total population during the period 1980-2040 (%)

	1980	2000	2020	2040
France	14,0	16,2	20,1	25,1
Germany	15,5	16,0	21,6	30,7
Italy	13,4	18,2	23,7	33,1
Sweden	16,3	17,4	23,0	26,8
Switzerland	12,7	15,2	23,3	31,4
UK	14,9	16,0	20,0	25,6
Canada	9,8	12,5	18,7	26,8
US	11,2	12,7	17,0	22,4
Japan	9,1	17,2	27,2	31,5
South Korea	3,8	6,7	13,0	24,6
Taiwan	4,4	8,6	13,2	19,9

Source: www.oecd.org

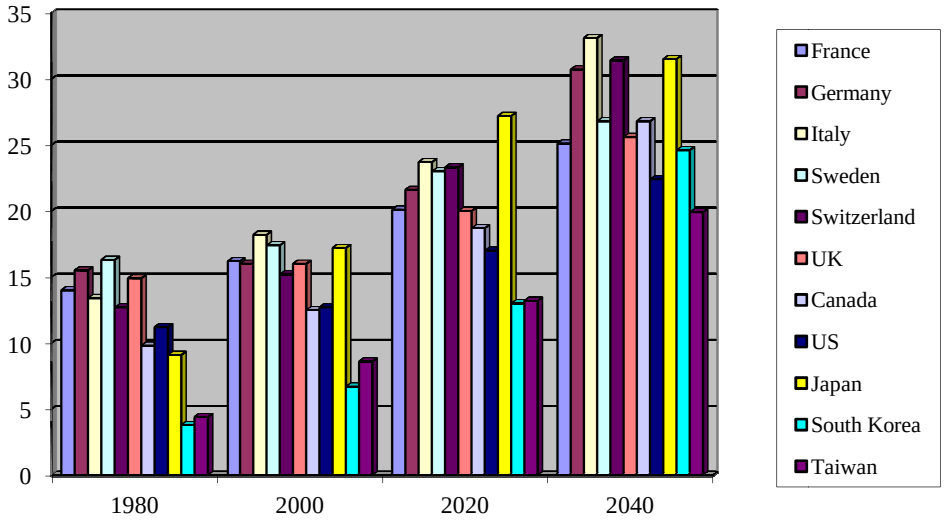


Figure no. 2. The share of population over 65 in total population

Finally, countries in *East Asia* are facing a much faster population aging. While in France, for example, it took 117 years for the population over 65 years to increase its share from 7% to 14% of the total population, in Japan, the same development lasted only 24 years. Japan is also expected to face one of the most serious problems of population aging over the next four decades, when about a third of its population is projected to be over 65 in 2040. Other countries from East Asia are experiencing extremely rapid process of demographic aging, but with a lower starting level, the overall proportion of older people will not reach worrisome levels, at least for a while.

The various models of aging will have a different impact on pension reform policy in Western Europe, East Asia and North America. In Western Europe, pressure is key to long-term financial sustainability. To this end, several reforms have been adopted in each of the countries concerned, in order to gradually reduce the size of state commitment to retirement provision. North America, however, due to a milder aging did not foresee a major reform of public pension systems (Colomeischi s.a, 2015). There are, however, ongoing debate in the US regarding an alleged non-sustainability of social security, but which, to date, not resulted in a major policy shift (Popa, 2011).

The situation is much more varied in East Asia. In this sense, Japan is not much different than in Western countries, with the difference that aging is faster and the step that European countries seem to have taken may prove to be insufficient. In contrast, Taiwan and South Korea has not yet reached alarming proportions regarding the impact of aging on the financial sustainability of pensions. In 2000, these two countries had similar demographic structures that were comparable to those in Western Europe in 1950. The elderly are a rapidly growing group in society, but they are not numerous enough to be a problem for the pension policy. This demographic situation is one that encourages the expansion of the insurance system for the elderly (Frunzaru, 2007).

The above figures are impressive, and their developments will certainly influence many areas of social, political and economic life. They will also influence, public policy, especially in those areas that are related to the age structure of the population of a country, such as old age pensions (Popa, 2011). Increasing the proportion of older people means that younger generations will need to support a larger group of retirees. The financial effort called for active population will increase accordingly. These are just some of the consequences of demographic aging, which helps shape the pension strategies.

Conclusions

Currently, the number of contributors and beneficiaries of the pension depends on the demographic and economic growth, representing basic components which may influence financial projections and the future of public pension system.

According to the scenarios launched following certain studies, the current ratio between the number of retirees and the employees will maintain on the long-term and demographic change will be marked by a decrease of approximately 0.3% per year (amid rate analysis mortality, birth rate, fertility and migration). Population aging, due to the high longevity is enhanced by a fertility rate with declining trends. Meanwhile, the rate of participation in labor of active population, so, of the ones that contribute to the system, is among the lowest in Europe, either due to unemployment or undeclared work or other reasons, which further affects the public pension increase dependency ratio (number of pensioners supported by a small number of taxpayers).

Reducing and an aging population means increasing pressure on the shoulders of the public pension budget, which must support, with fewer contributors (employed and paying social security contributions), a growing number of beneficiaries (pensioners in the public system). Romania's demographic problems show that public pension system is no longer sustainable in this form and requires a deep reform in order not to collapse in the coming decades.

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The Strategic Collaboration between European Countries - Solution for Regional Development and Convergence

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Abstract

The world is becoming even more concentrated, interconnected and clustered. In this respect it is important to analyse the perspective for regional development of European countries. The paper is focusing on strategic collaborations between clusters. In this regard, we intend to explain the impact of transnational clusters on regional development and also on achieving the convergence. In the first part of this paper, it is made a research on the scientific literature, in order to emphasize the relevance of clusters for regional development strategy and economic convergence. In the second part, the study focuses on the Romanian clusters implicated in cross-border and transnational cooperation programs, with the purpose to discover patterns in the clusters activity. According to these findings, clusters tend to collaborate with other international companies and networks, developing projects and partnerships, determining thus the increase of competitiveness and sustainability. In the last part of this paper we underline the results of this study and make recommendation on how to improve the regional convergence between European countries. It is important to understand and support the projects on territorial cooperation, mostly because they sustain economic growth, improve the quality of life, diminish the unemployment rate, and intensify investments and technologies transfer.

Keywords: regional convergence, economic growth, sustainable development, clusters, cooperation.

Introduction

The present article represents a theoretical approach regarding convergence process and includes an empirical study on regional discrepancies between European countries. Starting from this point of view we focus on strategic partnerships among clusters.

European Commission supports cluster development and considers cluster as an effective instrument for European Industrial Policy and for Smart Specialization Strategy. Good practices demonstrate that clusters are a model for regional development, which could be applied as a part of regional development strategies.

Clusters ensure the cooperation framework between companies, public authorities, universities, research institutes and catalysts. In order to benefit of European funds, companies and public institutions should become members of clusters. Clusters sustain partnerships from regional level to national and international level, improving the competitiveness of production and sustaining the cooperation.

Transnational European cooperation within clusters creates a balance between Western Europe and Central and South-Eastern Europe. This program aims to correlate the legislation from countries, to establish a base of projects, to promote best practices and harmonized the interests.

Theoretical aspects of regional convergence

The latest theories regarding regional development (such as endogenous growth theory, institutional theory and the new geography), are analysing the dispersion, agglomeration, and the main tendencies of convergence process. According to the endogenous growth theory, the revenues of scale obtained from investments in research-development and human capital, are determining the level of concentration of specific economic activities. The concentration of these factors in the central areas, could be explained as a result of an integration economic process.

On the other side, with respect to Scott, Dimaggio and Powell theory, institutions represent the most important factor of regional development, due to the fact that they are influencing the economics capacity to develop new resources. If the institutional capacity is not equally distributed in the territory, the institutional input strengthens the advanced activities, in the most developed regions.

The third approach of regional theory, is the new economic geography. In this respect, regional clusters are the effect of agglomeration phenomenon of interdependent entities. In the previous theories, the concentration of economic activities is defined as a slow and convergent process, in terms of GDP per capita.

Going further, we will focus on the cluster theory as a factor of regional development and economic convergence. The partnerships between clusters are diminishing the discrepancies between the levels of development of countries, influencing thus the sustainable growth.

Regional disparities are characterizing the countries from South East Europe. Unfortunately these regions have a low capacity of innovation, a weak institutional system, and inefficient laws and regulations. The innovation strategies are not performing to sustain the research-development activity. Few regions could be comparable to European standards, in terms of innovation activity and competitiveness.

According to McKinsey Global Competition Report (Dobbs et.al, 2015: pp.35-84), innovative clusters are based on technical abilities, entrepreneurial talent, research capacities and investments flux. At the same time, public and private approaches regarding investments and research capacity, sustain the initiative of emerging technologies. Consequently, clusters are attracting additional companies and thus, they are creating agglomeration near to research hubs.

Sarach (Sarach, 2014: pp. 250-254) explains how clusters sustain innovation activity, technology transfer and knowledge exchange. According to author, any cooperative relationship between clusters or inside clusters is one of the most important method to stimulate creativity, innovation, knowledge transfer and also provide high-tech technologies. The author used the methodology of proactive management theory and game theory in order to demonstrate the importance of interdependency of cluster members.

For this study, the author analysis one cluster in three steps: the first step is referring to the structure of cluster; the second step is focused on dynamic innovation and also on knowledge exchange within cluster; while the third step is considering a payment matrix using the game theory, in order to observe the strategy of cluster member, regarding the cooperation and non-cooperation. Starting from this point, the author made an analysis on automotive cluster by applying the mentioned strategy. The conclusion was that the cooperation between two or more clusters improves the efficiency and gives value added and benefits to each of them.

According to Lämmer-Gamp (Lämmer-Gamp et.al, 2014: 10:25), market intelligence is the key for new opportunities in business sector, referring to the capacity of collect information about emerging industry in order to explore the benefits. Clusters have the possibility to sustain its companies to access these information and penetrate new markets and future innovation. The authors explained how territorial cooperation and cross-sectoral cooperation between clusters improve the competitiveness and sustain tangible innovations.

Păuna (Păuna, 2014: pp. 175 – 183) explained the importance of cluster policies on improving economic growth, by analysing the policies which sustain cluster development and policies that benefit of information about industrial development in clusters, aiming to develop new policies in industrial domains.

According to the author, a good governance strategy is very important for cluster development and spatial dispersion of economic activities. On the other side, the territorial cooperation between clusters influences the decision-makers and their governance strategy. The author suggest a territorial analysis on clusters, before elaborating the governance strategies or other policies.

Romanian clusters have the same characteristics as other international clusters: companies agglomeration, research centres and education institutions, pool of skilled labour force, consultancy institution or firms, and cooperation projects with purpose to sustain and develop the activity at regional level. Consequently, we will analyse the collaboration between European countries under the auspices of clusters partnerships.

The new geography - transnational cooperation

At this moment, a big amount of clusters initiatives and strategies lie under the auspices of the European 2020 objectives. In order to become effective and competitiveness, the authorities should promote and coordinate the clusters activity on innovation and sustain the cooperation between regions as innovation hubs.

The projects on territorial cooperation sustain economic growth, improve the quality of life, diminish the unemployment rate, and intensify investments and technologies transfer. European Union has three directions regarding territorial cooperation: cross-border cooperation, transnational cooperation and interregional cooperation.

The best examples for territorial cooperation are northern and central European countries. Moreover, in these regions are encountering all types of cooperation. There are countries as Germany, Portugal, Greece and Spain, which manifest a strong tendency for cooperation, even with countries from other continents, determining a transcontinental cooperation (EPSON, 2013:273-276). Conversely, in eastern European countries, prevail the cooperation between cities, an affordable and relatively low-cost method to cooperate with other countries.

Generally these projects of territorial cooperation cover the main themes for sustainable development, as environment, education, economy, industry, innovation and others. In depth, the interests for cooperation projects are various and differ for each type of territorial cooperation. For instance, in cross-border, transnational and interregional cooperation the predominant projects are in tourism, environment protection and culture. Transcontinental cooperation is focused especially on economy, education and tourism problems. Referring to cooperation projects at cities level, these tend to concentrate on tourism, culture and education issues.

Continuing the analysis over themes, the EU15 countries are more involved in environment and economic projects. On the other side, EU15-27 are investing in infrastructure projects, both physical

and social; then in tourism and education projects. There is a visible difference between the first fifteen EU countries and the last members belonging to EU.

All parties are agree that territorial cooperation improves the sustainability and create opportunities for socio-economic development. Collaborations between different countries create a flux of information, knowledge, innovations and technology, facilitating the experience exchange in many domains.

Furthermore, these territorial cooperation conduct to economies of scale and create premises for a long run and profitable relationship. Less developed countries have more advantages from cooperation projects because they do not have the resources, or because they are isolated and it is more difficult to be competitive.

Transnational cooperation within clusters implies collaboration between clusters from different countries. These networks of clusters facilitate the transfer of technologies and knowledge, improving the impact on regional development. A part of Romanian clusters are implicated into transnational cooperation, for example with Bulgaria, Serbia, Germany and Hungary. Below, there are analysed the most important transnational cooperation's within clusters.

The project *ID:Wood* financed through the South-East European Transnational Program for Cooperation, gathers 15 institutions and organization from nine countries inclusive Romania, with interests in wood industry. The strategy for this project is referring to knowledge sharing, innovation activity and also on design approach. The objective is to create and develop a transnational network of clusters in wood industry. Through this network is sustained the technological transfer, knowledge sharing, new abilities and competencies on design activity, bringing up innovation capabilities, solving environmental problems, improving companies competitiveness.

Another project *I4Food* was also established for interregional cooperation in agro-food industry, through the Interregional Program for Cooperation INTERTTEG IVC 2007-2013. This project gathers six institutions and organizations from Europe, inclusive Romania. The objective of this project is to stimulate the food industry, making it more competitive and innovative on international markets. In order to achieve this objective, the management team proposed a serial directions: observing the best practices and adapting to the region specifics, promoting the cooperation between clusters of food industry, exploiting new market opportunities, exchanging knowledge and competencies, improving the characteristics of goods and transferring the new technologies.

The international partnership for the *Project Adriatic Danubian Clustering*, gathers nine states from South-Eastern Europe. The priorities of this project, are straighten to tourism, sustainable energy, attractiveness, environment protection, biodiversity, competitiveness, the quality of work-force, research, development and innovation capacity.

Danube region has an important role as Pan-European transport corridor, but also has the advantage of protect the biodiversity and shelter ones of the rarest species of fish and plants. For these reasons, the cooperation dimension has significant impact on the whole region. Improving the competitiveness of the region while preserving the environment, could create many benefits for all involved actors.

Moreover, the European Commission financed another project in this region – *Green Intermodal Freight Transport* through South-East European Transnational Cooperation Programme. This project focuses on the capacity on transport of Danube, aiming to improve the infrastructure, harmonize the legislation and create a system for transport management. In this project are involved nine countries, including organizations, public institutions, companies, universities, commerce chambers and other catalysts. The strategy is centred on a mega- cluster that will manage and promote the green corridors, and micro-clusters that group the local actors and support investments at regional level.

Another transnational project is *Balkan-Mediterranean* Transnational Programme, financed through European Regional Development Fund on the period 2014-2020. This project gathers five countries (Romania, Bulgaria, Greece, Albania and Republic of Macedonia) under the same objectives: competitiveness increasing, sustaining the business sector, facilitating the innovation activity, knowledge exchange, biodiversity protection, technology transfer for waste recycling and developing the management for environment protection. The investment of European Regional Development Fund is around 28,3 million Euro, while the investment of Instrument for Pre-Accession Assistance Fund is around 5,1 million Euro.

The project *Cluster PoliSEE* aims to improve the clusters activity, by adopting strong policies, strengthening the effort of research and development domain, sustaining regional cohesion and cooperation between clusters. This project gathers 25 partners from 11 countries. According to Cluster PoliSEE strategy, partners are guided to adopt a similar vision, while improving the impact of innovation activities and create specialized and innovative hubs. Through this project, the involved countries should become more engaged on cluster policies and innovation strategies.

The programme of the *Local Economic Development in the Balkans (LEDIB)* was supporting the Cluster House project, which intended to create a transnational partnership for cluster promotion. At first, it gathers seven clusters from Serbia, then the programme evolved and it was extended to clusters from Balkan region.

According to its strategy, this project has two directions: one is referring to companies segment and another one is referring to cluster segment. The first trajectory is oriented to small and medium sized companies and it intend to provide consultancy to companies regarding the advantages of clusters membership, market research, business planning and management strategy. The second trajectory is oriented to clusters activity, and is focusing on promoting this concept, organizing events and conferences, preparing also magazines, and working on mapping, informing and advocating for clusters.

In present, this project gathers more than 2000 contacts as companies, clusters, institutes, catalysts, public authorities and universities. According to a study conducted by LEDIB Cluster House, from 2011 to 2014 the satisfaction within clusters increased from 56.22% to 79.38%, while the number of clusters grow from seven to 43 clusters. In the same direction, it increased the number of companies from 315 to 2.457 companies. The strategy for next period is focused on transnational cooperation, sustaining the collaboration between clusters (C2C) and developing joint cluster trainings.

Conclusions

Clusters play an important role on new industrial development. Their members have the ability to become competitive in emerging markets and industries, or to become successfully by escalading in new opportunities in global value chains. Territorial cooperation offer new possibilities for enhancing the sustainable development, competitiveness and convergence.

The decreasing of regional disparities is an essential factor for sustainable economic growth and for the convergence process of Romania with European Union.

Based on the research, we could conclude that in order to improve economic growth and diminish the regional discrepancies, Romania should sustain clusters in their activity and create an adequate economic framework, for encouraging their expansion.

In the next few years, transnational cooperation within clusters will expand more in environment protection, green industry and bio-physics directions. Regarding cities and transcontinental cooperation the challenges are on social infrastructure and education improving.

Transnational cooperation within clusters strength the economic development, stimulate the competitiveness, improve socio-economic conditions and quality of life, contribute to job creation and facilitate the flow of human capital. If these international partnerships could be extended, they could enhance the productivity, social inclusion and cultural interaction, regional prosperity and environmental sustainability.

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Disclosure of Social Responsibility Practices at Multinational Enterprises: empirical evidence for Lithuania

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Abstract

This paper analyses the tendencies of corporate social responsibility (CSR) in the world, EU and Baltic States and reveals the manifestation of CSR practices in foreign and domestic multinational companies operating in Lithuania. We argue that successful implementation and practice of CSR differs in multinational enterprises (MNEs) in Lithuania dependent on the country of origin and can be tested by identifying the relevant factors that explore these practices. The contribution of the paper is threefold. First, the research provides a better understanding and disclosure of the CSR practices and issues in MNEs operating in Lithuania. Second, the paper introduces a concise theoretical framework for comparison of social responsibility practices. Third, an improved understanding of the CSR issues is given and possible development areas are introduced based on identified failings of CSR application. The findings of the research may be useful from a managerial perspective in taking full advantage of the opportunities offered by CSR.

Keywords: Business and society; corporate social responsibility (CSR); comparative study; sustainable development

Introduction

Society is increasingly demanding socially responsible behaviour from the companies, but the companies not always render an adequate response to these needs. This poses a problem as companies while following requirements recommendatory in character do not assume all the importance of social responsibility and therefore rarely takes full advantage of the opportunities offered by CSR.

Whatever business content and format is, the basic idea for it remains unchangeable - to increase profit and ensure the prosperity in business. However, today's businesses can no longer ignore the environmental and social issues. The number of articles in academic and business journals increases where it is agreed that if companies cause (are a source of) problems to different stakeholders and environment, they must contribute to solving or offsetting them (Elkington 1997; Schwartz and Carroll 2003; Brammer et al. 2007; Windsor 2006; Aguilera et al. 2007; Baron 2009; Groves et al. 2011; Remišová and Búciová 2012). Since the business is part of the problem, it must become part of the solution. Globally environmental, social and ethical issues require a new worldview alongside with innovative solutions. Therefore, businesses must include social responsibility in their agenda.

The special role in spreading social responsibility activities must be allotted to multinational enterprises (MNEs). Experienced MNEs often function as a medium for local firms to acquire foreign technology and offset uncertainty (Buckley 2014). To date, experienced MNEs operations have mostly spearheaded the adoption of CSR practices in the Baltic countries. In Lithuania, interest in corporate social responsibility has been growing significantly, but the empirical research in this field is insufficient especially taking into account the influence of multinational enterprises. From our continuous

observations of MNEs growth in Lithuania, we see quite a different picture of domestic and foreign origin MNEs activities considering the research focus, i.e. CSR and its practice. So far, there is limited number of studies that compare foreign MNEs (headquartered in EU and having operations in Lithuania) and domestic MNEs (headquartered in Lithuania and having operations in other countries) regarding differences in their CSR practices. This paper contributes to filling this research gap. Therefore the focus of this study is, while analysing the tendencies of CSR in the world, EU and the Baltic States, to reveal the manifestation of CSR practices in multinational enterprises operating in Lithuania by concentrating the research on the comparative analysis of foreign MNEs and domestic origin MNEs. The study aims to contribute to the knowledge on the spread of CSR ideas and practices in MNEs in Lithuania. First, we present theoretical framework for comparison of social responsibility practices and identify relevant factors that explore these practices. Second, we also disclose social responsibility practices in companies that are determined by different environment, economic development level and social policy by comparing data obtained from primary and secondary sources on domestic and foreign origin MNEs. Then we give some guidelines on CSR improvement areas. The paper also provides a more comprehensive overview of CSR aspects comparing three Baltic States and analysing some Lithuanian companies. This allows the research to identify failings of CSR application and areas Lithuanian companies can benefit more demonstrating broader understanding of CSR. Finally, the results of the empirical investigation may prove useful from a managerial perspective while implementing and improving CSR initiatives in the companies.

The study design is based on a qualitative content analysis of the CSR on the Web sites of 10 biggest Lithuanian companies, company documents, information in mass media, job openings, trade union information, discussions with employees and our own observations. The second part of the research included a series of questionnaires with company executives and managers responsible for CSR implementation in the company and employees.

Theoretical framework for comparison of social responsibility practices

When designing the conceptual framework for the research it is important to identify key concepts, factors and issues that are relevant to the topic and can disclose the phenomenon of interest. Sustainable development is multifaceted and influential concept for business, and deals with the diverse social, environment, and economic issues.

On corporate level, sustainability is implemented through CSR strategy which should define the organisation’s visions, governance, organisational structure and management systems and propose measureable organisational objectives and targets. Therefore, the role of corporate executives cannot be underestimated as decisions, based solely on short-term considerations of shareholder value ignoring the needs of all stakeholders, can lead to difficulties and problems in the long-run term (George 2003; Manning 2013; Remišová et al. 2013). Corporate governance is about mediating varied interests and organisations that focus on their customers and empower their employees to meet customer needs. This inevitably provides greater growth in shareholder value. Furthermore, Early (2002) suggested that the moral and ethical standing of an industry is a reflection of the moral and ethical values of the executives who lead the organisations that constitute the industry.

Stakeholders, especially internal stakeholders, experience the effect of corporate behaviour i.e. they are the recipients of corporate strategy, actions and output. Employees are their most valuable asset and that a firm's ability to retain employees is a hallmark and signal of organisational success (Aguilera et al. 2007; PricewaterhouseCoopers 2007, Wildes 2008). Numerous academic researchers (e.g., Humière and Chauveau 2001; Morsing 2006; Quiroz-Onate and Aitken 2007; Wildes 2008; Preuss et al. 2009; Bhattacharyya 2010; Habisch et al. 2011; Hingley 2010) have suggested the critical success factors for implementation of CSR practices among which include not only a predominant vision comprising CSR,

senior management and board level commitment but an engaged staff too. Clearly, staff participation on the company's CSR aspirations is central to success in this area. The new understanding covers the following key aspects: work life is no longer limited to working hours and the physical presence within the organizational setting but is a critical resource for the creation of the individual identity (Baldry et al. 2007; Bourne et al. 2009).

However, the researches evidence that organizations do not yet approach the issue strategically, and that sustainability or social responsibility in human resource management is ignored (Preuss et al., 2009). This opens a new perspective for research and managerial actions with emphasises on social and psychological aspects such as attitudes, relation to diverse groups of stakeholders, creating secure and healthful workplaces, life-learning opportunities for employees, special motivation programs, inclusion of personnel into decision process, encouraging cooperation, etc. Finally, international law, and in particular human rights, provides a strong basis to develop the required single, standard mechanism for measuring CSR performance (Quiroz-Onate and Aitken 2007; Wood 2010).

Assessing identified CSR development trends in Lithuania and other Baltic States, academic insights on key social responsibility implementation issues and a wide variety of measuring CSR practices, we designed a concise theoretical framework for comparison of social responsibility practices in business. It encompass series of linked relevant factors derived from the academic literature such as: care for environmental issues, human rights, relationships with stakeholders and especially the importance of executives and employees in responsible and effective corporate governance. Accordingly, the survey assessed five important social responsibility clusters: understanding the importance of CSR, contribution to environmental activities, protection of human rights, relationships with employees, and responsible company management (stakeholder perspective). Categories that constitute these clusters we discuss in the methodology paragraph.

Methodology

Study design

The aim of the research was to determine the peculiarities of socially responsible performance in companies operating in Lithuania. We focus on the comparative analysis of foreign and domestic origin MNEs. We argue that successful implementation and practice of CSR differs in multinational enterprises (MNEs) in Lithuania dependent on the country of origin and can be tested by identifying the relevant factors that explore these practices. To achieve the aim, the research began by concentrating on the series of linked relevant factors derived from the academic literature discussed in the section above. Accordingly, the survey assessed five important social responsibility clusters by using a valid and reliable questionnaire. Three criteria were applied for the selection of the sample population. First, the organizations should be multinational with foreign or Lithuanian origin. Second, the company should be large, having over 250 employees. Third, the population was limited to executives and managers responsible for social responsibility and company employees. It can be noted that the governance of companies usually does not include specific CSR position; it is usually supplementary to positions such as marketing, PR, environmental management, personnel development. In order to get a broader understanding of CSR practices, apart from the executives, employees were involved in the survey. They were given an adapted questionnaire.

The first step included the identification of large MNEs based in Lithuania. According to the website of The United Nations Development Programme in Lithuania, the official number of Lithuanian companies in the National Network of responsible business is 67 where 45 of them can be considered as large MNEs. We contacted the country's largest MNEs, ten of which agreed to participate. They are active in different kind of business: insurance, banking, telecommunications, construction, retailing, road building,

and power distribution. Refusal of others to participate in the interviews had different excuses. A few companies claimed that the information requested was secret; in some cases, our questions were considered to be of political origin and companies did not want to take a stand. A half of refusals have been received with an excuse of the lack of time, tight work schedule or responsible employees being away. Such responses evidently demonstrate a lack of interest in CSR.

Apart from the questionnaire, firstly the research involved working with wide a range of different primary and secondary data sources such as: company documents, qualitative data analysis of previous researches (e.g., Astromskiene and Adamoniene 2009; Ruzevicius 2009; Zaharia and Grundey 2011; Dagiliene and Leitonienė 2012; Grundey 2012; Leitoniene and Sapkauskiene 2012), company web sites and other information in mass media, job openings, trade union information, discussions with employees, survey, and our own observations. Therefore, the research was divided into two parts: first part explored companies' websites, other information obtain from mass media and trade unions. Website analysis of the companies under research focused on the comparative study of MNEs headquartered in EU and having operations in Lithuania, and MNEs headquartered in Lithuania and having operations in other countries. The second part included the data obtained from the survey of top managers responsible for social responsibility and employees (questionnaire).

Sample and data collection of the survey

Focus group of the survey consisted of top managers, managers responsible for social responsibility and employees. Ten MNEs were selected for comparative study taking into account the domestic or foreign origin and the size (over 250 employees). We received completed, valid surveys from 20 managers and 152 employees (response rate 52.6%). During data gathering for the survey, the purpose and methodology of the study were clarified for each respondent in the chosen companies and the reason of invitation to participate in this study. The questionnaire consisted of few open demographic questions (company name and position in a company). Twenty-five question questionnaire was extracted from interviewing professionals and study of academic literature. The questionnaire included five clusters. First cluster covered issues related to the understanding of the CSR importance and was divided into three categories: understanding of the concept, CSR aims in the market, and reasons to undertake CSR in a company. Second cluster included issues related to environment and was divided into three categories: how company contributes to environmental activities, if the company has green products / services, what green products / services were introduced into the market. Third cluster reflected the assurance of the employee rights and was divided into four categories: the ways how it is assured, claims the company received concerning the breach of trade, professional, civil, political or other rights, implementation of human rights at the company, attitude towards employees in the company. Fourth cluster covered relationships with employees' issues (working conditions that assure efficient staff performance) and was divided into four categories: labour disputes, staff training, preferences in managing personnel, and employee awareness of implementation of CSR principles in the company. Fifth cluster was related to responsible management of the company and was divided into eight categories: influence on government or politicians for making beneficial decisions to the company, provision of stakeholders with the information on economic, social, and environmental activities, opinion on transparency in the company, allocation of the resources, benefit of CSR to society, benefit of CSR to the company, obstacles implementing CSR, ways of informing society about the company's social responsibility.

The survey was conducted in the beginning of 2014 (January, February). During the survey a total of 172 (20 executives+152 employees) questionnaires were obtained.

Reliability and validity measurement of the questionnaire

The questionnaire was based on an extensive literature review, and was developed through several rounds of iteration. At first, the questionnaire was sent to five experts in the field of the research. After calculating content validity ratio(CRV), CRV of 3 questions was lower than 73 % and content validity index (CVI) was equal to 0.86 that was higher than the standard rate (CVI>0.79). Then the improved questionnaire with 3 omitted questions was sent to the experts again. CVR and CVI were found 75% and 0.92 respectively. In the third phase, internal consistency was used to calculate reliability. Four copies of the questionnaire were distributed and revealed good internal consistency (Cronbach's alpha α=0.81).

Analysis and results of comparative study of companies' websites and documents

The empirical research started from comparative study of the companies' websites and documents in them related to sustainability and CRS activities. First, we compared the websites of foreign MNEs headquartered in EU with their subsidiaries having operations in Lithuania. All the original company websites included the information on company's sustainability or/and responsibility policy and activities, and had sustainability reports. As for their subsidiaries in Lithuania, the websites were similar to their parent companies and showed that they were involved in the parallel social responsibility activities. All the Lithuanian subsidiaries had different awards for fostering sustainability and responsibility ideas, though mass media, trade unions information, and discussion with employees revealed some drawbacks or limitations of this activity, namely reluctance to take on the obligations of the contracts, lack of respect for customers, limited staff empowerment and professional development opportunities. One subsidiary in its website had no link or information concerning social responsibility, only in the "History and awards" section had the notice about awards as the "Best employer of the year" in 2012 and 2013. This is quite a contradictory finding as the employee's responses about the company's human resource policies and practices manifest quite different situation (ignorance of personnel needs, non-transparent employee motivation system, high unreasonable work requirements and loads, etc.). This fact indirectly is also supported by a quite a high employee turnover.

Regarding domestic MNEs, the situation is a bit different. Only one website had information on sustainability (sustainability report). Some websites stated about care for environment, customers and employees, and focus on prevention social projects. The majority of the websites included the information about the integrated management systems that comply with the requirements of ISO 9001, ISO 14001, OHSAS 18001. No information was found about the awards on sustainability or social responsibility. We received quite eloquent information from company documents, SWOT analysis and the employee responses. It testified about different possible improvement areas in organizational structure and operations (rather great hierarchy of management, inflexible goods supply system, neglect of customer expectations) and attitude towards employees and their needs (lack of qualification development opportunities, inefficient work delegation, staff is not introduced to strategic goals, lack of know-how in new technologies, no motivation to be interested in innovations, great work overloads).

A deductive logic suggests a relationship between the lack of information about sustainability on company websites and in documents, and shortcomings indicated by the respondents regarding company operations and human resource policy. This implies quite a formal companies' attitude towards sustainability and social responsibility initiatives as well as towards implemented ISO 9001, ISO 14001, OHSAS 18001 standards because these standards should contribute to the better understanding and practices of CSR principles.

This comparative study revealed differences between foreign MNEs and domestic ones in their approach to sustainability and social responsibility issues. The analysis demonstrates that foreign MNEs have a

positive impact on their local subsidiaries, as they are more involved in sustainability practices (sustainability reports, awards, activities) than the domestic MNEs. Some similarities between the two company types were found as well – namely, possible improvement areas in organizational structure and operations, and attitude towards employees and their needs.

Analysis and results of the survey

The analysis of the survey started from using the data of the first cluster "understanding of the CSR importance" with three categories: 4. understanding of the concept, 5. CSR aims in the market, 6. reasons to undertake CSR in a company. This group had a total of 19 specific questions or select options. Positive responses were analysed, i.e. responses "I agree" or the appropriate choice of option.

In order to compare the EU and LT headquartered companies, percentage of positive choices was estimated for both company groups.

$$p_{EU,i} = \frac{m_{EU,i}}{n_{EU}} 100 \quad , \quad p_{LT,i} = \frac{m_{LT,i}}{n_{LT}} 100 \quad , \qquad (1)$$

where $m_{EU,i}$ and $m_{LT,i}$ denote a number of positive choices or responses to the question i, i=1, 2, .. 19, given by EU headquartered and LT headquartered companies respectively, n_{EU} and n_{LT} denote a number of EU headquartered and LT headquartered companies respectively.

Accordingly, two vectors consisting of nineteen coordinates were obtained

$p_{EU} = (p_{EU,i})$, $p_{LT} = (p_{LT,i})$,

which describe the responses from both groups to the above mentioned categories.

Thus, clusters similarity describes the vector similarity. In order to explore the similarities and differences, three approaches were employed as follows: geometrical, correlation and regression together with the analysis of differences $p_{EU,i} - p_{LT,i}$.

Geometrical approach. Vectors' similarity is defined by their parallelism, i.e. the angle φ between the vectors. This angle was found by the formula:

$$\varphi = \arccos \frac{\sum_{i=1}^{19} p_{EU,i} p_{LT,i}}{\sqrt{\sum_{i=1}^{19} p^2_{EU,i}} \sqrt{\sum_{i=1}^{19} p^2_{LT,i}}} = 20^o \quad . \qquad (2)$$

The found angle value of 20° has proved to be much closer to 0° (parallel vectors) than 90° (perpendicular vectors) degrees. Therefore, it shows that the vectors are quite similar in terms that their coordinates nearly proportionate. This indicates that in both types of groups, the number of positive responses to the questions is rather balanced, but not necessarily equal.

Correlation and regression approach. Among the response vectors p_{EU} and p_{LT} a correlation coefficient of r = 0.64 was obtained that suggests a strong relationship, and it coincides with the result of geometrical approach. The regression coefficient 0.38 of regression equation

$p_{LT} = 0.38\ p_{EU} + 0.43$

shows that Lithuanian-headquartered company executives gave 0.38 times less positive answers than EU-headquartered company executives. Hence, it shows that there is a statistical difference between the approaches of two company groups and this relationship of differences or, in other words, the statistical regularity, is revealed by geometrical approach and correlation coefficient.

Approach by analysing differences $p_{EU,i}$ - $p_{LT,i}$. Table 1 presents the minimum differences between the percentages of positive executive responses in both company groups.

Table 1. Minimum differences of positive executive responses in both company groups.

Question	p_{EU}	p_{LT}	Difference $\lvert p_{EU} - p_{LT} \rvert$
5.1. Make profits	50%	50%	0%
6.4. The need to apply the principles of social responsibility in collaboration with international partners who are implementing social responsibility policy	0%	0%	0%

Thus, only half of the firms in both groups do not consider that the company socially responsible goal in the market is gaining profit (question No 5.1). None of the companies in both groups considers that the reason of socially oriented behaviour is the need to follow the principles of social responsibility when collaborating with international partners that follow social responsibility policy (question no. 6.4).

Similarly, other four question clusters were tested using these approaches. Investigation of these clusters is summarized in Table 2. Here we can see that both the small angle between the vector values and significant values of the correlation coefficient disclose the relationship between the responses of EU and LT headquartered company executives. However, the disclosed relationship does not indicate identity of responses and attitudes, but rather the existence of relationship. The regression coefficients of less than one show that the LT headquartered companies in all clusters gave less positive responses as compared to the EU-headquartered companies.

Table 2. Relationship between answers of EU-headquartered and LT-headquartered company executives.

No. of the cluster	Angle between answer vectors	Correlation coefficient between answer vectors	Regression coefficient
1. Understanding of the CSR	20^{o}	0.64	0.38

importance			
2. Environment	24 ^{o}	0.53	0.65
3. Assurance of the employee rights	20^{o}	0.70	0.71
4. Working conditions assuring staff efficient performance	23 ^{o}	0.78	0.86
5. Responsible management of the company	27 ^{o}	0.74	0.83

It should be noted that the highest regression coefficient of 0.86 is in cluster No. 4 "Working conditions assuring staff efficient performance". Thus, the LT headquartered companies positive responses accounted for 0.86 = 86% of the EU headquartered companies, which is almost the same. It means that both groups of company executives have nearly the same opinion on cluster „Working conditions assuring efficient staff performance". Statistical reliability of this finding is quite strong (the correlation coefficient r = 0.78). The same similarities in the responses of both company groups can also be noted from small angle $\varphi=23^{o}$ between the responses' vectors. Similar conclusions can be drawn about cluster No 5 "Responsible management of the company" as well.

The responses of LT headquartered (HQ) and EU headquartered company executives were also compared to the responses of employees in all the clusters (see Table 3).

Table 3: Relationship between the responses of employees and company executives

No. of the cluster	Angle between answer vectors		Correlation coefficient between answer vectors		Regression coefficient between answer vectors	
	EU-HQ respondents	LT-HQ respondents	EU-HQ respondents	LT-HQ respondents	EU-HQ respondents	LT-HQ respondents
1. Understanding of the CSR importance	26^{o}	37^{o}	0.27	-0.50	0.11	-0.25
2. Environment	38^{o}	37^{o}	0.31	0.07	0.44	0.04
3. Assurance of the employee rights	34^{o}	37^{o}	0.15	0.20	0.09	0.07
4. Working conditions assuring staff efficient performance	31^{o}	16^{o}	0.13	0.81	0.11	0.61
5. Responsible management of the company	41 ^{o}	38^{o}	0.23	0.26	0.27	0.40

Here, a strong relationship exists only in the cluster No. 4 between the LT headquartered companies' employees and executives responses (the correlation coefficient r = 0.81 and the angle φ = 16°). In addition, the positive responses of employees consist of about 0.61 of positive responses from companies' executives.

Whereas in cluster No. 1 correlation coefficient of LT headquartered companies' employees and executive responses was negative (r = -0.50). This testifies that the opinions were opposite.

The relationships in other blocks are weak as correlation coefficients are low and angles values are far away from zero. This implies that employees' opinions according to the responses in all clusters except No. 4 do not correlate with executives' answers.

Summarizing the results of the survey, the deductions can be twofold:

- Regarding executives' responses there is quite a strong relationship between the EU headquartered and LT headquartered companies evaluating CSR. Peculiarity of this relationship is that positive executives' responses of LT headquartered companies consist from 0.38 to 0.86 of positive EU headquartered companies' responses in various question clusters. Therefore, lower correlation coefficient of positive responses of LT headquartered MNEs can be treated as a lower involvement in CSR activities and poorer understanding of its significance.

- Employees assess CSR unlike executives of EU and LT headquartered companies. Correlation of employees' responses with executive responses in all question clusters of EU headquartered companies is weak. Correlation of employees' responses with executive responses of LT headquartered companies is significant only in cluster No. 4. "Working conditions assuring staff efficient performance". Moreover, the peculiarity of this relationship is that the employees gave almost less than a half of positive responses. Accordingly, we can state that no matter where the MNE headquartered is, less than a half of positive responses of MNEs employees in Lithuania, as compared to the executive responses, tend to show lower understanding of CSR and involvement in it. This implies that a strong emphasis on further and deeper development of CSR practices must be given not only by the companies in Lithuania but by the state policy as well.

Finally, the comparative study and survey disclosed differences in the involvement of CSR practices between foreign and domestic origin MNEs. Multinational parent companies from abroad have a positive influence on their subsidiaries and provide an opportunity for them to overcome their home-country-based disadvantages concerning sustainability and CSR activities as compared to domestic MNEs and their approach towards these activities.

Conclusions

The contribution of the paper is threefold. First, the discussion of social responsibility factors, based on the theoretical insights on sustainability concepts for business, gives a tool for better understanding and disclosure of the social responsibility practices determined by different environments, development level of economic and social policy in MNEs. Second, the paper introduces a concise theoretical framework for comparison of social responsibility practices. Finally, the findings of the investigation may prove useful from a managerial perspective while implementing and improving CSR practices in the companies.

The paper aimed to determine the tendencies of socially responsible performance in MNEs operating in Lithuania by highlighting how well the companies are exploiting the opportunities offered by the CSR.

This perspective allowed us to focus on sustainability and social responsibility multifaceted concept and practices in more detail giving a special attention to the social responsibility activities and influence of MNEs. The special role was given to MNEs as they conduct their international operations not only to pursue returns on investment, market expansion and economies of scale and scope but also to use location advantages. Thus, MNEs are not only exposed to diverse environments where they operate but they can influence that environment, generate superior performance in foreign subsidiaries compared with domestic origin firms and at the same time indirectly affect domestic firms and give incentive to innovate their activities as well.

To sum up, the comparative analysis of the company documents, qualitative data analysis of previous researches, company web sites , information in mass media, job openings, trade union information, discussions with employees, our own observations, and survey responses points to some valuable implications, i.e. foreign capital MNEs contribute to the development and promotion of socially responsible activities in Lithuania as their Lithuanian subsidiaries try to follow the policy of the parent companies and seek for the different awards in this area. The limitations found indicate improvement areas for both the companies themselves and the work of state institutions (e.g. National Responsible Business Award committee at Ministry of Social Security and Labour in Lithuania). As for the multinational Lithuanian enterprises, their sustainability and social responsibility practice is still more passive than active. Though foreign MNEs influence local business environment and their subsidiaries in pursue of CSR, domestic MNEs still do not fully exploit CSR practice benefits and see it only as altruism or possibility to polish the image. They do not treat it as a competitive advantage and are reluctant to involve themselves in anything beyond the immediate scope of their operational responsibilities. Therefore, domestic MNEs must improve qualitatively (the management of people and processes) and quantitatively (the impact on society).

Finally, like all research papers, this study is not immune from limitations and future research could expand the present analysis in several directions. The findings of our study stress the need for additional theoretical and empirical research in the area of CSR application and practices in foreign and domestic MNEs. Having in mind the perspective of CSR development, future research needs to be more comprehensive as only one country with the limited number of enterprises received attention in the empirical study. Comparative analysis would be more profound and meaningful if it involved more factors, countries and multinational enterprises and investigated their CSR practices in their home country and abroad.

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Project Management Standards

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Abstract

The effort to successfully complete projects or job orders led to the development of various project management techniques and tools. Some of the tools to acquire knowledge are the literary resources dealing with general project management (Bazsová and Křížová, 2011). Other major literary resources include the text of the standards and norms (PMBOK, 2013; PRINCE2, 2009; IPMA ICB4, 2015; ISO 21500, 2012) and their commented issue and handbooks. Project management is followed up by other disciplines, such as the risk analysis, human resource management, portfolio management, programs and many others. Project management is also the focus of many global communities who share their resources and studies. Very up-to-date and practical are the Internet interest and business sites (ScienceDirect.com; pmworldlibrary.net) issuing magazines and publications (Procedia; PM World Journal). Here it is possible to find not only the practical experience of project managers, but also the contributions of trainers and academics. Surveys and data collections already carried out constitute another source of information which is mapping the level of project management, a survey by Ernst & Young (EY) of 2013.

Keywords: management, process, project, standard

1. Introduction

In order to understand the basics of project management it is necessary to define the basic concepts and to become familiar with already established practice and internationally recognised standards. The list of major and recognised project management standards includes the following:

- Project Management Body of Knowledge (PMBOK) from PMI,
- PRojects IN Controlled Environments (PRINCE2),
- IPMA Competence Baseline (ICB),
- Guidance on project management (ISO 21500).

The criterion for the comparison of these standards is the number of certified project managers in the Word (Ondek, 2016):

- PMBOK – about 350.000 certified project managers
- PRINCE2 – about 400.000 certified project managers
- IPMA – about 100.000 certified project managers
- ISO 21500 - the certification process is not used - only as a guide

2. Standard Project Management Body of Knowledge (PMBOK)

The methodology according to the publication “A Guide to the Project Management Body of Knowledge” (PMBOK) from the Project Management Institute (PMI) - the base of the methodology was defined in the 1970´s by the standards of the US Army, which were later adopted to the US industry standards (ANSI). This philosophy was applied to commercial projects and thus PMBOK originated. The basic approach here is the process-based concept of management issues. The current edition is from 2013, marked the Fifth (5th) edition.

Project Definition (PMBOK, 2013):

"A project is a temporary endeavour undertaken to create a unique product, service, or result. The temporary nature of projects indicates that a project has a definite beginning and end."

Project Management Definition (PMBOK, 2013):

"Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements."

According to PMBOK, PMI recommends viewing the project management in a procedural manner and its methodology aims as covering all aspects of project management. PMBOK divides the management processes into five groups and ten basic areas of knowledge (PMBOK, 2013).

Project Management Process Groups (Figure No. 1) - five groups of project management processes:

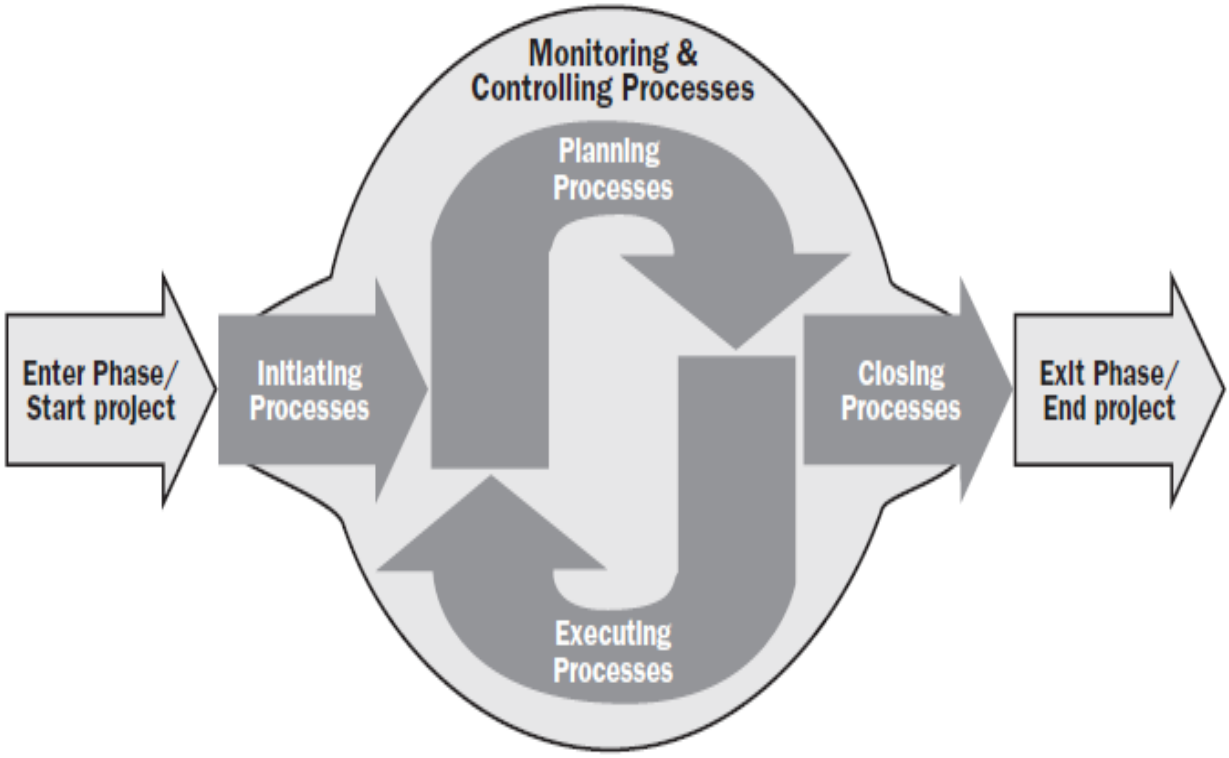
- Initiating - decision on project implementation and selection.
- Planning - design, maintenance, and changes to the plan for a successful completion of the project.
- Executing - coordination of resources for the project implementation.
- Monitoring and Controlling - ensuring the achievement of the goals of the project and monitoring.
- Closing - handover of the project to user.

Project Management Knowledge Areas - areas of project management knowledge:

Ten knowledge areas that are used by PMI and applied in practice (Řeháček 2013):

- Integration – describes the processes required for project coordination (plan development, plan implementation, coordination of changes).
- Scope - describes the processes ensuring all the required works.
- Time - describes the processes for the timely completion of the project.
- Costs - describes the processes associated with the approved budget (resource planning, cost estimation, budgeting, and operational cost management).
- Quality - describes the processes associated with quality planning and assurance for a successful completion.
- Human Resources - describes the processes for the efficient use of labour (organizational planning, personnel, and project teams).
- Communication - describes the processes for proper and timely transmission of information.
- Risk - describes the processes associated with searching for, identifying, analyzing and responding to risks.
- Procurement - describes the processes associated with the provision of supplies and services (demand, selection of resources, contractual relationships).
- Stakeholders – describes the proper involvement of all stakeholders participating in the project.

Figure No. 1: Project management process groups according to PMI



Source: PMBOK (2015)

Table No. 1: Project Process Group and Knowledge Area Mapping

Knowledge Areas	Project Management Process Groups				
	Initiating	**Planning**	**Executing**	**Monitoring and Controlling**	**Closing**
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
9. Project Human Resource Management		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Control Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Control Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.4 Control Stakeholder Engagement	

Source: own modification, PMBOK Guide 5th (2013)

Table No. 1 shows a map of mutual relation of the areas of knowledge and process groups. Process groups are divided into sub-processes marked by PMBOK and are assigned to individual areas of knowledge. The processes comprise the inputs to which the tools and techniques are applied, and those generate outputs that result from the process. A detailed description of inputs, outputs, tools, and techniques can be found in the PMBOK Guide.

3. Standard PRoject IN Controlled Environments (PRINCE2)

The methodology according to the PRINCE2 standard - it is a British Standard owned by the Office of Government Commerce (OGC) and is managed by APM Group Ltd. Process concept of the methodology is based on the assignment of the British Ministry of Industry and Trade, which initially used it for the management of government IT projects. Presently valid guide is the "Managing Successful Projects with PRINCE2™" of 2009.

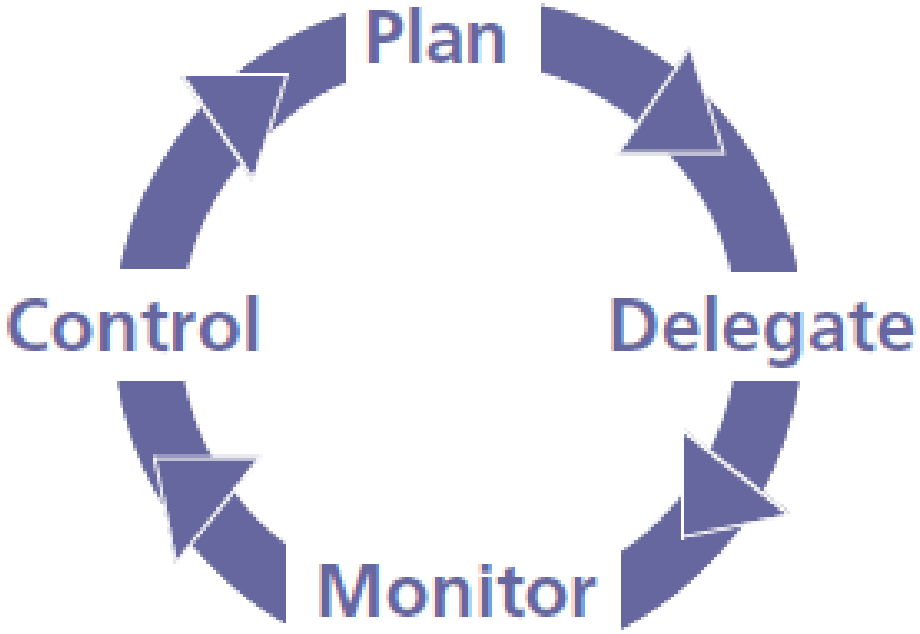
Project Definition (PRINCE2, 2009):

"A project is a temporary organization that is created for the purpose of delivering one or more business products according to an agreed Business Case."

Project Management Definition (PRINCE2, 2009), Figure No. 2:

"Project management is the planning, delegating, monitoring and control of all aspects of the project, and the motivation of those involved, to achieve the project objectives within the expected performance targets for time, cost, quality, scope, benefits and risks."

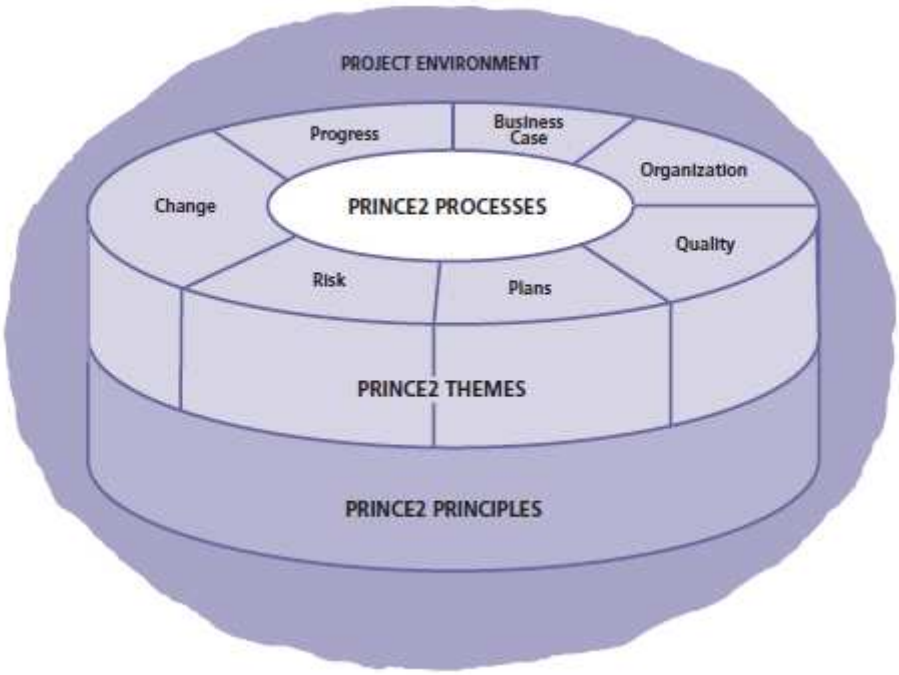
Figure No. 2: Project management



Source: PRINCE2 (2009)

Figure No. 3 shows three integrated PRINCE2 areas in the project environment - the seven principles, seven topics, seven processes *(PRINCE2, 2009 and Tayllor & Cox, 2014).*

Figure No. 3: The structure of PRINCE2



Source: PRINCE2 (2009)

The seven PRINCE2 principles *(PRINCE2, 2009 and Tayllor & Cox, 2014):*

- Continued business justification - constant assessing of the reasons for the implementation of the project.
- Learn from experience - learning from previous projects and documented experience.
- Defined roles and responsibilities – providing a detailed description of the roles for stakeholders.
- Management through stages - planning, managing, and monitoring after successive stages with continuous evaluation.
- Manage by exception - defining tolerance (in terms of time, funds, and capacities) for each defined power.
- Focus on products - focusing on the benefits and delivery of the product within the project (what and how).
- Tailor to suit the project environment - adapting the methodology to the current project environment.

The seven PRINCE2 topics:

- Business Case - consists of mechanisms to assess whether the project is desirable, achievable, and viable. Question: Why?
- Organization - defines the structure of responsibilities. Question: Who?
- Quality - defines the means and implementation of product validation. Question: What?
- Plans – outlines the methods of management to deliver the products. Questions: How, how much, when?
- Risk – defines the methodology for identifying, evaluating, and reducing the amount of risk. Question: What if?
- Change – defines the methodology for identifying, evaluating and managing changes. Question: What will be the impact?
- Progress – defines the methodology for monitoring and comparing actual achievements against planned ones. Questions: Where are we now, where are going, do we have to worry?

The seven PRINCE2 processes:

- Starting up a Project - the process preceding the project run that aims to ensure the prerequisites for a successful project set-up. It is launched by the mandate of the project, which provides the reason, purpose, and quality.
- Initiating a Project – the preparation of detailed and solid plans for understanding the work that needs to be done before it comes to investment in the project.
- Directing a Project – the continuous process that takes place throughout the period of a project. It allows the project committee to take responsibility for the success of the project and issue operational instructions as required by the project managers.
- Controlling a Stage - the process that describes the controlling activity of a project manager.
- Managing Product Delivery - the process of delivering products within the project.
- Managing a Stage Boundary – the completion of a project phase with subsequent control and evaluation of the project status.
- Closing a Project – the completion of the project with the registration of knowledge for a successful management of other projects.

4. Standard according to IPMA Competence Baseline (ICB)

The European standard ICB - was created in the sixties of the last century and is managed by a professional organization entitled International Project Management Association (IPMA). The ICB standard focuses on competences and skills of the project managers and the team members. Standard ICB recommends process steps that are applied to specific project situations. Currently the Czech Republic recognises applicable national standard of project management competences linked to the ICB, Version 3.2, and 3rd edition of 2012.

Project definition (ICB, 2012):

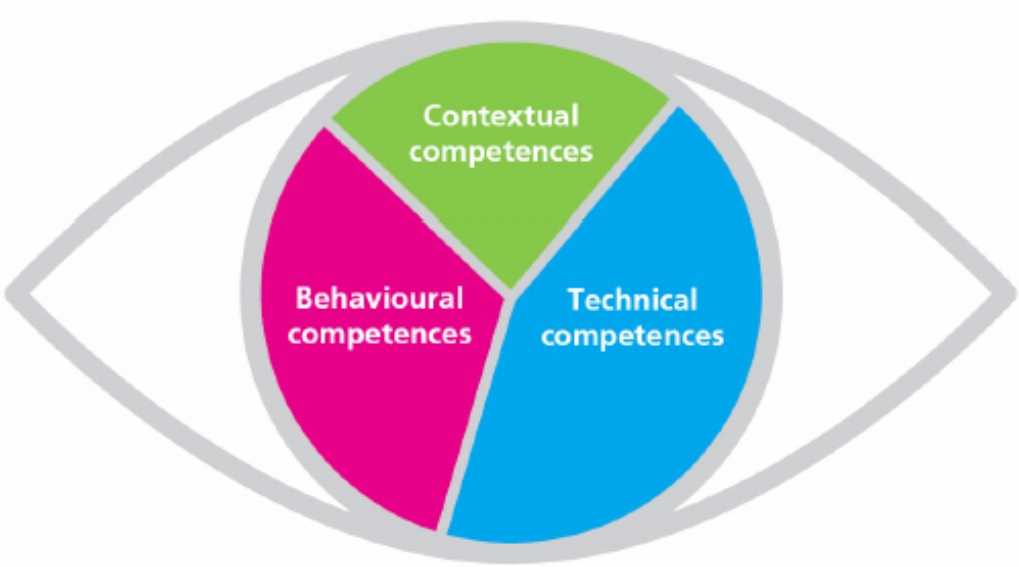
"A project is a process limited in terms of time, cost and resources, implemented in order to produce defined outputs (scope of achievement of the project goals) in terms of quality, standards and requirements. The goal of the project is to achieve a predefined state, which has been agreed in the specific business case.

Project management definition (ICB, 2012):

"Project management is a professional discipline utilizing firmly defined standards and guidelines for the work of employees in the area of project management. These requirements are defined by the acquisition, processing and standardization of the accepted and used project management competencies.

Eye of competences (Figure No. 4) shows the integration of all the components of project management from the perspective of project manager when evaluating a specific situation.

Figure No. 4: Eye of competencies according to ICB



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Source: IPMA

Table No. 2 shows a list of 46 project management competence activities divided into three areas according to their focus.

Table No. 2: Project manager competences according to IPMA

CONTEXTUAL COMPETENCES
Project orientation
Programme orientation
Portfolio orientation
Project, programme and portfolio implementation
Permanent organization
Business
Systems, products and technology
Personnel management
Health, security, safety and environment
Finance
Legal
TECHNICAL COMPETENCES
Project management success
Interested parties
Project requirements and objectives
Risk and opportunity
Quality
Project organization
Teamwork
Problem resolution
Project structures
Scope and deliverables
Time and project phases

Resources
Cost and finance
Procurement and contract
Changes
Control and reports
Information and documentation
Communication
Start-up
Close-out
BEHAVIOURAL COMEPETENCES
Leadership
Engagement and motivation
Self-control
Assertiveness
Relaxation
Openness
Creativity
Results orientation
Efficiency
Consultation
Negotiation
Conflict and crisis
Reliability
Values appreciation
Ethics

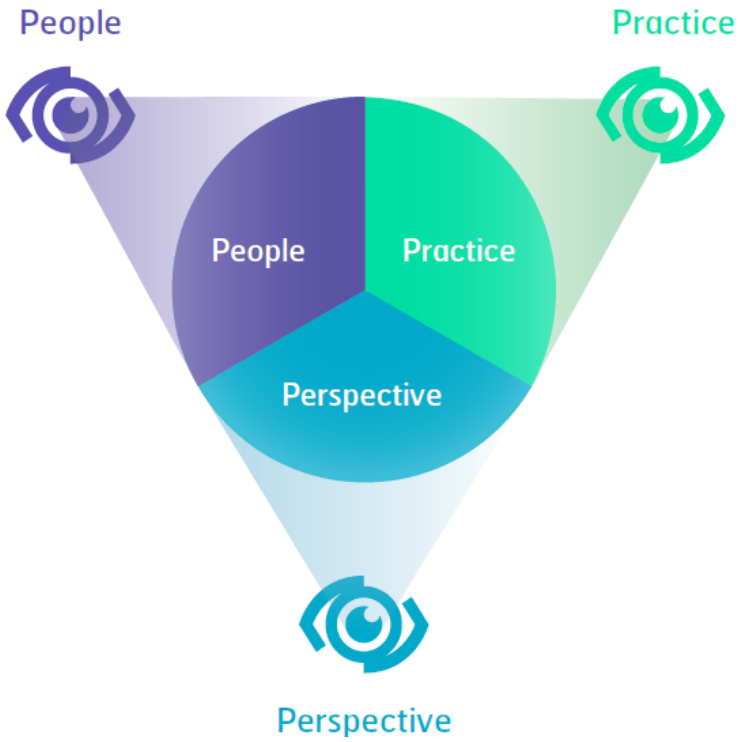
Source: IPMA (2012)

The newly released fourth version of the IPMA standard redefined the Eye of competencies as an area of twenty-nine competencies of a modern project manager for the Project, Program and Portfolio Management. Competencies are divided into three areas: People, Practice and Perspective (Figure No. 5).

- Human skills - include personal and interpersonal skills necessary for a successful participation in or leadership of a project, program or portfolio;
- Practical skills - are specific methods, tools and techniques used in the projects, programs and portfolios in order to achieve their success;
- Prospective competence - incorporate methods, tools and techniques through which individuals act on the environment, as well as the reasons that lead the people, organizations and society to initiate and to support projects, programs and portfolios (IPMA ICB4, 2015).

There is a newly revised definition of the project:
"A project is a unique, temporary, multidisciplinary and organised effort to implement the agreed outputs within a pre-defined requirements and constraints."

Figure No. 5: Predefined Eye of Competencies according to ICB4



Source: IPMA

5. Standard - Guidance on Project Management ISO 21500

This International Standard provides a description of the concepts and processes that represent best project management practice. The projects are included in the context of programs and portfolios of projects, but this International Standard does not provide a detailed guidance on the management of these programs and portfolios of projects (ISO 21500). The latest version of the ISO 21500 standard was released in 2012.

Project definition (ISO 21500):

"A project is a unique set of processes consisting of coordinated and controlled activities with start and finish dates, undertaken to achieve an objective."

Project management definition (ISO 21500):

"Project management is the application of methods, tools, techniques and competences to a project. Project management includes the integration of the various phases of the project life cycle. Project management is accomplished through processes."

6. Comparison of project management standards

To select the appropriate methodology, it is important to reflect on the practical use of individual procedures or combinations thereof. The comparison of the various standards was already addressed by several authors and studies in the past. Below are the summaries of their findings.

Comparison of ISO 21500 and the PMBOK

A simple comparison discovered a great similarity between PMBOK Guide 5th and ISO 21500. The ISO 21500 at its inception was based on the PMBOK Guide 4th released in 2008. A detailed comparison is published in the International Journal of Engineering Science and Innovative Technology (IJESIT) Volume 3, Issue 1 of January 2014, specifically the article entitled "Standards ISO 21500 and PMBOK Guide for Project Management" (Řeháček, 2014). The introduction of ISO 21500 was followed by the publication of PMBOK Guide 5th in 2013, which moved the "Stakeholders" from the area of "Communication" to the area of "Knowledge", which has been a major step to approximation of ISO and ANSI standards. The two systems differ in only a few technical details.

The comparison with other standards can be inferred from the article in PM World Today - January 2012 (Volume XIV, Issue I) entitled "Enhance the PMBOK® by Comparing it with P2M, RBI, PRINCE2, APM and Scrum Project Management Standards". For our purpose, we focus on the part associated with ICB and PRINCE2. The comparison is complemented with new items deriving from PMBOK Guide 5th.

ICB and PMBOK Compared, adjusted by (PM World Today, January 2012):

Matches of ICB and PMBOK:

1. Both guides can be implemented in different ways so as to suit the specific needs of the customer. ICB has forty-six competencies used by the project manager at various levels of the relevant project. PMBOK Guide 5th uses forty-seven processes at various stages in the project.
2. ICB competencies can be applied to the areas of knowledge and groups of processes according to PMBOK.
3. The competencies in the ICB are interrelated, as well as the processes in PMBOK. An output from one process may be used in PMBOK as an input to another process, and equally in the ICB the information from one competency can link to another one.

<u>Differences between ICB and PMBOK:</u>

1. ICB focuses on the assessment of skills and abilities of the project manager and the project team, whereas PMBOK addresses the processes in the project.
2. ICB emphasises behavioural competencies and personal relationships in the team. PMBOK focuses on technical skills.
3. PMBOK defines a project as a temporary effort to create a unique product or service. ICB defines a project as a time- and cost-limited process implemented in order to achieve defined outputs with an emphasis on the quality and satisfaction.

<u>Shortcomings of ICB compared to PMBOK:</u>

1. The capacity to complete the job is more important in PMBOK than the competencies defined in ICB. PMBOK focuses on the implementation of the project.
2. PMBOK sets out detailed tools and techniques for forty-seven processes. An ICB expert must obtain the tools, techniques, and information from other sources. However, this feature provides ICB with a greater flexibility in the present world.
3. RBI places greater emphasis on human skills, while PMBOK puts more emphasis on the procedural skills. However, both skills are important in projects.

PRINCE2 and PMBOK Compared, adjusted by (PM World Today, January 2012):

Matches of PRINCE2 and PMBOK:

1. PRINCE2 defines a project as a temporary organization that is created in order to provide one or more business products according to an agreed business case. PMBOK defines a project as a temporary effort to create a unique product, service, or result.
2. PRINCE2 defines the role of the project manager as oriented on achievement of the project goals within the targets set in terms of the time, cost, quality, quantity, benefits, and risks. PMBOK says that the role of the project manager is to cooperate closely with the portfolio or program manager to achieve the objectives of the project and to ensure the fulfilment of the project plan within the program.
3. The variables are defined in PRINCE2 as time, costs, quality, scope, benefits, and risks. The same variables are identified as project constraints in PMBOK.
4. PRINCE2 topics are comparable with the areas of knowledge of PMBOK. PMBOK also includes the area of public procurement.
5. PMBOK and PRINCE2 process groups are very similar and equal. The only difference in PRINCE2 consists in the process of "Launching of the project", which is not contained in PMBOK.
6. PRINCE2 has forty competency activities that occur throughout the project in a variety of processes, which is comparable with forty-seven processes in PMBOK.

Differences between PRINCE2 and PMBOK:

1. PRINCE2 highlights the key risks of the project. PRINCE2 identifies why projects fail and aims to reduce the failure rate by removing the cause of failure through the management, control, and proper tools and techniques employed. PMBOK aims to increase the success of the project by setting up the processes, tools, and techniques.
2. PRINCE2 places emphasis on product planning. Product Breakdown Structure (PBS), Product Description, and Product Flow Diagram are the key to the product-based planning.
3. In PRINCE2 the control is addressed by approval and division of the project into manageable phases and milestones.
4. In PRINCE2 the technical competencies are intended for specialised tasks and challenges. The management phases are intended for the stakeholders. PMBOK does not make this distinction.
5. PRINCE2 classifies the stakeholders into three categories: Business sponsor, user, and supplier. The commercial sponsors are those who deal with the financial benefit of the project. The users are people who will use the product as soon it is ready. The suppliers provide expertise and resources to the project and then deliver the products. PMBOK defines the stakeholders as entities or organizations that are actively involved in the project, or whose interests may be positively or negatively affected by the course and completion of the project.
6. PRINCE2 introduces and observes procedural structure that can be reduced depending on the project size. PMBOK prescribes tools and techniques at a high technical level, often serving as a performance-based standard.

Shortcomings of PRINCE2 compared to PMBOK:

1. PMBOK includes the processes needed in the area of public procurement. PRINCE2 makes no mention of the public procurement.
2. PMBOK contains detailed information that can be used for each competency that it addresses. Each of these competencies has a dedicated section of tools and techniques with detailed information. PRINCE2 simply lists suitable techniques for the project but does not provide any details in their regard.
3. PMBOK addresses the human resource management with a wealth of knowledge, which includes developing a plan of human resources, acquisition, development and management of the project

team. PRINCE2 provides no information dealing with human resources and human resource management.

4. PMBOK enriches the information regarding soft skills with greater details leading to reduced conflicts and enhanced teamwork, and it highlights the importance of leadership skills for a project's success. In terms of the soft skills, PRINCE2 only mentions that the best educational and training programs should be used for specific environments.

Conclusion

All of the above standards are designed to increase the success of the project by emphasizing various competencies (Bazsová, 2013). PMBOK and ISO 21500 emphasise repeatable processes, ICB emphasises competences and skills of the project managers and members of their teams, PRINCE2 accentuates project product in a controlled environment. A significant change will undoubtedly be brought about by ICB4, which is also extended with program management and portfolio management. The standard newly contains a table of cross-references between ICB3 and ICB4 competencies (ICB4 Annex C, 2015) and also the processes in ISO 21500 (ICB4 Annex A, 2015).

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Problems and Prospects of Interaction between Employers and Universities: Approaches to Assessing Employer Satisfaction with Professional Skills of Graduates

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Abstract

The paper reviews problems associated with high level of dissatisfaction of Russian employers with the quality of university graduates. We present a methodological set of tools for university executives to acquire information on employer satisfaction with the skills of university graduates and the main requirements to their personnel. The tools also make it possible to identify the forms of cooperation with universities that employers deem promising for increasing the competitive strength of future graduates.

Keywords: education quality, university graduates, methodological tools.

Introduction

In the current conditions of rapidly changing environment and heavy competition, the employment issue becomes especially relevant to all the Russian enterprises and organizations. Employers' demands keep growing, which brings up a question: how can universities train excellent specialists in the Russian education market? It is no secret that only the lazy do not point at the deteriorating Russian education. There is no way to find anyone to blame in this consistent trend. Employers criticize higher education institutions, whereas the latter associate the process with the low level of training offered to future students at schools. In addition, universities argue that they must train high-class specialists rather than superhumans and note overstated demands of the present-day employers.

The analysis of the Russian research findings shows that most employers note low practical competence of students in their professional activities. Of great interest is the research by Sergeeva (2007), in which the author states that, in order to organize practical training in the Russian higher education, we need to overcome a number of problems:

- Unstable social and economic situation in the society;
- No forecast of economic development;
- No field-specific structure of specialist training;
- Disrupted links between universities and employers;
- Underdeveloped labor market,
- Poor influence of professional communities on the development of the educational system.

This is why the problem of finding an effective way of interaction for all the parties interested in improving higher professional efficiency acquires special significance.

A comprehensive opinion poll of employers also shows that the respondents do not only value professional competences of graduates but also their personal qualities that help them to be

practically and psychologically ready for an independent life after graduation. In their research, S.D. Reznik and E.S. Konovalova (2011) speak of the need to make Russian students competition-oriented. This is "special ideation providing their readiness for constant fighting for survival, success and promotion in the modern world as well as mastering the technologies of such fighting".

This approach to training graduates is undoubtedly relevant, because the ability to fight for oneself and one's interests is the only thing that can help future employees survive rigorous vetting including stress interviews, etc., and restore ones strength fast enough for the present-day conditions of severe competition.

Methods

We have developed a set of tools to evaluate employer satisfaction with the quality of training for professional activity offered to students. Originally, it was developed under the project themed "Developing a Quality Monitoring System for Educational Programs" as part of the Program for Competitive Growth among the Leading World Academic Centers.

The main objectives of measuring employer satisfaction with the quality of university graduates are as follows:

- Discovering the main factors that promote employer feedback to the university in regards to the graduate employability.
- Finding out the level of employer satisfaction with the quality of university graduates.
- Finding out the level of employer satisfaction with the comprehensiveness of the graduates' professional, adaptive, operational, communicative, psychological, and informational competencies.
- Identifying the main requirements of employers to the employees of their enterprises and organizations.
- Investigating employers' plans for further employment of the university graduates.
- Discovering the forms of collaboration with the university employers deem promising.
- Detecting weak points in the arrangement of faculty-organized student training for future professional activities; developing recommendations for eliminating these weak points.
- Discovering unused reserves for improving the quality of student training for future professional activities by following employer recommendations.

Elements of the methodological toolset:

1. A system of indicators and profiles of employer satisfaction with employee training quality.

At the first stage of forming a system of indicators, the object of research is structured into sections. For each section, a set of indicators is selected that quantitatively measure the elements comprising the section (see Table 1).

Table 1: Value ranges and employer satisfaction with the quality of university graduates

No.	Value range	Employer satisfaction with the quality of graduates	Indicator mapping
	0 to 20%	Risky	This range corresponds to very low employer satisfaction against a specific indicator.
	20% to 40%	Poor	This range corresponds to poor satisfaction of employer with the quality of graduates, recommending the university executives to address the qualification aspects that resulted in such a low assessment value, since those are the problem areas.
	40% to 60%	Normal	This range corresponds to normal satisfaction, i.e. no considerable problem areas exist, but there are no obvious competitive advantages to make the faculty or main curriculum stand out in terms of professional training of graduates.
	60% to 80%	Good	This range corresponds to the quality of graduates that is higher than average for this indicator.
	over 80%	Advantageous	This range means high employer satisfaction, which corresponds to high-quality training of graduates for professional activities; this range means there is a competitive advantage.

2. Indicator evaluation maps

An evaluation map is a qualitative or quantitative description of the indicator status and corresponds to the value ranges given above. Table II shows the indicators used to assess employer satisfaction with the training quality of university graduates.

Table 2: Indicators of the sections of employer satisfaction analysis with the quality of university graduates

Section of analysis	Indicators
Overall employer satisfaction	Factors that promote collaboration with the higher education institution in terms of graduate employment Satisfaction with the quality of graduates
Satisfaction with the quality of university graduates	Applicability of the knowledge and skills acquired Relevance of the competencies to the qualification acquired Comprehensiveness and sufficiency of the knowledge for practical use
Satisfaction with the adaptive and operational competences of the	Rate of adaptation in a new team Work under high uncertainty and fast-changing specifications Reliability and precision of operations performed

Section of analysis	Indicators
graduates	Speed at which professional skills are formed and changed Ability to use the acquired knowledge and skills in non-trivial situations Ability to recover productivity Time management skills
Satisfaction with the communicative and psychological competences formed in the graduates	Ability to forge relationships in a team Culture of communication within a team Ability to establish contact with customers Business communication (business negotiation skills, business parlance and correspondence) Ability to work in a team Inter-industry communications Customer centricity
Satisfaction with the personal qualities of the graduates	Leadership Creativity and creative potential Aspiration for further self-development Ability to work under pressure Spirit of competition (fight for one's own good)
Satisfaction with the information-related competencies formed in the graduates	Computer skills Leveraging modern technical aids and information technologies in professional problem solving Information handling skills (acquisition, storage, and processing)

The methodology for assessing employer satisfaction with the degree of graduates' readiness for professional activity identifies strong and weak points and performs a gap analysis of each educational program, which will make it possible to find the room for improvement of this process and enhance the competitive performance of the university graduates from the employers' viewpoint.

Many Russian and international researchers assert that the role of employers in training competitive university graduates is very significant and it will be even more so in the future. According to Salimova and Vatolkina (2010), employers are the very people who can assess the competence of graduates by their ability to perform their professional duties in a qualified manner. The first results of testing this set of tools have shown that employers are willing to get involved in the educational process themselves in order to ensure better forming of the practical skills. Over a half of the employers interviewed consider it necessary to involve company staff in the professional training of future graduates. Therefore, when searching for promising forms of interaction among the university and enterprises, it is vital to take into account the opinion of employers.

Conclusion

The set of tools offered will allow identifying the factors promoting the cooperation of prospective employers and TPU in terms of the employment of graduates, determining the degree of the partners' readiness for further interaction in training and employment of TPU graduates, and specifying the forms of cooperation that the employers would find promising.

Thus, the methodology for assessing employer satisfaction with the quality of university graduates' training for professional activity can serve as a basis for determining future forms of prospective interaction between higher education institutions and partner enterprises in order to improve the competitive ability of graduates and improve of their employability within their specialty.

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The Impact of Transnational Corporations in Romanian Economy

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Abstract

This study develops the topic on transnational corporations (TNCs) and their presence in the Romanian space and their contribution to the development of the national economy sectors. The main objectives of this paper aims to identify the sectors that attracted FDI in our country and the impact they have on the social and economic life (creating jobs, increasing turnover, etc.). To achieve these goals, we collected, processed and interpreted statistical data contained in the various reports and databases. The results show that tax incentives, low cost of labor, geographical location, large internal market and EU accession have made Romania become an attractive country for foreign investors. These advantages have motivated transnational corporations to invest in our country in 2013 in industry, trade, services and a lower percentage in construction. So, transnational corporations are of interest for the Romanian market. In this context the state institutions make efforts to provide a minimum legislative "comfort" for the foreign investors.

Keywords: Transnational corporations, Gross Domestic Product, Foreign Direct Investment, Tax Code.

Introduction

Given the fact that transnational corporations are by definition an economic force, they are often compared to 'nations' themselves. This is from the fact that transnational companies often exceed the economic strength of many countries, some of them even considered developed. Contemporary reality shows that these transnational corporations are the most important businesses in the world, operating in areas such as economy, finance, science and technology, having a strong say in world politics (Munteanu, C., Horobet, 2005, p.99). Globally these companies constitute the main axis of the contemporary economy. About 70,000 of these giant companies with at least 700,000 subsidiaries and affiliates generate one third of global exports, a tenth of global GDP and their share is growing (Voiculeț Alina 2008, p.36) .

Transnational corporations (Joseph E. Stiglitz, 2008, pp.163-171) represent key sources of capital, technology and market access for almost every country. Their activities have a strong impact on the global distribution of wealth and economic activity between national economies. Transnational corporations bring benefits both to the consumers, business and to the entire system (Albescu Oana, 2012). At the same time, it is a high concentration of economic power and, like all forces, can adopt corrupt and socially unfair attitudes.

The competition for these transnational corporations is performed internationally with foreign companies of the same profile, to fill bigger segments of the global market. The emergence, development and maintenance of these transnational corporations internationally were achieved on the background of three main factors:

- Liberalization of economic policies, the opening of national borders, liberalization of the foreign direct flows and portfolio or other investment and cooperation agreements;

- Emphasizing technological progress, which leads to increased costs and risks faced by companies, requires addressing various global markets through international relocation of production to diversify these risks;

- Increased competition, which is actually the result of the other two factors mentioned above, requires the exploitation of new markets by companies, both to reduce production costs and for more efficient use of the final result, but also requires the addressing of new forms of international manufacturing, property and contractual arrangements to protect their market power, such as for example mergers, acquisitions, minority or majority participation, exchange offer, etc. (Bari I., 2003, p. 45)

The genesis of these corporations is therefore in the competition capacities held by them. Being competitive is a major challenge for both businesses, governments and transnational corporations, which have concluded regional agreements.

The advantages and disadvantages brought by transnational corporations

The ability of transnational corporations (Albescu Oana, 2012), to use a variety of instruments concerned - know-how, patents and licenses, new technologies, financial and human capital, logistics, organizational practices, markets and networking globally - in economic activities range as close to the top predator in the modern economic world, if not the actual top.

Romania's accession into NATO (NATO, 2004) and European Union (EU 2007) has led major multinational corporations to turn and look for the opportunity to invest in our country. The first effect was felt by the banking system (which was privatized in 2000) who began to engage more deeply in the domestic economy, opening wider credit tap for a wider category of private companies.

The economic dynamics can be seen just looking at the value (Gross Domestic Product) GDP of Romania after 1990. So from 1991 until 2000 the GDP of our country for 10 years oscillated around 35 billion USD. During 2000-2004, Romania's GDP nearly tripled to 99 billion USD, and later, after another four years, in 2008, Romania's GDP has doubled again compared to 2004, about 200 billion USD. In 2014 Romania's GDP was back to the level of GDP in 2008, the highest level ever recorded in our history.

The entry of transnational corporations on the Romanian market was motivated by the advantages our country presents: cheap labor (too cheap) and qualified in many areas, modest geographical distance compared to European centers, a domestic market of around 20 million inhabitants, a relatively good degree of urbanization, an acceptable existing infrastructure, pre-existing external trade traditions. Also, in some cases transnational corporations conditioned the entry on the Romanian of the granting of temporary tax incentives, the subsidies or state aid in various forms from the Romanian state. Meanwhile the Romanian state continued to spur private sector because it was obliged to provide strong new tax sources in the near future.

Romanian capital development started at its own pace with advances bigger or smaller and inherent gaps in any way. Please note that the development of technology and market capitalization were not likely to create a deep economic dynamic and nor significant and constant revenues to the state budget. From these gaps have benefited transnational corporations that through parent companies from home countries and using companies of financial advice, particularly through accounting methods known, manage to reduce the maximum the income taxes paid in the country in which they operate, being very effective in managing this aspect. This is possible due to fiscal legislative gaps, lack of alertness, lack of proper involvement and attitude from state institutions.

Romania bears the consequences of these gaps today. Suppose the lack of professionalism or abetting known and tacitly endorsed, or on the contrary - for legal commercial reasons with the agreement of state's fiscal structures, or an omission of Romanian fiscal system are the result of appropriate non-taxation profit margins generated by multinationals in Romania. Market competition in terms of private Romanian companies or with state capital clearly suffered the accumulation of resources and capital being unfair, unjust and without regard to the rules of free market.

Despite these legitimate tax inaccuracies or questionable at times, we find that the extra of activities of transnational corporations triggered in the economies in which they operate is prominently manifesting its effects locally or sometimes only marginally (Diana Farell, ş.a.). The economies of developing countries are optimized and upgraded, effervescence of economic exchanges and transfers of technology and management increasing. Resources are often used more efficiently, resulting in multiple effects of driving and related economic sectors. Perhaps the positive consequences are not always uniform, immediate or easily quantifiable, there are risks that these economic giants to generate difficulties and temporary imbalances in the national economic scene, but overall their presence is still desirable. These giant companies with turnovers greater sometimes than the GDPs of countries, act planned and organized globally with an efficiency of envy, being active promoters of the globalization we live today, this system wanted two-way by information, investment, financial flows in which we would prefer to be an active part.

The absence of transnational corporations in an economy often shows only the lack of resources and perspective of a country at a time, the low level of attractiveness of that entity, traits typical of a closed economy and not connected to world economic situation, and as a consequence direct unlikely that the economy / country to generate sufficient and / or immediate wealth to its members.

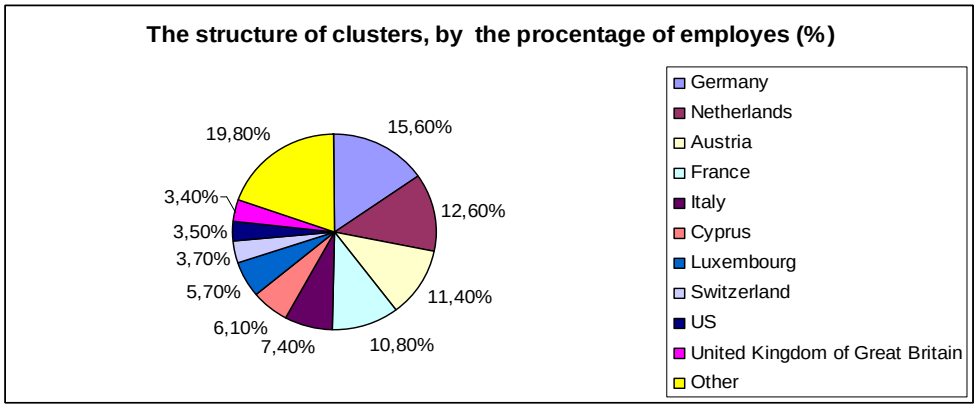
Present and future of transnational corporations

Today, transnational corporations (John Dunning, 2002, vol.1.) / multinational corporations are a massive presence in the global economy, internationalizing services and production. There are many opinions regarding the importance of their development for domestic and international economy. Thus, some economists consider that they have become global corporations and represent positive forces for economic development and prosperity to all corporations, while others believe that a transnational corporation / multinational corporation represents only firm of a particular nationality which organized the production and distribution so that it crosses borders.

Based on these theories (Dunning J.H., 1981, p.3; Dassbach, Carl H.A, 1988, p.7) and benefiting from data provided by the National Statistics Institute (NSI) we see that for Romania (2013) there were identified a number of 44.575 (Press release nr 102/2015) groups of firms operating in the local market, of which 5248 were residents and 39 327 were groups of multinational companies (noting that 60 groups were controlled from the inside and 39 267 foreign controlled groups). In the group of resident companies are those of two or three companies and a group of three enterprises activates in trade, shows the NSI data.

In other words, from the total enterprise groups, the highest percentage of enterprise groups were identified in the section wholesale and retail trade, repair of motor vehicles and motorcycles (31%), construction section (13%), manufacturing section (11 %).

Regarding the group of undertakings resident it is found that 21% of them work in trade, 12% in manufacturing, 11% performing professional, scientific and technical activities and 11% are identified in construction.



Source: http://www.insse.ro/cms/files/statistici/comunicate/com_anuale/grup_intre_ro/grup_intrep2013r.pdf

Graph no. 1. The structure of clusters in Romania, by the percentage of employees (%)

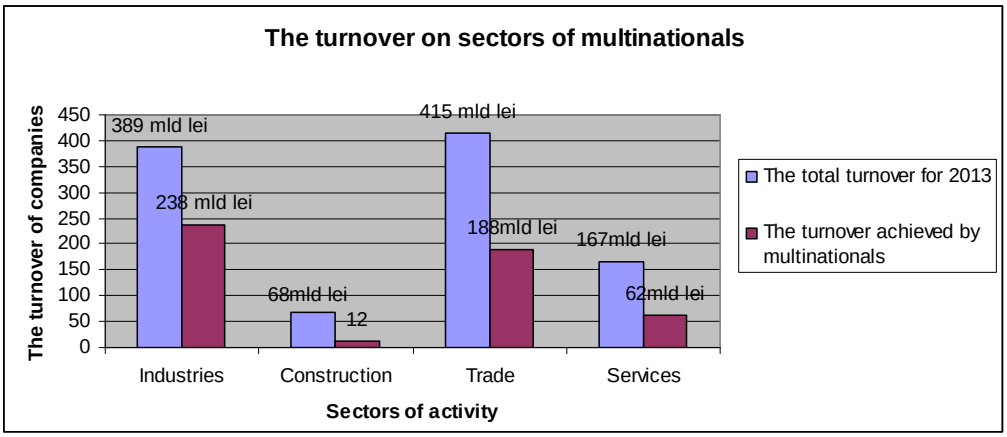
Also, reported to the percentage of employees, most subgroups of enterprises in Romania are controlled from Germany, the Netherlands or Austria. Depending on the percentage of employees, on the first place are subgroups of enterprises controlled by legal entities or individuals in Germany (15.6%), second place are those controlled from the Netherlands (12.6%) and third place are those controlled from Austria (11.4%). (Graph no.1)

Depending on the percentage of total employees in multinational enterprise groups controlled by foreign, the subgroups of enterprises controlled in Germany predominate in manufacturing (7.4%), in the section wholesale and retail trade, repair of motor vehicles and motorcycles (2,5%) and in the section of professional, scientific and technical activities (2.4%).

Compared to subgroups of enterprises controlled from the Netherlands, the statistics show that a percentage of 4.8% are in manufacturing, 2.3% in the section wholesale and retail trade, repair of motor vehicles and motorcycles and 1.5% in section information and communications. Subgroups of enterprises controlled in Austria have a rate of 2.8% in the mining industry, a percentage of 2.4% in the section wholesale and retail trade, 2.4% in repair of motor vehicles and motorcycles and 2.4% in manufacturing section. On turnover of multinationals in Romania in 2014 we find that Germans, Austrians and the French lead in the top, while Bulgarians had a business of 350 million Euros.

Expanding this topic we see that subsidiaries (Zamfir Paul Bogdan, 2007, p. 102) of transnational corporations / multinationals had turnover of 503 billion lei (112 billion Euros) in Romania in 2013, i.e. 48% of the total turnover of 1041 billion lei of all local companies, show Institute of Statistics (Pâslaru Sorin, 2015.10.8). The information on economic indicators - turnover, number of employees and gross value added at factor cost - subsidiaries of foreign companies, are provided by the study "The activity of foreign affiliates in Romania" (www.insse.ro, accessed at 30.01.2016).

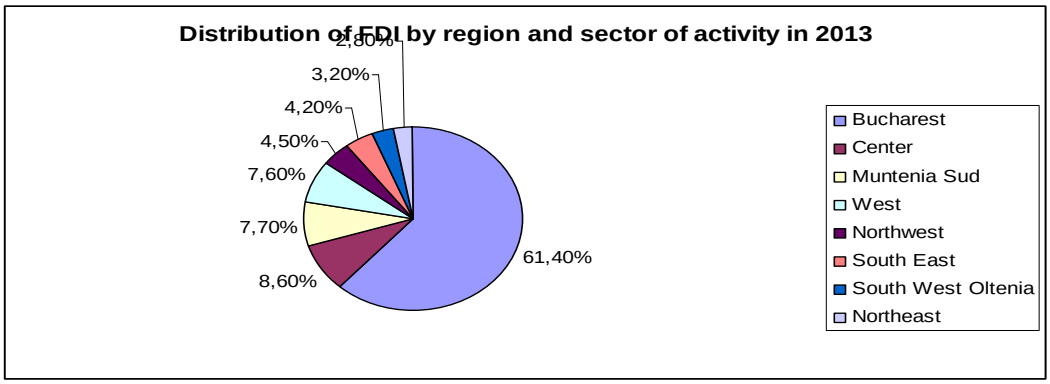
Multinationals have focused mostly on investment in the industry, which now accounts for 61% of the turnover of the companies in Romania. The lowest rate is recorded in construction, 17% of the turnover of the relevant companies in the local market and in trade have a percentage of about 45%, similar to the whole system of local companies. In services, foreign capital represents 38% of turnover (Graph no. 2).



Source:http://www.insse.ro/cms/files/publicatii/publicatii%20statistice%20operative/activitatea%20filialelor%20straine%202013.pdf pag.3

Graph no.2. The turnover on sectors of multinationals

So in the year 2013, 80% of subsidiary enterprises existing in Romania were from European Union and a further 8% in other European countries. The remaining 11% is held by other countries. Statistics show that without the contribution of foreign companies our country would have remained economically to the same level as countries which are not members of the European Union (Belarus, Kazakhstan). In this context it should be mentioned that in 2013, the average turnover for a subsidiary of multinational was about 20 million lei having a staff of 39 employees. Most of the multinational companies operate in services - almost 10,000 companies, in trade are found 8,000 companies, in the industry are active 5000 companies and in constructions develop their activity 2,500 companies.



Source: BNR and INS, foreign direct investment in Romania in 2013

Graph no.3: Distribution of FDI by region and sector of activity in 2013

Distribution of investments by region and sector was oriented mainly towards developing regio Bucharest-Ilfov (61,4%); Central, South-Muntenia, West and North-West also benefit from FDI but in much smaller proportions (Graph no.3).

Please note that FDIs were territorial located after the FDIs registered office, which does not always correspond to the place of the economic activity. According to the National Classification of Economic Activities (NACE Revision 2), the activities of wholesale and retail trade, repair of motorvehicles and motorcycles and manufacturing section hold the largest share of the turnover of

the subsidiaries of foreign companies in Romania. The lowest value was recorded in computer repair work and personal and household goods. (Table No. 1).

Table No.1 The main indicators of foreign subsidiaries divided by activities

Activity according NACE Rev.2	Number of FATS enterprises (foreign subsidiaries in Romania)	Average number of employees	Turnover (million lei)	Gross value added to the cost factor (million lei)
Extractive Industry	129	24522	20519	11351
Manufacturing Industry	4316	495989	183488	36406
Production and supply of electricity and heat, gas, hot water and air conditioning	444	13529	29176	8270
Water supply; sewerage, waste management and remediation activities	198	12095	5744	1107
Constructions	2475	24829	12575	4021
Wholesale and retail trade; repair of motorvehicles and motorcycles	7973	178504	188429	16906
Transportation and storage	1156	35341	12333	2763
Hotels and restaurants	798	15165	1625	674
Informations and communications	1309	74241	26198	12377
Real estate transactions	2631	7020	4371	3316
Professional, scientific and technical activities	2734	39616	10978	4484
Administrative and support services activities	1078	66234	7149	4135
Repair of computers and personal household goods	33	722	111	44
TOTAL	25274	987787	502896	105854

Source: http://www.insse.ro/cms/files/publicatii/publicatii%20statistice%20operative/activitatea%20filialelor%20straine%202013.pdf

Statistical data show that in wholesale and retail trade, repair of motor vehicles and motorcycles, the largest share of the turnover was recorded by FATS (Foreign Affiliates in Romania) enterprises of "wholesale except motor vehicles and motorcycles trade", and it was 56,9%. In manufacturing industry in 2013 the highest share of turnover (28,9%) was held by enterprises operating in the "manufacture of road transportation motor vehicles, trailers and semi-trailers", followed by those operating work in "metallurgy" (7,9%), and those who work in "food industry" (7,7%).

Making a complete picture of the presence of multinational companies on the Romanian market is filled with turnovers volume carried by them, the number of employees and the number of existing enterprises. Thus, German companies have been in business of 77 billion lei (17 billion euroof which: 7,4 % in manufacturing industry; in the section of wholesale and retail trade, repair of motorvehicles and motorcycles 2,5%, and in professional, scientific and technical activities section 2,4%) in 2013, had about 170,000 employees and were operating in 2600 enterprises.

Regarding the controlled enterprises subgroups in the Netherlands, 4,8% are in manufacturing, 2,3% in the section of wholesale and retail trade, repair of motorvehicles and motorcycles and 1,5% in

information and communication section. Subgroups of controlled enterprises from Austria dominate in extractive industry (2,8%), in the section of wholesale and retail trade, repair of motorvehicles and motorcycles (2,4%) and in manufacturing industry (2,4%) (INS, 2015, Press release, no 102).

In an analysis of the activities of the former socialist countries we see that Hungary has conducted business in Romania of 11.4 billion lei through 1350 companies followed by Czech, which registered a business volume of 3.9 billion lei through 131 companies. Poland has set up in Romania a total of 147 enterprises doing business for 2.7 billion lei and with 5,100 employees, and Bulgaria has business of 1.6 billion lei in Romania which are handled by 328 companies (table no. 2).

Table no.2 The main indicators of foreign subsidiaries, under intra-community control

Intra-UE	Number of multinational enterprises[1]	Average number of employees	Turnover[2] (billion lei)	Gross value added ad cost factor[3] (billion lei)
Austria	1256	85744	74	19283
Belgium	475	16423	5	1147
Bulgaria	328	2828	1,6	176
Czech Republic	131	4028	3,9	1479
Cyprus	1937	57783	27	6057
Denmark	147	5525	3,1	637
Finland	34	1118	0,496	81
France	1221	98767	63	12020
Germany	2566	169857	77	14764
Greece	702	19563	11	3143
Ireland	86	2321	0,641	196
Italy	4328	101028	30	8017
Luxembourg	351	47100	18	3652
UK	602	45903	15	4415
Netherlands	1317	99664	54	11604
Poland	147	5156	2,7	460
Portugal	74	2463	0,644	158
Slovakia	84	850	0,320	70
Spain	730	17484	5,8	1696
Sweden	165	9329	3,2	832
Hungary	1355	17920	11	1130
Other	129	3440	1,3	212
Total	18165	814294	409	91231

Source:http://www.insse.ro/cms/files/publicatii/publicatii%20statistice%20operative/activitatea%20filialelor%20straine%202013.pdf

[1] Is an enterprise with legal personality controlled by another, directly or indirectly, and control is defined as having a stake of more than 50% of the total shares of a company. The main indicators analyzed in this phase are: number of enterprises, turnover, number of employees and gross value added.

[2]Is the total value of goods invoiced, resulted from sales of goods, merchandise, performance of works and services, minus rebates and other discounts to customers

[3] Represents the amount of wages and other elements related to the cost factor, profits, operating grants, the amortization of fixed capital, of which is subtracted the taxes linked to production.

Interest in both countries integrated in the European Union and countries outside the European Union to do business in Romania is apparent from their need to use financial, managerial and marketing resources and the need to form new corporate culture. Romania's attractiveness towards investors stems from the fact that currently Romania's policy on foreign direct investment is based on three main issues: equal treatment for Romanian and foreign investors; free access to markets throughout the economy and minimal government intervention in economic activities. Also, the Finance Ministry is considering a wider national strategy, at the opportunity it will provide the new Tax Code and the new Code of Fiscal Procedure to protect companies operating in Romania, to provide a framework equal and fair operating and to ensure a minimum "comfort" in which to become more competitive and more profitable in the long term.

Conclusions

Transnational corporations investments (TNCs) in our country have turned on during 2013 in a substantial proportion on the wholesale and manufacturing. Given the geographical distribution of FDI, we notice that in all these years, Bucharest-Ilfov region attracted the largest share of investments, while the north-east part of the country had the lowest percentage. A justification for this can be given by the quality of infrastructure and available labor force.

These transnational companies have the means to compensate the actual capital shortage in developing countries being the main factor for development. Besides providing financial means, transnational corporations stimulate productivity and economic efficiency, modernizing the economy. A strong presence of STN sites and a large stock of Foreign Direct Investment (FDI) is desirable because the more powerful their presence, the faster the developing countries "catch up" on developed ones. Modernization process may be accompanied by inequalities. These are not necessarily caused by activities of STN and foreign capital, but are inherent to the process of transition. At a higher stage of development, these inequalities of development will disappear, which justifies STN activities, even though they will inevitably lead to some social inequalities. This refers to "growth first, then redistribution".

In our opinion, Romania will continue to be attractive for foreign investors, since it has highly skilled labor and production costs are lower than in other EU countries. However, it is likely that the disparities between regions in terms of value of FDI attracted to constitute a sensitive issue in the next years. The analysis of these issues could be an interesting topic for a future research.

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Certain Aspects of Decision–Making per Rollam in Limited Liability Companies in the Czech Republic

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Abstract

The legislation concerning decision-making "per rollam" (which appropriately translates as "by letter" in English) is not new in the current Czech law, law on decision-making per rollam has been incorporated within the Commercial Code, namely in its provision § 130. It can be stated that the current Business Corporations Act (hereinafter referred to as the "BCA") clarifies and specifies the issue. In general, amendment of the same in the new Civil Code is stipulated in § 158, paragraph 2. According to this provision, it is possible that the founding legal act indeed acknowledged decision-making of the authority - outside of a meeting - in written form or via the use of technical means. The body of a legal entity can implement adoption of such a decision either at meetings or beyond them, either in written form or via technical means. However, in both cases, it is always the decision of an organ of a legal person.

Keywords: limited liability Company, decision-making per rollam / by letter, decision taken outside of a general meeting

Introduction

Decisions taken beyond the confines of a general meeting according to the BCA (decision-making per rollam) literally mean "a decisive circular, in the form of a circular, in writing". It might be tempting to think that a decision made in this way does not equal a decision confirmed at the general meeting, but merely one made by individual partners beyond the confines of such an authority. Interpreting it literally by its grammatical expression would lead to the following argumentation. If, indeed, it is a decision stemming from beyond the confines of a general meeting, it surely cannot go on to be considered as a decision at a general meeting, the latter representing the organ of the company. Nevertheless, attention needs to be paid to the express wording in the provisions of section 175, para.3 of the BCA. Specifically, the phrase applied is "proposal for a decision of the general meeting". It is the opinion of the author that such phrasing clearly indicates it is a decision made by the body of a company. The argumentation given above creates leeway for discussion. However, the author leans towards the second perspective, namely that decision-making per rollam represents a decision of the supreme body of a company, one which has been arrived at beyond the confines of a general meeting.

The author wishes to address the specificities of this method of decision-making. It is her aim to highlight the advantages and potential disadvantages of utilising this legal institute.

The author focuses on current valid and effective legislation, including professional articles and publications that address the matter. Analysis of the text of the law is performed, through which the author provides an overview of fundamental aspects in applying this legal institute, as well as outlining any potential positive and negative elements.

1 Differences between legislation in the Commercial Code and BCA

In relation to the matter of decision-making per rollam, i.e. outside of a general meeting, the scope of legislation is not extensive; however, it represents an important aspect in the functioning of a company with limited liability. It provides an option to take a decision without the need to actually call a general meeting. Whether a limited liability company chooses to take advantage of this option given by the law is up to the firm in question. Each individual company with limited liability should consider if this legal institute and its practical usage under circumstances of ordinary operations of the company is of benefit. This consideration should be based on particulars such as the number of partners the company has, whether it is simply a domestic entity or if foreign partners are involved, thereby complicating participation at a general meeting. Legal issues affecting decision-making per rollam have also been deal with by Caska (2014), Dvořák (2014), Gregorová a Spodniaková (2014), Holejšovský (2011), Schelleová (2014), Schindler (2013), Šperl (2015) and Žíla (2014).

Legislation contained in the Commercial Code acknowledged that a limited liability company could take a decision outside of a general meeting, but did not stipulate further. As Schelleová stated, allowing decision-making per rollam was mandatory, therefore, associates could not prevent it. In contrast, the legislation stipulated in the BCA allows for the possibility for such decision-making under the condition that this is not excluded by the given social contract. Consequently, it is at the discretion of the partners whether to take advantage of it in the future, or if such an option is voluntarily made void in the association agreement. Should an association agreement be silent on the issue, i.e. does not prohibit nor expressly permit it, the possibility exists to accept as de facto any decision pertaining to the competence of the general meeting. One obligation of a limited liability company is to declare a list of partners, which is enshrined in the provisions of § 139 of the BCA. This ensures that such a business possesses an overview of its associates. These arrangements should prevent circumstances of a partner not being informed about decisions per rollam in the prescribed manner. The person entitled to convene a general meeting must send a proposal for a decision of a general meeting to all partners on said list, to the addresses detailed therein or in another manner that is specified by the association agreement.

2 A decision per rollam and the association agreement of a limited liability company

A decision per rollam possesses certain qualities, which may under a particular circumstance simplify adoption of a decision arrived at by the supreme body of the company, one pertaining to a situation where not all partners are able to attend a general meeting. One argument might be that, for such an instance, they could arrange some form of representation. However, if a company wants to enable all of its partners to participate in adoption of a business decision, then solely the institute of decision-making per rollam is at their disposal. From the literal wording of the law “if the association agreement does not exclude decisions outside of a general meeting”, it would be worthy of consideration for such situations. Simply put, either a company excludes decision-making beyond the confines of a general meeting in its association agreement or it does not. The association agreement can address the matter, in relation to usage of said method of adoption of a decision in various ways. 1) A foundation charter makes no reference to the possibility of decision-making per rollam, i.e. it is mute on the issue. According to the BCA, in such a situation, it is possible to take decisions that fall within the competency of a general meeting in this manner. 2) A foundation charter specifies certain matters related to a company and pertaining to the competency of the general meeting which cannot be resolved by a decision per rollam. This would mean that a company rules out this method for adopting decisions concerning particular areas of interest, whereas any remaining issues can be decided outside of a general meeting. The fact that an explicit negative definition of a radius of affairs exists actually infers that said company allows decisions per rollam, albeit not universally. If the given partners decide to amend the association agreement to permit this method for decision-making by specifically defining issues that should not be resolved thus, then clear consent is given to apply decisions per rollam in others, i.e. unspecified conditions essentially, but those pertaining to the competency of a general meeting. Should the association agreement not even include such a formulation, which would otherwise explicitly admit a decision per rollam elsewhere, it is possible to arrive it by logical deduction. 3) An association agreement explicitly excludes the possibility of

adopting a decision per rollam. Hence, all decisions falling under the competency of the supreme body of a company must arise from a formally convened meeting.

3 A form of decision-making per rollam

The BCA has dropped, from the strict requirement contained in the Commercial Code, the form of expression of individual partners' party to a draft decision to be adopted outside of a general meeting. In adherence with the Commercial Code, the fundamentally respected form demanded was one of a notarial deed, if this form was required for said decision of the general meeting. The BCA, apparently in an effort to simplify and weaken this manner of decision-making, merely demands official verification of a signature. It follows that the form of such a decision of the general meeting can take two expressions, depending on whether a general meeting shall meet or the issue shall be decided outside of the general meeting. For the former of the two, if the decision is taken directly at the general meeting, it is necessary to progress towards making a notarial deed on said decision. If the company chooses to make decisions beyond the confines of a general meeting, it is sufficient to possess officially verified signatures on statements from the given partners to the proposed decision of the general meeting. If the association agreement does not exclude decision-making per rollam, provision for implementation of this method by the technical means stipulated in § 167, paragraph 2 of the BCA can be applied. However, conditions for the use of such technical means must be amended to facilitate verification of the identity of the voting partner, and to determine the corporate shares which are associated with the performing right to vote.

4 Deadline for comments to a proposed decision of a general meeting

The law sets a deadline of 15 days for partners to express their opinions to a proposed decision of a general meeting. If partners do not regulate the period in the association agreement by way of derogation, then this period applies. It can be assumed that in the case of a private arrangement within a foundation charter, the intention would be to prolong this time limit. The deadline should take into account that the partners must become familiar with documentation they receive on the decision. Concurrently, their opinions must be returned to the body that sent out the proposed decision within the specified time limit. Therefore, the legal time limit of 15 days could prove insufficient, in particular when sending out documentation to partners abroad. In the case of non-compliance with the time limit, i.e. an opinion of a partner is delivered following expiry of this period or the partner has not commented at all, the assumption would be that the partner does not concur with the draft decision. It is an irrefutable legal presumption of disagreement by the partner.

5 Content requirements for consent from a partner

The consent of a partner for a proposed decision of a general meeting, one from outside of a general meeting, namely per rollam, must be given completely and unconditionally. The partner cannot give consent with reservations, conditions or various additions. They are unable to create limitations or make other changes relating to their consent. If this occurs, such consent is not given unconditionally and represents a rejection of the proposal. This could be viewed as a disadvantage of a decision per rollam. The partner does not have the capability to come up with proposals, amendments or any counter-proposals, such rights only being permitted in the event a general meeting is convened. The law does not confer such a right when making a decision per rollam. The reason for this is obvious. If the law allows, via a decision per rollam, counter-claims, amendments or the option to make suggestions, the whole process of decision-making becomes highly complicated and prolonged. It is hard to imagine under such circumstances that it would be possible to comply with the statutory time limit for feedback. Even if an association agreement significantly extends such a deadline for expression, it would entail further steps on the part of the body which is competent to convene a general meeting. When large numbers of partners are involved, this actually constitutes a complication requiring the need to send out any counter-claims to all the partners. The question is what to do with the consent from partners delivered to the company in the meantime. The author believes this somewhat reflects - when making a decision per rollam - that the rights of the partners are restricted, as compared to those enjoyed at standardly convened general meetings.

6 Notarial deeds versus officially certified signature

The existence of the institute of decision-making per rollam is an attempt to respond adequately to the real needs of business corporations in normal, everyday operations. For companies with foreign partners and statutory authorities, this can be enormously difficult to achieve, necessitating that such bodies are connected with sufficient notaries and able to make an appropriate judgement. Decisions taken beyond the confines of a general meeting are essentially a huge simplification. This is provided, however, that the right does not apply to companies with a sole partner. Such simplification is visible in the waiver from requirement for compliance with the form on a notarial deed that is necessary for expression of a partner concerning a decision of a general meeting.

7 When a proposed decision of a general meeting is an eligible proposal for a decision per rollam

The duty of the person authorised to convene a general meeting (in the limited liability company it is typically a company executive) is to ensure that a written proposal for a decision per rollam is accompanied by all the necessary supporting documents. These documents can be virtually anything that might influence the opinion of a partner. These could be contracts, bank statements, relevant accounting documents, and so on. If as part of a proposal, one necessarily falling outside of a general meeting, these documents are totally lacking or some are missing, this could not form an eligible basis for expression by a partner.

8 Summary and conclusions

Limited liability is a status conferred on many companies in the Czech Republic. Such a business may possess only one partner or several partners. A general meeting is the recognised authority of the business that decides on its existence and operation. A fundamental right of its partners is that of participating in a general meeting and voting on recommendations. Legislation clearly defines the rules for calling a general meeting and the venue for the same. These obligations must be met so as to ensure it is not possible to successfully launch a challenge against its resolution as being illegal. The topic that is addressed in this paper, i.e. decision-making per rollam, is a potential means of adopting a decision of the supreme body of a limited liability company. It stands as a decision of a general meeting, which is, however, realized outside the general meeting. In other words, a general meeting is not convened in the manner prescribed by law; hence the partners do not meet personally at a specified date and time. A decision making per rollam is therefore a method of decision making when the general meeting does not take place. This means that members of the general meeting comment on the draft of general meeting within the allotted time. Deciding in this way has its advantages and disadvantages. The main advantage is saving the financial resources associated with the meeting. Another advantage is the possibility to participate in the decision making of general meeting in a situation when it would be unable to attend in person. A possible disadvantage is the fact that members of the general meeting have not the possibility of raising direct questions, they expressed only on the draft, whether they agree or disagree. The possibility of decision-making per rollam is not a new legal institute. The Czech legal order had utilised this legal institute at the time of the effectiveness of the Commercial Code. Nevertheless, such legislation contained in the BCA concerning this mode of taking decisions adds particulars and can be said to simplify matters. This is especially true with regard to the fact that comments from partners to a proposed decision of a general meeting might not take the form of a notarial deed, as an officially certified signature shall suffice. Should the company, for this reason, fear a possible misuse of this legal institute, it has the option to explicitly exclude the possibility of decision-making per rollam in its association agreement. Under such circumstances, it would not be possible to practically implement this institute and a general meeting would have to be duly convened in order to arrive at a judgement. A limited liability company also has the option to amend this issue in its association agreement by way of departure from the statutory regulations; for example, by defining specific issues that facilitate making decisions outside of a general meeting. For other matters, it would be necessary to duly convene a general meeting.

A topic for discussion may be the question of whether a company with limited liability may, in its association agreement, tighten provisions concerning the use of this legal institute compared to the legislation. Specifically, this relates to continuing to require the self-expression of a partner pertaining to a proposed decision of a general meeting in the form of a notarial deed. Here it is crucial to determine whether a statutory provision is mandatory or not. Such determination may be a problem in certain cases. Indeed, the issue of determination might represent, due to current Czech amendment to civil and commercial law, a separate topic. The author is of the opinion that it is not a dispositive provision; hence it is not a possible derogation.

An important fact is also the option to file a proposal for annulment of a decision taken outside of a general meeting. The law provides for submission of a proposal for annulment as a subjective period of 3 months from the date the claimant knows or could have known about its adoption. The objective time is set at the length of one year from adoption of such a decision. The expiry of an objective or subjective deadline inhibits the right to submit a proposal for declaration of annulment of the given decision.
The obligation of a limited liability company or a person entitled to convene a general meeting is to announce adoption of a decision per rollam, specifying the date of said adoption to all partners without undue delay from the date of its adoption.

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Differences in Municipal Structure in Czech and Slovak Republic with Emphasis on Delegated Powers

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Abstract

Czech and Slovak Federal Republic on January 1st, 1993 split into the Czech Republic and Slovak Republic. Even though, it can be stated that in the field of public administration, and not only here, the development in both countries shows a number of common features. This fact offers considerable possibilities of comparison and analysis resulting from the determination of the particularities of chosen areas of both independent countries which previously fell under one federal government. This article deals with delegated powers and their performance at the municipal level and in view of the significant scope of this problem it may be useful introduction for subsequent analysis. Structure and applying of delegated powers can also be seen as an important instrument of government policy. On the example of two separated countries, we demonstrate that despite of many benefits which decentralization brings, the scope and the way of performance of transferred competencies remain questioned. The aim of this paper is to outline basic differences in the municipal structure and in performance of delegated powers in both countries and build the foundation for further research in this area.

Keywords: Czech Republic, delegated powers, public administration, Slovak Republic

Introduction

After the fall of communism in 1989, countries of Central and Eastern Europe went through, large-scale reforms in economic, social, political fields as well as in the field of public administration. Neshkova and Kostadinova (2012) defined the situation as follows: "*The transformation of the public sector after 1989 has aimed to consolidation of the democratic processes and to enhancement of the economic development.*" Czech Republic (CR) and Slovak Republic (SR) were established on January, 1st, 1993 partitioning the Czech and Slovak Federal Republic and in context of principle of continuity and reception; both newly formed republics have adopted most of constitutional laws of the former Czech and Slovak Federal Republic in force at the date of dissolution of the federation. Constitution from 1992, inter alia, define the structure of public administration (PA), and divide power into legislative, executive and judiciary in both republics. After the dissolution of Czechoslovakia, the countries began to form in various directions in some areas. The legislative power is represented by bicameral parliament in CR and unicameral parliament in SR. Executive power is represented by president, government and prosecutors in both republics, the difference is in a model of governments (PA). While in CR, there is an integrated model of PA, in case of SR, there is a dual model of PA. Judicial power is represented by systems of courts in both republics.

What countries have in common is called continental public administration system which is based on the bureaucratic model of functioning of the administration with close links to legislation. Public administration produces public services and meets social needs in the public interest. Administrative activities are mainly financed from the public budgets and manage public property. Current public administration system is built by two main subsystems: state administration and self-government. Both are represented by two tiers; however, they differ since state administration in CR is represented by central tier and regional one and in SR the state administration is built on central level and district one. Self-government administration in SR and CR has formally the same 2 tier structure – regional self-government and local self-government; however the subordination toward the state administration is in the compared states different. CR is divided into 14 regions in which operate regional offices and approximately 6,250 municipalities with local and municipal authorities, or in the case of statutory towns it is co-called "magistrate" which is municipal authority with particular status. SR is divided into 8 regions and 2,891 municipalities. 2 towns (Bratislava, as the capital city

according to Act No 377/1990 Coll., as amended and Košice according to Act No 401/1990 Coll., as amended) have particular status as well. Among the self-governing organization in CR and SR can also be included interest and professional associations, as well as universities. Both subsystems represent essential elements in implementation of government policy and regulation. CR as well as the SR is unitary and democratic state having the rule of law, electoral system, state symbols and national symbols. SR and CR are members of European Union, Visegrad Group, United Nations, NATO and other international organizations. Given the aim of this paper, in next sections we will further pursue the local self-government in both countries.

1 Statement of a problem

1.1 Local Government in the Czech Republic

Local government is ruled and controlled by specific authorities distinct from the state. Apart from professional and interest chambers, in the self-government in CR is represented by municipal and regional system (local self-government). In 2000 - 2003 local governments underwent major reforming processes related to decentralization and abolishment of state regional authorities, which represented devolved state government. Local government currently performs, beyond its agenda, certain tasks in delegated powers. Its position is enshrined in the seventh head of the Czech Constitution and specified by the following laws: Act No.128 / 2000 Coll., on municipalities (Municipal Establishment), as amended, Act No.129 / 2000 Coll., on regions (Regional Government), as amended, Act.131 / 2000 Coll., on the City of Prague, as amended. Municipality is defined as a basic self-governing territory and public corporation disposing of its own property, rights and responsibilities. Municipalities act within their original and delegated powers. An example of autonomous powers may be issuing generally binding regulations, area of security, culture, public policy, management of municipality, cooperation between municipalities, imposing fines. Performance of delegated powers is partly subsidized by a contribution from the state budget and it is governed by laws and regulations. Basic municipal bodies are the council, mayor and municipal authority (office), having their own characteristics, according to the type of municipality. System of self – governed regions was restored in 2000. In every region there has been established a regional office, which was delegated the performance of transferred state administration, but also the performance of the regional self-government. As a part of transfer to regional system, there was a need to implement new legislation on municipalities, regions, local elections, finances and other standards related to renewal of regions. Regions in CR have different populations and different economic power. According to the Law on Regions, the region is publicly managed autonomous community of citizens, which performs original and delegated powers.

1.2 Local Government in the Slovak Republic

The self-administration in Slovakia is represented by two tiers – local and regional. Local self-government is composed of differently sized municipalities (from 8 to over a half million of citizens). Each municipality is according to the Act No 369/1990 Coll. on municipal establishment, as amended, defined as an independent self-governing and administrative unit of SR, associating the citizens having permanent residence at the municipal territory. Municipality is a legal entity, which in accordance with certain acts, has a right to independently dispose of own assets and own incomes. The second tier of the self-governance – regional level of self-administration, was created in 2001, by adopting the Act 302/2001 Coll. on the self-government of the Higher Territorial Units, as amended. The decentralization process, in the condition of Slovakia started in 1999-2000 by adoption of 2 strategic documents (Strategy of the Reform of PA (1999), Conception of Decentralization and modernization of the PA (2000)), however the real transfer of competences started with the validity from 2002-2004 – it means that the municipalities perform their competences within original or transferred scope. Each municipality, at the own territory issues generally binding regulations (GBR), depending on the scope. In the frame of original competences, the municipality can issue the GBR according to their needs. In the frame of transferred competences, the municipality can issue the GBR only if certain act allows so. The original competences are funded by the municipalities' incomes (own incomes + share on taxes) and the transferred competences are funded by the state's subsidies.

According to above mentioned act on municipal establishment, the municipalities' authorities are municipal council and mayor. The council can establish other permanent or temporary committees.

1.3 Government Policy and Decentralization, Deconcentration

Among the concepts having close connection with this paper belong decentralization and deconcentration. It should also be noted that the level of centralization / decentralization and deconcentration / concentration is closely connected with the political system and can be considered as an important instrument of political regulation. Therefore we consider very important to clarify these terms since the literature recognizes different understandings. As stated by Zan Oplotnik (2013), decentralization does not feature any common consensus of how to standardize the different systems of decentralization of individual countries. According to Nižňanský, Hamalová (2014) decentralization can be realized by several ways: as a transfer of powers to local self-government, as a deconcentration of tasks, transfer of responsibilities to non-state agencies and privatization, which is being applied at all the three levels (central, regional, local). In the case of decentralization it is the delegation of powers and responsibilities from central government authorities to local self - governed authorities. Deconcentration takes place within the hierarchy of state government, where there is also a delegation of authority and responsibility but only in the hierarchy of state' government offices. The forms of public administration are connected (or dependent) on political organization of the state. In case of some forms of dictatorship or totalitarianism, public power is concentrated in hands of one individual or group and is centralized. If it is a democratic state arrangement, it is possible to talk about the decentralized public authority in state. As concludes the author Oates, (2005) if both, decentralization and centralization are performed accordingly, it brings the required outcomes: *"Centralization allows a greater coordination of policies (i.e., the internalization of interjurisdictional externalities), but decentralized decision-making promotes accountability"*. In the conditions of Slovakia, the authors, dealing with the decentralization are mainly Nižňanský, Žárska, Tichý (Kozovský), Klimovský, Papcunová. In a research study by Tichý (2005), decentralization is understood as a need resulting from the changed conditions of economic system, although many of the European countries have introduced the redefining of the tasks and methods towards more efficient performance of PA. In the case of EU new member countries, the need to decentralize resulted also from the pre-accession requirements and from adopting ion of the EU Charter of PA in 1999:*"local self-government denotes the right and the ability of local authorities, within the limits of the law, to regulate and manage a substantial share of public affairs under their own responsibilities and in the interests of the local population"*. The impact of decentralization has been discussed by many domestic and international authors. Authors Smith, H.J. and Keith D.R. (2016) see the success of decentralization as highly dependent on the "vagaries of local leadership". At the international conference known as "Global forum on local self-government", was in 1998 adopted definition: *„decentralization is a process, which helps to improve the governing in the state by allowing the decision-making to be closer to the once touched.* Číž (1998) mentioned that *"process of decentralization represents creation of opened self-government, acting transparently, responsibly and in cooperation with the civil society*". The decentralization contributes to optimization of the differentiated demand due to capability to adapt to local requirements more flexibly, however the implementation of decentralization itself must be realized in regard to each state's individual conditions.

2 Methods

This paper analyses the impact of decentralization process on the performance of the transferred competences in Czech and Slovak Republic and points out main ways in which both governments set up this field. This paper also brings a base for the further research. In the paper, we use initial statistical data of domestic statistical databases (Statistical office of CR and SR). The initial data were further processed and filtered in excel program, using the basic excel functions (filtering, summing, selecting, commanding). The methods of induction and deduction are used especially when drawing the conclusions. The method of description contributes to picturing of the current statement of the solving problematic. The paper uses also methods of comparison of the governments of the two states and method of analysis of the performance of the transferred competences in regard to the legislation. The research sample covers identified transferred competencies and their performance by local levels

in both states. A closer focus is devoted to the competence "construction order", which practical implementation and effective performance by local levels is questioned. This statement is demonstrated by picturing spatial dispersion of municipalities associated into the Joint municipal offices using the method of Geographic Information Systems (GIS).

3 Problem Solving

CR, as well as SR, struggles with high level of fragmentation of local structures. The general finding that "expenses per one citizen decrease with the increasing size of municipality1" is also proved by Governmental Office of the SR in the research study: Strategy of the Reform of Public Administration in Slovak Republic (1999). The following table demonstrates and compares the level of fragmentation in CR and SR.

Table 1: Overview of the structure of municipalities in SR and CR according to the number of citizens

	SR in 2014				CR in 2014			
	No. of Municipalities	In %	Cumulatively in %	No. of citizens in %	No. of Municipalities	In %	Cumulatively in %	No. of citizens in %
Up to 199	385	13,32	13,32	0,9	1455	23,29	23,29	1,72
200-999	1516	52,44	65,76	14,5	3370	53,94	77,23	15,33
1 000 - 1999	575	19,89	85,65	14,9	745	11,92	89,15	9,86
2 000-4999	280	9,7	95,33	15,38	412	6,59	95,74	11,88
5000 – 19999	96	3,32	98,65	15,1	208	3,32	99,06	18,14
20 000 – 99999	37	1,28	99,93	16,9	58	0,93	99,99	22,31
Over 100 000	2	0,07	100,00	22,32	5	0,08	100	20,76
In total	2891				6253			

Source: own calculations based on Statistical offices of the SR and CR, 2015

The table above demonstrates the situation with fragmentation of local structures in the both republics. In general the situation is very similar. However we can conclude that a little worst situation is in Czech Republic, where there is a larger share of small municipalities with less than 1 000 inhabitants. From the point of view of the character of population stricter, the situation is also similar. As states JÜPTNER (2006), in the municipalities with up to 1 000 inhabitants live 17% of the Czech population. In Slovakia, in such small municipalities live 15,6% of Slovak population.

3.1 Delegated Powers at Municipal Level in CR

Delegated powers are ruled by municipalities (municipal office or by special authorities) in the name of state and the most important body of the municipality council cannot, in most cases interfere. Municipal council or its commission may, within the delegated powers exercise under specific conditions, a small amount of activity. Into the field of delegated powers thus falls what is defined by law as a state administration entrusted to municipalities. This article deals with delegated powers on municipal level, Koudelka (2007) divides in the case of CR on this basis municipalities to:

[1] Economy of scale

- All municipalities in CR

All municipalities in CR are entitled to perform delegated powers at basic level. Municipalities are referred to as First Level Delegated Powers Municipalities

- Municipalities with the Registry Office

In addition to the basic delegated powers, municipalities' also perform registry agenda.

- Municipalities with the Building Office

- Municipalities with Authorized Municipal Office

These are municipalities that perform agenda connected with Registry and Building Office with associating agenda. These municipalities are called Second Level Delegated Powers Municipality.

- Municipalities with Extended Powers

These, are also municipalities with authorized municipal office and they are referred to as Third Level Delegated Powers Municipality. Always it is a statutory town and selected districts in Prague.

- Statutory City

It is a city with a special status. For example, these cities can divide their territory into the districts. Statutory city, unlike other cities, must elaborate its energy concept under delegated powers.

- City of Brno with special delegated powers

- Prague with the powers as a region

The Ministry of Interior of the CR and the Statistical Office of the CR include among the municipalities with a higher level of delegated powers those - with portals of Czech POINT (about 5 700 municipalities) conducting vidimus and legalization (about 3 900).

Transferred powers are therefore delegated in basic range to all municipalities, while the Ministry of Interior of the Czech Republic in a document from 2012 called Analysis of the performance of the state administration in municipalities with a basic extent of delegated powers (with configuration) raises some doubts regarding the performance of delegated powers for small municipalities. *"Dispersal of delegated powers to the large number of local authorities undoubtedly increases the costs of the performance of that competence, since it is not possible to use the respective skilled professionals for higher number of cases, or will need to resign this specialization, which leads to the problem of ensuring professional performance competencies listed above".* In case of autonomous powers it is generally appropriate for decision-making process to be as close to the citizen as possible. The question is, if negative phenomena is disregarded (corruption, personal interests), how effective is decision-making process in case of specific agendas associated with delegated powers, which is usually carried out by specialized personnel. The above mentioned Analysis of performance of state administration generalises the benefits of bigger communities: *"Generally speaking in terms of personnel and institutional assurance of delegated powers is being applied that the bigger is the community, the cheaper are the costs for performing of specialized management agenda (economies of scale). This also requires higher specialization of individual officers for different agenda and better performance of delegated powers."*

3.2 Delegated Powers at Municipal Level in SR

The legislation governs, that the municipalities in Slovakia are obliged to perform the transferred competencies only in regard to 2 conditions:

- The competence was transferred by law
- The performance of the transferred competence is reimbursed by the state

The competencies were transferred gradually to municipalities from 1.1.2002-1.4.2013 in the following fields: General internal administration (Registry offices), Environment (Landscape

protection), Regional development and tourism, Social aid, Education, Transportation, Health, Territorial decisions and Construction order.

In this article we would like to stress out that despite the similar level of fragmentation between the Czech Republic and Slovak Republic, and other similar features and conditions for decentralization, the process was implemented in the states differently. The weakness of decentralization of competencies in Slovakia is the lack of size categorization of municipalities, when over 400 competences were transferred to every municipality *en bloc* with no reference to their size.

4 Discussion

The way the government delegates competencies to lower levels of public administration is important act of government policy. Following table compares the share of municipalities performing the given competencies in size categories in CR. The situation is compared with the Slovak republic which absences the size categorization and supplements it with intermunicipal cooperation by establishment of Joint Municipal Offices (JMO). These JMO are established upon agreement and are not anyhow governed by law.

Table 2: Share of municipalities according to Czech size categorisation

	CR **Municipalities in %**	**SR** **Municipalities in %**	
Municipalities with the Registry Office	19,7%	36,25%	Given by act No 416/2001 Coll.
Building Office	9,9%	15,6%	198 JMO 253 individual municipalities
Municipalities with Authorized Municipal Office	6,21%	11,1%	173 JMO 147 individual municipalities
Municipalities with Extended Powers	3,3%	100%	Not specified in SR

Source: own processing based on Koudelka (2007) and SO SR, 2015

The table above divides the municipalities according to Koudelka´s (2007) division and points out the differences in share of municipalities performing the given competencies. Since such a division absences in SR, the shares were calculated from the accessible data. The table demonstrates that the share of municipalities in Slovak Republic is in all the categories higher. As mentioned above, all the municipalities in Slovakia are equal – in order to be able to perform the given competencies, some of the municipalities associate into the JMO, mainly in the field of construction order performance. Only in the case of registry office; the Slovak legislation empowers concrete municipalities responsible for the performance of the competence. In contrary, the Czech legislation, during the decentralization process, introduced the size categorization by two acts: Act No 313/2002 Coll., on municipal order, as amended and Act No 314/2002 Coll. on the appointment of municipalities with a delegated municipal office and on the appointment of municipalities with extended competence. The fact that the legislation appoints concrete statutory cities (Act No 128/2000 Coll., on Municipalities (the Municipal Order), as amended by Act No 273/2001 Coll., Act No 320/2001 Coll., Act No 450/2001 Coll., Act No 311/2002 Coll., and Act No 313/2002 Coll.) and municipalities with authorized municipal office and municipalities with extended powers (Act No 314/2002 Coll. on the appointment of municipalities with a delegated municipal office and on the appointment of municipalities with extended competence, as amended) prevents the small municipalities from inefficient performance of “money consuming” competence (e.g. building order – requires skilled

and educated employee). In the Slovak republic, according to the Constitution and Act No 369/1990 on municipal establishment, the municipalities shall finance its own needs only (par. 7) and not the needs of the state. In this case, since the state's subsidies for the performance of the transferred competencies are not sufficient, the municipalities breach the law by using own sources to finance the state's competencies. This statement proves Nižňanský and Hamalová (2014) in their study: the difference among the incomes and expenditures for execution of the transferred tasks was negative in 5 out of 6 areas: citizens' registry – 38,6%, specialized construction office – 32,5%, building order – 30,8%, environment – 56,2%, regional education – 10%, the only surplus was in the area of Registry Office + 6,7%. The most common possibility the municipalities use, in order to decrease their costs for the performance and in order to avoid the enormous spending for the performance of transferred (sometimes even original) competencies are the mentioned JMO's associations. Despite, the possibility to associate is governed by the Act on Municipal establishment, it is voluntarily based and municipalities associate only in the most costly competencies (construction order, education) due to their fear of loss of their autonomy and power or possible amalgamation in the future. From the mentioned results that the initiative has to come from the government and as stated by Marišová et all. (2013), in connection with the Europe 2020 strategy, it is necessary to continue in the reforming process at the local level. The voluntary principle causes that the large municipalities which should provide "supporting" function to small municipalities have no will to associate since they are able to perform the competencies on their own. In the following part of this article, we demonstrate the effects which result from the voluntary based option to associate into the JMO. We are mapping the comparison of two regions (higher territorial units): Nitra region and Prešov region. In the case of Prešov higher territorial unit it is almost 50% of the district towns, which do not associate in performance of the construction order. In case of Nitra region, it is only 15% of district towns.
The comparison is provided on the following maps:

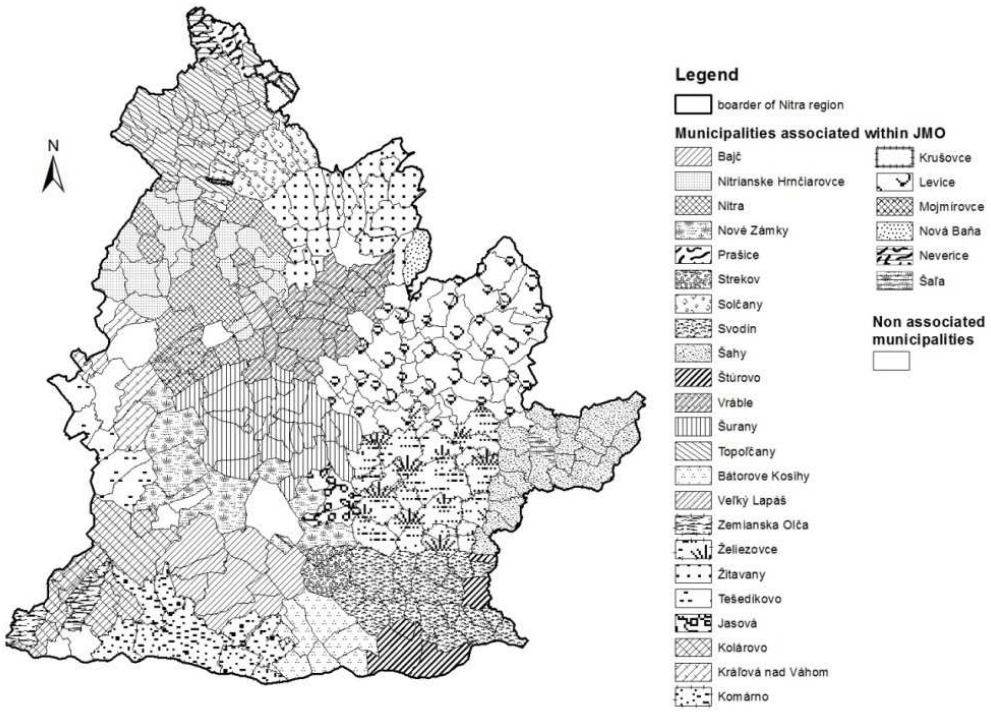

Figure 1: Municipalities, associated within the Nitra region into the joint municipal office in the field of construction order

Source: *own processing*

The only district town, within the Nitra region which has not associated is the town Zlaté Moravce. The district town was the seat of the common office until 2013, but the associated municipalities have

created the office in the nearby village Žitavany (2km from Zlaté Moravce), since the performance of the construction order by district town was for the municipalities too expensive.

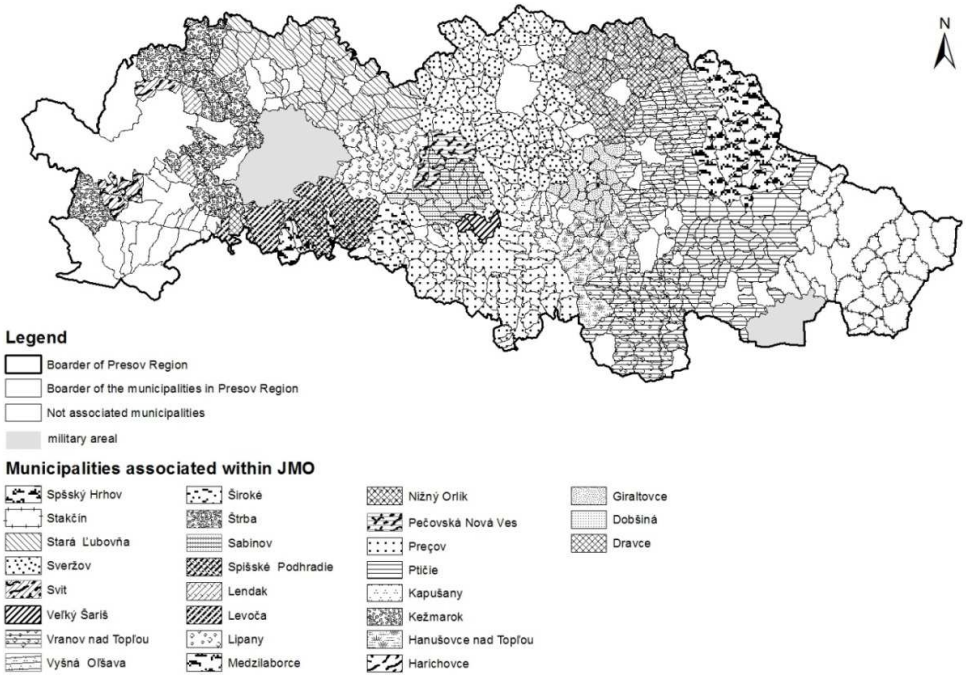

Figure 2: Municipalities, associated within the Prešov region into the joint municipal office in the field of construction order

Source: *own processing*

The municipalities in Prešov region, are mainly associated within the district. The number of members of joint JMOs is various, e.g. in Poprad, there have associated 9 municipalities into two JMOs, in Prešov there have associated 95 municipalities into 5 JMOs. In comparison to Nitra region, the only district town which is not associated is Zlaté Moravce, in case of Prešov region it is 6 out of 13 district towns: Bardejov, Humenné, Poprad, Snina, Stropkov, Svidník – which do not associate. Some of the district towns, such as Bardejov, Humenné, Snina a Stropkov, rent their premises to associated municipalities (JMO Sveržov, Ptičie, Stakčín, Vyšná Oľšava) what means additional costs for rent. On the other hand, the small municipalities associate or sometimes are forced to associate in a not efficient way as demonstrated on the following picture:

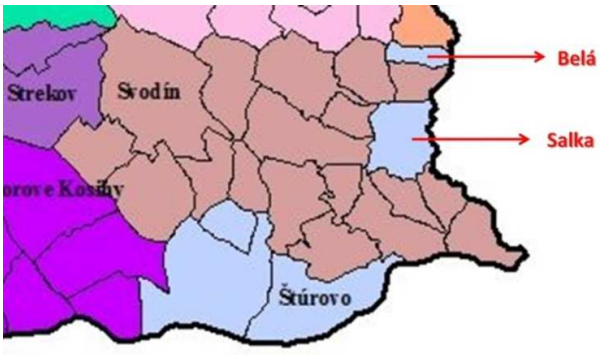

Figure. 3: Example of inefficient associations, JMO Štúrovo

Source: Gresova (2014), 2015

In fact, some of the municipalities associated into the JMO Štúrovo (Belá and Salka), must overcome unreasonable distances in order to submit the building agenda. Therefore, we see a need to unify the situation and possibly to motivate with example of the situation from Czech Republic conditioned by deeper research.

Conclusion

Main aim of this paper is to point out the approach of the Governments of the Czech and Slovak Republic to the issue of performance of transferred competencies and make the introduction to further research in this area. Decentralization of competences from state to municipalities and higher territorial units was in the both republics realized at the same time (2000-2004). While in SR, the execution of all the transferred competencies is left upon the decision of the municipalities, in CR, during the decentralization were the municipalities categorized, since it was clear from the beginning that some of the competencies, such as construction order, require competent and skilled employees which not every municipality, especially small ones, can afford. The Act No 314/2002 Coll. on the appointment of municipalities with a delegated municipal office and on the appointment of municipalities with extended competence explicitly points out the municipalities in Czech Republic, which are delegated to perform certain competencies (including construction order). Such legislative governance ensures all the small municipalities to have equal access the competence and facilitates the performance since it requires highly educated and skilled professional. At the same time, the probability that the performance will be more professional is much higher (at the offices, where more people are employed, there is also possible a specialization of persons in certain area). It is possible to say that currently in CR is being opened discussion about how and to what extent the performance of delegated powers is effective in case of smaller municipalities. Unfortunately, in the case of Slovakia, the option of simplifying the performance of transferred competences in the sense of intermunicipal cooperation - to associate into the Joint Municipal Offices - is voluntary and municipalities often associate in ineffective and inefficient way. Therefore, it is recommended to continue in the reforming process in both states. It could be considered as very beneficial to motivate with example from CR and to possibly modify the option of division of the municipalities into categories differentiating in the performance of the individual competencies.

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Multicriteria Evaluation of Gifted Students

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Abstract

The article deals with the multi-criteria evaluation of gifted students. Students were evaluated with nine criteria: level of learning quality, logic thinking, creativity in spoken and written expressions, broad vocabulary application, text comprehension, knowledge of school subject, reading, speaking, activity and motivation. The research problem is how to evaluate these multicriteria into one final outcome. The fuzzy logic was used for evaluation of gifted students. The advantage of fuzzy logic comes from using of vague variables and settings of weights of importance in used evaluation process.

Keywords *gifted student, evaluation of gifted students, fuzzy logic*

Introduction

The giftedness is described as an individual's ability, which is quantitatively and qualitatively more developed in comparison with their peers, in a specific area valued by the socio-cultural environment (Heward 2013). According to Porter (Porter 1999), these definitions may acquire more concrete form in connection with their conception. It may be either liberal vs. conservative conception (estimates of the amount of the gifted in the population differ), mono - vs. multidimensional (according to the amount of the criteria for the giftedness identification), the definition of potential vs. manifested performance. Our conception of giftedness and it is conceived in the sense of a high ability in the intellect area. The gifted students are those with different cognitive, affective and social characteristics. For example they understand curriculum easily and smartly; use abstract thinking during learning; are self-pacing in solving assignments; have huge knowledge in area of their interest; tend to inductive learning and solving problem; tend to structuring of solving problem and tend to polemic and disagreement; they are active and motivated. Gifted students belong to specific group of students which have also the special educational needs (Heward 2013). For the purpose of respecting these specific educational needs of gifted students, it is usually recommended to modify educational curriculum in its content, process, product, environment and evaluation (Riley, 2011).

In this article we focus on evaluation of gifted students during education. These individuals (as every student) must be evaluated continuously and regularly. This approach helps teachers to orientate themselves in the accuracy of educational goals for gifted students. If the student shows deterioration at school, it´s a sign that something (support of school, family, or individual factors) is wrong in his life. (Callahan 2004)

The gifted student must be evaluated in the context of the sign of his giftedness. The research problem is how to evaluate these criteria into one final outcome. The process of gifted student evaluation must be one of the most important parts of growing up gifted individuals because the outcome is inclusion into the special broad educational program in a form of special school for gifted students or another enriching curriculum. The process of evaluation must be an elaborate system of each school or institution in which they are addressed organizational, conceptual, and ethical and also the methodological issues in which we focus.

Related works and suggestion of solution of problems

During the evaluation process of gifted students a lot of criteria of giftedness are taken into account (Callahan 2004). For example we can evaluate their level of learning quality, logic thinking, creativity in spoken and written expressions, broad vocabulary application, text comprehension, knowledge of school subject, reading, speaking, activity, motivation, etc. These criteria are very different and vague and we need one final outcome.
During evaluation of partial outputs (criteria) the broad model is suggested (Renzulli and Reis 2004). In the broad model the gifted individual must fulfil all or the most of evaluation criteria, so the methodological problem is how to combine these results.

In praxis and theory (Callahan and Renzulli 2012) is application of the additive model registered. In this model the partial outcomes are easily added for each individual in evaluation process. These outputs in a form of some total points are compared. The advantage of additive model is quite easy evaluation, where we add each point together. On the other hand we add the criteria with different conditions and relevance (for example logical thinking and motivation), moreover the results from each different criteria could be inappropriately compensate and give mistaken results of evaluation process.

Hunsaker (Hunsaker 2012) notes, that different evaluation criteria cannot be added linearity. He suggests addition of selected criteria which plays key role for evaluation of gifted students and other less important criteria which are used tentatively. To eliminate these disadvantages we suggest combining each result by using the fuzzy logic. The method allows to clear evaluation of larger number of data without compensation of variables. Its advantage comes from using of vague variables and in used evaluation method.

We found that there were no application of the fuzzy logic during evaluation process of gifted individuals according to analyze of available article database (EBSCO, XERXES and Proquest). There are no articles worldwide concerning evaluation of gifted student via computer aided processing. The buildup model enables evaluation of many students from databases and makes the evaluation objective and unified. The fuzzy logic outperformed evaluation process of gifted people by other methods mentioned in (Callahan and Renzulli 2012; Renzulli and Reis 2004; Hunsaker 2012) from this point of view.

Fuzzy logic

A fuzzy set A is defined as (U, μ_A), where U is the relevant universal set and μ_A: $U \rightarrow$ □0,1□ is a membership function, which assigns each element from U to fuzzy set A. The membership of the element x□U of a fuzzy set A is indicated $\mu_A(x)$. We call $F(U)$ the set of all fuzzy set. Then the "classical" set A is the fuzzy set where: μ_A: $U \rightarrow \{0, 1\}$. Thus x□A □ $\mu_A(x) = 0$ and x □□A □□$\mu_A(x) = 1$. Let U_i, $i = 1, 2, ..., n$, be universals. Then the fuzzy relation R on $U = U_1$ □□U_2 □□... □ U_n is a fuzzy set R on the universal U. The fuzzy logic theory is described in many books such as (Zadeh 1965; Zadeh 2012). The fuzzy application in non-technical field is described in (Dostál 2011; Dostál 2014), but no book in a pedagogical field.

The fuzzy logic system consists of three fundamental steps: fuzzification, fuzzy inference, and defuzzification. See Fig 1.

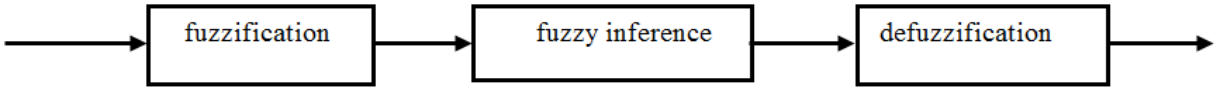

Fig 1. Decision making solved by means of fuzzy logic

Case study

The case study represents process of evaluation of students in the school subject from school classes.

Table 1: Criteria of evaluation (specific)

Criterion:	Input	Weight
1. Learning quality	LQ	(0.0 – 1.0)
2. Logical thinking	LT	(0.0 – 1.0)
3. Creativity in spoken and written expressions	CSWE	(0.0 – 1.0)
4. Broad vocabulary application	BVA	(0.0 – 1.0)
5. Text comprehension	TC	(0.0 – 1.0)
6. Knowledge of school subject	KS	(0.0 – 1.0)
7. Reading	R	(0.0 – 0.3)
8. Speaking	S	(0.0 – 0.3)
9. Activity and motivation	AM	(0.0 – 0.3)

We used the nine criteria (learning quality, logical thinking, creativity in spoken and written expressions, broad vocabulary application, text comprehension, knowledge of school subject, reading, speaking, activity and motivation) which has 5 levels (normalized scale A=1.0-0.8, B=0.8-0.6, C= 0.6-0.4, D=0.4.0-0.2, E=0.2-0.0), where A is extraordinary level and E is inadequate level. The individual weights of variables were set up by the experts on gifted students' evaluation. See Table 1.

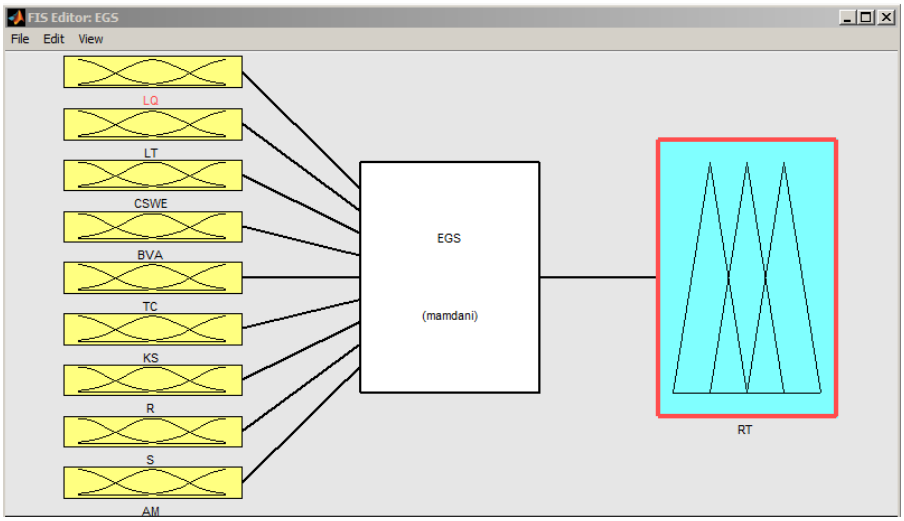

Fig 2. EGS Model

The application of evaluation of gifted students (EGS model) via fuzzy interface system is a result of deep analyses and it has nine inputs Learning quality (LQ); Logical thinking (LT); Creativity in spoken and written expressions (CSW); Broad vocabulary application (BVA); Text comprehension (TC); Knowledge of subject (KS); Reading (R); Speaking (S); Activity and motivation (AM) are used. See Fig 2. The output Rate of Talent (RT) is used.

The fuzzification, defuzzification and fuzzy inference are represented by following steps: The inputs *I=LQ,LT,CSWE,BVA,TC,KS,R,S,AM* have five attributes very low (vl), low (l), medium (m), high (h) and very high (vh) level. See Table 2 and Fig 3.

Table 2: Range for *I*

Fuzzy I	Variable	Range
I_{VL}	Very low (vl)	0.0-0.2
I_L	Low (l)	0.2-0.4
I_M	Medium (m)	0.4-0.6
I_H	High (h)	0.6-0.8
I_{VH}	Very high (vh)	0.8-1.0

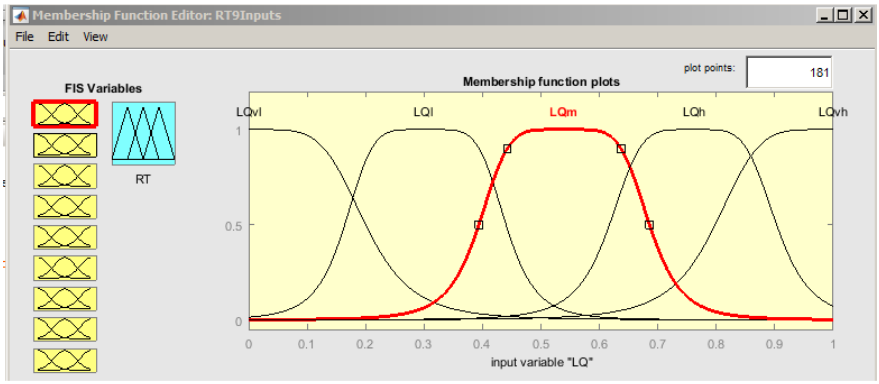

Fig 3. Membership functions for *LQ*

The outputs O=*RT* presents rate of talent it has three attributes low (l), medium (m) and high (h). See Table 3 and Fig 4.

Table 3: Range for *RT*

Fuzzy *RT*	Variable	Range
RT_L	Low (l)	0.00-0.25
RT_M	Medium (m)	0.25-0.70
RT_H	High (h)	0.70-1.00

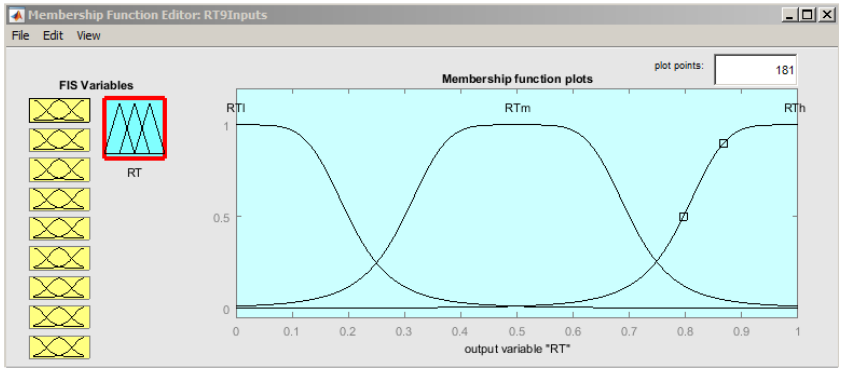

Fig 4. Membership functions for *RT*

The fuzzy inference is represented by set ups of rules such as:
If *LQ*=vl and *LT*=vl and *CSWE*=vl and *BVA*=vl and *TC*=vl and *KS*=vl and *R*=vl and *S*=vl and *AM*=vl then *RT* =vl
If *LQ*= l and *LT*= l *and CSWE*= l and *BVA*= l and TC= l and *KS*= l and *R*= l and *S*= l and *AM*= l then *RT* = l
If *LQ*=m and *LT*=m and *CSWE*=m and *BVA*= m and *TC*=m and *KS*=m and *R*=m and *S*=m and *AM*=m then *RT* =m
If *LQ*= h and *LT*= h and *CSWE*= h and *BVA*= h and *TC*= h and *KS*= h and *R*= h and *S*= h and *AM*= h then *RT* = h
If *LQ*=vh and *LT*=vh and *CSWE*=vh and *BVA*=vh and *TC*=vh and *KS*=vh and *R*=vh and *S*=vh and *AM*=vh then *RT*=vh

And some others. See Fig 5.

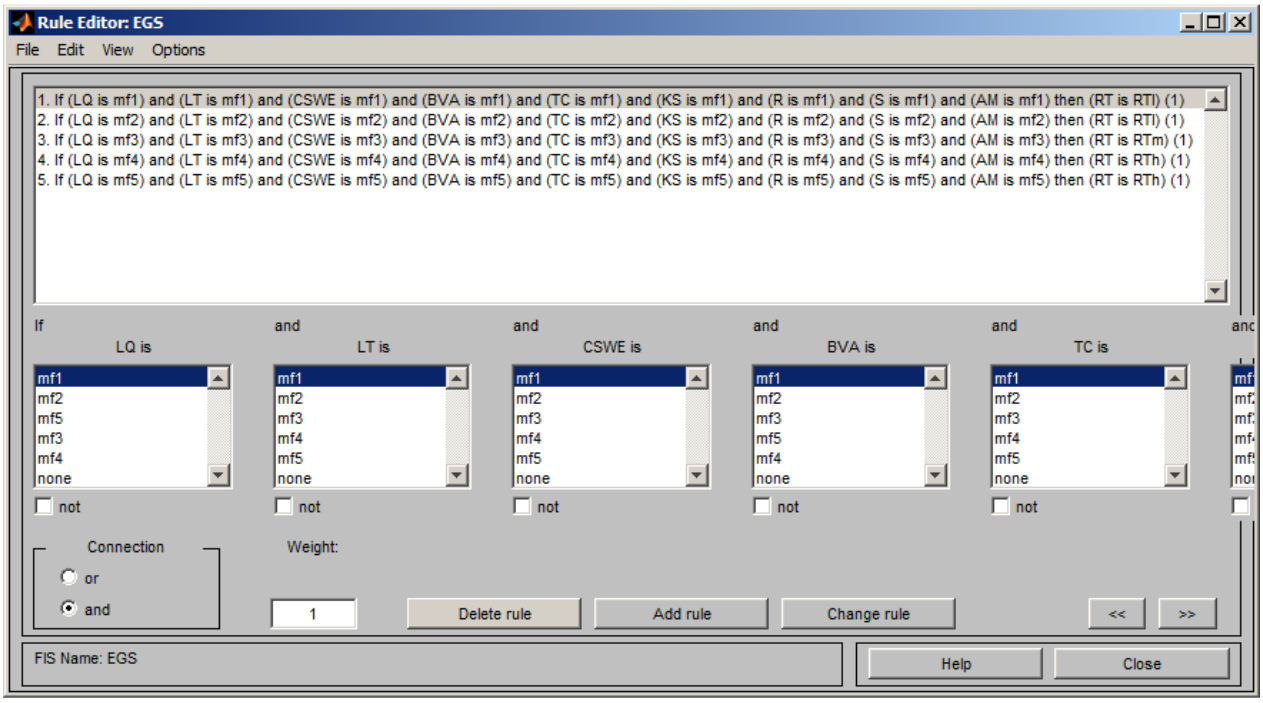

Fig 5. Set up of the rules

The fuzzy model was tuned with the help of MATLAB surface viewer. The rate of talent *RT* is dependent on nine inputs *LQ, LT, CSWE, BVA, TC, KS, R,S, AM*. The dependence of *RT* on *LQ* and *LT* is presented on Fig 6.

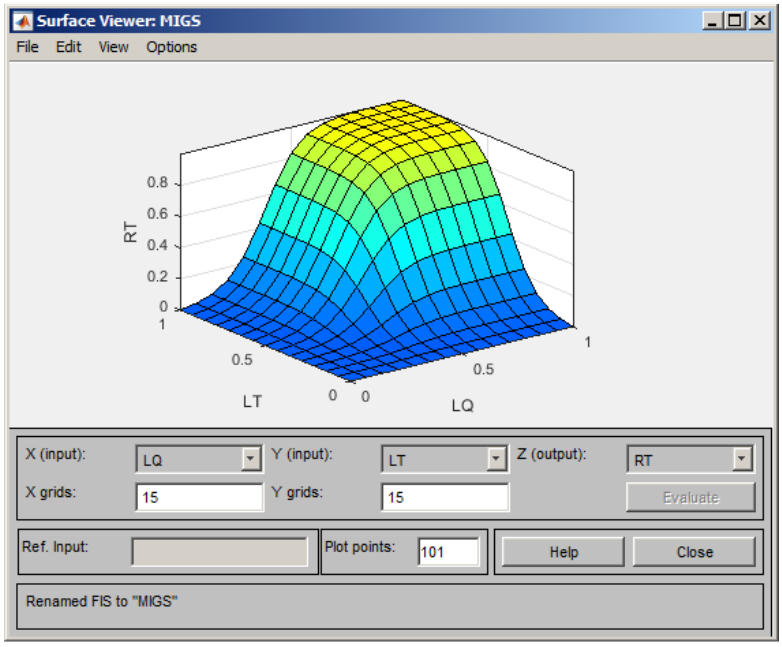

Fig 6. Surface viewer graph

The input values *LQ* = 0.93 (very high), *LT* = 0.92 (very high), *CSWE* = 0.87 (very high), *BVA* = 0.99 (very high), *TC* = 0.88 (very high), *KS* = 0.93 (very high), *R* = 0.94 (very high), *S* = 0.92 (very high),

AM = 0.90 (very high) gives the result *RT* = 0.853, that means that the rate of student is RT=0.853 and it means high gifted student. The inputs and outputs are presented in Fig 7.

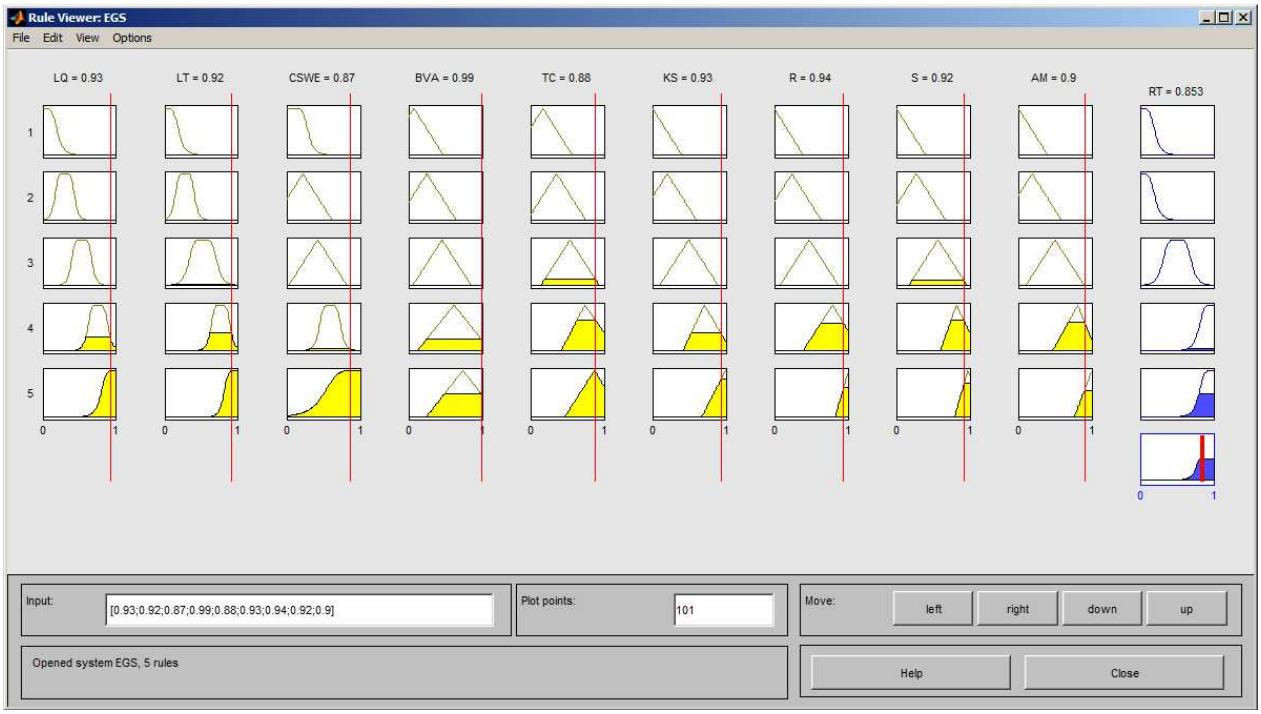

Fig 7. Rules viewer

The students from group with high level of talent demonstrated criteria of giftedness. They have an excellent logical memory; better quality of learning; advanced thought processes; understand abstract concepts better than their peers; see unusual relations and links; show good observation skills; be able to differ even insignificant details; manifest developed vocabulary; have a great knowledge in specific areas of interest.

It was evaluated many students and it results in following proportions: 20% for high, 55% for medium and 25% for low gifted students. The results serves to create the groups of high, medium and low talented student and for their specific education.

Conclusion

In this article we presented the process of evaluation of gifted students in the school subject from ordinary school classes. Students were evaluated with nine criteria: level of learning quality, logic thinking, creativity in spoken and written expressions, broad vocabulary application, text comprehension, knowledge of school subject, reading, speaking, activity and motivation, in which the class teacher evaluated all students in nine criteria, where A was extraordinary level and E inadequate level. We didn´t use "additive model", which is applied in many evaluation process, because of inappropriately compensation of each results of evaluation process.

For evaluating results from nine different criteria we used the fuzzy logic. The method allowed to clear evaluation of larger number of data without compensation of variables. This computing method is very suitable for mentioned purposes and it leads to higher quality of analyses and evaluation of students and educational process themselves.

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Measure of Learning Process Effectiveness at NYIT through the Seven Principles of Good Practice

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Abstract

The Seven Principles of Good Practice have been recognized as a benchmarking tool to set educational standards. This paper measured the learning process effectiveness through the seven principles with different factors into consideration such as gender, age, majors, and level of study at New York Institute of Technology (NYIT), Abu Dhabi. The data was collected through questionnaires. We conducted a total of 61 surveys, 14 of which were discarded as some answers were invalid, resulting with a total of 47 valid responses. Five point Likert scale for evaluating the survey responses. The responses were analyzed using SPSS (Statistical Packages for the Social Sciences) software. Data analysis compared the means for every principle and how they differ between the three fields and levels of study (MBA, BSBA and Interior Design. The findings of the paper are anticipated to provide recommendations for the development of pre-implemented principles at NYIT's Abu Dhabi campus in particular.

Keywords: Education, Abu Dhabi, Learning

Introduction

As technology continues to evolve and advance, it is reshaping the process of learning and education among students. This continuous cycle places emphasis on finding methods that will further assure that efficient and beneficial learning methods are implemented. Chickering & Gamson's (1991) Seven Principles of Good Practice embrace the seven crucial principles that, if fulfilled, greatly enhance the students' learning process. The Seven Principles are described briefly as follows:

- **Good Practice Encourages Student – Instructor Contact**

The ability to have regular student and instructor contact during class time or during office hours is a vital facto that will boost student motivation and participation within the learning environment.

- **Good Practice Encourages Cooperation among Students**

The process of learning is enriched when it includes joint group efforts rather than working on your own. Therefore, this group work will lead to excellent outcomes, as well as increase participation and social skills.

- **Good Practice Encourages Active Learning**

Active learning is extremely important since it enables the students to apply it to their own self. In addition, instead of just sitting, listening and memorizing, they could actually relate it to situations and use it within their everyday life.

- **Good Practice Gives Prompt Feedback**

Giving prompt feedback to students enables them to be aware of how they are performing and gives them a chance to work on what they do not know. This will lead the students to take steps to improve.

- **Good Practice Emphasizes Time on Task**

Learning is not complete unless you give it the proper time it needs. The amount of time spent on a specific task is extremely critical for both the students as well as the professors. Therefore, students should be taught how to manage their time.

- **Good Practice Communicates High Expectations**

Having high expectations is a vital factor to encourage the unprepared student, the reluctant student that is not utilizing their skills and the demotivated as well as the motivated student. Thus, leading to complete outcomes.

- **Good Practice Respects Diverse Talents and Ways of Learning**

As we all know, colleges enjoy a vast range of different students, each having their own style and talent. One student varies from one another within the learning environment, since everybody has their weaknesses and strengths. Therefore, it is important to allow students to express their talents in learning and let them choose what works best for them.

This paper aims to identify which of the seven principles are applied and practiced and which ones are not entirely applied in New York Institute of Technology (NYIT). As predicted, the paper seek to further provide and understand the importance of difference in age, majors, and gender as significant factors to assess the effectiveness of learning process.

Literature Review

The Seven Principles of Good Practice have been utilized by many educational bodies as the basis of their research, including measuring how successful their quality of teaching is, and implementing the principles in order to achieve the desired effective learning process (Taylor, 2002) (Graham, Lim, Craner, Cagiltay, & Duffy, 2001). To start with, according to Bruce M. Bradford (1997), The American Association of Higher Education has a set of educational outcomes that were unachievable. However, through implementing the seven principles, it was able to achieve such set outcomes as the seven principles shifted the instructors' focus on incorporating more active learning that in return encouraged student is to perform better. In addition, Ritter & Lemke (2000) used the principles as a basis to evaluate the level of success of active learning as perceived by the students. Using the principles as evaluating tools was a success as they aided the researchers to identify which principles are favoured by students and delivered by instructors and vice versa. Similarly, Singelis (2006) based his research "*Active Learning in Aging Research"* on the seven principles, in which he was measuring the effectiveness of active learning on students' learning and instructors' teaching. Recent research has been conducted in the American University of Cairo (AUC) to assess the effeciveness of massive open online courses (MOOCs) using the Seven Principles of Good Practice (Bali, 2014). The research was conducted by assessing the degree of which each principle (if any) has been practiced by the MOOCs.

The seven principles are also used as as a framework in a study conducted to analyze how the use of podcasting has an impact on the distance student's learning process (Sallan, Simo, & Fernandez, 2009). The results of the study, based on Chickering & Gamson's (1987) Seven Principles, suggested that podcasting is an effective teaching tool that compliments the typical teaching methods, without replacing them.

Statement of Paper

The scope of our paper is limited to the students currently enrolled in the New York Institute of Technology located in the United Arab Emirates. The students are categorized based on their fields of study, age and gender. In our paper, three fields of study are included: Interior Design, BSBA and MBA. This will enable us to analyze if different fields of study embrace or place emphasis on one principle over the other. Similarly, we will be able to detect whether the field of study, age and gender have a significant impact on the student's responds or not.

Our paper results will be based on a survey that will give answers to the following questions:

- Which of the Seven Principles are highly/least favoured by the students?
- What are the students' perception and agreement on use of principles, with respect to their study fields/levels of study, age and gender?
- What are the areas of weaknesses/strength in the program of study? How can they be improved/sustained?

Methodology

Our questionnaire (See Appendix A) is targeted towards learning what students in New York Institute of Technology - Abu Dhabi, think and feel about the learning process they are receiving. Our study covered all three majors in NYIT Business Management, Interior Design and Master's of Business Administration. We conducted a two part questionnaire consisting of a total of 24 questions. The first part is made up of 4 questions targeted towards the respondants profile. The second part consisting of the remaining 20 questions, is targeted towards the students' learning process. The second part of the questionnaire is distributed between the 7 principles as follows:

Principle 1: 4 questions - 7, 10, 11 and 16
Principle 2: 4 questions - 19, 21 and 22
Principle 3: 4 questions - 12, 13, 14 and 15
Principle 4: 2 questions - 6 and 17
Principle 5: 3 questions - 5, 9 and 18
Principle 6: 2 questions - 8 and 20
Principle 7: 2 questions – 23 and 24

In order to get true results and not having to influence them, we sorted the questions randomly and not by principle. This way when our participants answer the questions, they do it truthfully with no influence from our side.

In our general questions, we asked the respondents 4 questions: Gender, Age Group, Major (Field of study) and Year of Enrollment. We placed most emphasis on the field of study in order to see the different learning environments that our college and faculty provide. In the other 20 questions, we gave the respondents 5 options to choose from. We used a 5-point Likert Scale for evaluating our responses: Strongly Disagree, Disagree, Neutral, Agree and Strongly Agree. One of the objectives of this study is to understand the difference in the students' perception of the Seven Principle of Good Practice to test the following hypotheses:

H1. There is a difference in the perception of students based on the gender.
H2. There is no difference in the perception of students based on different age ranges.
H3. There is a difference in the perception of students based on different fields of study.
H4. There is a difference in the perception of students based on different levels of study.

Data Collection and Analysis

Our data was collected in October 2015, a month after the start of university; in order to have the students already accommodated and any new students would have experienced the university and the advising stage. We conducted a total of 61 surveys, 14 of which we had to discard as some answers were invalid, resulting with a total of 47 valid responses. As our emphasis is placed on the field of study, we tried to diversify our selection of audience and resulted with Business Majors to be 55.3% of our total respondants, MBA to be 23.4% of our total respondants and Interior Design majors to be the remaining 21.3% of our total respondants. Responses were analyzed using SPSS (Statistical Packages for the Social Sciences) software. Data Analysis compared the means for every principle and how they differ between the three fields of study that we have, using a confidence interval of 95%.

Findings

Out of the four variables, we tested three variables with each principle. The variables tested are the gender, the age and the field of study. The age variable is tested three times for each principle since we defined three different age groups. Similarly, the field of study variable is tested two times for each principle - Interior Design with BSBA, and MBA with BSBA. In total, the three variables are tested 35 times. By using the 95% confidence interval method we were able to indicate whether the perception of each principle was different based on each variable.

Table 1: Mean Tests in Terms of Gender

	Mean					
Principle(s)	*Male*	*Female*	*t value*	*Sig*	*95% CI*	
Good Practice Encourages Student /Instructor Contact	4.4872	3.9048	4.56	0	0.33	0.84
Good Practice Encourages Cooperation Among Students	4.2115	3.6667	3.139	0.003	0.2	0.89
Good Practice Encourages Active Learning	4.4423	4.1905	1.853	0.07	-0.22	0.53
Good Practice Gives Prompt Feedback	4.3846	3.6667	3.835	0	0.34	1.1
Good Practice Emphasizes Time on Task	4.375	3.9405	2.585	0.013	0.1	0.7
Good Practice Communicates High Expectations	4.1538	3.6825	2.203	0.033	0.04	0.9
Good Practice Respects Diverse Talents and Ways of Learning	4.4231	4.0714	2.077	0.044	0.011	0.69

Based on Gender, all Seven Principles have shown significant differences except for Principle 3.

Figure 1: Mean Values Based on Gender

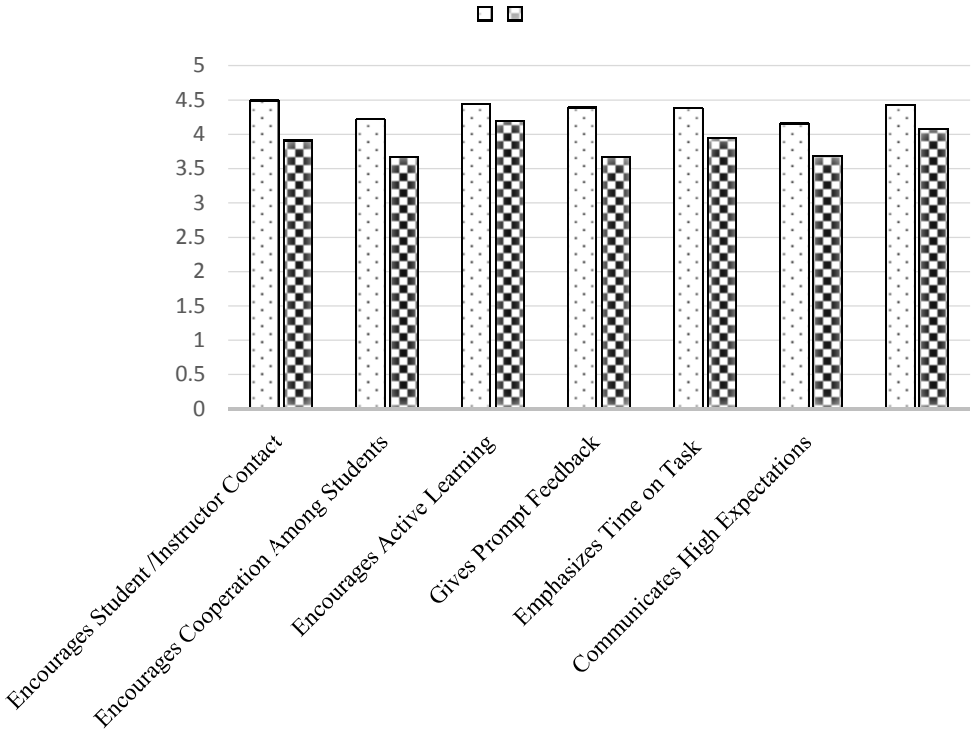


Table 2: Mean Tests in Terms of Age (17-19 & 20-22)

	Mean					
Principle(s)	*17-19*	*20-22*	*t value*	*Sig*	*95% CI*	
Good Practice Encourages Student /Instructor Contact	3.7778	4.303	-2.562	0.018	-0.86	-0.11
Good Practice Encourages Cooperation Among Students	3.4167	4.2273	-3.34	0.003	-0.81	0.12
Good Practice Encourages Active Learning	4.125	4.1818	-0.292	0.773	-0.54	0.14
Good Practice Gives Prompt Feedback	3.4583	4.0455	-1.864	0.076	-1.05	0.06
Good Practice Emphasizes Time on Task	3.8958	4	-0.48	0.636	-0.62	0.21
Good Practice Communicates High Expectations	3.5	3.6667	-0.569	0.575	-0.76	0.34
Good Practice Respects Diverse Talents and Ways of Learning	4	4.1818	-0.7	0.492	-0.61	0.27

Based on Age (17-19 & 20-22), only Principle 1 & has shown significant differences, while all of the remaining Principles have reported no significant mean differences. According to Principle 1, responses range from -0.86 to -0.11, which explains that there are different perceptions surrounding the second principle "Encourages Student/Instructor Contact".

Figure 2: Mean Values Based On Age (17-22)

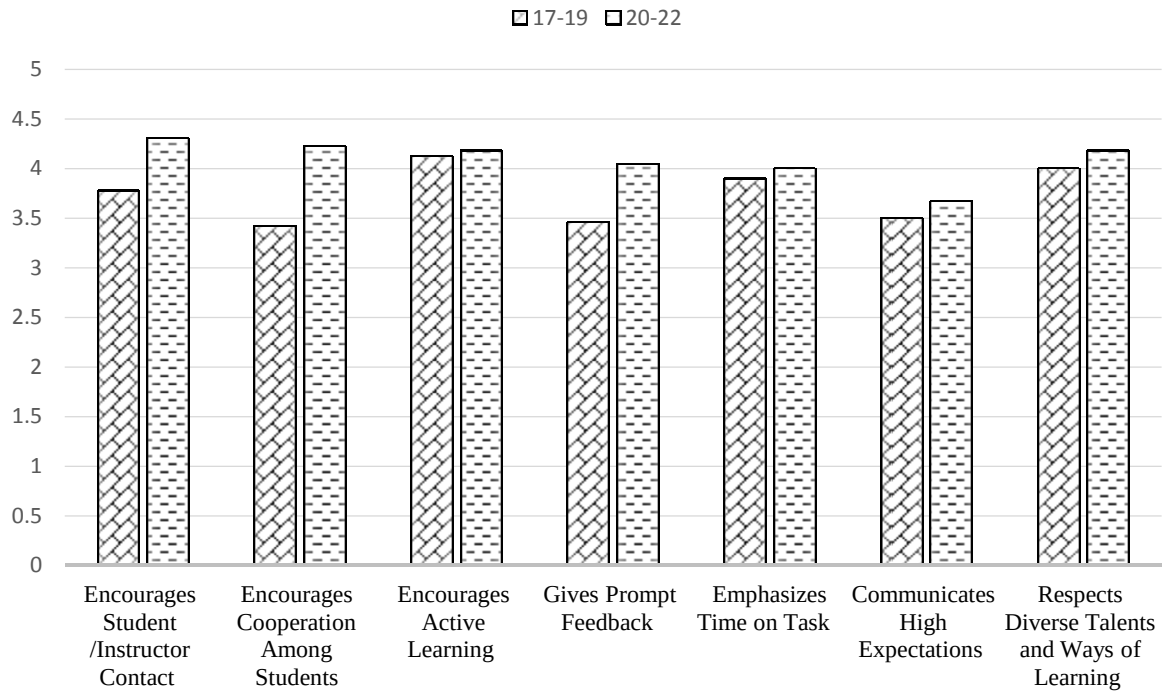


Table 3: Mean Tests in Terms of Age (17-19 & 23-25)

	Mean					
Principle(s)	*17-19*	*23-25*	*t value*	*Sig*	*95% CI*	
Good Practice Encourages Student /Instructor Contact	3.7778	4.303	-2.508	0.02	-0.95	0.099
Good Practice Encourages Cooperation Among Students	3.4167	4.0909	-2.646	0.015	-1.32	-0.31
Good Practice Encourages Active Learning	4.125	4.4545	-1.653	0.113	-0.46	0.35
Good Practice Gives Prompt Feedback	3.4583	4.2727	-2.84	0.01	-1.24	0.068
Good Practice Emphasizes Time on Task	3.8958	4.3864	-2.445	0.023	-0.56	0.35
Good Practice Communicates High Expectations	3.5	4.2424	-2.714	0.013	-0.78	0.44
Good Practice Respects Diverse Talents and Ways of Learning	4	4.3182	-1.308	0.205	-0.72	0.36

Based on Age (17-19 & 23-25), Only Principle 2 has shown significant differences, while all of the remaining Principles have reported no significant mean differences. According to Principle 2, responses range from -1.32 to -0.31, which explains that there are different perceptions surrounding the second principle "Encourage Co-operation among Students".

Figure 3: Mean Values in Terms of Age (17-19 & 23-25)

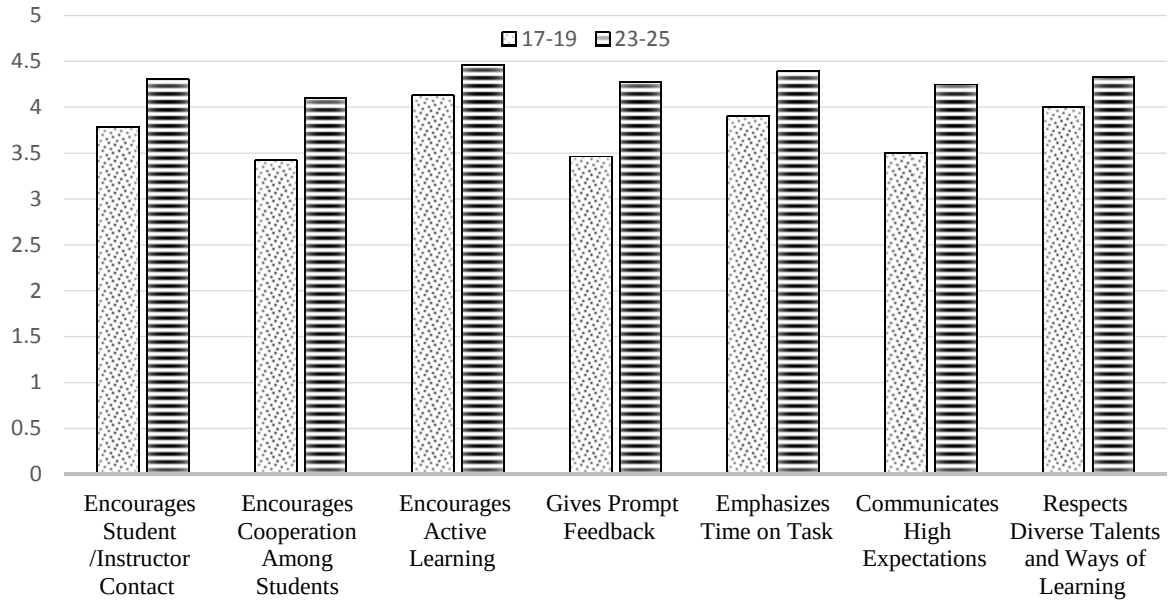


Table 4: Mean Tests in Terms of Age (17-19 & Above 25)

	Mean					
Principle(s)	*17-19*	*Above 25*	*t value*	*Sig*	*95% CI*	
Good Practice Encourages Student /Instructor Contact	3.7778	4.5128	-3.987	0.001	-0.17	0.58
Good Practice Encourages Cooperation Among Students	3.4167	4.1538	-3.101	0.005	-0.027	0.87
Good Practice Encourages Active Learning	4.125	4.5385	-2.293	0.031	-0.021	0.65
Good Practice Gives Prompt Feedback	3.4583	4.4615	-3.808	0.001	-0.21	0.84
Good Practice Emphasizes Time on Task	3.8958	4.4231	-2.272	0.033	0.066	0.95
Good Practice Communicates High Expectations	3.5	4.3333	-3.01	0.006	0.1	1.11
Good Practice Respects Diverse Talents and Ways of Learning	4	4.5385	-2.821	0.01	-0.33	0.61

In this case, based on Age (17-19 & Above 25), Only Principle 5 & Principle 6 have shown significant differences, while all of the remaining Principles have reported no significant mean differences. According to Principle 5, responses range from 0.066 to 0.95, which explains that there are different perceptions surrounding the fifth principle "Emphasizes Task on Time". According to Principle 6, responses range from 0.1 to 1.11, which explains that there are different perceptions surrounding the sixth principle "Communicates High Expectations".

Figure 4: Mean Values Based On Age (17-19 & 25 Above)

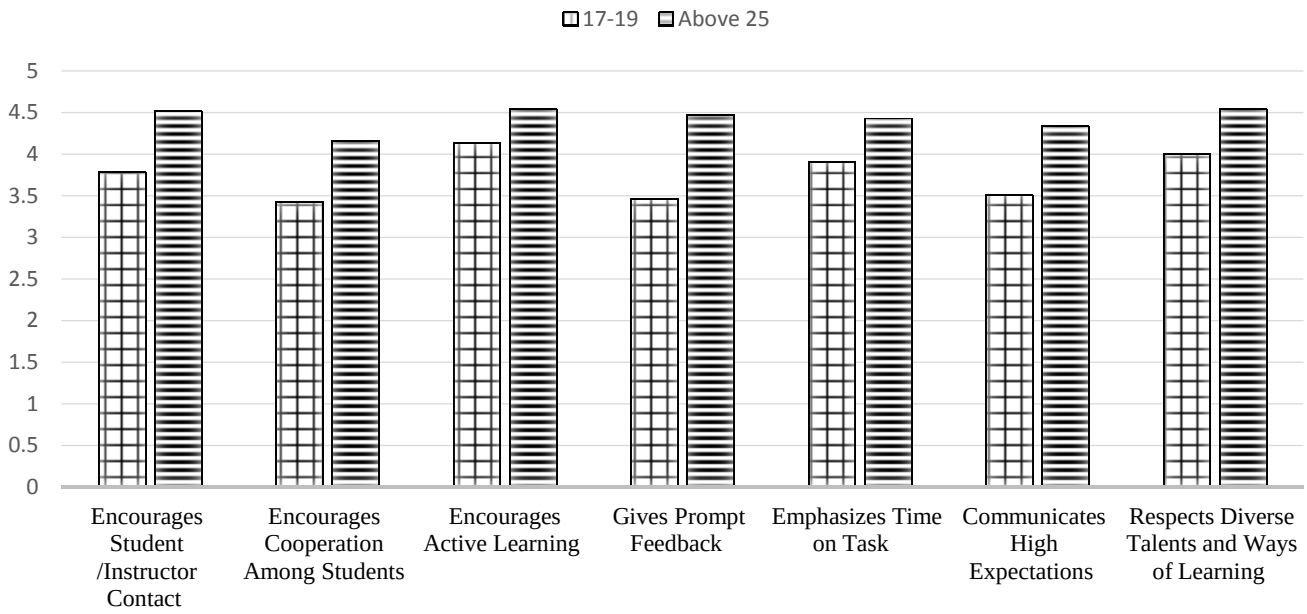


Table 5: Mean Tests in Terms of Major (IND & BSBA)

	Mean					
Principle(s)	*IND*	*BSBA*	*t value*	*Sig*	*95% CI*	
Good Practice Encourages Student /Instructor Contact	3.8	4.2821	-2.603	0.014	-1.1	-0.35
Good Practice Encourages Cooperation Among Students	3.6	3.9423	-1.513	0.139	-1.23	-0.25
Good Practice Encourages Active Learning	4.1	4.2981	-1.181	0.246	-0.79	-0.04
Good Practice Gives Prompt Feedback	3.6	4.0962	-1.812	0.079	-1.55	-0.46
Good Practice Emphasizes Time on Task	3.9	4.1058	-1.017	0.316	-1.01	-0.047
Good Practice Communicates High Expectations	3.6333	3.8462	-0.788	0.436	-1.41	-0.26
Good Practice Respects Diverse Talents and Ways of Learning	4.1	4.2692	-0.781	0.44	-0.93	-0.14

Based on Major (Interior Design & BSBA), ALL Seven Principles have shown significant differences. This further clarifies that perceptions vary significantly from the Interior Design Major to the BSBA Major.

Figure 5: Mean Value Based On Major (IND & BSBA)

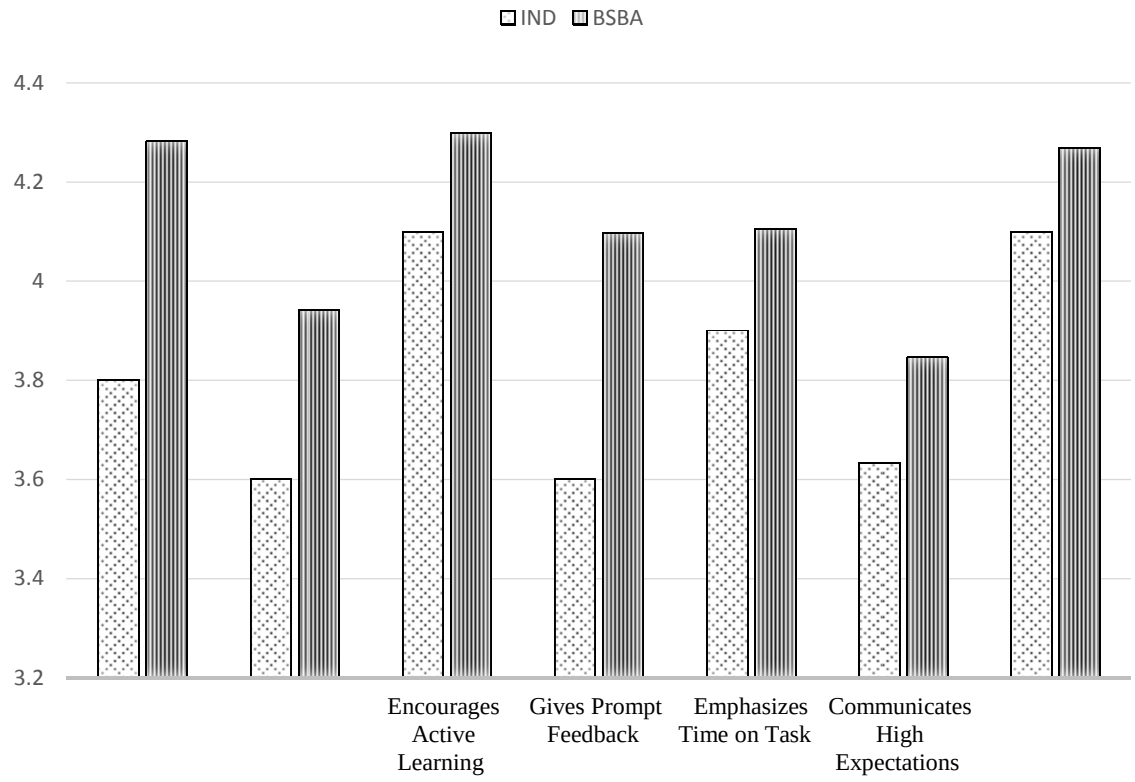
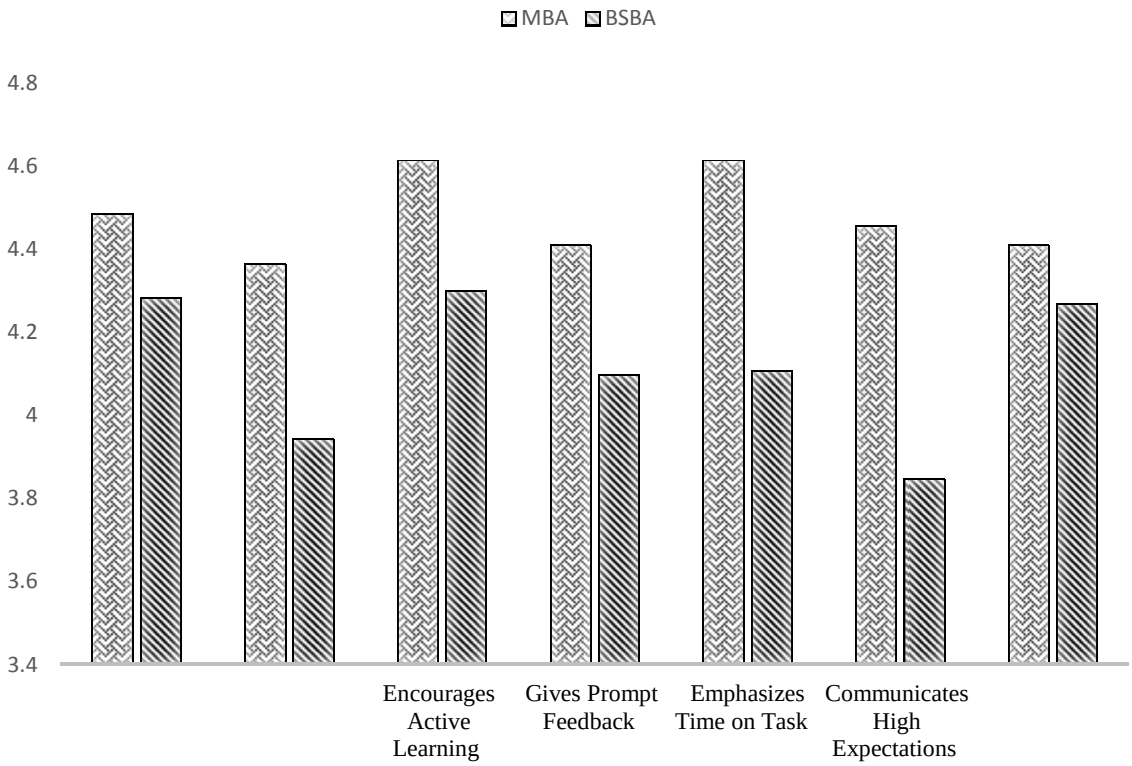


Table 6: Mean Tests in Terms of Major (MBA & BSBA)

	Mean					
Principle(s)	*MBA*	*BSBA*	*t value*	*Sig*	*95% CI*	
Good Practice Encourages Student /Instructor Contact	4.4848	4.2821	1.104	0.277	-0.96079	-0.08972
Good Practice Encourages Cooperation Among Students	4.3636	3.9423	1.907	0.065	-1.20417	-0.14432
Good Practice Encourages Active Learning	4.6136	4.2981	1.905	0.065	-0.74412	0.08503
Good Practice Gives Prompt Feedback	4.4091	4.0962	1.216	0.232	-1.41075	-0.21803
Good Practice Emphasizes Time on Task	4.6136	4.1058	2.333	0.026	-0.90783	-0.07323
Good Practice Communicates High Expectations	4.4545	3.8462	2.443	0.02	-1.31135	-0.1735
Good Practice Respects Diverse Talents and Ways of Learning	4.4091	4.2692	0.604	0.55	-0.82423	0.18786

Based on Major (MBA & BSBA), All of the Seven Principles have shown significant differences except for Principle 3 & Principle 7.

Figure 6: Mean Values Based On Major (BSBA & MBA)



Conclusion

Applying the Seven Principles of Good Practice is crucial for any academic institution. It helps to examine not only the performance of student's learning, but also the institution itself. The main aim of this paper is to examine which of the seven principles are favored by the students at Abu Dhabi

campus of New York Institute of Technology and how they perceive them based on their age, gender and major.

The findings of the mean tests of the seven principles showed a significant difference between the age groups, gender and majors.

Even though NYIT Abu Dhabi covers these principles in each of their course's syllabus and carries out evaluations for the curriculum taught, it would be beneficial to make the students aware of the great importance these principles carry for their learning period not only for the current level of study, but for higher education as well.

As the findings show, one of the principles least rated is the encouragement of cooperation amongst students. NYIT can engage students from different majors to participate in in-group activities. Inter-major group activities would not only help the students to learn educational and personal enriching traits from each other, but also expand their skill set of working in a group and networking that is crucial to grow their career horizon.

In addition, further research can be done to make these principles comparable to different factors including universities, nationalities and study fields in Abu Dhabi.

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A Panel Data Assessment of the Link between Corporate Governance and Taxation for U.S. Listed Companies

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Abstract

Using a dataset comprising 50 corporations listed at NASDAQ and component of Dow Jones index, over an extended period spanning 2000-2013, this article explores the link between corporate governance and taxation. The analysis is primarily carried out by estimating panel least squares and quantile regressions, combined with robustness checks such as generalized least squares, generalized linear model, and generalized method of moments. Our results show that the share of non-executive directors on the board, as well as board size negatively influences the effective corporate tax rate. Furthermore, we document a mixed association between CEO ownership, along with CEO tenure, and corporate taxation.

Keywords: effective corporate tax rate; corporate governance characteristics; panel data regression models; quantile regression.

1. Introduction

A special subject of finance is the corporate finance being not only comprehensive in terms of information presented, but also of interest to a broad range of stakeholders in the financial markets: shareholders, managers, investors. In the academic literature about corporate finance, numerous studies are devoted to the development of forecasting techniques for markets evolution, but there are also authors that make reference to corporate governance, an area for which has been granted a growing interest after the crisis of 2007. Besides specific phenomena from the world of finance, the human nature is an important element that leaves its mark (seemingly invisible, but significant) on financial markets. And the better we can support this referring to the notorious studies made by Kahneman and Tversky (1979, 1986). In this paper we tried to apply a procedure seen in watercolor paintings where was desired to obtain a gradient between two colors, so we applied the 'brush' of the empirical research on both corporate governance and the effective corporate tax rate. The novelty brought consists of an interdisciplinary study, dual, which includes a representation of fiscal management and the board characteristics, focusing on the idea of human nature as an influence factor, and we have highlighted the interdependencies between the two areas, all in the context of corporate finance. Although the literature about these two combined topics is rare, the ultimate goal of this paper

seeks to identify whether corporate governance influences the effective corporate tax rate, starting from the premise that earlier studies showed that separate, the two influence the financial performance (see Lee and Swenson, 2012; MacAvoy and Millstein, 1999).

The effective tax rate can be used in financial analysis with duties that transcend the sphere of fiscal management, from researching the lack of protection for minority shareholders to the means of tax avoidance, legal or not, used for the process of tax optimization. Perhaps even more important than corporate governance, the effective tax rate is a useful tool dedicated to the stakeholders 'trinity' and to the analysis of human relationships within it, translated into financial decisions targeting the company. Another goal is to identify correlations or connections between effective tax rate and corporate governance both in terms of objective point of view and subjective one (human nature) that can be considered as references for future papers on this issue. It is interesting to see if and how the management decisions (CEO, Board of Directors) on reducing the effective rate are influenced by rules imposed by corporate governance, and whether they may affect the company as a whole. Erkens et al. (2012) obtained results showing that corporate governance has affected financial performance during the crisis in 2007, meaning that companies with a large number of independent members have urged the shareholders to bring more capital and took fewer risky decisions, but that would had been favorable for company.

The paper proceeds as follows. Section 2 presents the prior literature. The data and empirical setting are provided in Section 3. Empirical results follow in Section 4. The paper concludes in Section 5 with a summary of the findings.

2. Prior research

Few authors researched the link between corporate governance and effective corporate tax rate. For the convenience of the reader, we named the effective corporate tax rate with the acronym ECTR. At first glance, the effective tax rate leads to the idea of taxes imposed by the state. However, the ECTR is very important in the context of fiscal management and tax optimization, being a good reflection of managerial decisions for the entire company. The literature on the ECTR is abundant and prolific but stands out the works carried out by Devereux and Griffith (1999) being a landmark for this area. Important contributions were made by Gupta and Newberry (1997), Richardson and Lanis (2007), along with Nicodème et al. (2014) who studied the relationship between ECTR and financial performance for US companies. They have demonstrated empirically that company size, indebtedness, leverage, ROA, ROE, and other financial items are factors which significantly influence the effective tax rate. Because these results are highly debated in the literature, we gave them a greater attention in the empirical research section. In terms of corporate governance, notable studies on the link between financial performance and characteristics of the Board of Directors (independence, size) and the CEO were brought by Yermack (1996), Metrick and Ishii (2002), Bhagat and Bolton (2008).

Studies that explicitly include both elements of corporate governance and ECTR are very few, but some authors have attempted an analysis between the governance and tax avoidance methods, making an indirect link

between the two. Sometimes confused with tax aggressiveness, Watson (2011) defined the legal tax avoidance as all means and strategies taken by the company, through the manager and the Board of Directors to reduce the tax burden, in other words, to reduce the effective corporate tax rate. Bauman and Schadewald (2001) showed that shareholders have appreciated the managers who had the ability to reduce the ECTR and have paid them according to the level of tax burden reduction. Armstrong et al. (2015) considered that unless paying more attention to agent problems that occur within a company, managers will apply more methods of tax avoidance to reduce the ECTR and to show a positive image to shareholders, but sometimes these methods may have negative effects on company's performance.

Although the tax planning is significant from a financial point of view, a manager should not permit the 'tax' tail wag the financial 'dog'. Hanlon and Heitzman (2010), as well as Gallemore et al. (2012) consider companies that use a small level of tax avoidance to reduce ECTR, as marked by dilemma 'under-sheltering puzzle'. As there is no clear evidence to support that tax avoidance involves direct costs, Gallemore et al. (2012) do not understand why some companies do not use this method. On the other hand, a CEO knows that all financial decisions have tax consequences and he should not be afraid to take a decision only from this perspective. Desai and Dharmapala (2006) argues that by reducing tax avoidance, as part of the tax planning, shareholders can control and reduce managerial deviations resulting from the agent's problem. The purpose of tax planning is to identify all the solutions that streamline the company's financial situation by reducing tax obligations. Desai and Dharmapala (2006) suppose that if by reducing the ECTR, using the methods of tax avoidance, the transparency of the company is affected, then there is an increase in the opportunities for CEOs to use the company's financial resources in its own interest, and appears the phenomenon named by literature 'managerial rent extraction'. Also, Desai and Dharmapala (2006) state that this is not possible in companies showing good corporate governance and obtained empirical results that support a negative relation between the CEO's remuneration in the form of equity ('manager's equity incentives') and tax avoidance/reduction of ECTR. Armstrong et al. (2015) challenged this idea and considered this type of CEO's remuneration as part of corporate governance mechanism, rewarding being determined by the Board of Directors in order to ease the agent problems. Thus, compensation in the form of equity should be functional in companies with lower corporate governance (small number of independent members, others). Further, Vintilă and Păunescu (2015) provide empirical evidence for large NASDAQ listed companies, components of Dow Jones, showing that compensation as bonuses has a positive relationship with ECTR. Rego and Wilson (2012) acquired empirical evidence that the ECTR reduction through tax avoidance is correlated with high levels of CEO compensation.

Dyreng et al. (2010) presented evidence that CEO predisposition towards reducing the effective tax rate by using aggressive tax avoidance is preserved even if they are employed at the same position in another firm. Thus, the ECTR becomes an important milestone when companies and boards of directors, interested in tax planning, analyze managerial skills of a candidate for CEO position. Blaylock (2011) analyzed US companies but failed to support the hypothesis that the problem of agent which says that managers are getting their own benefits from the use of tax

avoidance in order to reduce the ECTR. Florackis (2008) argues that if the CEO hold shares in the company, will be less tempted to seek own benefit to the detriment of the company.

Studying the relationship between effective tax rate and corporate governance, Armstrong et al. (2015) proposed the quantile regression (QR) estimation method instead the consecrated OLS econometric method that is conditioned mean type. The QR estimation follows the relationship between corporate governance and the entire distribution of ECTR because the level of tax avoidance influences the latter. Tax avoidance was seen as a riskier opportunity available to the management. Hence, a bigger Board of Directors and more efficient will realize the benefits of cash flows by reducing the effective tax rate and will want to increase tax avoidance because it does not bear a risk in terms of investment. Awareness of board members is relevant, for they must know when is exceeded the legal and moral limit to reduce the ECTR, because too much use of tax avoidance may have costs that exceed the tax savings achieved through reduced taxation. Armstrong et al. (2015) have included the independence and the financial expertise of the members of the Board in analyzing the relationship ECTR/corporate governance, and noted that there is a positive link between independence, financial expertise, and tax avoidance on the left side of the tax avoidance distribution and a negative relation to the right side. Thus it was shown that a company with several independent members and with developed financial expertise may reduce problems of agent arising with tax avoidance (over/under utilized) used by the CEO to reduce the ECTR in an ineffective governance conditions. Robinson et al. (2012) have studied the role of financial development of the company and have shown a positive link between the degree of financial expertise of the audit committee and tax avoidance applied to reduce the ECTR, but found that when companies consider that tax avoidance is risky the link becomes negative.

Minnick and Noga (2010) demonstrated empirically that a Board of Directors that do not show a balance between members (executive and independent) will lead to an increase in the effective tax rate. Florackis (2008) believes that shareholders holding large blocks of shares will benefit from the advantage of reducing the ECTR and will require the manager to fulfill this task but they want to monitor of this process. Chen et al. (2010) consider that shareholders will be the most affected by the penalties and reputational costs that exist for the use of tax avoidance, the proof of their existence being that not all companies have low levels of ECTR. Ribeiro et al. (2015) analyzed the determinants of effective tax rate and included elements of corporate governance. They obtained evidence supporting that insider's holdings of shares known as 'insider ownership', are associated with lower levels of ECTR. Another element identified was the concentration of ownership that for low levels was correlated with a higher ECTR. Ribeiro et al. (2015) obtained results showing that companies with a large number of members inside boards of directors had a higher ECTR. The same positive significant relationship was found between the number of independent members and the ECTR.

Florackis (2008) considers that often managers are not interested in reducing the ECTR, which is positive for shareholders' patrimony, because it does not directly fulfills their interests. Therefore, to be incentivized to reduce ECTR and to work out their duties of increasing the shareholders' wealth, managers should be rewarded in company's shares. Through this mechanism of corporate governance, the interests of both parties in the ECTR

reduction become the same and thus, it reduces the information asymmetry and agent issues. Badertscher et al. (2013) believed that through ownership of shares, the manager would not want to reduce too much the ECTR by any means, because it increases the risk of being affected in both positions they hold in the company. Subscribed to this idea were Fraile and Fradejas (2014) which supported the idea that once the manager will hold shares, he will have a greater power to act in his own interest.

Another element of corporate governance to be analyzed in conjunction with the effective tax rate is the structure of the Board and its characteristics. Studying the empirical relationship between the number of members from the board of directors, and financial performance (ROA, ROE, ROIC, Tobin Q), Vintilă et al. (2015) obtained mixed results. Wahab and Holland (2012) consider that these results are due to the experience brought by a large number of members, but also by hindering the adoption of financial decisions of each member. Florackis (2008) considers that a greater number of non-executive members have an important role in monitoring information asymmetry related to financial decisions. In addition, Vintilă et al. (2015) obtained results that support this idea.

3. Research design

3.1. Sample data

This study examines 50 companies, mainly from the technology area, listed at NASDAQ and component of Dow Jones index, from 2000 to 2013. The sample of issuers is drawn from Thomson Reuters Eikon database. Variable definitions are presented in Table 1. We use the effective corporate tax rate as outcome variable, together with characteristics of board (independence and size) and CEO (ownership and tenure) as explanatory variables.

Table 1. Definitions of variables used in empirical analysis

Variables	Description
Variables towards taxation (Dependent variable)	
ECTR	Effective corporate tax rate, calculated as Income Tax (Total) / Net income Before Taxes (EBIT).
Variables towards corporate governance characteristics (Independent variables)	
Board characteristics	
BIndep	Board independence, which depicts the share of non-executive directors on the board.
BSize	Board size, which relates to the total number of directors on the board, computed as ln(The total number of executive directors + Non-executive directors).
CEO characteristics	
CEO_Hold	CEO ownership, which denotes the percentage of company stock held by CEO.
CEO_Tenure	CEO tenure, which shows the length of time that a CEO has been at the helm of the corporation.
Firm-level control variables	
FSize	Firm size, as proxied by total assets (logarithmic values).
ROA	Return on assets ratio, found by dividing net income to total assets, assessing the efficiently of the firm towards using its assets.
Debt/Equity	Debt-to-equity ratio, which reveals a measure of a firm's financial leverage, respectively how much of a company is financed by its debtholders compared with its owners.
Debt/Assets	Debt-to-total assets ratio (also known as Debt ratio), showing the percentage of debt used to finance assets.

Source: Author's own work.

With respect to firm-level variables, we control for firm size, performance, and indebtedness. The political cost theory advocates a positive relation between firm size and tax since larger firms register higher degrees of

political costs such as public scrutiny. Instead, the political power theory specifies a negative connection for the reason that larger companies show more political power that can be disposed to handle their tax burden or lobby lawmaking in their benefit. Stickney and McGee (1982) and Porcano (1986) find a significantly negative link between effective corporate tax rate and firm size, whereas Zimmerman (1983) and Omer et al. (1993) revealed a significantly positive relation. Nevertheless, other studies provide evidence for a lack of association (Jacob, 1996; Gupta and Newberry, 1997; Mills et al., 1998).

Concerning financial performance, Noor et al. (2010) finds that firms with higher return on assets face lower effective corporate tax rates, whereas Gupta and Newberry (1997) ascertain that ETRs are systematically related to return on assets.

As regards indebtedness, Lasfer (1995) uncovers a weak association between leverage and effective tax rates, concluding that companies decide on capital structure to lessen agency costs rather than to benefit from tax deduction. Further, Gupta and Newberry (1997) and Rego and Wilson (2012) establish that firms with high leverage ratios are related with lower effective tax rates harmonious with higher tax avoidance, whereas Wilson (2009) and Lisowsky (2010) proved that tax shelter firms are linked with lower leverage ratios.

3.2. Econometric specification

The data set has the structure of a panel data. Each data point in the panel data indicates the ith firm (i = 1, . . . , 50) at the tth period (t = 2000, . . . , 2013). The basic equation model used to explore the link between corporate governance characteristics and effective corporate tax rate is depicted below:

$$ECTR_{it} = \alpha + \beta X_{it} + \varepsilon_{it} \quad (1)$$

where $ECTR_{it}$ is ECTR for company i in year t, X_{it} is a set of corporate governance characteristics and firm-level controls, ε_{it} is the error term. Primary, we will estimate several panel least squares regressions (both without cross-sectional effects and with cross-section fixed effects). However, 'since traditional OLS and median regression only estimates the relationship at the "center" of the distribution, these techniques cannot detect shifts elsewhere in the distribution of interest' (Armstrong et al., 2015). Consequently, we will employ later on quantile regression technique because 'is more general and describes changes in both the location and shape of the distribution of interest' (Armstrong et al., 2015). Withal, the robustness of the empirical results will be checked by means of various techniques such as estimated generalized least squares (EGLS), generalized linear model (GLM), and generalized method of moments (GMM).

Furthermore, the Granger (1969) approach is employed in order to examine how much of the current corporate governance characteristics can be explained by past values of them and then to see whether adding lagged values of ECTR can improve the explanation. Corporate governance characteristics are said to be Granger-caused by ECTR if ECTR helps in the prediction of corporate governance characteristics or if the coefficients on the lagged corporate governance characteristics are statistically significant.

4. Empirical results

4.1. Summary statistics

The descriptive statistics of the variables are presented in Table 2. The mean (median) ECTR for our sample is 28.015% (29.30%). As regards board independence, we acknowledge the lack of balance between executive and nonexecutive directors.

Table 2. Descriptive statistics

	N	Mean	Std. Dev.	Min.	Lower Quartile	Median	Upper Quartile	Max.
ECTR	700	0.28015	0.109489	0.000000	0.22720	0.29300	0.34900	0.82500
BIndep	700	0.12992	0.216752	0.000000	0.00000	0.00000	0.32258	0.66667
BSize	700	2.84301	0.377792	1.945910	2.48491	2.89037	3.13549	3.66356
CEO_Hold	700	0.07099	0.294398	0.000000	0.00000	0.00000	0.02000	6.67000
CEO_Tenure	700	2.28571	4.634087	0.000000	0.00000	0.00000	2.00000	26.00000
FSize	700	14.99689	4.125629	4.175925	12.80437	16.68184	18.20295	20.49733
ROA	700	0.09940	0.068681	0.000868	0.05400	0.08777	0.13528	0.65420
Debt/Equity	700	0.73884	1.043053	0.000000	0.05500	0.34500	0.91500	6.62308
Debt/Assets	700	0.45160	0.238057	0.000000	0.27316	0.45928	0.60044	1.21000

Source: Author's computations. For variable description, see Table 1.

The selected firms are profitable since the reported mean (median) ROA is 9.940% (8.777%). However, the companies from our sample are highly levered with a mean (median) Debt/Equity ratio of 73.884% (34.50%).

Table 3 contains the correlations between the variables. With the exception of the strong uphill (positive) linear relationship between BSize and FSize (0.719553), all of them show low correlation coefficients, so that multicollinearity should not be a concern.

Table 3. Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ECTR (1)	1 -----								
BIndep (2)	-0.16923 (-4.53647)	1 -----							
BSize (3)	-0.01559 (-0.41187)	0.032376 (0.85581)	1 -----						
CEO_Hold (4)	-0.04835 (-1.27893)	0.133598 (3.561537)	-0.17471 (-4.68785)	1 -----					
CEO_Tenure (5)	-0.07464 (-1.97754)	0.315052 (8.770205)	-0.20716 (-5.59442)	0.273982 (7.526535)	1 -----				
FSize (6)	0.039469 (1.043576)	0.074635 (1.977352)	**0.719553** **(27.37523)**	-0.22971 (-6.23564)	-0.22315 (-6.04815)	1 -----			
ROA (7)	0.011971 (0.316303)	-0.03852 (-1.01856)	0.029517 (0.780162)	-0.07067 (-1.87179)	-0.19029 (-5.12106)	0.047459 (1.255271)	1 -----		
Debt/Equity (8)	-0.14022 (-3.7415)	0.060176 (1.59272)	0.135233 (3.605948)	0.043218 (1.142886)	0.158724 (4.247294)	0.14062 (3.752424)	-0.10782 (-2.86537)	1 -----	

Debt/Assets (9)	0.013419 (0.354562)	0.035585 (0.940736)	0.528357 (16.44128)	-0.12311 (-3.27746)	-0.07473 (-1.97983)	0.566001 (18.13863)	-0.12512 (-3.3317)	0.493554 (14.99289)	1 -----

Source: Author's computations. Notes: Figures in parenthesis are t-statistics. For variable description, see Table 1.

4.2. Regression results

Table 4 provides the estimates of panel least squares regressions (without cross-sectional effects). We test the influence of board and CEO characteristics on ECTR, both separately and all once. Therefore, board independence (Eq 1, Eq5, and Eq 7) and board size (Eq 2, Eq 5, and Eq 7) negatively influence ECTR, but the explanatory power of the estimated models is reduced (a mean value of 4.32% related to R-sq). On the contrary, the relationships between CEO ownership and ECTR (Eq 3, Eq6, and Eq 7), as well as CEO tenure and ECTR (Eq 4, Eq6, and Eq 7) are not statistically significant.

Table 4. Panel least squares regressions of ECTR on corporate governance characteristics and firm-level controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
C	**0.276315*** (17.5579)**	**0.32893*** (17.43686)**	**0.273189*** (16.15389)**	**0.276032*** (17.36671)**	**0.338611*** (18.729)**	**0.277754*** (17.34884)**	**0.335856*** (16.80959)**
BIndep	**-0.082644*** (-4.803633)**				**-0.083604*** (-4.988178)**		**-0.08602*** (-4.643763)**
BSize		**-0.031723*** (-3.42888)**			**-0.033429*** (-3.691087)**		**-0.033012*** (-3.573402)**
CEO_Hold			-0.010012 (-0.742229)			-0.007355 (-0.567168)	-0.001964 (-0.158066)
CEO_Tenure				-0.000906 (-1.419475)		-0.000802 (-1.103283)	0.000415 (0.615309)
FSize	0.000628 (0.669348)	0.001937 (1.620637)	0.0000356 (0.038023)	-0.0000141 (-0.015404)	**0.002482* (2.165157)**	-0.0000995 (-0.109937)	**0.002533* (2.314418)**
ROA	-0.00494 (-0.088551)	0.010267 (0.172738)	0.003918 (0.065381)	-0.003959 (-0.066985)	-0.001015 (-0.018179)	-0.004602 (-0.0778)	0.002866 (0.051643)
Debt/Equity	**-0.018975*** (-5.148039)**	**-0.020839*** (-6.166012)**	**-0.019948*** (-5.99248)**	**-0.019363*** (-5.165409)**	**-0.019613*** (-5.379936)**	**-0.019262*** (-5.243615)**	**-0.019907*** (-5.409751)**
Debt/Assets	**0.043546* (2.02845)**	**0.059208** (2.719639)**	**0.047578* (2.175863)**	**0.046721* (2.142467)**	**0.054945* (2.53306)**	**0.046348* (2.118151)**	**0.055254* (2.545406)**
F-value	**8.109597***	**4.919170***	**4.207084***	**4.298789***	**7.541412***	**3.620056****	**5.663154***
Pr > F	0.000000	0.000197	0.000896	0.000738	0.000000	0.001523	0.000001
R-sq	0.055201	0.034228	0.029419	0.030041	0.061292	0.030390	0.061531
Adj R-sq	0.048394	0.027270	0.022426	0.023053	0.053164	0.021995	0.050665

Source: Author's computations. Notes: ***, **, *, † refer to 0.1%, 1%, 5%, and 10% levels of significance, respectively. Figures in parenthesis are t-statistics. Sample: 2000-2013. Periods included: 14. Cross-sections included: 50. Total panel (balanced) observations: 700. White cross-section standard errors & covariance (d.f. corrected). For variable description, see Table 1.

Further, the estimates with fixed effects are showed in Table 5. The negative influence of board independence on ECTR is reinforced (Eq 1, Eq5, and Eq 7), but the relationship between board size and ECTR get out of sight. Nevertheless, we find a negative influence of CEO tenure on ECTR (Eq 4 and Eq 6). This fact is related to the experience of the CEO about tax system, accumulated over the years.

Table 5. Panel least squares regressions (cross-section fixed) of ECTR on corporate governance characteristics and firm-level controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
C	**0.532273*** (7.063226)**	**0.664575*** (6.227291)**	**0.721499*** (8.522007)**	**0.621508*** (6.129386)**	**0.452725*** (4.337569)**	**0.617492*** (6.044013)**	**0.428265*** (3.501418)**
BIndep	**-0.064604*** (-3.605171)**				**-0.065754*** (-3.459364)**		**-0.058818*** (-3.49954)**
BSize		0.029458 (0.95492)			0.03463 (1.121663)		0.036593 (1.160557)
CEO_Hold			-0.008457 (-1.34537)			-0.006412 (-1.168939)	-0.004468 (-0.771845)
CEO_Tenure				**-0.003941* (-2.510614)**		**-0.003873* (-2.409164)**	-0.001361 (-0.811394)
FSize	**-0.01491** (-3.182602)**	**-0.029949*** (-5.098965)**	**-0.02792*** (-4.993474)**	**-0.020582** (-3.104411)**	**-0.016395*** (-3.348612)**	**-0.020295** (-3.031843)**	**-0.014928** (-2.641866)**
ROA	0.022793 (0.269671)	0.038373 (0.399546)	0.024084 (0.257743)	0.01015 (0.112225)	0.040664 (0.462)	0.011073 (0.122965)	0.037711 (0.432613)
Debt/Equity	-0.005272 (-0.530412)	-0.003393 (-0.352831)	-0.004907 (-0.527184)	-0.003945 (-0.409146)	-0.003485 (-0.342969)	-0.003953 (-0.408995)	-0.003003 (-0.293354)
Debt/Assets	-0.040975 (-1.635877)	**-0.045032† (-1.681841)**	**-0.046069† (-1.772853)**	**-0.048219† (-1.954877)**	-0.040026 (-1.534826)	**-0.048406† (-1.94682)**	-0.041498 (-1.625684)
F-value	**9.174769***	**8.806047***	**8.784865***	**8.919158***	**9.042934***	**8.751169***	**8.716017***
Pr > F	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
R-sq	0.434428	0.424378	0.423790	0.427498	0.435762	0.427715	0.436255
Adj R-sq	0.387077	0.376186	0.375549	0.379568	0.387573	0.378840	0.386203

Source: Author's computations. Notes: ***, **, *, † refer to 0.1%, 1%, 5%, and 10% levels of significance, respectively. Figures in parenthesis are t-statistics. Sample: 2000-2013. Periods included: 14. Cross-sections included: 50. Total panel (balanced) observations: 700. White cross-section standard errors & covariance (d.f. corrected). For variable description, see Table 1.

By extending the empirical research by means of quantile regressions (see

Table 6), the results confirm the negative influence of Bindep on ECTR (all the estimated equations). Likewise, Bsize relveals a negative influence on ECTR (Eq 4 - Eq 8), but for quantiles over 0.3. Onward, we establish mixed associations between CEO_Hold and ECTR: positive (for quantiles between 0.3 and 0.5) and negative (at the 0.9 quantile or the 90th percentile). CEO_Tenure positively influences ECTR for upper quantiles (0.8 and 0.9). All these results can be attributed to the fact that executive and independent members from the boards and CEO, all of them have different views, opinions and interests regarding the level of ECTR, as we mentioned in Section 2.

Table 6. Quantile regressions of ECTR on corporate governance characteristics and firm-level controls

	(1) (tau = 0.1)	(2) (tau = 0.2)	(3) (tau = 0.3)	(4) (tau = 0.4)	(5) (Median)	(6) (tau = 0.6)	(7) (tau = 0.7)	(8) (tau = 0.8)	(9) (tau = 0.9)
C	0.066528 (0.375935)	**0.275689*** (3.647612)**	**0.28151*** (6.155653)**	**0.351005*** (9.119786)**	**0.401985*** (11.68985)**	**0.405778*** (11.85843)**	**0.433383*** (15.56895)**	**0.44391*** (17.07632)**	**0.449031*** (14.66927)**
BIndep	**-0.073812† (-1.666869)**	**-0.091075** (-**	**-0.09593*** (-4.109642)**	**-0.114081** (-**	**-0.100812** (-4.18715)**	**-0.081146** (-3.11463)**	**-0.058332** (-2.928936)**	**-0.057615** (-3.311064)**	**-0.053964** (-2.948644)**
BSize	-0.007134 (-0.101425)	-0.037581 (-1.483273)	-0.028911 (-1.506236)	**-0.047476** (-2.706478)**	**-0.057304** (-**	**-0.029313* (-2.074104)**	**-0.028798* (-2.389044)**	**-0.024133* (-1.985662)**	-0.016617 (-1.035127)
CEO_Hold	0.008896 (0.070385)	-0.096234 (-0.581961)	**0.017537*** (3.963932)**	**0.015013** (2.912447)**	**0.010373† (1.902574)**	0.005493 (0.991757)	-0.000399 (-0.080586)	-0.003924 (-0.971794)	**-0.008204** (-2.632252)**
CEO_Tenure	-0.004395 (-1.540072)	-0.002735 (-0.638613)	-0.002045 (-0.921798)	0.000449 (0.213169)	0.001768 (1.359415)	0.001447 (1.204848)	0.001069 (1.22411)	**0.001554* (2.039934)**	**0.002026* (2.289913)**
FSize	0.003516 (0.556626)	0.001094 (0.357521)	0.000626 (0.347368)	0.001195 (0.680176)	0.001794 (0.877518)	-0.001408 (-0.739452)	-0.0000884 (-0.054747)	0.000096 (0.064242)	0.000214 (0.143924)
ROA	**0.284574*** (4.717771)**	**0.121313† (1.695604)**	**0.154299*** (3.9376)**	**0.093797* (2.299847)**	0.046076 (1.036337)	0.008837 (0.186501)	-0.069506 (-1.505615)	**-0.069716† (-1.799627)**	**-0.086888* (-2.42992)**
Debt/Equity	**-0.027251* (-2.482934)**	**-0.025674*** (-4.80912)**	**-0.02175*** (-4.496545)**	**-0.024191*** (-**	**-0.024798*** (-**	**-0.023522*** (-**	**-0.016075*** (-**	**-0.017241*** (-**	**-0.023207*** (-**
Debt/Assets	**0.125166* (2.524784)**	**0.126668** (3.287706)**	**0.109733*** (3.989836)**	**0.118305*** (4.864765)**	**0.100253*** (3.520345)**	**0.079697* (2.101797)**	0.027051 (0.900147)	0.011851 (0.447197)	0.015766 (0.684225)
Pseudo R-sq	0.066178	0.066030	0.064088	0.054352	0.045637	0.043422	0.049494	0.054637	0.064143
Adj R-sq	0.055367	0.055217	0.053253	0.043404	0.034588	0.032348	0.038489	0.043692	0.053308

Source: Author's computations. Notes: ***, **, *, † refer to 0.1%, 1%, 5%, and 10% levels of significance, respectively. Figures in parenthesis are t-statistics. Sample: 2000-2013. Included observations: 700. Huber Sandwich Standard Errors & Covariance. Sparsity method: Kernel (Epanechnikov) using residuals. For variable description, see Table 1.

By employing robustness checks via panel EGLS, GLM, and panel GMM (see Table 7), the negative influence of board independence (all the estimated models) and board size (Eq 2) is strengthened. However, the lack of influence related to CEO_Hold is emphasized. In addition, the influence of CEO_Tenure is mixed: positive (Eq 1) and negative (Eq 3 and Eq 4). Contrary Gupta and Newberry (1997) results, ROA had a negative sign for GMM estimation method. This fact shows that managers can use the financial performance to reduce ECTR, as a political power and in the interest of the company and shareholders.

Table 7. Robustness checks

	(1) Panel EGLS	(2) GLM	(3) Panel GMM	(4) Panel GMM
C	**0.650137***** **(10.09393)**	**0.335856***** **(9.682227)**		
ECTR (-1)			**0.051334***** **(5.559802)**	**0.098748***** **(4.519264)**
ECTR (-2)			**-0.081641***** **(-10.11675)**	**-0.061411**† **(-1.903375)**
ECTR (-3)				0.00309 (0.432081)
BIndep	**-0.038386***** **(-5.7482)**	**-0.08602***** **(-4.313684)**	**-0.014986***** **(-3.67599)**	**-0.021736**** **(-2.790915)**
BSize	-0.011604 (-0.71747)	**-0.033012*** **(-2.086933)**	-0.025857 (-0.491113)	-0.022595 (-0.202436)
CEO_Hold	-0.00067 (-0.619909)	-0.001964 (-0.134949)	-0.028311 (-1.227271)	0.009345 (0.14737)
CEO_Tenure	**0.001557**† **(1.686683)**	0.000415 (0.414804)	**-0.00977***** **(-5.003908)**	**-0.009972***** **(-4.859088)**
FSize	**-0.021461***** **(-7.705145)**	**0.002533**† **(1.655766)**	-0.000755 (-0.126371)	0.01567 (0.58471)
ROA	0.023917 (1.185321)	0.002866 (0.04711)	**-0.198435***** **(-7.162111)**	-0.129719 (-1.546311)
Debt/Equity	**-0.012953**† **(-1.868962)**	**-0.019907***** **(-4.299573)**	**-0.012865*** **(-2.042611)**	-0.011565 (-1.437264)
Debt/Assets	-0.014362 (-0.712326)	**0.055254*** **(2.230963)**	-0.039639 (-1.242088)	-0.026874 (-0.847926)
F-value	**24.47646*****			
Pr > F	0.000000			
R-sq	0.684855			
Adj R-sq	0.656875			
J-stat			41.99032	40.14358

Source: Author's computations. Notes: ***, **, *, † refer to 0.1%, 1%, 5%, and 10% levels of significance, respectively. Figures in parenthesis are t-statistics. Sample: 2000-2013. For variable description, see Table 1.

Table 8 reports the output of Granger causality examination. We find, only for the first lag, that board independence Granger cause ECTR, even if the reverse causality is not valid. This fact is associated with the reluctance of the independent members about tax avoidance.

Table 8. Pairwise Granger Causality Tests

Null Hypothesis	Lag 1		Lag 2		Lag 3	
	Obs	F-Statistic (Prob.)	Obs	F-Statistic (Prob.)	Obs	F-Statistic (Prob.)
BINDEP does not Granger Cause ECTR	650	**5.04025 (0.0251)**	600	1.67727 (0.1878)	550	1.11813 (0.3411)
ECTR does not Granger Cause BINDEP		0.23711 (0.6265)		2.28122 (0.1031)		1.51312 (0.2101)
BSIZE does not Granger Cause ECTR	650	0.86071 (0.3539)	600	0.21603 (0.8058)	550	0.30959 (0.8185)
ECTR does not Granger Cause BSIZE		0.31656 (0.5739)		0.39977 (0.6707)		0.88870 (0.4467)
CEO_HOLD does not Granger Cause ECTR	650	0.08060 (0.7766)	600	0.00947 (0.9906)	550	0.19101 (0.9025)
ECTR does not Granger Cause CEO_HOLD		0.11494 (0.7347)		0.13314 (0.8754)		0.11233 (0.9529)
CEO_TENURE does not Granger Cause ECTR	650	0.22018 (0.6391)	600	1.70847 (0.1820)	550	1.29218 (0.2763)
ECTR does not Granger Cause CEO_TENURE		**6.67516 (0.0100)**		0.86698 (0.4207)		0.65974 (0.5771)

Source: Author's computations. For variable description, see Table 1.

In addition, for the first lag, ECTR Granger cause CEO tenure. Economically, this can be explained by the fact that only the experienced CEOs can juggle it with the tax system breaches and regulation, so that, taxation's harshness has an influence when a company employs a CEO, according his tenure. For the rest of variables and lags, the causality relationships are not statistically significant.

5. Concluding remarks

This paper examines the link between corporate governance characteristics and effective corporate tax rate. We extend the empirical research by estimating panel least squares regressions and quantile regressions. From the perspective of board characteristics, the results provide support for a negative influence of board independence on effective corporate tax rate opposite Ribeiro et al. (2015), but similar Armstrong et al. (2015) for high levels of tax avoidance. Also, we ascertain a negative influence of board size on effective corporate tax rate contrary Ribeiro et al. (2015), due to issues related to communication and coordination. As regards CEO characteristics, we find mixed results between CEO ownership and corporate taxation by means of quantile regression. Also, CEO tenure documents opposed results, namely negative influence when estimating panel least squares regressions (cross-section fixed) and positive for upper quantiles regressions. The robustness checks confirm the negative influence of board characteristics on effective corporate tax rate and support the mixed influence of CEO tenure. Likewise, the Granger (1969) approach emphasize that board independence Granger cause corporate taxation. All these findings can be explained by the influence of informational asymmetry and agency problems, but the true puppeteer behind the scene is the human nature who acts in the benefit of its owner: managers, directors, board members and shareholders.

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The Attitude to Islamic Taxation in Russia: Does Financial Ethics Matter?

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Abstract

In this paper, the authors have raised and tested a set of questions concerning the essence of the Islamic taxation model in relation to taxpayers' financial ethics. The main question of the research addresses key factors, which determine the advisability of introducing a special socially oriented tax with signs of zakat in the opinion of persons with low-level awareness of the Islamic tax system (the case of Russia). To challenge this question, it was considered appropriate to conduct a survey. Relevant factors were revealed by means of ordinal logit modeling. It was proved that the corresponding loyalty positively relates to the following statements: a) an individual should regularly donate a part of his income to support the socially vulnerable categories of the population; b) administrating socially oriented taxes should be the responsibility of special non-governmental organizations with publicly available and transparent reporting; c) any socially oriented expenditures should be taken into account in the personal income tax. The chances to support the abovementioned special tax are significantly higher for younger students. In summary, there is a clear interconnection between financial ethics and opportunities to implement the Islamic tax model. It should be noted that Islamic taxation, focused on personal and social responsibility of taxpayers, creates for them maximum convenience and ensures their involvement and commitment. In our opinion, these aspects need to be taken into account in the traditional tax administration. Therefore, we believe that in the question of an effective taxation, financial ethics really matters.

Keywords: Islamic taxation, Islamic taxes, Islamic finance, Islamic financial system.

1 Introduction

Islamic ('alternative' or 'participation') financial markets and institutions present in most countries of the world. Islamic finance is a rapidly growing industry. Between 2009 and 2013, Islamic financial assets raised by 17% annually and reached $1.87 trillion at H12014 (Islamic Financial Services Industry Stability Report, 2015). Leading positions are occupied by Islamic banks, accumulating more than 90% of the assets (Islamic Finance, 2013). In this situation, it is quite natural that the literature on Islamic finance primarily addresses controversial issues on alternative banking (Lvova, 2013). The focus of research regards special features and development prospects of the Islamic banking model (Khan, 2010; Beck et al, 2013; Azmat et al, 2015). Maybe, even more attention is attracted to comparative advantages of alternative banking in the light of modern financial challenges (Čihák, Heiko, 2010; Hasan, Dridi, 2011; Khediri et al, 2015; Gheeraert, Weill, 2015). Sharia compliant financial markets, instruments and non-banking institutions are also widely discussed in much the same way (Hussain et al, 2015; Kammer et al, 2015; Lukonga, 2015; Rizvi et al, 2015; Farooq, 2015).

However, comprehensive research on Islamic public finance has been relatively few and rare (Bekkin, 2013). This gap reasoned the direction of our investigation. The article raises one of the most important aspects of this problematic – Islamic taxation, which is commonly observed from legal (e.g., Saleem, 1992; Al-Qardawi, 2000; Powell, 2009), organizational (Awad, 2000; Yusuf, Derus, 2013) and social (Abdullah et al, 2015; Mohd et al, 2015) perspectives. The key question of our research is greatly applies to financial ethics and can be formulated in the following way: what major factors determine the advisability of introducing a special socially oriented tax in the opinion

of persons who are not well informed about Islamic taxation? In this regard, we are going to cover three main issues:

1. The role of Islamic taxation in the Islamic financial system and the essence of Islamic taxes.
2. The perceptions of financial ethics in the modern Russian society.
3. The dependence of loyalty to a special socially oriented tax on financial ethics.

The methodology of our research, which is based on survey results, corresponds with a rather representative corpus of works on Islamic finance. However, as in the general case, these works are primarily concerns Islamic banking[1]. A remarkable exception is a Malaysian research proved that religiosity has a minimal positive impact on voluntary tax compliance (Mohdali, Pope, 2014), What is more notable and rightly pointed by the abovementioned authors, “the grounds for non-compliance or compliance behaviors of taxpayers are still inconclusive” (Mohdali, Pope, 2014), that predetermines the relevance of further research.

2 Islamic taxation in the context of the Islamic financial system

2.1 The Islamic financial system: the essence and structure

The history of Islamic finance is dated back the 7th century (Haron, Azmi, 2012). It is thought that the Islamic financial practices were well known in the medieval Europe. However, the Islamic financial system was established not earlier than the late 20th century: the first modern Islamic financial institution started working in 1963; the first commercial Islamic bank was opened in 1975; at the end of 1970s, Islamic financial institutions appeared in the Europe; the first retail Islamic bank in Europe has been operating since 2004 (Ivanov, 2014).

According to functional approach, the Islamic financial system can be defined as the set of markets and institutions used for financial contracting and the exchange of assets and risks in accordance with sharia principles. However, in our research, we strive to go beyond the Islamic financial industry taking into account public financial sector. Guided by this reason, we attribute Islamic taxation to the Islamic financial system. In this case, we need a broader interpretation of the latest, which allows focusing on the nature and subjects of financial relations.

Correspondingly, we consider the Islamic financial system as a regulated system of distributional relations connected with the formation and use of financial resources by public institutions, private organizations and households to accomplish their goals and objectives in accordance with sharia.

The ethical component is one of the most important characteristics of the Islamic financial system. Sharia financial principles are inseparably linked with religious requirements. Consequently, these principles significantly differ from traditional ones. In particular, Islamic financial relations should contribute to social justice.

The most important Islamic financial principles are the following:

– First of all, there is a ban on interest rate. In this context, interest rate is treated as a source of ill-gotten income because a lender does nothing to earn it[2]. Nevertheless, the "Islamic economics ... has nothing against the so-called natural rate of interest, or net productivity of capital … directly dependent on the profitability of investments" (Bekkin, 2007a).

– The prohibition of speculative behavior and uncertainty in contract terms. Consequently, if one party receives excessive advantage by another party, terms of the contract must be revised or corresponding transaction cannot take place. In this regard, the concept of profit and loss sharing is worth noting. The main point about it is that parties involved in a financial transaction must share both associated risks and financial results.

– The prohibition of some directions of investment activity (financing harmful activity). This principle refers to the activities that may cause physical or mental harm to individuals or society as a whole (production of weapons, alcohol, gambling, etc.).

The main sense of these principles is to discourage unfair incomes and ensure equality of opportunities. Therefore, each financial transaction should be tied with tangible underlying assets or business revenues. Surprisingly, money is considered an intangible asset.

Besides, all Muslims must pay a special socially oriented tax.

Let us turn to the institutional dimension of the Islamic financial system. From traditional perspective (Bodie, Merton, 2004), it consists of four elements (Gordeeva, Lvova, 2009):

– Financial markets (markets for Islamic financial instruments).
– Financial institutions (Islamic banks, Islamic investment funds, Islamic insurance companies, etc.).
– Financial instruments (Islamic debt- and equity-based financial instruments).
– Organization of operations and supporting infrastructure (in particular, corresponding legislation, professional standards, lawmakers and regulators).

In the strict sense, the matter concerns the Islamic financial services industry (IFSI) as it is commonly addressed (Islamic Development Bank 35th Annual Report, 2010). However, to characterize the Islamic financial system, we should not lose sight of no less important element – Islamic public finance, including taxation.

There is one more important gap. The term 'Islamic financial system' is usually applied in the international context. The same time, national financial system can be more or less 'Islamic'. In some countries, such as Iran and Sudan Islamic banks are the only mainstream financial institutions. In others, they exist alongside conventional financing. The Middle East and Asia dispose substantial rates of Islamic financial assets (Islamic Finance, 2013; Imam, Kpodar, 2010). Evidently, the most of the related literature is devoted to the cases of these regions (as a typical example: Khediri et al, 2015).

Commitment to Sharia in the country scale, as it would be logical to assume, largely depends on the size of the Muslim population. However, the Russian Federation with her multimillion Muslim population (The World Factbook) is highly conventional in the financial sphere. There has been almost no Islamic financial market here (Zhuravlev, 2014). All the essential elements of the Islamic financial system have been just emerging. Nonetheless, Islamic taxation is one of the most developed institutions.

2.2 Islamic Taxation

Islamic taxation is one of the most important institutions of the Islamic financial system. Principles of Islamic taxation correspond to the basic principles of financial relations complying with Muslim ethics[3].The list of Islamic taxes is fiercely debated for compliance with the Quran and (or) Sunnah (Bekkin, 2007b) and, what is the most interesting for financiers, the nature of the tax (for zakat see, e.g., Shaikh, 2009). Mobilization and redistribution of the raised funds within Islamic taxation are less fiscal than religious. Islamic taxes combine traditional imposing and innovative levying. The center of the Islamic tax system is zakat. Zakat represents a group of 'fard' (compulsory) payments relating to imposition of various objects and taxpayers with different non-taxable minimum (the 'nisab' for zakat) at differential rates. Such payments are characterized by common principles of levying and redistribution (L'vova, Pokrovskaya, 2015).

The special features of zakat are the following:

– Mandatory payment of zakat is reasoned by the religious duty of Muslims as one of the 'Five Pillars' of their faith. Therefore, zakat is a sphere of personal responsibility that logically eliminates the need for external enforcement to pay the tax;
– Targeting spending of zakat is stipulated in the Quran: "Zakat expenditures are only for the poor and for the needy and for those employed to collect [zakah] and for bringing hearts together [for Islam] and for freeing captives [or slaves] and for those in debt and for the cause of Allah and for the [stranded] traveler – an obligation [imposed] by Allah" (the Quran, Surah At-Tawba Verse 60);
– The religious duty to pay zakat means that Islamic taxes can be successfully collected without governmental institutions providing rule of law and ensuring compulsory levying of secular taxes;
– Regardless of whether zakat is paid by the support of governmental or non-governmental institutions, its size and terms of payment are defined in the Koran and Sunnan, as well as in the commentaries. Zakat cannot be considered as a donation. It is a purifying tax of a certain size.

Notably, zakat-payers are exclusively Muslims. Consequently, the regional structure of the Islamic tax system does not always correspond to the administrative-territorial structure of modern countries. Moreover, Muslims are subjected to double taxation, since they have to pay zakat along with traditional taxes at the place of their tax jurisdiction.

Zakat is the integral part of the state tax system in Yemen, Libya, Malaysia, Pakistan, Saudi Arabia and Sudan. Another nine Muslim countries (Bahrain, Bangladesh, Egypt, Indonesia, Jordan, Iran, Kuwait, Lebanon and the United Arab Emirates) provide varying degrees of governmental support for the institution of zakat, including tax privileges for its payers (mitigation of double taxation amongst others), co-operation in funds redistribution and (or) financial control over donation. In other Muslim countries, zakat administration is carried out without the participation of the state. This is especially the case for the countries where Islam is not the predominant religion. Unsurprisingly, zakat is not officially stipulated in the Russian Federation. However, it is voluntarily paid by Muslims to non-governmental organizations.

3 Methodology

For our research we conducted the survey of second-, third- and forth-year bachelor students on faculty of economics of Saint Petersburg State University. The survey was completed by 127 persons (both male and female) (Fig. 1).

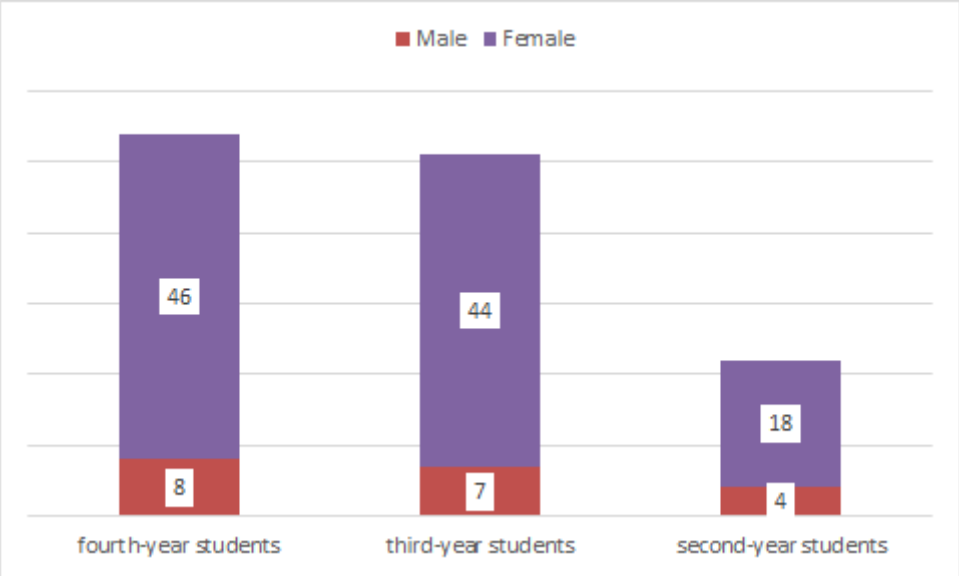

Fig 1. The respondents of the survey on Islamic taxation

The questionnaire included 20 questions, which constituted two groups. The first 10 questions were devoted to the degree of awareness of religious taxes and the Islamic financial system. The second 10 questions reflected the attitude of respondents to the ethical foundations of financial relations and the social responsibility.

Each question suggested ranking the answer from negative ('positively wrong', 'probably not true') to positive ('more true', 'positively true'). Fifth variant was 'unable to choose an answer'.
Our first hypothesis was a low level awareness of the Islamic tax system:

– H_0: respondents have enough knowledge about Islamic taxation.
– H_1: respondents have little knowledge about Islamic taxation.

Second part of our research was econometric modeling of the factors, which determine the loyalty to imposition of a special socially oriented tax with signs of zakat.

– H_0: the loyalty to imposition of a special socially oriented tax with signs of zakat does not on the set of subjective (the attitude to financial ethic and social responsibility) and objective (gender and the year of education) factors.
– H_1: the loyalty to imposition of a special socially oriented tax with signs of zakat depends on the set of the abovementioned factors.

In other words, we test the hypothesis that all of the coefficients in the model are equal to zero (alternative hypothesis that at least one of the 12 regression coefficients in the model is not equal to zero) and then choose significant factors As loyalty to imposition of a special socially oriented tax ordinal variable, we applied the ordered choice method, ordinal logit modeling in Stata 11.

4 Results

4.1 Testing the Awareness of the Islamic Finance and Taxation

Our first hypothesis was a low level awareness of the Islamic tax system. In our survey, we used questions reflected as subjective as objective awareness concerning Islamic finance in general, religious taxes and Islamic taxes. Only 10% of respondents state that they are aware of Islamic finance. At the same time more than one third students believe that main principle of the Islamic finance is prohibition of usury, 14% believe that Islamic finance system operates both in Muslim and non-Muslim countries (Fig. 2).

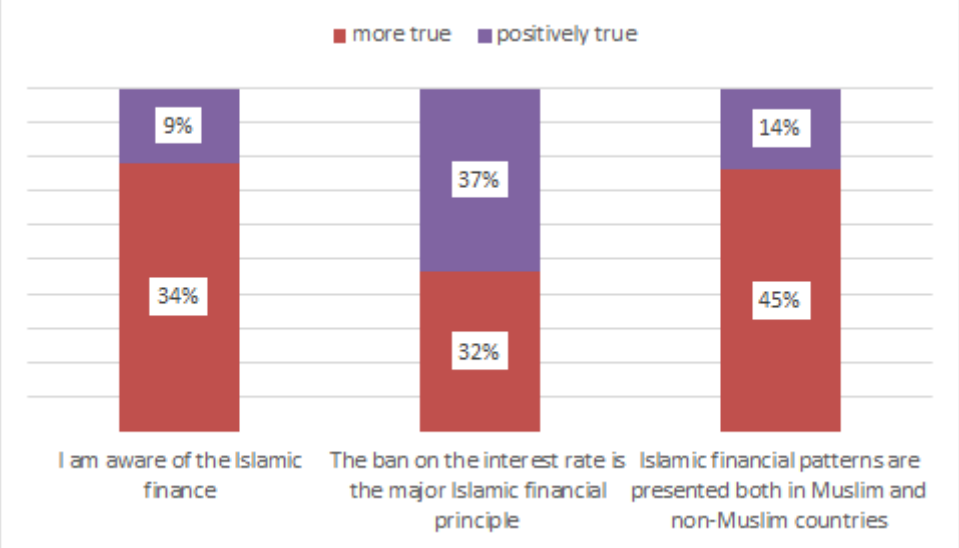

Fig 2. The awareness of the Islamic financial system

Therefore, we suppose, that subjective low level of awareness about Islamic financial system supported by objective awareness, could mean opinion of respondents, that their knowledge about Islamic finance is insufficient; they want to know more.

Awareness of religious taxes is lower. More than a half of respondent state that they are not aware of religious taxes (Fig. 3).

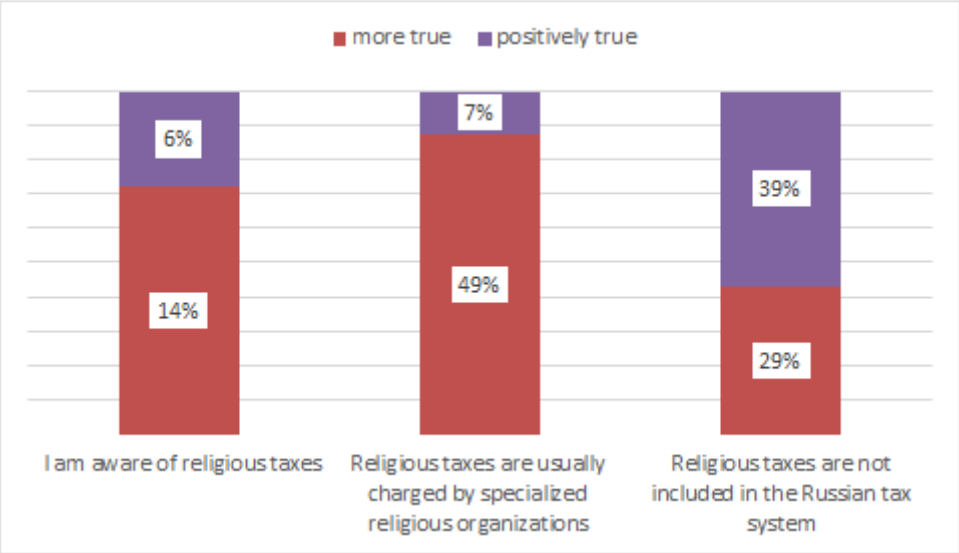

Fig. 3. The awareness of religious taxes

The lowest was awareness of sharia taxes. Only 5% of respondents believe that they are aware of sharia taxes. Surprisingly, all of them answer that there are not sharia taxes in Russia, which make their subjective awareness doubtful (Fig. 4).

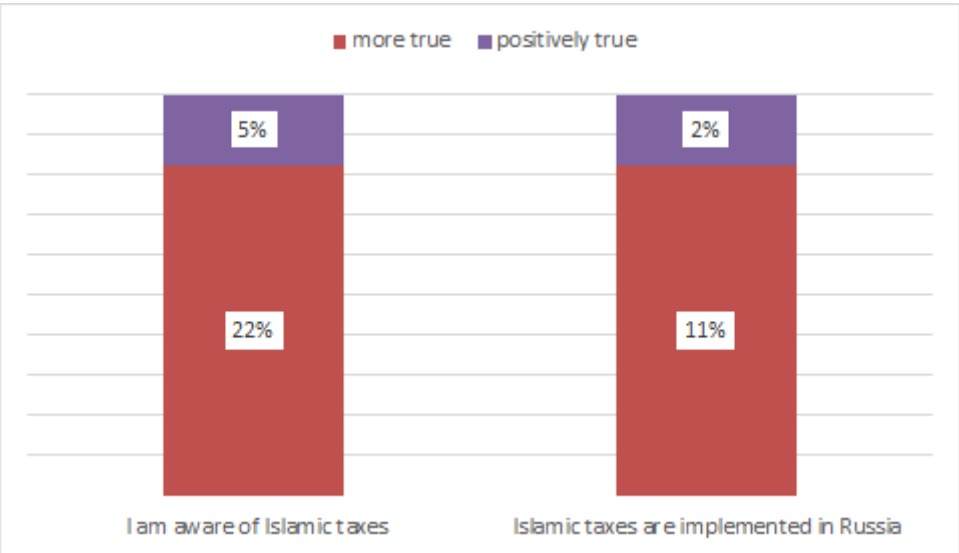

Fig. 4. The awareness of sharia taxes

Taking into account the survey results in aggregate, the authors come to conclusion that hypothesis about low level of awareness about sharia finance and taxation was confirmed.

4.2 Modeling the Loyalty to Imposition of a Special Socially Oriented Tax

Second part of the research implies econometric modeling the loyalty to imposition of a special socially oriented tax with signs of zakat.

In the analysis, 122 from 127 observation were used excluding those with incomplete answers.
12 regression coefficients were tested:

– 9 ordinal variables based on second part of questionnaire and reflected the attitude of respondents to the ethical foundations of financial relations and the social responsibility;
– 3 sets of dummy variables: for female students, for second-year students, for third-year students.

In the issue, we obtained the following statistically significant model (tab. 1).

Table 1: modeling the loyalty to impose a special socially oriented tax with signs of zakat

ologit SpTax SocRespB NonGovFund DetermPerc PITdecrease SecondYear

Iteration 0: log likelihood = -144.52339
Iteration 1: log likelihood = -122.11002
Iteration 2: log likelihood = -121.01599
Iteration 3: log likelihood = -121.01352
Iteration 4: log likelihood = -121.01352

Ordered logistic regression — Number of obs = 122
LR chi2(5) = 47.02
Prob > chi2 = 0.0000
Log likelihood = -121.01352 — Pseudo R2 = 0.1627

SpTax	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
SocRespB	- .579599	.2680124	-2.16	0.031	-1.104893	-.0543041
NonGovFund	.502654	.2363988	2.13	0.033	.0393214	.9659875
DetermPerc	1.001874	.2457274	4.08	0.000	.5202569	1.48349
PITdecrease	.459762	.1670974	2.75	0.006	.1322571	.7872668
SecondYear	1.315009	.4765873	2.76	0.006	.3809149	2.249103
/cut1	1.595964	1.064465			-.4903485	3.682276
/cut2	4.453875	1.12938			2.240332	6.667418
/cut3	7.111679	1.259993			4.642138	9.58122

The selection of relevant factors was based on t-test at 5% significance level. Table 1 shows that only five factors proved to be significant, including:

– opinion that financial relations should comply with strict moral principles;
– a financial system should promote socially equal distribution of income in the society;
– a state should provide financial support for socially vulnerable categories of the population;
– all of the society is responsible for such kind of financial support;
– an individual should carry the donations to support the socially vulnerable categories of the population at a certain time and amount.

Chances to agree with imposition of the special socially oriented tax are significantly higher for the second-year students, compared to third- and forth-years students. Such a result, in our view, means that younger students associate themselves with taxpayers to a lesser extent. The same time, gender differences were found to be insignificant.

The factor which reduces the likelihood of agreement with the imposition of a special tax with signs of zakat is the perception that financial support for socially vulnerable categories of the population is a compulsory element of social responsibility as applied to the business community

5 Conclusions and Discussion

We consider the Islamic taxation as one of the most important elements of the Islamic financial system, which can be defined as the set of financial markets and financial institutions operating in accordance with some special principles. These principles, focusing on the social and religious aspects of financial relations, strongly differ from the conventional ones. Therefore, there are two dimensions of our research: not only financial, but also ethical.

The role of Islamic taxation in the Islamic financial system is usually underestimated. The same time, this institution is widely represented and develops at the rapid pace. In many countries, including Russia, Islamic taxes are collected and distributed by non-governmental organizations. What is also important to note, Muslims are largely guided by religious norms in their everyday life. Therefore, the rate of Muslim population is the significant factors for the Islamic financial system's growth. Therefore, the importance of Islamic financial instruments and taxes in Russia and other countries will surely increase.

The research proved that there is a clear interconnection between taxpayers' financial ethics and opportunities to implement the Islamic tax model. In particular, the loyalty to imposition of the special socially oriented tax with signs of zakat positively relates to the following statements: an individual should regularly donate the part of his income to support the socially vulnerable categories of the population; administrating socially oriented taxes should be the responsibility of special non-governmental organizations with publicly available and transparent reporting; any socially oriented expenditures should be taken into account in the personal income tax.

As for the further research, subsequent surveys seem prospective to be conducted attracting other respondents: a) with higher level of awareness about Islamic financial system; b) from regions with high rate of Muslim population; c) older than second-, third- and forth-year bachelor students.

In conclusion, we would like to stress that Islamic taxation, focused on personal and social responsibility of the taxpayer, presumes innovative tools. Methods of effective tax communication and special marketing techniques are used. Transferring zakat is possible with a wide range of modern payment instruments. This, in sum, creates maximum convenience for taxpayers and ensures their involvement and commitment. In our view, such positive aspects need to be taken into account in the traditional tax administration. It means that financial ethics does really matter in the question of an effective taxation.

Notes

[1] Let us put an example. The research on development prospects of Islamic banking in India showed that the respondents (the students of three universities in Chennai) "have a positive and favorable patronage towards Islamic Banking due to their perception about its success in other parts of the world" (Masvood, Lokeswara Choudary, 2015). To study the required factors, the authors of the abovementioned research applied percentage analysis, t- test and ANOVA. As for the Russian Federation, there have been few surveys of attitude to Islamic financial principles, institutions and instruments, but in contrast to international practice without economic modeling (e.g., Kalimullina, 2010).

[2] As it is well known, usury was prohibited in the Medieval Europe. Let us illustrate this assertion by a quotation from 'The Divine Comedy' (Dante):
"…*Obsequious follows, as the learner treads*
In his instructor's step, so that your art
Deserves the name of second in descent
From God. These two, if thou recall to mind
Creation's holy book, from the beginning
Were the right source of life and excellence
To human kind. But in another path

The usurer walks; and Nature in herself
And in her follower thus he sets at nought,
Placing elsewhere his hope…".

However, there is a clear difference between the Islamic and the early European conceptions of interest rate (for more details: Homer, Sylla, 2005).

[3] In this regard, let us draw attention to such feature of the Islamic tax system, as the absence of indirect taxes. These taxes cause higher prices for goods. They are not directly related to welfare of consumers. The same time, being paid by rich and by poor, indirect taxes are regressive by nature and, consequently, have the greatest burden on needy. It is very remarkable that in the days of the Prophet Muhammad, fixing taxable wealth and income was rather complex matter. Therefore, duties and excises were the most widely spread. However, direct taxes of all taxes and duties become Islamic, since they admit implementing socially fair redistribution of income. To the present day, tax systems of many Muslim countries, including those of the Cooperation Council for the Arab States of the Gulf, are based on direct taxes. Religious leaders do not support projects on VAT implementation because this tax contradicts the spirit of Islamic taxation. Hence, there are great concerns of substantial VAT evasion in the case of its imposition (Gurnak et al, 2014).

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Measuring Innovation and Predicting Firm Performance (Part 1)

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Abstract

Innovation has become a 'magic word' in management practice and economic policy. An innovative company is defined as a company that develops innovative services, products and internal processes and is not a trend follower but a trend setter and can thus profit from a competitive advantage. Therefore, innovation is received as the actual path to growth because the assumption is that innovation is the success driver for the firm and increases its value disproportionally. However, innovation initially results in only costs and risks. Thus, the question occurs regarding how to measure the performance contribution of innovation in scientific studies to provide evidence whether innovation really pays back, particularly in the context of the concept of second mover advantage, which questions the idea of first mover advantage and favors imitation instead of innovation. Therefore, the first part of this conceptual paper criticizes recent studies and develops an own approach, which will be tested in the paper's second part. To prepare this test, the first part develops a predictor based on a case study.

Keywords: Innovation, Innovativeness, Meassuring Innovativeness, Research & Development, Key Performance Indicators, Firm Performance

JEL Classification: C18 Methodological Issues: General; D22 Firm Behavior: Empirical Analysis; O32 Management of Technological Innovation and R&D

Introduction

Due to increasing dynamics and complexity, as well as highly saturated markets, a rethinking of business is required to stand out from the competition, which usually leads to price competition between companies with increasingly more comparable products and services. The common believe is that innovation is the key to escaping from ruinous price wars.

In stagnant or saturated markets, growth can result from three sources: customer loyalty, marketing, and innovation whereas the latter factor can also be seen as synonymous with quality. An innovative company is distinguished in that it develops services, products and internal processes at least as fast as the market changes. It is not a trend follower but a trend builder and can thus be one of the first to take an advantage, with the result of higher profitability due to a competitive advantage. The implementation of promising ideas into successful innovations is not only time-consuming but also a

costly and risky challenge. Innovation requires often high financial investments while the chances of success cannot be determined.

The problem is that the simple connection between innovation and firm performance is not as simple as it seems on the first view. The objective of this study is to develop a testing approach to determine in more detail the performance contribution of innovation beyond the R&D expenditure as the main determining variable. Two measurement dimensions derive from this study's issue: (1) firm performance and (2) innovation. In the case of firm performance, possibly the best reference is the so-called success factor research.

The main financial indicator in quantitative empirical studies concerning innovation and its impact on firm performance is R&D expenditures. This approach is criticized as insufficient. This becomes particularly apparent in relation to firm performance. Thus, for example, Sridhar observes in their study on innovation that R&D expenditures and revenue are correlated moderately high. The interpretation of this result is not as simple as it may be on the first view, because the existence of a correlation neither reveals anything about causality nor the direction of a possible direct causal link between both variables. They can co-vary only randomly or are influenced by a third variable, etc. This problem becomes apparent also by a simple case study of three companies (Apple, Fiat and Honda).

If one compares the correlations between the R&D costs and performance metrics of Fiat and Honda, it appears that the correlations between R&D expenditures and revenues and R&D expenditures and intangible assets is as high as in the case of Apple. More relevant concerning the testing of the NI/R&D ratio is the fact that Apple's net income explains only 30% of the ROIC variance, whereas the NI/R&D ratio 85% of the ROIC variance, whereas the range between Fiat's NI/R&D ratio (explained variance = 88%) and its net income (explained variance = 86%) is very small. To remind once again, both ROIC and the NI/R&D include net income as a factor, so that generally a higher correlation is expected. More important is the fact that net income doesn´t explain Apple's ROIC, but the NI/R&D ratio does. Therefore, the assumption is that the NI/R&D ratio expresses the value contribution of innovation in the case of Apple. This is all the more obvious in the face of the explanation power of Apple's R&D and intangible assets as independent variables (see Tab.4) and their correlations with the ROIC.
These results show that in both cases, the NI/R&D ratio is comparably high, which can be explained by the fact that the ROIC and the NI/R&D ratio is calculated based on net income whereas the range between the NI/R&D-ROIC correlation and the net income/ROIC correlation in both cases is extremely different. This leads to the assumption that the range between both correlations may be the value to differentiate between innovative and non-innovative companies. Based on this concept, the second part of this conceptual paper will test the difference between the NI/R&D-ROIC correlation and the NI/ROIC correlation as a predicator with a larger sample from one industry. The hypothesis is that this profitability–innovation predicator allows the prediction of firm performance due to the firm-specific innovativeness.

I. Research Problem

Due to increasing dynamics and complexity, as well as highly saturated markets, a rethinking of business is required to stand out from the competition, which usually leads to price competition between companies with increasingly more comparable products and services. The common believe is that innovation is the key to escaping from ruinous price wars.

An innovative company is distinguished in that it develops services, products and internal processes at least as fast as the market changes. It´s not a trend follower but a trend builder and can thus be one of the first to take an advantage, with the result of higher profitability due to a competitive advantage[1]. In stagnant or saturated markets, growth can result from three sources: customer loyalty, marketing, and innovation[2] whereas the latter factor can also be seen as synonymous with quality. According to management text books, innovation is the main driver of firm growth and company performance because growth always takes place where the invention of new markets is possible.

Therefore, innovation is widely regarded as the success driver for businesses because innovation increases firm value mostly disproportionally[2]. Thus, the creation of innovation, from selling new products to the introduction of new procedures in operations, is seen as the key success factor for companies and organizations in academic research[3].

On the other hand, innovation causes, first of all, only costs because market success does not come by itself. Budgets suffice often only for research and development, but not for the production, product launch, and market penetration, so that innovation failure is often caused by a lack of ample funding[4]. The implementation of promising ideas into successful innovations is not only time-consuming but also a costly and risky challenge. Innovation requires often high financial investments while the chances of success cannot be determined.

Real innovation includes transformed ideas and developments into new products, services or processes. Thus, commercial implementation as the diffusion of innovation in the market is an indispensable part of innovation, at least in the framework of economic research and theory.

According to Hausschildt[5] innovation is characterized as follows:
1. New Combination of Means and Ends: Innovations cover market needs. Innovation is a combination of problem-solving with a market need.
2. Commercializability/Marketability: An innovation is successful if the market launch is successful and the innovation reaches the break-even point. The product must prove itself in the market as economically successful.

In particular, the second characteristic is of a high relevance for this conceptual paper. To pronounce it, innovation must be profitable; otherwise, it is a nice but a costly idea.

In economics, the term innovation was introduced by Schumpeter's theory of innovation, who defines innovation as the implementation of a new production function[6]. Recent literature distinguishes a variety of innovation categories such as (1) product, process, business model and management innovation, (2) technical and organizational innovation, (3) service innovation, (4) business model innovation, (5) design innovation, and (6) social innovation[7]. For Schumpeter an innovator is the creative entrepreneur as opposed to arbitrage entrepreneur who exploits only existing price differences, respectively, market inefficiencies for profit. The creative–destructive entrepreneur searches for new fields of economic activities[8]. His driving force is the short-term innovation monopoly, which provides the innovative entrepreneur a ‘pioneer premium’, which results in monetary benefits, for example, by means of higher productivity through process innovation or through higher pricing due to product innovation and a temporary monopoly[9].

According to Schumpeter, innovation is the implementation of technical or organizational innovation in the production process, not just the invention itself[10]. Thus, innovation is a process and not only a one-time event, in terms of idea generation and must be distinguished from creativity and invention. In contrast to creativity, which is engaged in the development of ideas, innovation is the commercial exploitation of ideas in the form of the transformation of ideas and inventions in monetary successful products or services[11]. Therefore, innovation management is seen as a key part of corporate strategy and refers to, on the one hand, products and services, but also on the other hand, to production processes, organizational structures, and management processes. Thus, innovation has an exterior side referring to the market, and an interior side referring to the firm, because product innovation usually aims at better meeting the customers’ needs whereas process innovation focuses on improving the effectiveness and efficiency of processes within the firm[12].

The problem is that the simple connection between innovation and firm performance is not as simple as it seems on the first view. Empirical research regarding innovation and firm performance must deal with the problem that detailed internal data at the firm level are hardly available, so that research often must rely on external data[13] available from, for example, annual reports, board presentations, or market research studies.

II. Research Problem

The application of R&D expenditures as general measure for innovation intensity is widely criticized in the literature as not being sufficient to measure innovativeness[15]. The identified problem is that the multi-dimensionality of innovativeness is hardly to measure. This becomes explicitly apparent regarding the many dimensions and types of innovation mentioned in the sections above. Therefore, the challenge is to make more use of the rare available data in using more advanced instruments developed in the context of financial analysis, which is mainly developed to evaluate a single company or a stock but is also relevant for analyzing larger datasets. This may be a way to improve the quality of empirical research in the field of innovation and firm performance, which is the objective of this two-part conceptual paper.

The approach of this conceptual paper is to test a research approach with a limited data set of 30 companies from one industry based on a further developed variable set, which allows going beyond the testing of only first-order and second-order financial variables from annual reports. Thus, the objective of this study is to develop a testing approach to determine in more detail the performance contribution of innovation beyond the R&D expenditure as the main determining variable.

Two measurement dimensions derive from this study's issue: (1) firm performance and (2) innovation. In the case of firm performance, possibly the best reference is the so-called success factor research. In this research field, performance is measured mainly in terms of firm growth based on a variable set for which financial research provides metrics to measure quantitative and qualitative growth. Davidson and Delmar (1997) and Delmar et al. (2003) found that turnover/sales is the most frequently applied performance measure in the field of success factors research.

It must be noted critically that employee growth may be an indicator for the expansion of the firm, but not in the sense of business success, because the expansion of employees is at first the expansion of costs. Thus, employee growth seems to be a not so suitable indicator for performance, whereas revenue indicates at least that the company expands on the market to a certain extent, and is thus an indicator for market success. Only a few studies use profitability ratios such as return on equity (ROE), return on assets (ROA), or return on invested capital (ROIC) whereas none applies market share or economic value-added metrics as firm performance indicators.

The main financial indicator in quantitative empirical studies concerning innovation and its impact on firm performance is R&D expenditures (e.g., Abazi-Alili, 2014; Sridhar et al., 2014). As mentioned, this approach is criticized as insufficient[16]. This becomes particularly apparent in relation to firm performance. Thus, Sridhar et al. (2014), for example, observe in their study on innovation that R&D expenditures and revenue are correlated moderately high with[17] $r = 0.691$ and $p < 0.05$. The interpretation of this result is not as simple as it may be on the first view, because the existence of a correlation neither reveals anything about causality nor the direction of a possible direct causal link between both variables. They can co-vary only randomly or are influenced by a third variable, etc. This problem becomes apparent also by a simple case study of three companies, which will be conducted in the following sections.

Apple may be seen as ideal–typical for an innovation-driven, company[18]. If one calculates Pearson's R to determine the correlation between R&D costs and revenue, intangible assets, gross profit as well as net income, Apple shows no correlation with $r < 0.9$ (fig. nr. 1).

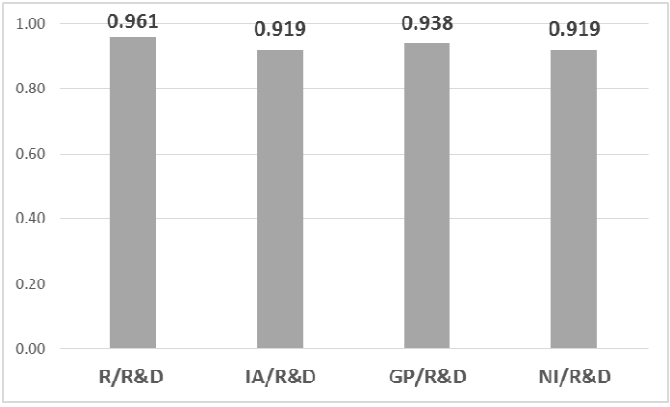

Fig. 1. Correlations between R&D Costs and Performance Indicators for Apple (2005–2014)
Data Source: Revenue, intangible assets, gross profit, and net income from Morningstar Database.

Note: R = revenue, IA = intangible assets, GP = gross profit, NI = net income.
Source: Own calculation based on annual report data for the time period 2005–2014 drawn from the Morningstar database; observations = 10; all p-values < 0.01 (two-tailed), which indicates highly significant results.

As mentioned, Sridhar et al. (2014) observe in their study on innovation, leaders based on financials that R&D expenditures and revenue are correlated moderately high with[19] r = 0.691, with a significance of p < 0.05. Out of this result they conclude that a firm's R&D intensity is the explanatory variable for firm performance in the longer term, at least in the case of the high-technology industry[20].

The question occurs whether R&D expenditures determine market success indicated by revenue growth or vice versa. Because it could also be the case that companies follow a relatively static approach in budgeting R&D expenditures, depending on revenue growth as a more or less fixed share of revenue. This assumption may be supported by a simple comparison, for example, between the high-technology company Apple and two car manufacturers, Fiat and Honda, which are not notorious for innovativeness, as the first step to developing a determining variable with a higher forecasting ability and a clear causal link.

If one compares the correlations between the R&D costs and performance metrics of Fiat and Honda, it appears that the correlations between R&D expenditures and revenues and R&D expenditures and intangible assets is as high as in the case of Apple (fig. nr. 2).

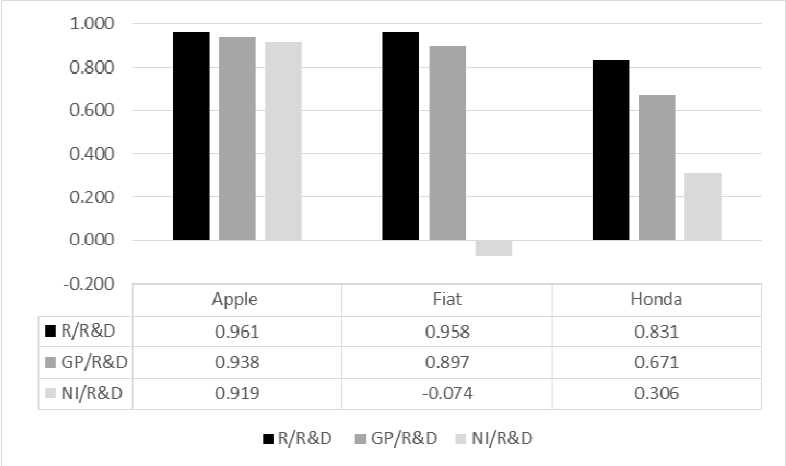

Fig. 2. Correlations between R&D Costs and Performance Indicators for Fiat, Apple, & Honda (2005–2014)

Data Source: Revenue, intangible assets, gross profit, and net income from Morningstar Database.

Note: R = revenue, IA = intangible assets, GP = gross profit, NI = net income.
Source: Own calculation based on annual report data for the time period 2005–2014 drawn from the Morningstar database; observations = 10 for each company; $p < 0.05$ (two-tailed) for all coefficients except Honda NI/R&D with $p = .38$ and Fiat NI/R&D with $p = .83$.

Based on the results of Sridhar et al. (2014), Fiat and Honda are also high-innovative companies. Fiat shows the same pattern as Apple. Revenue and R&D expenditures are in both cases equally highly correlated as well as R&D expenditures with intangible assets and R&D expenditures with gross profit. Instead, Fiat and Honda are not able to convert R&D expenditures in net income to the same extent as Apple, although Fiat is also able to convert R&D expenditures into intangible assets and gross profit to almost the same extent as Apple. This raises first the question of which is the relation between revenue and R&D expenditures, and then the question of whether the relation between R&D expenditures and net income is more revealing to determine the innovativeness of a company, because as mentioned, it does not matter how inventive a company is; however, what matters is if the company is able to convert inventiveness into innovativeness, which is the conversion of ideas and invention into commercializable and profitable products. Innovation is not only the ability to develop new products and product features, but to convert these innovations into market success respectively firm performance. Mendes dos Reis[21] conclude, by comparing Apple and Fiat, that both companies may have the same degree of inventiveness, but differences in their supply chains' flexibility lead to differences in firm performance, which lead to better sales management in the context of product life cycles. This assumption can be verified by Fiat's correlations (see Fig. 2). Fiat is able to convert at least R&D expenditures, but not into net income, which means that somewhere in the value chain, cash 'gets lost'. Thus, it becomes apparent that inventiveness does not necessarily lead to market success and that innovation is not only a product of R&D, but of the management of the whole value chain with the purpose of generating profit. Therefore, it is necessary to follow the value chain starting with R&D expenditures through intangible assets to net income. In the case of Apple and Fiat (fig. nr. 2), it becomes apparent, that Fiat loses innovation momentum along the value chain, namely much more than Honda. Based on this value flow, it seems appropriate to use a different measure, as the most of the innovation/firm performance studies do.

However, a correlation indicates, at first, only a relationship and not the direction of the relationship. In this case, it is also possible that the increase in revenue also leads to an increase in R&D because more cash is available to finance R&D investments. Also the converse assumption is plausible: Innovation increases sales opportunities and allows higher prices, which may lead to an increase of revenue. Instead, in the case of Fiat, revenue is highly and significantly correlated with R&D expenditures and also intangible assets, but not with net income whereas R&D expenditures are also highly correlated with intangible assets (Table 1). This, at least, shows that Fiat generates intangible assets out of R&D expenditures and even gross profit, but not a higher net income (Table 1).

	Revenue	**R&D**	**Net Income**	**Intangible Assets**	**Gross Profit**
Revenue	1.000				
R&D	0.958*	1.000			
Net Income	-0.056	-0.074	1.000		
Intang. Assets	0.948*	0.925*	-0.266	1.000	
Gross Profit	0.970*	0.897*	0.118	0.878*	1.000

Table 1. Bivariate Correlation Matrix for Fiat
Source: Own Calculation; Note: * $p < 0.05$ (two-tailed).
Data Source: Revenue, intangible assets, gross profit, and net income from Morningstar Database.

It becomes apparent that the simple correlation of R&D and revenue neither indicates innovativeness nor explains firm performance, as the mainstream of empirical innovation studies mentioned above suggests. As the case of Fiat and Apple shows, both companies show a high correlation between revenue and R&D expenditures. The higher R&D expenditures are, the higher is the revenue. According to the studies mentioned above, this represents evidence that R&D leads to firm performance. Fiat shows an increase in revenue but not in net income, which is, under the bottom line, a more relevant measure to determine the relationship between R&D and firm performance because, as it was argued, innovation is only as 'good' as long it creates profit and thus firm value.

III. Developing a Predictor Measure to Predict Firm Performance

Therefore, it seems appropriate to reflect on a more sophisticated measure to explain the relationship between product innovation and firm performance, because it is apparent that the correlation between revenue and R&D does not explain that innovation leads to firm performance. This means also that R&D expenditures are not a predictor for firm performance. The simple case study above shows that R&D is only somehow correlated with revenue. However, neither the direction nor the relevance of the correlation of both variables to determine firm performance is plausible. Instead, it occurs even with the assumption that revenue only predicts R&D expenditures and not vice versa, so that it remains unclear what´s the dependent and the independent variable. Furthermore, following the concept that innovation not only invents new product features or new products, but generates cash, leads to the requirement that first of all, the measure for firm performance must be different and that another predicator variable must be found.

Haric et al. show in their success factor study, based on the so-called hidden champions, that the high performance of these companies depends not on breakthrough innovation but on incremental permanent product innovation in little steps[22]. Haric defines hidden champions ('unofficial winners') as medium-sized companies, which are European or world leaders in niche markets or niche segments of larger markets. They are 'secret winners' because they usually are not public companies and therefore hardly known, because they are not observed by analysts, investors, or the media. The niche markets they occupy are so small in terms of sales volume that they are usually not recognized by larger international companies so that the competition intensity is also very low in these market niches. They were able to occupy these niches due to their customer-driven and thus focused innovativeness and, therefore, they are highly profitable companies, although, or precisely because they are not breakthrough innovators[23]. This is due to that fact that Haric et al. state that the ratio between R&D and net income (NI/R&D-ratio) is higher than in larger companies with a mass market focus and a cost–leadership strategy[24].

The NI/R&D-ratio expresses to which extent a company is really able to realize added-value in terms of net income from one dollar spent in R&D. Thus, a ratio of 1 means that one dollar spent in R&D generates one dollar of net income (NI). Although this ratio depends on many other variables such as process efficiency, supply chain management, etc., it shows how much of innovation spending is really converted along the value chain into profitability. Thus, Apple, for example, shows an NI/R&D ratio of 6.5 for 2014, which means that one dollar spent for product innovation generates a USD 6.5 ratio in net income (see Table 2).

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Net Income	1,335	1,989	3,496	4,834	8,235	14,013	25,922	41,733	37,037	39,510
R&D	534	712	782	1,109	1,333	1,782	2,429	3,381	4,475	6,041
R&D/ NI Ratio	2,50	2,79	4,47	4,36	6,18	7,86	10,67	12,34	8,28	6,54

Table 2: NI/R&D-Ratio Calculation for Apple (2007-2014)
Source: Own calculation and presentation.
Data: Net income and R&D expenditures from Morningstar Database.

Thus, the NI/R&D-ratio reflects the ability to realize net income from innovation, which depends not only on 'invention' but on implementing added-value along the whole value chain out of innovation, because innovation, to repeat it, is only relevant when it creates net income. The relevance of this ratio also becomes apparent in comparing the NI/R&D ratios of Honda, Fiat, and Apple (Fig. 3).

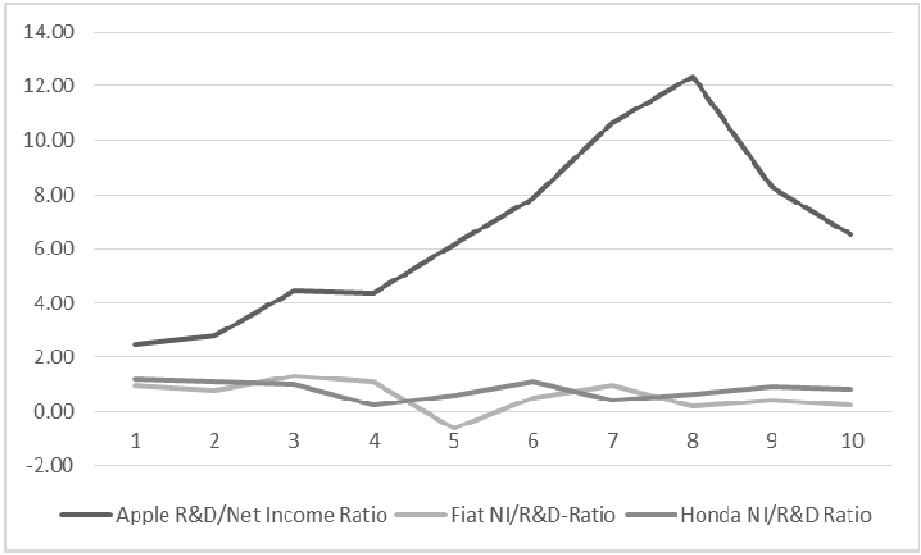

Fig. 3. Comparison of NI/R&D Ratios of Honda, Fiat, and Apple
Source: Own calculation and presentation.

Figure No 3 encourages the assumption that the NI/R&D ratio 'makes a difference' in measuring innovativeness and may indicate much better the difference between high-innovative companies and other non-innovative companies. The question remains regarding whether this indicator may also serve as a predicator of firm performance. Because, if the NI/R&D ratio can also predict firm performance, then the ratio can confirm that innovativeness in terms of being inventive and being able to transform innovation into marketable products, such as Hausschildt has defined[25]. It really makes a difference in firm performance.

According to Hawawini and Viallet[26] the capacity of the firm to create value is mainly driven by the profitability of its business whereas profitability is measured as return on invested capital (ROIC). Therefore, the ROIC is the worldwide commonly used measure of firm performance in management[27] and investment analysis. If one calculates the correlation coefficients for Fiat, it becomes apparent, that neither revenue or R&D expenditures nor intangible assets or gross profit explains the profitability and thus the capacity of value creation of the company (Table 3).

	NI/R&D Ratio	Revenue	R&D	Net Income	Intang. Assets	Gross Profit	Revenue Growth YoY
ROIC	0.942**	-0.252*	-0.289**	0.929**	-0.462*	-0.061**	0.264**

Table 3: Correlations for Fiat Key Figures (2005-2014)
Source: Own Calculation; Note: * $p > 0.05$, ** $p < 0.01$ (two-tailed).
Data Source: Revenue, intangible assets, gross profit, and net income from Morningstar Database.

However, the correlations between the NI/R&D ratio or net income and the ROIC are high (0.942 and 0.929) and significant ($p < 0.01$). This is not surprising at first, if one considers the ROIC formula which is

$$ROIC = \frac{Net\ Income - Dividends}{Total\ Capital}$$

Therefore, it is first of all, consequently compelling logic that the ROIC is highly correlated with net income and the NI/R&D ratio. The difference between all three measures is the ROIC calculates the profit of a dollar of the total capital invested. Thus, for example, Fiat's ROIC of 1.33 in 2014 indicates that the company's management generates from one dollar of the company's total capital invested only USD 0.0133, whereas Apple's ROIC of 26.2 (2014) signals that the company's management generates USD 0.25 of every dollar of the total capital invested.

The interpretation of the correlations of Tab. 3 reveals that the NI/R&D ratio explains 94% of the total profitability of a company, whereas the net income explains 'only' 92% of the profitability. The conclusion is that Fiat's R&D expenditures do not have a high impact on the company's profitability because the range between both correlations is very small. This is also supported by the low correlation of -0.289 between R&D expenditures and Fiat's ROIC.

Instead, in the case of Apple, the results are highly different. This applies first for the variables gross profit, intangible assets, and revenue growth, which shows a relatively high correlation with the ROIC whereas the correlations in the case of Fiat indicate that these variables have no effect on Fiat's ROIC.

	NI/R&D Ratio	**Revenue**	**R&D**	**Net Income**	**Intang. Assets**	**Gross Profit**	**Revenue Growth YoY**
ROIC	0.923**	0.456*	0.269	0.549**	0.500**	0.522*	0.656**

Table 4: Correlations for Apple Key Figures (2005-2014)
Source: Own Calculation; Note: * p > 0.05, ** p < 0.01 (two-tailed).
Data Source: Revenue, intangible assets, gross profit, and net income from Morningstar Database.

These differences between Fiat and Apple can be interpreted as follows: Neither the intangible assets, nor the gross profit or revenue have any effect on Fiat's profitability (see table nr. 3). This means, that Fiat's revenue growth is not really profitable, and the build-up of intangible assets does not generate any profit. On the contrary, the correlation of -0.462 in the case of Fiat shows a moderately negative effect of intangible assets on the ROIC as well as R&D expenditures on ROIC with -0.289.

Instead, Apple was able to convert its investment into R&D in profit. Whereas R&D expenditures explain 7% of the ROIC variance (r = 0.269; r2 = 0.072), intangible assets explain 25% of the ROIC variance (r = 0.500). The relationship seems intuitively logical. R&D activities creates intangible assets such as patents, trademarks, brand value, etc.

III. Research Design Conclusions

What´s more relevant concerning the testing of the NI/R&D ratio is the fact that Apple's net income explains only 30% (r2 = 0.301) of the ROIC variance, whereas the NI/R&D ratio 85% (r2 = 0.851) of the ROIC variance, whereas the range between Fiat's NI/R&D ratio (r = 0.942; r2 = 0.887; explained variance = 88%) and its net income (r = 0.929; r2 = 0.863; explained variance = 86%) is very small. To remind once again, both ROIC and the NI/R&D include net income as a factor, so that generally a higher correlation is expected. All the more important is the fact that net income does not explain Apple's ROIC, but the NI/R&D ratio does. Therefore, the assumption is that the NI/R&D ratio expresses the value contribution of innovation in the case of Apple. This is all the more obvious in the face of the explanation power of Apple's R&D and intangible assets as independent variables (see Tab.4) and their correlations with the ROIC.

However, these results show that in both cases, the NI/R&D ratio is comparably high, which can be explained by the fact that the ROIC and the NI/R&D ratio is calculated based on net income whereas the range between the NI/R&D-ROIC correlation and the net income/ROIC correlation in both cases

is extremely different. This leads to the assumption that the range between both correlations may be the value to differentiate between innovative and non-innovative companies. Based on this concept, the second part of this conceptual paper will test the difference between the NI/R&D-ROIC correlation and the NI/ROIC correlation as a predicator with a larger sample from one industry. The hypothesis is that this profitability–innovation predicator (PI predicator) allows the prediction of firm performance due to the firm-specific innovativeness. The profitability–innovation predictor is defined as:

$$PI\ Predictor = NI\text{-}R\&D\text{-}Ratio/ROIC\ Correlation - NI/ROIC\ Correlation$$

Where:
NI – Net Income
R&D – Research and Development
ROIC – Return on invested capital

The hypothesis to be tested is: The PI predictor, calculated on a previous 5-year period, predicts the firm performance of the consequent 5-year period. The assumption is: The higher the PI predictor in the period year 1 and year 5 (y1-y5), the higher is a company's net income and ROIC in the period year 6 and year 10 (y6-y10). This test will be conducted in the second part of this conceptual paper.

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Social and Environmental Risks: The Role of Board Members

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Abstract

Corporations are increasingly being pressured to manage their business risks including their social and environmental risks. The aim of this study is to examine the extent to which plantation companies in Malaysia address their social and environmental risks and the role of the board of directors in motivating the disclosure of risk management information. The agency theory was used to underpin arguments for the study. Content analyses of the annual and sustainability reports of forty (40) public-listed companies in the plantation industry for the year 2013 was undertaken to examine the quantity of risk management disclosure among these companies. The data for the multiple regressions was analyzed using the Structural Equation Modelling technique of Partial Least Squares (SEM-PLS).

The results of the study revealed that for social risks, *Community Involvement* issues were the most disclosed item while for environmental risks, the companies were concerned with *Pollution Abatement/Environment awareness* risk management issues. The findings from the study revealed that board professionalism was significant in inducing management to provide risk management information to stakeholders. However, board interlock and board size were not significant drivers motivating risk management disclosure. The findings from the study suggest that the professionalism of board members is critical to guide managements towards revealing risk management information. The findings from the study provide evidence that plantation companies in emerging economies such as Malaysia are becoming concerned about the social and environmental impacts of the palm oil plantation to the community and are taking steps to address these issues.

Keywords: Corporate Governance; Social and Environmental Risks Management; Board Characteristics

1. Introduction

The governance of an organization is normally related to its policies, organizational structures and procedures by which the organisation is administered and manages itself both internally and externally. The Cadbury Committee (1992) viewed corporate governance as "the system by which companies are directed and controlled' (p.15). With the increasing importance of corporate social responsibility (CSR) in today's business environment, organisations have no choice but to include social and environmental risks management as part of their enterprise risk management system. Therefore, the scope of corporate governance of an organisation today has expanded to include managing the social and environmental risks management system. The board of directors of an organisation as the highest governing body has a critical role to play in the governance of an organization including managing the social and environmental risks. This is because the board of directors as agents has the duty of making sure that management of the organisation is behaving in a way that will provide the optimal value for shareholders (Coles et al., 2001) to ensure that the firms' activities are aligned with the set objectives of the organisation. The board of directors is therefore required to direct and monitor the activities of top management as such activities have been argued will be able to improve the quality of the managers' decisions (Monks and Minow, 1995).

Therefore, one critical aspect of the role of the board members relates to overseeing risks management system as such risks management system will ensure that the organisations will not be exposed to excessive financial and business risks that could result in the organisation becoming financially distressed. Anderson and Anderson (2009) pointed out that an effective risk management system will enable an organization to reduce the negative effects of various risks both quantitative and qualitatively. They argued that a proper risk management implementation enables an organization to respond to the adverse effects caused by various risks and furnishes a steady stream of business opportunities that can reduce the volatility in corporate earnings. However, despite the emergence of social and environmental risks in today's business environment, risks mitigation system involving such risks are still ignored by many organisations where they still do not spend time in planning risk mitigation strategies relating to such risks for their organisations. Therefore, the focus of this study is to examine the extent to which plantation companies in Malaysia address their social and environmental risks management issues and the role of the board of directors in influencing the quantity of disclosure of social and environmental risk management information. Such study in the context of an emerging economy such as Malaysia is still lacking even though the emergence of such risks are becoming more prevalent especially in plantation industries.

The aim of this study is to examine the extent to which plantation companies in Malaysia address their social and environmental risks management issues and the role of the board of directors particularly board characteristics in motivating the disclosure of risk management information by plantation companies in Malaysia for the year 2013. In this context, it is expected that the board of directors as agents for the shareholders will be motivated to disclose the social and environmental risks management information in their corporate reports to reduce information asymmetry and to ensure greater transparency. Therefore, the agency theory is used to underpin arguments for this study. The focus of this study is on the plantation industry where such industry is subjected to a higher degree of social and environmental risks and is expected to provide more information in their corporate reports relating to social and environmental risks. In summary, this paper seeks to answer the following two questions:

- To what extent do the plantation companies in Malaysia address their social and environmental risks?
- What is the relationship between board characteristics and the disclosure of social and environmental risks management information?

The findings of this study will help to identify the gaps that may exist between the role of the board of directors in determining the risks information disclosed. Despite the importance of the disclosure of risks management information to stakeholders for decision making purposes specifically in relation to equity and debt investment decisions, prior research reveals that the amount of disclosure of risks information in corporate annual reports remains inadequate (Ntim et al., 2013; Taylor, 2011). This is especially for studies on social and environmental risks disclosure.

The remainder of this paper is organized as follows. Section 2 discusses the literature review and hypotheses generation. Section 3 discusses the research methodology. The research findings are reviewed in Section 4. The final section highlights the conclusion and implications of the results.

2. Literature Review and Hypotheses Generation

2.1 Agency Theory

Agency theory has been widely used in empirical research published on the subject of board of directors. Therefore, corporate governance problems may arise when there are two parties who are involved, the managers as agents and the shareholders as principals where there is no substantial reason to believe that the managers will always act in the shareholders' best interest (Jensen and

Meckling, 1976). Therefore, it is the responsibility of the board to represent the shareholder's interests. Jensen (1993) also argues that the board of directors is crucial to ensure the effectiveness of a company's internal control systems:

"The problem with corporate internal control systems starts with the board of directors. The board, at the apex of the internal control system, has the final responsibility for the functioning of the firm. Most importantly, it sets the rules of the game for CEO" (Jensen, 1993, p.862).

Therefore, since risks management is part of the internal control system of an organization, the role of the board of directors is critical in ensuring that the organisation considers and develops a system to mitigate all types of risks that it is exposed to including social and environmental risks.

2.2 Social and Environmental Risks

In the current business setting, organisations cannot afford to ignore social and environmental issues if they are to survive and succeed in the current environment because these are emerging risks area that are of growing importance in an increasingly global economy. The traditional risk management framework does not address corporations' exposure to social and environmental risks such as the implications of emitting greenhouse gases and the global increase in carbon dioxide emissions. As a result, many new frameworks on risks have been developed to incorporate social and environmental concepts into businesses, namely, social, governmental and political systems. For example, Knott and Fox (2010) presented a model which enable users to follow a structured assessment process that integrates sustainability objectives and risks management technique. Delai and Takahashi (2011) also proposed a sustainability measurement system (SMS), which are designed into two phases. The first phase is to determine the steps necessary for designing SMS through an extensive sustainability and performance measurement system based on the development of literature review, whereas the second phase is to develop a comparative analysis of the eight sustainability measurement initiatives. Additionally, sustainability offers a new way of looking at risks. Sustainability, together with traditional risk identification, gives risk managers the information they need to make better informed decisions on an array of risks including social and environmental issues (AON, 2008).

2.3 Board of Directors Characteristics

An effective board of directors is expected to be able to lead and monitor the organisations appropriately. This is because in a corporate governance system directors are entrusted with the responsibilities and duties in relation to a company's affairs where they are accountable in steering the organisation to maximise shareholder's value. Of late, there is a growing number of literature that has provided evidence that the support and commitment from top leadership is essential for the enhancement of CSR initiatives (Maclean & Rebernak, 2007, Janggu, Darus, Mohamed Zain and Sawani, 2014). Such support and commitment by top leadership will result in organisations gaining competitive advantage (Guarnieri and Kao 2008). In this study, it is expected that the characteristics of board members can influence the organisation commitment to social and environmental risks management system which will subsequently lead to improved disclosure relating to social and environmental risks. In this study, board characteristics namely; board interlock, professionalism of board members in the context of their qualification and the size of the board is expected to influence the disclosure of social and environmental risks related information.

2.4 Board Interlock

Interlocking boards is a situation where board members of one organization are also elected as members of the board of other organisations. In such situation these interlocking boards form a director network to carry the knowledge and corporate practices, either bad or good, between companies (Chiu, Teoh, & Tian, 2013). This is where imitation practices could spread (Westphal et al. 2001; Brandes et al. 2006; Chiu et al., 2013). These imitation practices are more likely to happen in situation of uncertainty such as in risk management strategies relating to social and environmental risks where the strategies and mitigation practices of such risks are still new. Therefore, as interlocked directors observed social and environmental risk practices in other firms, they may adapt

such strategies and practice choices. Therefore, the first hypothesis developed for this study is as follows:

H1. Board interlock is positively and significantly related to risks management disclosure

2.5 Board Professionalism

According to DiMaggio and Powell (1983), there are two aspects of professionalisation. First, is through the formal education, either by universities or professional training institutions and second, is through professional networks, where the change of ideas and information has induced an organisation to be similar with its peers (DiMaggio & Powell, 1983, p. 152). Prior literature have found links between professionalism and the implementation of new accounting practices (Irvin 2008; Carpenter and Feroz, 2001; Touran, 2005). In this study, it is expected that formal education of the board of directors will influence their way of thinking in the context of social and environmental risks disclosure especially where there is now more emphasis in universities training on issues of sustainability. Therefore, the second hypothesis developed for this study is as follows:

H2. Board professionalism is positively and significantly related to risks management disclosure

2.6 Board Size

The relationship between board size and its effectiveness in making business decisions remains as an elusive area. For example Jensen (1993) concluded that larger board was less effective in coordinating communication and decision making and is more likely to be controlled by the CEO. However, Laiho (2011) and found that large board size are believed to be able to monitor the management better than small board size as they internalize larger part of the monitoring costs and have sufficient voting powers to influence the corporate decisions thus reducing the agency costs. Darus, Mat Isa, Yusoff, and Arshad (2015) found that the number of directors on the board influence the CSR information disclosed in companies' annual and sustainability reports. Due to the mixed findings, this study hypothesized that as risk is a critical aspect of the business operations with multitude facets; larger board size will be more effective in managing risk. Thus, the third hypothesis for this study was developed as follows:

H3. The larger the board size the higher the risks management disclosure.

3. Research Method

The sample for this study comprised of forty (40) public listed companies from the Plantation industry in Malaysia for the year 2013 which comprised of the whole population of the public-listed companies listed on Bursa Malaysia. A content analysis of the annual and sustainability reports was undertaken to determine the quantity of social and environmental risks information reported by the plantation companies. As suggested by Zeghal & Ahmed (1990), one of the limitations in using content analysis to measure disclosure quantity is the element of subjectivity involved in determining a particular type of disclosure. To overcome this limitation, the components of risks management disclosure to be investigated in this study were segregated between social and environmental disclosure and were grouped as follows:

Social risks
- human resources/workplace
- community involvement
- marketplace
- stakeholders
- occupational, safety, and health

Environmental risks
- law & regulation
- pollution abatement/environment awareness
- sustainability development/environmental commitment

- environmental management

The quantity of social and environmental disclosure was measured by the number of sentences relating to the categories disclosed. In order to test the relationship between independent and dependent variables in this study, the data was then analysed using the Partial Least Square - Structural Equation Modelling (PLS-SEM) approach using the software version 2.0 developed by Ringle, Wende and Will in 2005.

4. Results and discussion

4.1 Descriptive Analysis

Table 1 and Table 2 present the descriptive analysis of the social and environmental risks disclosure. The results revealed that for the social risks disclosure, the highest mean score was for the *Community Involvement* (10.50) followed by the *Human resources/Workplace* (6.23). The results suggest that the companies were concerned about the impact of their activities on the community and were taking steps to ensure that the risks of their business activities on the community were addressed and mitigated. The companies were also concerned about the risks exposure of the employees in the workplace. While for the environmental risks, the most disclosed item relates to *Pollution Abatement/Environment awareness* (9.03) while the least disclosed item was for the category *Law & Regulation* (1.10). Since the companies comprise of plantation companies, the effects of their operation in the context of pollution were of a major concern to the companies and they seemed to portray that they are aware of such risks and are having a proper environmental pollution abatement strategies to mitigate such risks.

Table 1: Descriptive Analysis for Social Risks Disclosures

	N	Min	Max	Mean	Std. Deviation
Human Resources/Workplace	40	0	62	6.23	13.229
Community Involvement	40	0	55	10.50	16.802
Market place	40	0	26	2.65	5.864
Stakeholders	40	0	50	2.03	8.766
Occupational, Safety, and Health	40	0	43	2.55	8.051

Table 2: Descriptive Analysis for Environmental Disclosures

	N	Min	Max	Mean	Std. Deviation
Law & Regulation	40	0	13	1.10	2.649
Pollution Abatement/Environment awareness	40	0	56	9.03	12.705
Sustainability development/Environmental commitment	40	0	31	4.05	6.441
Environmental Management	40	0	23	1.68	4.382

Figure 1 presents the mean score for the descriptive analysis of the social and environmental risks disclosure.

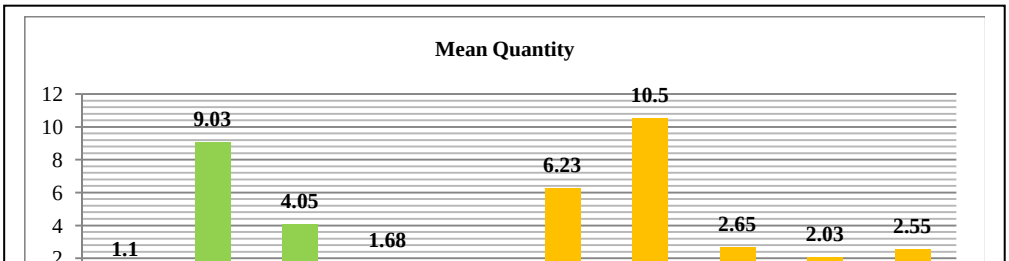

Figure 1: Mean Score for the Social and Environmental Risks Disclosure

4.2. The measurement model

Table 3 summarizes the results of the internal reliability and convergent validity for the constructs. Convergent validity was assessed based on factor loadings, average variance extracted (AVE) and composite reliability (CR) through a procedure called Fornell and Lacker, (1981). All the factor loadings were above the recommended level of 0.5 (Chin, 1998). The AVE quantifies the amount of variance that a construct captures from its indicators relative to measurement error and should be greater than 0.50 (Chin, 1998) which means that 50 percent or more variance of the indicators should be accounted for. Meanwhile CR should be greater than 0.7 as a benchmark for a "modest" reliability. This condition is satisfied for the CR and AVE as shown in Table 3.

Table 3: Measurement model

Construct	Items	Convergent validity		
		Loadings	AVE	CR
Interlock	Interlock	1.000	1.000	1.000
Professionalism	Mast	0.863	0.563	0.715
	Prof	0.617		
Size	Size	1.000	1.000	1.000
Risk	Risk	1.000	1.000	1.000

Table 4 presents the results for the discriminant validity of constructs. In order to assess discriminant validity, AVE should be greater than the variance shared between the construct and other constructs in the model (i.e the squared correlation between two constructs). Discriminant validity is said to be adequate when the diagonal elements significantly greater than the off-diagonal elements in the corresponding rows and column. This condition is satisfied as shown in Table 4.

Table 4: Discriminant validity constructs

	Interlock	Prof	Risk	Size
Interlock	SIM			
Prof	0.275	0.750		
Risk	0.187	0.415	SIM	
Size	0.410	0.205	0.198	SIM

Note: Diagonal represents the square root of the average variance extracted while the other entries represent the correlations.
SIM=Single Item Measure

Therefore, from the results presented in Table 3 and Table 4, the measurement model used demonstrated adequate reliability, convergent validity, and discriminant validity.

4.3 The structural model

Figure 2 presents the explanatory capacity of the structural model for the study. The structural model indicates the causal relationships among the constructs in the model, which includes the estimates of the path coefficients and the coefficient of determination, R^2 value. Together, the R^2 and path coefficients (loadings and significance) indicate how well the data support the hypothesized model (Chin, 1998). The R^2 value for the relationship between the independent variables and risk management disclosures was 0.187 which indicates that 18.7% of the variance in risk management disclosures can be explained by board characteristics.

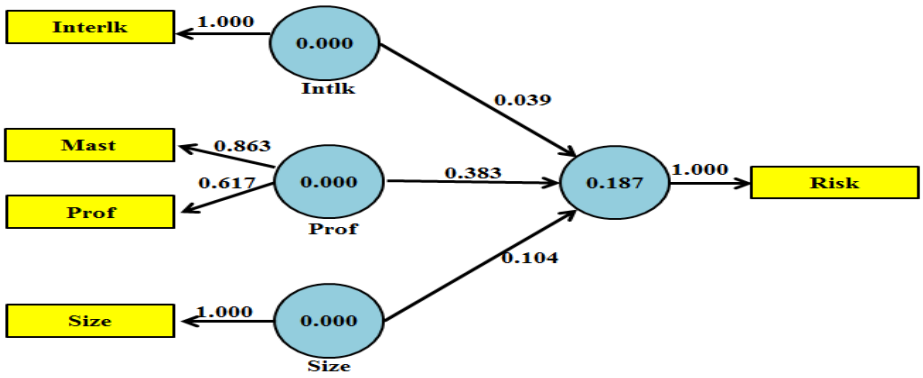

Figure 2: Explanatory capacity of the structural model

Table 5 presents the results of the hypotheses testing. The results from Table 5 revealed that the professionalism of the board of directors is significant with risk management disclosure. Therefore, H2 is supported.

Table 5: Result of Hypotheses Testing

Hypotheses	Path coefficient	Beta	SE	t-value	Decision
H1	Interlock -> Risk	0.039	0.173	0.223	Not supported
H2	Prof -> Risk	0.383	0.150	2.551**	Supported
H3	Size -> Risk	0.104	0.165	0.632	Not supported

**p<0.01 (t-value > 2.33)

The results of the study imply that even when board members of one organization are also elected as members of the board of other organisations, such practices are not facilitating the social and environmental risks management strategies between the organisations. This finding therefore does not support arguments made by (Chiu, Teoh, & Tian, 2013; Westphal et al. 2001; Brandes et al. 2006) where in such situation imitation practices were argued to be more likely to happen. The insignificant results could be because the interlocking directorships were on board of companies where good social and environmental risks management strategies have not been put in place resulting in non-imitation practices. Therefore, H1 is rejected. Similarly, the result for H3 reveals that the size of the board is not significant in the context of this study. Therefore, the size of the board plays no role in determining the risk management strategies relating to social and environmental disclosure. This findings is contrary to previous studies done between board size and CSR disclosure where the results of these studies reveal that board size is a predictor of CSR reporting (Said et al. (2009; Darus et al. 2015).

With regards to professionalism, the results from H2 imply that companies whose board members are professionally qualified will facilitate the organisations to address issues of social and environmental risks management. The findings are therefore consistent with prior literature that have found links between professionalism and the implementation of new practices (Irvin 2008; Carpenter and Feroz, 2001; Touran, 2005). Therefore, H2 is accepted.

5. Conclusion

The aim of this study is to examine the extent to which plantation companies in Malaysia address their social and environmental risks management issues and the role of the board of directors particularly board characteristics in motivating the disclosure of risks management information for the year 2013. The agency theory was used to underpin arguments where the board of directors as agents would be motivated to disclose the social and environmental risks management information in their corporate reports to reduce information asymmetry and to ensure greater transparency. The results of the study revealed that for social risks, the plantation companies were concerned with *Community Involvement* issues and were taking steps to ensure that their business activities were not causing harm to the community. While for the environmental risks, the companies were concerned with *Pollution Abatement/Environment awareness* risk management issues. This is consistent with the nature of the plantation companies where the effects of their operation may cause harm to the environment and as such they seemed to be taking the necessary steps to address this issue by having proper environmental pollution abatement strategies to mitigate such risks.

Further statistical analysis revealed that board professionalism is a determinant for risk management disclosures. However, board interlock and board size was found to be insignificant. The results suggest that professionalism of the board of directors supports the organization in addressing issues of social and environmental risks management system which is a new risk management area especially in an emerging economy such as Malaysia. The insignificant results for board interlock in this study merits further investigation. This is because interlocking directorships in companies with poor social and environmental practices could instead result in imitation of poor social and environmental practices resulting in poor reporting practices.

One of the biggest challenges for plantation companies in Malaysia is to ensure that their operations do not take place at the expense of the natural ecosystems because the palm oil industry is vital to the economy of the nation. This study provides empirical evidence that the plantation industry in Malaysia are taking steps to safeguard the social and environmental impact of their business operations by protecting the community rights and undertaking pollution abatement strategies as an integral part of the plantation management system. This is where the board of directors as agents needs to play their roles to ensure that the best interest of the shareholders as principals of the organisations are being upheld.

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Cost-Benefit Analysis for Green Fertilizer Technology Development: A Case in Malaysia

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Abstract

This paper highlights a model for determining the cost and benefits (CBA) analysis of a green fertilizer technology development research program in Malaysia. A five-stage process model for the Cost-Benefit Analysis is developed to focus on the value of several projects undertaken within the research program. The five stages of the CBA model are to: (i) identify the deliverable of each project; (ii) identify the advantages and disadvantages (opportunity cost) of each deliverable; (iii) qualify the advantages; (iv) quantify the advantages and; (v) monetize the advantages. The above-mentioned five stages CBA model has helped researchers to monetize the direct and indirect benefits expected to be delivered by the green fertilizer technology development research program.

Keywords: Cost Benefit Analysis, Green Fertilizer Technology Development, OneBaja.

I. Introduction

Agriculture industries play an important role in the Malaysian economic development and supply many job opportunities for the society (Fahmi et al., 2013). To enhance the agriculture production and to get optimum plant growth, nutrients must be accessible in sufficient and balanced amount (Chen, 2006). The recovery in agriculture production, underpinned by a significant improvement in paddy output, had supported the economic growth even during the 1998 financial crisis (Wang and Chien, 2007).

Nevertheless, the traditional method of agricultural farming in which chemical-based fertilizers are heavily used has contributed to increased global warming and greenhouse effect. In tandem with this, a group of researchers from several public and private universities in Malaysia has embarked on a research program named as **"OneBaja"**. The primary objective of the OneBaja research program is to develop a green fertilizer technology by featuring a green production of ammonia as well as a controlled-release mechanism of urea for paddy farming fertilizer. The aims of this research program are: (i) to model and synthesize ammonia and urea in a magnetic induction reaction zone with the presence of catalyst and catalyst support; (ii) to design multi-functional layers of biodegradable granulated urea and to develop a new coating formulation material to increase nutrient uptake; (iii) to systematically model the process design of Enhanced Efficiency Fertilizer (EEF) plant as well as to calculated the energy saving of the new system; and (iv) to run efficacy test on the newly developed EEF products and to conduct some economic impact analysis via stakeholder communication.

To achieve the above mentioned objectives whose ultimate goal is to produce a green fertilizer technology in the form of Control Release Fertilizer (CRF), the research program is broken down into seven sub research projects as shown in Figure 1. **Project 1** to **6** are related to technology developing, engineering and sciences, while **Project 7** of the OneBaja research program relates to stakeholders communication strategy as well as social and economic analysis. (Refer to Fig 1)

As such, this paper highlights the economic analysis performed in **Project 7** of the OneBaja research program by developing a Cost-Benefit Analysis (CBA) model for four out of seven projects under the green fertilizer technology development research program mentioned above. CBA is crucial to ascertain the benefits and value of the expected deliverables of the OneBaja research program. As such, this paper develops a 5-stage CBA model for the computation of the costs and benefits for the projects under examination. The 5-stage CBA process model is shown in Figure 2.

II. Literature Review

A. A Case of Green Fertilizer Technology in the form of Control Release Fertilizer (CRF)

The world-wide concern about worsening environmental conditions necessitate the need for eco-friendly agriculture products (Hashim and Ho, 2011). Green technology policy refers to the development and application of products, equipment and systems used to converse the natural environment and resources which minimizes and reduces the negative impact of human activities (Hashim and Ho, 2011). The continual application of traditional fertilizers in Malaysian paddy production has been creating adverse environmental impact with negative social consequences. The development of an eco-friendly fertilizer is hence timely and appropriate. Green fertilizer technology in the form of control release fertilizer (CRF) has numerous advantages. These advantages are:

i. it increases fertilizer efficiency and crop yield,

ii. it reduces losses of nutrients through leaching, runoff, volatilization, and denitrification,

iii. it saves time, cost, and labor in reducing the frequency required for fertilizer application compared to the conventional method,

iv. it synchronizes the release of all macro- and micro-nutrient in the soil necessary for crop plantation, and

v. it eliminates the risk of nutrients deficiency or scorching.

B. Cost Benefit Analysis (CBA)

To ensure investment in the projects are successful and creating value to stakeholders, it is crucial for the project owner to perform a thorough cost benefit analysis (CBA) (Holland, 2012), (Cervone, 2010). There is no a single or standard model for the CBA. Cost Benefit Analysis is a broad form of economic evaluation and it has been used as an aid to decision making in many different areas of economic and social policy in the public sector during the last 50 years (Wen & Chen, 2008). It has been widely used in integrated economic and environmental assessments (Mishan & Quah, 2007). The hallmark of CBA is that costs and benefits are expressed in monetary terms so that they can be directly compared to other similar or competing projects (Robinson, 1993), (Hastings, 2015), (Pearce, 1998).

C. The OneBaja Research program and its 7 Projects

The OneBaja research program is broken down into 7 separate but interrelated projects. The expected deliverables for each project are: **Project 1:** *a novel magnetic induced reaction for green ammonia-urea synthesis*; **Project 2:** *formation of iron fused oxide nanotubes catalyst system for green urea production*; **Project 3:** *green processing of biodegradable urea granules*; **Project 4:** *multifunctional layers of controlled release fertilizer for greener environment*; **Project 5:** *Enhanced Efficiency Fertilizer (EEF) urea on crop production and the environment*; **Project 6:** *integrated computational fluid dynamics (CFD) analysis and design optimization for green urea processing*; and **Project 7:** *socio-economic impact analysis and stakeholder's communication strategy*.

Specifically, Project 1 of OneBaja program deals with synthesizing and developing a new ammonia/urea process using One-Step approach in a magnetic induction reaction zone. Project 2 performs integrity studies of metal oxide fused oxide nanotube catalysts for green urea production. Project 3 synthesizes biodegradable binder for urea granulation. Project 4 formulates a new multifunctional controlled released for green EEF. Project 5 carry out efficacy test on the newly developed EEF of the Green fertilizer. Project 6 deals with design of Nano-mixer for Green Urea Production using Computational Fluid Dynamics (CFD). Whilst project 7 of OneBaja program

focuses on sociology, economic analysis, stakeholder's communication and market segmentation analysis of EEF application.

Figure.1: Green Fertilizer Technology Development Research Program

III. Stages of Cost Benefit Analysis Model

This paper highlights a model for determining the cost and benefit analysis of a green fertilizer technology development research program (OneBaja) mentioned earlier. The CBA model is developed to identify, qualify, quantify and monetize the benefits of each separate but interrelated project undertaken within the OneBaja research program. The developed CBA model comprises five stages of process flow as shown in Figure 2:

Stage 1 and **Stage 2** involves data collection through interviewing the respective project leader and research officer to validate the deliverables of each project undertaken. Two questions were asked in these stages, namely;

i. what are the expected deliverables for this project?

ii. what are the advantages and disadvantages (opportunity cost) of these deliverables vis-a-vis the existing method of farming in the context of its fertilizer application.

The obtained information from the interview was used as input for analysis in **Stage 3** and **Stage 4** of the CBA model, i.e. qualification and quantification of the value of the expected deliverables. Lastly, in **Stage 5**, the value from Stage 3 and 4 were used to determine the monetary value of the cost and benefits of the expected deliverables of each project.

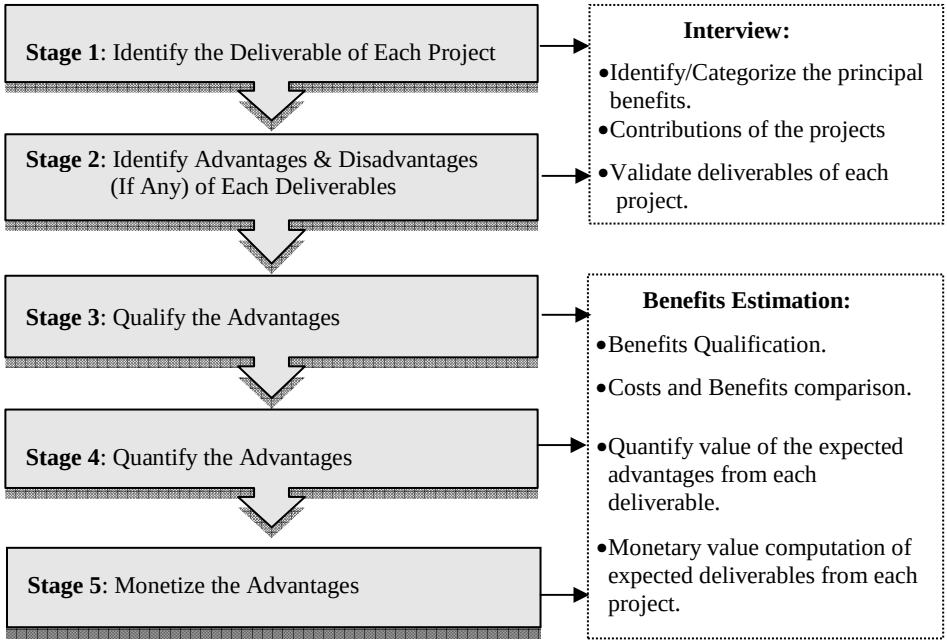

Figure 2: Cost Benefit Analysis Process Model

IV. CBA Examination

Although there are seven separate but interrelated research projects under the OneBaja research program, the CBA examination is only performed on Project 1, Project 2, Project 3, and Project 4, of the green fertilizer technology development research program. Project 5 is found to be irrelevant for the CBA examination due to the nature of its research as it involves soil testing. Whilst Project 6 relates to catalytic computational flow simulation. Project 7 is also excluded from the CBA as it involves economic, social and stakeholder's communication strategy. The ensuing section describes the CBA examination for project 1, 2, 3, and 4 based on the model presented in Figure 2.

A. CBA Examination on Project 1

Project 1 deals with the production of ammonia by applying magnetic field at ambient conditions using a nanocatalyst. α -Fe_2O_3 nanowires were developed and the effect of activation energy with and without magnetic field were studied. The kinetic models for ammonia and urea synthesis reactor were developed and simulation of both process were carried out.

Stage 1 of CBA identified three deliverables which are; (i) established a new model for Thermo-magnetic induction reaction system, (ii) enhanced One-Step NCZ urea synthesis method, and (iii) a concept design of an integrated ammonia/urea processes.

Stage 2 identified the advantages in that the production of ammonia by applying magnetic field at ambient conditions and by using nanocatalyst could reduce the energy consumption and time duration.

Based on the above, *Stage 3* qualified that the amount of nitrogen needed for the production of ammonia could be reduced by half from 120kg to 60kg to produce a given level of urea-based fertilizer, e.g. for the production of 3 tones paddy crop yield per season hectare.

As a result, *Stage 4* computed that, based on the total fertilizer needed in a year for the paddy plantation in Malaysia (2.5 plantation seasons per year and 688,207 total hectarage), the green ammonia production technology developed in Project 1 is able to reduce the usage of nitrogen amounting to 103,231,050 kg. Converting 50% of this amount to nitrogen oxide (N_2O), it is equivalent to 51,615,525 kg reduction of N_2O or further conversion to 16,000,812 tons of CO_2, emitted into the environment.

Stage 5 monetized that, based on the global carbon trading price of 1 metric ton of CO2 = USD11, the total carbon emission offset per year is worth USD176,008,932 or RM642.8 million.

B. CBA Examination on Project 2

Project 2 deals with the formation of nanocatalyst system which comprised of catalyst support and catalyst that uses a microreactor for urea formation. Electrochemical and chemical deposition methods are used to produce the catalyst and catalyst support. The materials that were investigated are zirconia, tungsten trioxide, zinc oxide and titanium dioxide. Anodic process is selected to grow oxide support. The integrity and robustness of the material are being investigated either experimentally or by modelling.

Stage 1 of CBA process identified following deliverables; the methods and materials used for urea formation i.e. (anodization method and Thermal Oxidation method) contributes significantly on material processing technology especially the bottom up approach of nanomaterial formation, it contributes in the progression and development of knowledge in the field of nanostructured semiconducting oxides, ceramic science, catalysis and chemical engineering.

Stage 2 identified that the anodization of metal foils of zirconium, titanium and aluminum for the formation of oxide nanotube arrays will result in highly ordered alignment, and aspect ratio, their dimension can be controlled by varying anodization parameters, less chemicals are required, they are robust and crystallization can be induced at room temperature. The only disadvantage is that high level of amorphous nanotubes are produced and annealing is required.

Based on the above, *Stage 3* qualified that various methods are available to synthesize metal oxide such as anodization, sol gel, hydrothermal & template assisted method. However, in this study anodization and thermal oxidation method is chosen. These methods are chosen because they are cost effective, less time consuming simple and fast. Hydrothermal method requires high temperature and pressure, additional chemicals required in producing the metal oxide which are costly, and time consuming. Sol gel method require multiple steps and extra chemicals to synthesize metal oxide as compared to anodization method.

Stage 4 of the CBA examination estimated that for the synthesis of catalysts, room temperature and atmospheric pressure is required. Similarly, the materials needed for catalyst formation are cost effective and a very less amount is required in each case. For example, ethylene glycol costs only RM50 for 2.5 liters that could be used for at least 50 samples. An amount of only 0.3 g of ammonium fluoride is needed per 1000 g of catalyst, while the cost for 1kg of ammonium fluoride is only RM150. Power requirements and the additives used are free of cost (available in labs) in this process. Likewise, the cost for preparation of iron foils is merely RM250/50 samples.

The CBA examination on Project 2 provided the necessary information about the methods and materials required for catalyst formation. The output of this project will serve as input for value realization in Project1, 3, and 4. Therefore, *Stage 5* will not provide any monetary value per se for Project 2 (see Table 2).

C. CBA Examination on Project 3

Project 3 deals with processing biodegradable urea granules. Binder containing starch /PVA /glycerol was developed and mixed well with urea during granulation process. Optimum parameter or lab-scale fluidized bed granulator have been developed. Biochar as a highly potential binder material impregnated with urea to reduce the mineralization and retain a more nitrogenous compound in soil.

Stage 1 of CBA identified three deliverables which are; (i) designed new approach incorporating coating process within the granulation system, (ii) established self-sustain granulation process by using the ammonia waste as an energy source for the ammonia fuel cell generator, (iii) established integrated granulation-coating technology.

Stage 2 identified the advantages of using starch/PVA/glycerol and processing with biodegradable urea granules which are; it reduces the gas emission, and increases the output up to 12.73 %.

Based on the above, *Stage 3* qualified that the cost of normal urea is RM 109.40/hectare whereas, the cost of Bio-UF is RM 566.30. The difference of cost between the normal and Bio-UF is RM 456.90/hectare. The obtained information from Project 1 indicates that in Malaysia paddy plantation seasons are 2.5 and total hectarage of paddy is 688,207. By assuming rice yield per hectare is 3.82 tons. The results show that by adapting Bio-UF (new fertilizer), the yield/hectare will increase to 4.31 tons. The difference in yield/hectare between the normal and Bio-UF is 0.49 tons.

As a result, *Stage 4* computed that, in Malaysia the sale of paddy in one season is RM 1,300. By using the normal urea the sale of paddy is equivalent to RM 4,966 (rice yield per hectare is 3.82 tons using normal urea), whilst by using the Bio-UF the sale will be equivalent to RM 5,603 (rice yield per hectare is 4.31 tons using Bio-UF).

Stage 5 indicates that the paddy plantation in Malaysia=1.7 million hectare/year. The Bio-UF produced in Project 3 is able to increase the yield to 843.1 million tons/per year and the cost will also increase to RM 786.1 million/year. However, the yield will lead to a net increase in benefit value of RM 1,095.97 million/year. Hence, the total value realization using Bio-UF will be equivalent to RM 309.9 million (see Table 3).

D. CBA Examination on Project 4

Project 4 deals with multifunctional layers of controlled release fertilizer for greener environment. Tapioca starch was chemically modified with urea in the presence of borate which act as a cross linker and catalyst.

Stage 1 of CBA identified three deliverables which are; (i) Project 4 enhances new knowledge in preparation of cross linked starch and novel geopolymer and geopolymer-composite membrane for controlled release urea fertilizer, (ii) acquired new knowledge in the production of multilayer coating of new controlled release urea fertilizer using fluidized bed methods, (iii) project 4 delivered new cost effective and environmentally controlled release fertilizer for commercial production.

Stage 2 identified that by using multifunctional layers to produce controlled release fertilizer have various advantages which are; the control release fertilizer can be produced by using waste, it's cheaper, consist of waste (fly ash) and only one chemical solution (NaOH) is required, and it is non-degradable but harmless as the polymer contains the same element as in the mineral (silica and alumina).

Based on the above, *Stage 3* qualified that the cost of normal urea is RM109.40/hectare whereas, the cost of Geo-Coated urea is RM 240/hectare. The difference of cost between the normal and Geo-Coated urea is RM130.60/hectare. Based on the information from Project 1, in Malaysia paddy plantation seasons are 2.5 and total hectarage of paddy is 688,207. By assuming rice yield per hectare is 3.82tonne. The results show that by adapting new fertilizer Geo-Coated, the yield/hectare will increase to 4.31tonne. The difference in yield/hectare between the normal and Geo-Coated urea is 0.49tonne.

Stage 4 indicates that, in Malaysia the sale of paddy in one season is RM1, 300. By using the normal urea the sale of paddy is equivalent to (1300 x 3.82) RM4, 966 tons, whilst by using the Geo-Coated urea the sale will be equivalent (1300 x 4.31) to RM5, 603.

*Stage 5*computed the monetary value using Geo-Coated urea, for the paddy plantation in Malaysia (2.5 plantation seasons per year and 688,207 total hectarage), indicates that the total paddy plantation in Malaysia = 1.7 million hectare/year. The paddy yield by using Geo-Coated urea will be 843.1 million ton/year and the cost will be RM 224.7 million. However, the yield will lead to a net increase in benefits value of RM1, 095.97 million/year. Hence the total value realization using Geo-Coated Urea will be equivalent to RM 871.3 million (see Table 4).

V. Conclusion

The research summarized in this study has attempted to examine the cost and benefits of a green fertilizer technology development research program "OneBaja". The results indicated that OneBaja product is eco-friendly green fertilizer and it is economically efficient as compared to the conventional methods for domestic paddy farming. The OneBaja product is supposed to save time, cost, and labor in the application frequency of the fertilizer in paddy plantation (as it incorporates the controlled release mechanism of urea absorption by the plant). The value of the OneBaja product is further validated by the cost-benefit analysis (CBA). CBA is performed on four out of seven projects under the green fertilizer technology development research program. For instance, Project 1 of the OneBaja research program indicates that the green fertilizer which is low in nitrogen content, if applied in paddy field in Malaysia, will reduce the emission of Nitrogen Oxide (N_2O) (1 N_2O = 310

CO_2) by about 51.6 million kg per year. Project 2 provided the necessary information about the methods and materials required for catalyst formation, the output from project 2 served as an input for value realization in Project 1, 3, and 4. Therefore, project 2 does not provide any monetary value. The Bio-UF produced in *Project 3* is able to increase the yield to 843.1 million tons/per year. Hence, total value realization from *Project 3*, using (Bio-U) will increase in benefits at a value RM309.9 million. *Project 4*, the total value realization using Geo-Coated Urea will be equivalent to RM 871.3 million. In a nutshell, the CBA results show that the OneBaja product can generate the benefits equivalent to RM 1,824 million per year. (See Table 5 summary of the CBA examination.).

Table 5. Summary of Obtained results from CBA examination

Project	CBA Calculation	Remarks
Project 1	RM 642.8 million	Reduction in carbon emission
Project 2	N/A	Output from P2 served as an input to P1, P3, P4
Project 3	RM 309.9 million	Increased in benefits value by using Bio-U fertilizer
Project 4	RM 871.3 million	Increased in benefits value by using Geo-coated urea
TOTAL	**RM 1,824 million**	-

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The Link Between Corporate Governance and Corporate Social Responsibility Disclosures: A Focus on the CSR Primary Dimensions

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Abstract

This study investigates the effects of Corporate Governance (CG) on Corporate Social Responsibility Disclosures (CSRD) practices amongst publicly listed companies in Malaysia. The corporate governance mechanism has been proxied by board independence, board size, board meetings and board gender in understanding companies' CSRD practices. Content analyses have been carried out on the annual reports of 85 non-financial companies covering a 3-year time frame, thus a total observation of 255 company case. The evidence revealed that the studied companies have gradually improved their CSRD practices over the three-year period. Mixed results have been found concerning the links between CG mechanisms and CSRD in four dimensions i.e. Marketplace, Workplace, Community and Environment. Specifically, positive significant links have been found for board independence-community, board size-workplace and environment, board meetings-marketplace relationships. The outcome of the study signifies that the companies may have strategized for better and specific dimension of CSR disclosure practice through strong governance structure.

Keywords: Corporate governance, Disclosure, CSR dimensions, Content Analysis

1. Introduction

Malaysia, in general, is seen as one of the active countries in engaging with the global Corporate Social Responsibility (hereafter, CSR) initiatives and practices. A number of financial and non-financial supports towards local CSR-related programmes and initiatives have been carried out by the country, including CSR national awards, related policies and regulations, tax incentives as well as CSR-related reporting regulations. The introduction of the CSR Framework by Bursa Malaysia in 2006 obviously had made a positive mark towards greater business engagement in CSR management and practice in the nation, which include CSR-related reporting accountability.

CSR disclosure practices reflect companies' reporting accountability towards providing information to numerous stakeholder groups. Particularly, CSR disclosures have the potential to strengthen the bond vis-à-vis contract between companies and the society at large (Turker, 2009). Hence, these CSR-related potentials and benefits indicate the need for good governance structure in promoting greater disclosure practices (see Bayoud and Kavanagh, 2012). Accordingly, Malaysia had established the Malaysian Code of Corporate Governance 2001 (MCCG 2001) (latest revised code known as the MCCG 2012) and the Bursa Malaysia Revamped Listing Requirements 2001.

Ho and Taylor (2013) discover that the essence strength of the corporate governance (hereafter, CG) in terms of the directors and management highly influences the CSR disclosure practices. The role of CG in managing business-related pressures is be quite challenge despite the types of information that the 3rd party needs which somehow might effects the company's management behavior and maintaining customers loyalty. As mentioned by Mathews (1995), companies that develop CSR disclosure practice offer several initiatives including good social responsible information may certainly affect their market performance, where it explains the reliable of information the users reached which influence the graph of their market performance. This is supported by Turker (2009)

who states that CSR disclosure is a form of business mechanism which facilitates company's CSR performance.

Amongst the primary reasons for company's CSR disclosures are to improve company image (Ramdhony and Oogarah-Hanuman, 2012), and due to continuous stakeholders' pressures (Bayoud and Kavanagh, 2012). Particularly, Esa and Mohd Ghazali (2012) mention that the association between CSR disclosure and corporate governance may lead to long term business value thus promote efficient business operations and users acceptance. Hence, the roots of generating a high quality CSR disclosure is CG itself, which subsequently will accelerate better governance (Adam and Shavit, 2009).

Based on the above discussions, thus, this study seeks to investigate the possible links between CG mechanisms and CSR-related disclosures, particularly with a focus on the primary CSR dimensions, i.e. Marketplace, Workplace, Community and Environment. The findings of this study may offer some insights to the relevant policymakers, including the Bursa Malaysia and other regulatory and professional bodies, to improve current CSR strategies towards promoting greater CSR disclosure engagement amongst Malaysian companies. Additionally, the study findings may put forward some preliminary ideas relating to the appropriate CG aspects in enhancing specific and worthy CSR disclosures practices by the industry players.

2. Literature Review

2.1 Underpinning Theoretical Perspectives

Stakeholder theory is one of the primary theoretical perspectives found to be relevant in understanding companies' CSR-related disclosure behaviour towards fulfilling the interest and demands for information by various stakeholders (see Roberts, 1992; Hooghiemstra, 2000, Figar and Figar, 2011). Cecil (2010) argues that non-financial matters are growingly becoming crucial to the sustainable development of companies, and that disclosure practice functions as an essential approach to communicate the CSR effects of organizations' economic actions. Apart from that, disclosing CSR information signifies companies' execution of their accountability and good governance, as well as CSR-related programmes and activities for both their external and internal stakeholders. Stakeholder theory posits the dynamics of the interrelationship between a company and its business environment, which emphasised for responsibility and accountability (Gray et al., 1996). This theory affirms that:

'*…corporations continued existence requires the support of the stakeholders and their approval must be sought and the activities of the corporation adjusted to gain that approval. The more powerful the stakeholders, the more company must adapt. Social disclosure is thus seen as part of the dialogue between the company and its stakeholders.* (Gray et al., 1995, p. 53)

Stakeholder theory positions companies as the central point of stakeholders' circle of relationships. In a specific time period, a company will have relationships with two core stakeholder groups; often known as internal and external, or primary and secondary (see Freeman and Reeds, 1983; Clarkson, 1995).

Agency theory is also a relevant notion to comprehend the possible association between CSR disclosure and CG. Jensen and Meckling (1976) argue that in a business setting, there exist a contract between one or more persons (the principal/s) and another person (the agent) to perform certain matters on their behalf, thus, involves delegation of decision-making authority to the respective agent. The management is the essential group of people who has the opportunity to enter into a contractual relationship with other stakeholders; hence, they are company's 'agents' (Hill and Jones, 1992). They are also responsible (on behalf of their principals) to monitor business operations, achieve company's goals in addition to maximize shareholders' wealth. Strict control and monitoring business mechanism is an important initiative in avoiding a breach of action hence capable to control agency problems and safeguard managers' action in the best interests of their shareholders (see Ho and Wong, 2001).

CG mechanisms including board of directors are crucial for a progressive disclosure practice (see O'Sullivan et al., 2008). Frolova and Lapina (2015) contend that a successful business-CSR requires the establishment of a separate managements system i.e. an effective board of directors who supports CSR disclosure practices. Additionally, Garvare and Johansson (2010) describe the benefit of a relationship between board of directors and CSR in fulfilling stakeholders' needs and demand. From a local setting, Ho and Taylor (2013) highlight the potential of companies in Malaysia through strong CG structure to stimulate voluntary disclosure practices. In relation to this, Darus et al. (2013) conclude that larger board is relevant in mitigating agency problems caused by information asymmetry; this also influences businesses to adopt new guidelines in improving CSR initiatives.
Consequently, the literature points out the relevancy for these theories to underpin the investigation concerning CSR disclosures and CG.

2.2 CSR Dimensions

The Bursa Malaysia CSR Framework requires all publicly listed companies to clearly define their sustainability strategies and objectives, and accordingly make appropriate disclosures of company's CSR-related information. Four primary CSR dimensions that should be followed and balanced in order to reflect company's sustainability objectives include community, workplace, marketplace and environmental. Summaries for the disclosures according to these dimensions are as follows:

Community: companies' engagement with activities involving the communities, including supporting education, donations and organizing youth development programs; with the aim to create bonds with the communities and focus on their welfare and benefits.

Workplace: maintain employees' welfares towards greater productivity and quality, including quality of working environment, safety and health, and human and labour rights.

Marketplace: formulation of activities aiming to encourage stakeholders, such as shareholders, suppliers, vendors and customers to act sustainably through the value chain relationships thus support the company's sustainability agenda.

Environment: environmentally-related policies and activities involving matters of energy, bio-fuels, biodiversity, preservation of the flora and fauna as well as other sustainability business practices.

2.3 CSR Disclosure Practice: The Benefits and Links with CG

Prevailing literature has explored the possible benefits of CSR disclosure practices to companies. Fombrum et al. (2000), for instance, discover that CSR-related disclosures improve business ability to attract resources, enhance performance and develop competitive advantages while satisfying stakeholders' needs. CSR disclosures also have the ability to determine company's reputation (e.g. Ramdhony and Oogarah-Hanuman, 2012), increase the "licence to operate" and enhance business sustainability (Hamid et al., 2007; Herbohn et al., 2014), and improve financial performance (Janggu et al., 2007; Yusoff et al., 2013). These studies infer the notion that CSR disclosures have much to offer to individual company, next to the entire business industry hence the national economic and social sustainability.

Good CG generally may lead to practice of fairness, transparency, and accountability in managing business organizations. Black et al. (2002) found that strong CG will enhance operating performance through improved efficiency of operations. Previous studies had also focused on the potential links between CG and corporate reporting practice. For instance, De Villiers, Naiker, and van Staden (2011) reveals that companies with larger board size, higher percentage of independent board members, more legal experts in the board, more active CEOs in the board, and a lower dual role of board members as board chairman and are significantly correlated with strong environmental performance. A strand of studies also discover that CG mechanisms are closely linked to greater voluntary disclosures, namely; board characteristics such as board independence and ownership structure (e.g. Norita and Shamsul, 2004; Albawwat and Ali Basah, 2015), board size (Darus et al., 2013; Yusoff et al., 2015), board commitment (Giannarakis, 2014). In view of that, Esa and Mohd

Ghazali (2012) comment on the strong association between CSR disclosure and CG which will result in positive long-term business values, efficient business operations and user acceptance. Michelon and Parbonetti (2012) who studied the potential of CG to influence sustainability disclosures amongst US and European companies had resulted with an affirmative association between community influential and disclosure practice.

Cormier, Lapointe-Antunes and Magnan (2015) learnt that good corporate responsibility relies highly on top management strong leadership. Apart from that, they also discover that CG strategic framework should encompass clear identification of key issues, stakeholders, and spheres of influence establishment of relevant policies and procedures as well as active stakeholder engagement.

Based on the above discussed literature, the followings hypotheses are developed:

H1 **There is a significant positive relationship between board independence and CSR disclosure.**

H1a There is a significant positive relationship between board independence and Marketplace disclosure.

H1b There is a significant positive relationship between board independence and Workplace disclosure.

H1c There is a significant positive relationship between board independence and Community disclosure.

H1d There is a significant positive relationship between board independence and Environment disclosure.

H2 **There is a significant positive relationship between board size and CSR disclosure.**

H2a There is a significant positive relationship between board size and Marketplace disclosure.

H2b There is a significant positive relationship between board size and Workplace disclosure.

H2c There is a significant positive relationship between board size and Community disclosure.

H2d There is a significant positive relationship between board size and Environment disclosure.

H3 **There is a significant positive relationship between board meetings and CSR disclosure.**

H3a There is a significant positive relationship between board meetings and Marketplace disclosure.

H3b There is a significant positive relationship between board meetings and Workplace disclosure.

H3c There is a significant positive relationship between board meetings and Community disclosure.

H3d There is a significant positive relationship between board meetings and Environment disclosure.

H4 **There is a significant positive relationship between board gender and CSR disclosure.**

H4a There is a significant positive relationship between board gender and Marketplace disclosure.

H4b There is a significant positive relationship between board gender and Workplace disclosure.

H4c There is a significant positive relationship between board gender and Community disclosure.

H4d There is a significant positive relationship between board gender and Environment disclosure.

3. Methodology

Content analysis has been carried out on the annual reports of 85 non-financial companies covering a 3-year time frame (2011 to 2013), thus a total observation of 255 company case. The total sampled companies were selected based on the systematic stratified random sampling approach.

A disclosure checklist which consisted of 31 items has been developed based on prior literatures and Bursa CSR framework. The CSR disclosure items in the four primary dimensions have been collected using the disclosure-rating used in Sumiani et al. (2007), and Yusoff and Lehman (2008). The rating of CSR disclosure items are as follows:

general disclosure = scored as '1'
qualitative disclosure = scored as '2'
quantitative disclosure = scored as '3'
combination of qualitative and quantitative disclosure = scored as '4'.

The independent variables used in this study were board independence, board size, board meetings and board gender. The justifications for such a selection of variables are based on these notions:
Board independence: to measure board effectiveness and to determine the board quality as socially responsible or non-responsible firms (Webb, 2004). This variable is measured based on the proportion of non-executive directors to total directors.

Board size: to measure the effectiveness, coordination, communication and decision-making by looking at the board size (Jensen, 1993; Astrachan et al., 2006). Board size is measured based on the number of board of directors in the company.

Board meetings: focused on the board diligence and the level of monitoring on the implementation of the company's activities (Laksamana, 2008; Giannarakis, 2014). Board meeting is measured based on the number of board meetings held a year in a company.

Board gender: male and female directors are deemed to play different roles in company's decision-making, especially on issues relating to CSR management and practice (Giannarakis, 2014). The board gender is measured based on the percentage of director's gender to total directors on board.

These dependent and independent variables of the study are gathered from the sampled companies' annual reports, whilst the control variables, i.e. profitability, company size and sales were collected via Data Stream Thompson. Study analysis was run using the SPSS version 20. Multiple regression models were applied to conform to aim of this study i.e. to examine the effect of CG mechanisms towards CSR disclosure practice. Specifically, the following five models have been identified:

Model 1
$CSRDS = \beta_o + \beta_1 INDs + \beta_2 BodSize + \beta_3 BMeetings + \beta 4 BGender + \beta 5 Size + \beta 7 Lev + \Sigma$
Model 2
$CSRDC = \beta_o + \beta_1 INDs + \beta_2 BodSize + \beta_3 BMeetings + \beta 4 BGender + \beta 5 Size + \beta 7 Lev + \Sigma$
Model 3
$CSRDW = \beta_o + \beta_1 INDs + \beta_2 BodSize + \beta_3 BMeetings + \beta 4 BGender + \beta 5 Size + \beta 7 Lev + \Sigma$
Model 4
$CSRDM = \beta_o + \beta_1 INDs + \beta_2 BodSize + \beta_3 BMeetings + \beta 4 BGender + \beta 5 Size + \beta 7 Lev + \Sigma$
Model 5
$CSRDE = \beta_o + \beta_1 INDs + \beta_2 BodSize + \beta_3 BMeetings + \beta 4 BGender + \beta 5 Size + \beta 7 Lev + \Sigma$

Where:

CSRDS	= Total CSR disclosures
CSRDC	= CSR disclosures on Community dimension
CSRDW	= CSR disclosures on Workplace dimension
CSRDM	= CSR disclosures on Marketplace dimension
CSRDE	= CSR disclosures on Environment dimension
βINDs	= Proportion of INDs to total directors
BodSize	= Number of directors on the board
BMeetings	= Number of board meetings in the year
BGender	= Number of gender on the board
Size	= Total sales
Lev	= Debt Ratio
Σ	= Error term

4. Research Findings

It has been found that there is a gradual increase in the total scores of CSR disclosures made by the sampled companies, over the three years period of study (refer Figure 1). The increase in disclosure practice is evident for all four CSR dimensions. Nevertheless, 'environmental' dimension showed the least percentage of progression between 2011 and 2013.

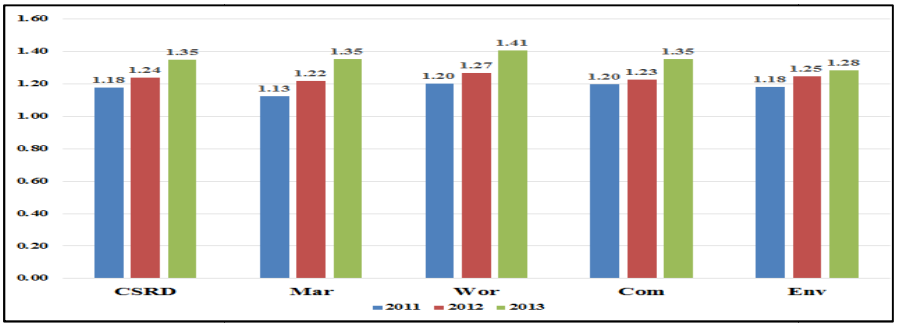

Figure 1 Average Score for CSR Disclosures (2011-2013)

Table 1 provides the average mean scores for all CSR disclosures according to the primary dimensions. Generally, the CSR disclosure reporting for the three years are considered low despite the gradual increased trend, as depicted in Figure 1 above. All CSR items have resulted to fall under the range of 'descriptive' and 'qualitative' form of disclosures (score between 1 and 2). Among the four dimensions, workplace-related disclosures ranked first, with a total mean score of 1.33; followed by Community, Environmental and Marketplace disclosures.

Table 1 Average Mean Scores for CSR Items According to Dimensions

Marketplace	
Produce, use, and develop green products	1.00
Promote good CG practice	1.00
Engage in business of good faith, conduct with sustainable practices	1.00
Promote awareness to uphold market integrity	1.00
Investor protections by lean asymmetry information with good relation	1.33
Engage with multiple stakeholders	1.00
Ethical Procurement by compliance to guidelines	1.00
Supplier management to address business integrity	1.33
Vendor management to address business integrity	1.50
Social branding to foster trust and loyalty amongst stakeholders	1.25
Avg. Mean	1.14
Workplace	
Empower open communication by supporting employees involvement	1.00
Workplace diversity to promote better working environment	1.00
Address issues of gender, bias, and protection of the minorities	1.00
Support labour rights and human rights	1.00
Practice safety and health code of conduct in production	1.33
Provide a quality life for employees at workplace	2.00
Human capital development, training, and sponsorship	2.00
Avg. Mean	1.33
Community	
Employee support and volunteerism in philanthropy activities	1.02
Moral support to the underprivileged, unfortunate and the needy	1.00
Promote and embark on healthy life-style programs for youth	1.00
Impart internship and training program for future employees	1.00
Provide opportunity to fresh graduate and develop unskilled employees	1.27
Award scholarship or sponsorship for higher learning	1.00

Children development, protection and sharpen up their talent		2.00
	Avg. Mean	1.18
Environment		Mean
Relevant anticipation in addressing issue of climate change		1.00
Significant activities to promote carbon reduction		1.00
Allocation for renewable energy exploration		1.00
Energy efficiency and support usage of least conventional fuel		1.00
Waste management or sustainable natural resources		1.05
Awareness and development program for biodiversity protection		1.00
Protection and rehabilitation program for endangered wildlife		2.00
	Avg. Mean	1.15

Overall, the study variables have been found to be normally distributed, and that there was no evidence of multicollinearity problem. Hence the data used in this study were suitable for further analysis.

Table 2 presents the results of the regression analyses performed. All five models have been found to be significant (i.e. F. Change was significant at the .001 level). The Adjusted R-Squares for all five models are .483, .280, .274, .083, .360; which explain the variation in CSR disclosure practice based on the primary dimensions and have been influenced by all CG proxies. Generally, these results indicate the significant influence of board-related decision-making mechanism on the companies' CSR disclosure practices.

Table 2 Regression Analyses: CSR Disclosures and CG Mechanisms

	CSRD Score	Marketplace	Workplace	Community	Environment
	Beta	Beta	Beta	Beta	Beta
	(t–Stat)	(t–Stat)	(t–Stat)	(t–Stat)	(t–Stat)
INDs	.107	.018	.080	.149	.064
	(1.959) **	(.281)	(1.237)	(2.054) **	(1.061)
BSze	.320	.083	.195	.132	.428
	(4.450) ***	(.974)	(2.285) **	(1.383)	(5.360) ***
BMeet	.094	.220	.019	.062	–.012
	(1.522)	(3.021) **	(.259)	(.757)	(–.169)
BGenM	–.022	–.098	.038	–.106	.073
	(–.382)	(–1.438)	(.559)	(–1.378)	(1.133)
BGenFM	.069	.091	.068	.019	.026
	(1.316)	(1.474)	(1.087)	(.265)	(.443)
ComSze	.034	.012	.073	–.034	.042
	(.748)	(.215)	(1.332)	(–.561)	(.819)
Lev	.322	.366	.299	.099	.168
	(5.167) ***	(4.973) ***	(4.053) ***	(1.189)	(2.431) **
(Constant)	12.420 ***	8.391 ***	8.810 ***	9.530 ***	3.681 ***
Adj. R^2	.483	.280	.274	.083	.360
F Change	34.213 ***	14.817 ***	14.400 ***	4.220 ***	21.036 ***

p< .05*, .01**, .001***

Table 2 also shows that *Board independence* has been discovered to highly influence greater CSR disclosure practice, and in particular, significance influence on the Community-based information (see also, Jo and Harjoto, 2011). With regards to the *Board size*, the first model showed a significant positive relationship of this variable with CSR disclosures. Specifically, this variable has positive significant correlation with the Workplace and Environmental-based information. Such a finding signifies the extent of companies' efforts to fulfill stakeholders' demands for CSR information. Esa and Mohd Ghazali (2012) comment that the existence of wider board expertise and knowledge may

create unanimous decision-making and effective communication among the directors; in which, it represents one of the effective ways to mitigate the agency conflict.

Board meeting has been found to have a positive significant influence only on the Marketplace dimension, whereas the Environmental dimension is seen to have an insignificant and negative relationship. CSR-Marketplace information is closely related to company's internal policies, thus justify the need for higher number of discussions amongst the board members (see Giannarakis, 2014). With respect to *Board gender*, both male and female board members are found to have insignificant influence on CSR disclosures. This finding contradicts the study by De Cabo, Gimeno and Escot (2011) and Francoeur et al. (2008) which argue that women directors are able to provide new skills and abilities to the board, hence facilitate the decision-making process. These findings further conclude that the accepted results for the study hypotheses are related to H1, H1c, H2, H2b, H2d and H3a.

5. Conclusion

Overall**,** despite a slight progression, the CSR disclosure practices for the three years of study have been found to be rather low and 'simplistic'. The research findings also offer some knowledge that pertains to the extent of link between the selected CG mechanisms and CSR disclosure information according to four primary dimensions, and the relevancy of Stakeholder and Agency theories. Specifically, positive significant results have been found for the relationships relating to board independence-community, board size-workplace and environment, and board meetings-marketplace. These findings put forward some preliminary ideas about the CG-related strategies towards enhancing the quality of CSR disclosures thus imply the potentials of CG mechanisms in promoting greater implementation amongst companies in Malaysia.
Two recommendations may be applicable for future research. First, an extended research may be carried out using the samples of award winning companies; based on the justification to investigate the most disclosed information according to the CSR dimensions. Second, other influencing factors for CSR disclosures may be tested against the disclosures in the dimensions. Such a study may further offer ideas pertaining to the business strategies towards greater local CSR disclosure practice.

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Conceptualizing Values as Point of Departures in Penetrating Market Adopters of Green High-Tech Product

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Abstract

Malaysia National Green Technology Policy accentuates improvement in the area of energy, building, water and waste management and transportation. However moving to Renewable Energy (energy), Low Carbon Model Town (building) and purchasing Electric Vehicle (transportation) are behavior related to sustainable energy consumption that typically infrequently happens in an individual's life. Discovering the actual and potential customer is more difficult if there is constant fluctuation. Therefore, we focused on development of trends that enable predictions of the future use of these new green-tech product. We focus on personal values to characterize consumers because it has been shown that they impact purchase decisions. Personal values assessed with Schwartz's Portrait Value Questionnaire (PVQ) mediated with three stable groups: 1. LOHAS (those pursuing a Lifestyle of Health and Sustainability), 2. Traditionalists and 3. Career oriented. By referring to Mohr's 5 (five) diffusion of innovation model: the tendency of adopters who are likely purchasing those high tech green product are assessed to forecast the feasibility. Negative path to Technology Enthusiast and Visionaries denote no market. However if these two niches are found, it will become the focal point for segmenting the market. The relationship among constructs is assessed with Structural Equation Modelling on 178 Malaysian samples.

Keywords: Schwartz's Portrait Value Questionnaire (PVQ), segmentation, technology enthusiast, Structural Equation Model (SEM).

Introduction

The government's vision of turning Malaysia into a humane industrialized country by the year 2020 will have a great impact on the usage of energy in the country. To speed up the process, in April 2009, Ministry of Energy Green Technology and Water was established that later on created the National Green Technology Policy (NGTP) serving as national guidelines to improve the four (4) key sectors of *energy*, *buildings*, water *& waste water management* and *transportation*. Furthermore, the current Economic Transformation Program has put sustainability as one of the three goals of the economic transformation program and aspires to place Malaysia as a green hub all the way along the business development continuum – from research to design to manufacturing to commercialization. However, Renewable Energy, Low Carbon Model Town and Electric Vehicle in Malaysia are a kind of radically new hightech product requiring to be introduced in the niche market (Levinthal, 1998; Ortt et al., 2008; Sood & Tellis, 2005; Suprapto, 2010). Slatter and Mohr (2006) based on the work of Moore (1995) provides a unique insight that the marketing strategy should focus on the niche that consists of 'visionaries' and 'innovators' as the early adopters of the new high-tech products, yet not much explanation can be found on how to identify and select the potential niches within the market that is nonexistent.

Although Malaysia is a progressive nation in terms of industrialization, Malaysians are conservative in most business dealings and usually governed by concrete past experience (Koh & Hoi, 2003). As such a new practice such as introducing green electricity, creating low carbon house, marketing electric car may not provide comfort for decision-makers to commit themselves to until it is proven acceptable. This notion is confirmed with the recent findings from Ghodrati et.al (2012) that green

housing market still is not attractive for majority of home buyers. Higher price compared with conventional homes is one of the main causes of the current situation in the green home market.

This paper is aiming at profiling the prospective buyers by establishing the values that are important to people to forecast their attitudes and behavior as values are argued to be a more effective to profile consumers and to segment markets (De Pelsmacker et al., 2005; Doran,2009; Mueller et al., 2011).

Values in Segmenting Green Consumers

The work of Ottman (1993) provides valuable insights into the demographic characteristics of green consumers: educated, affluent and under 55 years of age which are consistently true when examined in the USA (Wiser, 2007; and Zarnikau, 2003), Canada (Rowlands et al., 2003), Germany (Gossling et al., 2005; Muller, et.al., 2011), the Netherlands (Arkesteijn and Oerlemans, 2005), and the UK (Diaz & Ashton, 2011). However, if this segmentation is applicable within Malaysian setting further investigation is necessary as marketing based on demographic consumer characteristics is ineffective (Doran, 2009). Diamantopoulos et.al (2003) concluded that demographics alone are not very significant in defining the socially responsible consumer because ethical concern and awareness have become widespread.

In Malaysia setting, the current research on green marketing is mostly approached by classic Ajzen's Theory ofPlanned Behavior (Wahid et.al, 2011; Phuah et.al, 2011, Moorthy et.al, 2012, Nizam et.al, 2014). Therefore, little is known as to what motivates Malaysian consumers to buy green high - tech products.

Theorists (Rohan, 2000, Young et.al, 2010) and marketers (Lowe and Corkindale, 1998) believe that values cause behavior of consumers and keeping up with societal changes concerning values is an imperative for marketers (Kahle et al., 1988). As such, currently many scholars (e.g., Doran, 2009; Kim, 2011) have attempted to find particular types of values that are considered to influence pro-environmental beliefs and behaviors. The values theory developed by Schwartz and Bardi, (2001) have been dominant in the values domain for much of the last two decades (Parks & Guay, 2012) making it is employed as the basis for this values-related study. Schwartz's theory is based upon 57 single values, which can be abstracted into 10 value types encompassing similar motivations and organizes the value types in two basic bipolar dimensions: *self-transcendence* and *self enhancement values.*

Environmentally favorable attitudes and behaviors are driven more strongly by collective or/and self-transcending goals than individual or/and self-enhancing concerns (Follows and Jobber 2000; Kim 2006; Kim and Choi 2005, Kim, 2011). The self-transcendence values are *universalism, benevolence, security, conformity and tradition* while self-enhancement values are self-direction, stimulation, hedonism, achievement and power. Consequently, self-transcendence values are used to explain why people engage in pro-environmental actions and to predict potential buyer of green product described in the following theoretical framework.

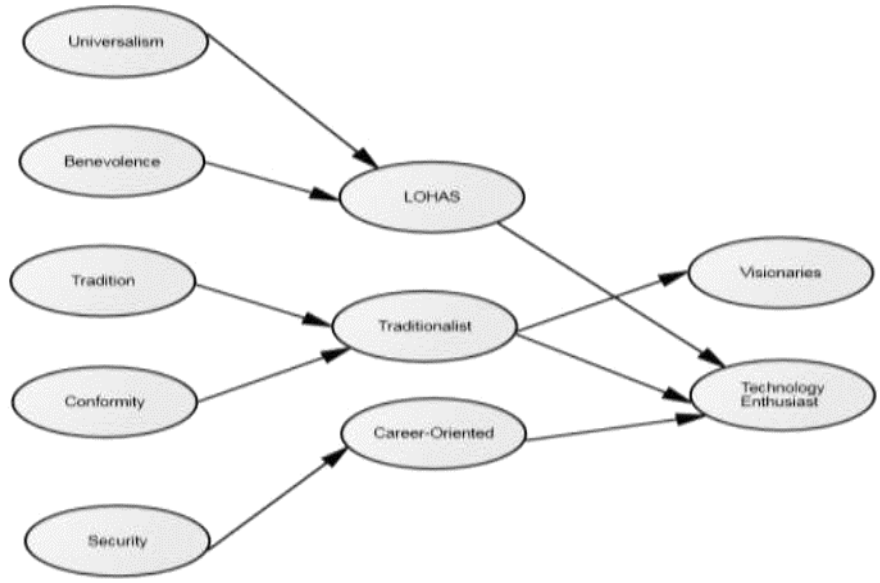

Fig 1. Theoretical Framework

Doran (2009) found out that universalism values have the strongest influence on the decision to consume fair trade products. Therefore, the hypothesis in this study is:

Hypothesis 1: *Market segment with universalism value prefers to be Lifestyle of Health and Sustainability leading to technology enthusiast- minded toward purchasing green high tech product.*

Benevolence prefers to preserve and enhance of the welfare of people with whom one is in frequent personal contact and Shaw et al. (2005) found that the values helpful and honest to be related to ethical consumption leading to the second hypothesis.

Hypothesis 2: *Market segment with benevolence value prefers to be Lifestyle of Health and Sustainability leading to technology enthusiast-minded toward purchasing green high tech product.*

The importance attached to conformity values could be attributed to the fact that participants may feel that in order to promote the smooth functioning of purchasing high green tech product which involves social interaction on a regular basis, they must emphasize self-restraint from socially disruptive behavior (Shaw et al. 2005).This implies that the person will wait and see and watch what most people prefer.

Hypothesis 4: *Market segment with conformity value prefers to be traditionalist leading to visionaries- minded* toward *purchasing green high tech product.*

In collectivist culture including Malaysia, the environmental concerns and green purchase behaviors are a hierarchical model of value-attitude-behavior that has served as the conceptual framework for predicting a wide range of behaviors (Follows and Jobber 2000; Homer and Kahle 1988; McCarty and Shrum 1994), yet, the strengths of the attitude behavior relationship have been controversial (e.g., a weaker relationship than expected). Thus the fifth hypothesis is:

Hypothesis 5: *Market segment with tradition value prefers to be traditionalist leading to visionaries-minded toward purchasing green high tech product.*

Methodology and Sampling

In line with demographic characteristics of green consumers: educated, affluent and under 55 years of age, theresearch questions are operationalized in a questionnaire adapted from Schwartz (2012) on measuring self-transcendence value. This way, the writer applies purposive sampling technique as it is the most effective when one needs to study a certain cultural domain (Tongco, 2007). Purposive sampling has been used through the years including comparisons of cultural practices (Neupane et al, 2002). The survey is targeted to obtain 200 respondents. Participants are asked to rate on a seven-point scale the importance of each value as a guiding principle to them when they are offered high tech green product under government policy at the moment. To investigate consumers' awareness on LOHAS concepts, the questions are designed according to the LOHAS principles (MY LOHAS Editors, 2008). The highest score indicates those pursuing a Lifestyle of Health and Sustainability, medium indicates Traditionalists and lowest indicates Career-oriented groups. Questionnaires to segments the innovation adapters: Technology Enthusiast, and Visionaries, are developed from the work of Slater & Mohr (2010). Path Analysis is used to determine the relationship among Lifestyle of Health and Sustainability (LOHAS), Traditionalists and Career-Oriented with Technology Enthusiast, and Visionaries. When no particular problem is observed in the measurement model, the path analysis is then employed to analyze the overall fit of the proposed model and to estimate all the relevant path coefficients. Finally theory trimming is performed by eliminating path with insignificant coefficients, and this becomes the model for segmenting green-tech product consumers in Malaysia. After validated, 178 data is ready for processing.

Measurement

All instruments incorporated in the questionnaire were based on the previous literature analysis. Universalism as endogenous construct is measured with 8 (eight) dimensions: equality (x11), a world at peace (x12 unity with nature (x13), wisdom (x14),), a world of beauty (x15), social justice (x16), broadminded (x17), and protecting the environment (x18). Benevolence as endogenous construct is measured with 5 (five) dimensions: for loyal(x21), honest (x22), helpful (x23), responsible (x24), and forgiving (x25). Security as endogenous construct is measured with seven (7) dimensions: family security (x31), national security (x32), social order (x33), cleanness (x34), reciprocation of favors (x35), sense of belonging (x36), and healthy (x37). Conformity defined as restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms is measured with self-discipline (x41), politeness(x42), honoring parents and elders (x43) and obedience (x44). Another endogenous construct: tradition defined as respecting commitment, and acceptance of the customs and ideas that traditional culture or religion provide is measured with four dimensions: devout (x51), respect for tradition (x52), humble (x53) and moderate (x54).

Exogenous variables of Lifestyle of Health and Sustainability (LOHAS), Traditionalists and Career-Oriented are investigated through agreement of their values on the following 4 (four) dimensions: holistic health (y11), conservation (y12), global social justice (y13), personal growth (y14), and sustainable living (Pesek et al., 2006).Questionnaires to segments the innovation adapters: Technology Enthusiast and Visionaries are developed from the work of Blackburn (2011) where visionaries are denoted as sensitive to group norms and values (y41) having more of a local perspective (y42), likely to be opinion leaders (y43) adopting through Technology Enthusiast' endorsements (y44) and cost-conscious (y45). Technology Enthusiast is reflected as those who are better educated (y51), cosmopolitan outlook (y52), high involvement outside their own communities (y53) depending less on group norms (y54) and having greater self-confidence (y55).

Results

Measurement Model

Table 1 shows that the factors loading extracted all surpassed 0.50 indicating that the instrument had acceptable convergent validity. Structural equation modelling usually presents debates on model evaluation as no model can actually meet all the required criteria (Schumacker and Lomax, 2004). For example, SEM requires small value for Chi-square statistic ($\chi 2$) and probability (P) smaller than 0.05. However, though these statistics are usually reported in structural equation modelling results, they are seldom accounted for and mostly ignored by referring to other alternative ways of assessing model fit (Robins, Fraley and Krueger, 2009). Hu and Bentler (1999) argue that threshold values approaching to 0.95 for Tucker Lewis Index (TLI), 0.90 for Norm Fit Index (NFI), 0.90 for Incremental Fit Index (IFI), 0.06 for Root Mean Square Error of Approximation (RMSEA) may sufficiently support the conclusion of a reasonably good fit between the proposed model and the data. Other scholars proposed other goodness-of-fit statistics consisting of CMIN/DF (The Minimum Sample Discrepancy Function) supposed . 2, 0 (Arbuckle, 2005); GFI (Goodness-of-Fit Index) approximating 0.90 and AGFI (Adjusted Goodness-of-Fit Index) approaching to 0, 90 or higher (Hair et al, 2006).

By referring to $\chi 2$ test ($\chi 2$ = 1318.669) and probability (P = 0.01), this model cannot capture goodness-of-fit of the model, perhaps due to the model which is complicated and the smallness of sample size. However when observed from other measurement, the model indicates an acceptable fitness: CMIN/DF = 1.137 (expected smaller than 2), GFI = 0.778 (marginal fit), AGFI = 0.767 (marginal fit), CFI = 0.972 (higher than 0.95), TLI = 0.971 (higher than 0.95), NFI: 0.881 (close to 0.90), IFI = 0.973 (above 0.90).

Table 1: Measurement information of convergent validity

			Loading Factors
x11	<---	Universalism	.815
x12	<---	Universalism	.824
x13	<---	Universalism	.819
x14	<---	Universalism	.826
x15	<---	Universalism	.832
x16	<---	Universalism	.821
x17	<---	Universalism	.837
x18	<---	Universalism	.820
x25	<---	Benevolence	.736
x24	<---	Benevolence	.844
x23	<---	Benevolence	.772
x22	<---	Benevolence	.854
x21	<---	Benevolence	.873
x37	<---	Tradition	.813
x36	<---	Tradition	.778
x35	<---	Tradition	.775
x34	<---	Tradition	.843
x33	<---	Tradition	.864
x32	<---	Tradition	.896
x31	<---	Tradition	.836
x44	<---	Conformity	.827
x43	<---	Conformity	.787
x42	<---	Conformity	.776
x41	<---	Conformity	.804
x54	<---	Security	.864

			Loading Factors
x53	<---	Security	.811
x52	<---	Security	.733
x51	<---	Security	.791
y11	<---	LOHAS	.803
y12	<---	LOHAS	.780
y13	<---	LOHAS	.778
y14	<---	LOHAS	.827
y24	<---	Traditionalist	.804
y23	<---	Traditionalist	.788
y22	<---	Traditionalist	.782
y21	<---	Traditionalist	.812
y34	<---	Career Oriented	.786
y33	<---	Career Oriented	.799
y32	<---	Career Oriented	.797
y31	<---	Career Oriented	.821
y51	<---	Technology_Enthusiast	.773
y52	<---	Technology_Enthusiast	.786
y53	<---	Technology_Enthusiast	.804
y54	<---	Technology_Enthusiast	.829

The full model of the research after model specification to meet SEM requirement is observable on the Figure 2.

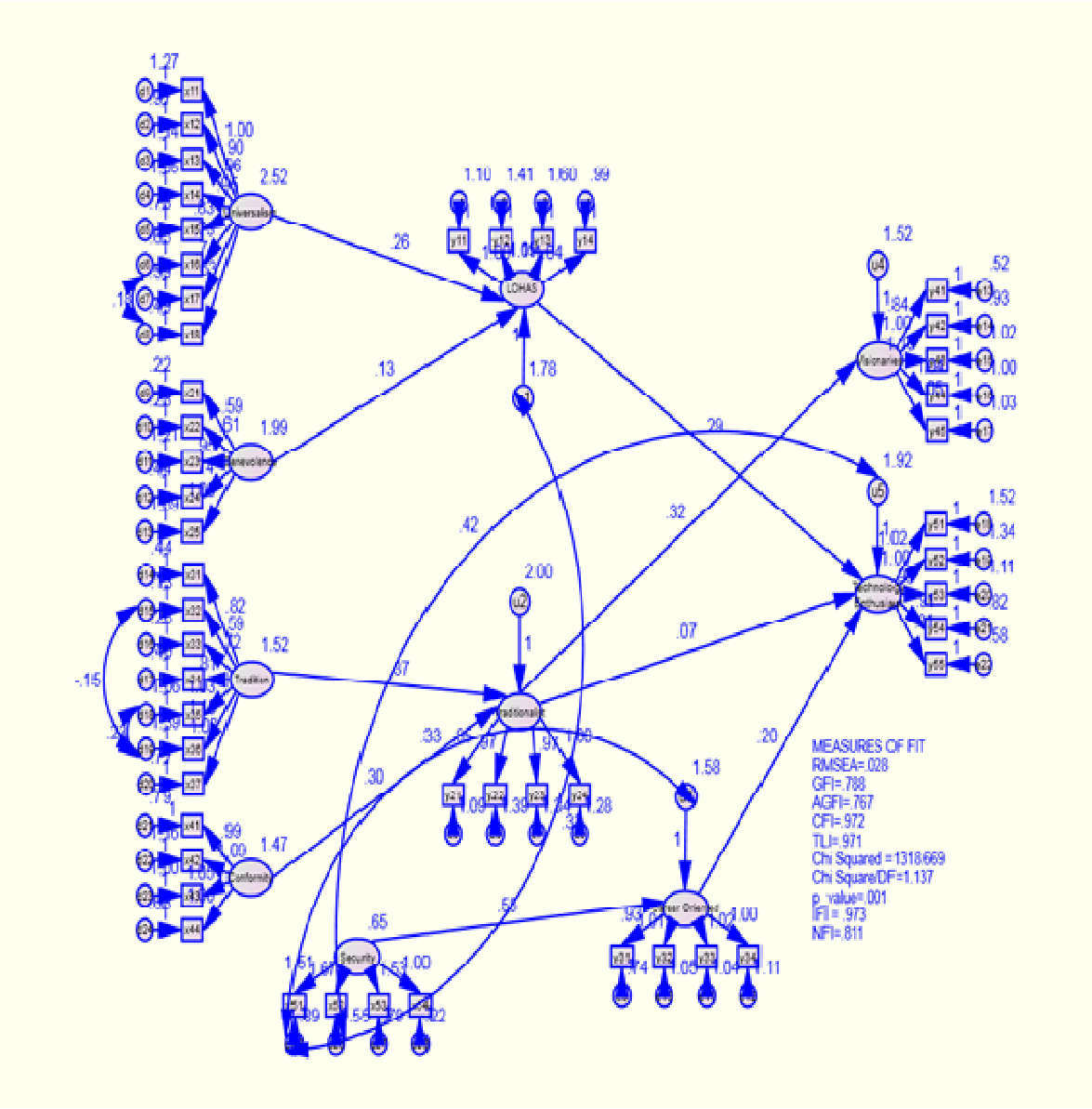

Fig. 2: Full model describing relationship among construct

Structural Model

The proposed structural model has been examined through the significance of the path coefficients (standardized β) and by observing the probability values of the dependent (endogenous) variables. Hypothesis testing to measure direct effect is observed through regression weights for each exogenous construct to its endogenous construct. Since the model applies intervening variable, the indirect effect is inferred from the condition that if direct effect from independent variable to intervening variable is significant and direct effect intervening variable to dependent variable is also significant, thus, the indirect effect is concluded significant. In the other hand, if one of direct effect or both are insignificant, then, the indirect effect is inferred as insignificant. The result for structural model analysis is observable on Table 2.

Table 2: Structural Model Result Among Constructs

			Estimate	S.E.	C.R.	P	Conclusion
LOHAS	<---	Universalism	.265	.071	3.711	***	Significant
LOHAS	<---	Benevolence	.125	.079	1.589	.112	Not
Traditionalist	<---	Tradition	.371	.100	3.705	***	Significant
Traditionalist	<---	Conformity	.301	.104	2.894	.004	Significant
Career Oriented	<---	Security	.551	.143	3.846	***	Significant
Technology_Enthusiast	<---	LOHAS	.285	.085	3.348	***	Significant
Technology_Enthusiast	<---	Career Oriented	.197	.089	2.230	.026	Significant
Technology_Enthusiast	<---	Traditionalist	.074	.076	.971	.332	Not
Visionaries	<---	Traditionalist	.321	.073	4.384	***	Significant

Notes: *** = p < 0.00

Table 2 indicates that the result of direct effect of path coefficient between universalism and LOHAS is 0.265 with p-value < 0.00 and LOHAS to technology enthusiast is 0.285 with p-value < 0,001 indicating that both path coefficient have significant effect. This indicates the acceptance of hypothesis 1 that market segment with universalism value prefers to be Lifestyle of Health and Sustainability (LOHAS) leading to technology enthusiast- minded toward purchasing green high tech product with indirect effect as much of 0.265 x 0.285 = 0.075. In the other hand, the result of direct effect of path coefficient between benevolence and LOHAS is 0.125 with p-value > 0.00 leading to the rejection of hypothesis 2. This way market segment with benevolence values will not become LOHAS and will not become technology enthusiast either. Further analysis shows that direct effect of path coefficient between security and career-oriented is 0.551 with p-value < 0.00 and career-oriented to technology enthusiast is 0.197 with p-value < 0.05 indicating that both path coefficient have significant effect concluding to the acceptance of hypothesis 3 that market segment with security value prefers to be career-oriented leading to technology enthusiast-minded toward purchasing green high tech product with indirect effect as much of 0.551 x 0.197 = 0.108. Similarly, direct effect of path coefficient between conformity and traditionalist is 0.301 with p-value < 0.05 and traditionalist to visionaries is 0.321 with p-value < 0.00 indicating that both path coefficient have significant effect concluding to the acceptance of hypothesis 4 that market segment with conformity value prefers to be traditionalist leading to visionaries- minded toward purchasing green high tech product with indirect effect as much of 0.321 x 0.197 = 0.063. Finally, direct effect of path coefficient between tradition and traditionalist is 0.371 with p-value < 0.00 and traditionalist to visionaries is 0.321 with p-value < 0.00 indicating that both path coefficient have significant effect concluding to the acceptance of hypothesis 5 that market segment with tradition value prefers to be traditionalist leading to visionaries- minded toward purchasing green high tech product with indirect effect as much of 0.321 x 0.371 =0.119.

This research is focused on development to discover trends that enable predictions of the future by particular reference on personal values to characterize consumers. Prediction is based on the positive path by calculating the value of total effect which is the sum together of the direct effect and the total indirect effects (Shipley, 2008). The model: *Universalism*-----> *LOHAS*----- > *Technology Enthusiast* generates the direct effect of *Universalism* to *LOHAS* = 0.265, and the indirect effect of *LOHAS* to *Technology Enthusiast* is 0.285 . This brings the total effect of 0.265 + 0.285 = 0.55 indicating that 55 % of technology enthusiast reflected in tendency to purchase high green tech is predicted by universalism values with the condition that the consumers hold the belief in Lifestyle of Health and Sustainability (LOHAS). Similarly, the model: *Security* -----> *Career-oriented* ---- > *Technology Enthusiast* generates the direct effect of *Security* -----> *Career-oriented* = 0.551, and the indirect effect of *Career-oriented to Technology Enthusiast* is 0.197 carrying the total effect of 0.551 + 0.197 = 0.748 indicating that 75 % of technology enthusiast reflected in tendency to purchase high green tech is predicted by security values with the condition that the consumers accept the customs and ideas that traditional culture or religion provide. Thus, these two models can be used to predict those who belong to Technology Enthusiast. In the other hand, the model *Conformity* ---- > *Traditionalist* ---- > *Visionaries*

produces the direct effect of *Conformity* ---- > *Traditionalist* = 0.301 and the indirect effect of *Traditionalist to Visionaries* = 0.321 resulting in the total effect of 0.301 + 0.321 = 0.622 indicating that 62 % early adapters of prospective purchasers of green high tech product are those who are restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms. By the same token, the model *Tradition* ---- > *Traditionalist* ---- > Visionaries produces the direct effect of *Tradition* ---- > *Traditionalist* = 0.371 and the indirect effect of Traditionalist to Visionaries = 0.321 resulting in the total effect of 0.371 + 0.321 = 0.692 indicating that 69 % early adapters of prospective purchasers of green high tech product are those who are respecting commitment and accepting the customs and ideas that traditional culture or religion provide. Since this study argued that Malaysian markets for renewable energy, low carbon model town and electric vehicle in harnessing Malaysian economic transformation model are going to develop beyond the Technology Enthusiast or Visionaries stages of diffusion, the paths recommended are *Security* -----> *Career-oriented* ---- > Technology Enthusiast *and Tradition* ---- > *Traditionalist* ---- > *Visionaries* as each path generates the highest total effect of 75 % and 69 % respectively.

Discussion

The research has proved the existence of Technology Enthusiast and Visionaries - the group interested in sustainable energy solutions- to become the starting point for segmenting the market as well as pioneering agent to disseminate the importance and urgency of shifting from using conventional products into the green high-tech product for the purpose of national sustainability in preserving natural resources. This finding is in line with Slatter and Mohr (2006) providing a unique insight that the marketing strategy should emphasize on the niche that comprises of 'visionaries' and 'technology enthusiast' as the early adopters of the new high-tech products. Since most y new high-tech product was presented in the niche market rather than the mass-market (Levinthal, 1998; Ortt et al., 2008; Sood & Tellis, 2005; Suprapto, 2010), this study explores on how to identify and select the potential niches within the market in setting of a developing country Malaysia to support sustainability concept echoed in Economic Transformation Program as yet not much enlightenment can be originated on how to classify and select the prospective niches within the market that is nonexistent primarily in situation where high green tech product is still in an early infant phase. This study has found out which values are salient to Malaysian when wishing to adopt green high - tech products which is then used as a base for segmentation. This research has found out security and tradition as values that are of paramount importance to people to segment the market for high tech green product supporting the notions that values are more effective to profile consumers and to segment markets (De Pelsmacker et al., 2005; Doran, 2009; Mueller et al., 2011).

The findings will have certain practical implications for marketing and public policy. The implications are mainly related to segmentation and targeting efforts and in particular to what types of messages are constructed to persuade people to buy green. In terms of segmentation, the results of this study suggest that target segments for green high tech products may be those who are motivated strongly by self-transcending goals. Likewise, advertising and other marketing communication efforts need to portray the use of green products as a way which can contribute to the well-being of all. Because the path to green purchase behavior can vary as a function of personal values, the appeals of persuasive communication should also vary according to the values of the target. Communications aimed at promoting people's environmental attitudes and buying habits may try to match the focus of the expected benefits to the predominant values of the *security* whose motivational goal is safety, harmony, and stability of society, of relationships, and of self and tradition whose motivational goal emphasizes respect, commitment, and acceptance of the customs and ideas of one's culture or religion. These niches are 'visionaries' and 'innovators' of the early adopters of the new high-tech products in Malaysian setting. This way the policy maker does not consider all Malaysian people are the target market of the green high tech product as segmenting philosophy is "select your market creatively!"

Conclusion

Since Malaysian government encourages switching to Renewable Energy and Low Carbon Model Town and Electric Vehicle as one of Economic Transformation Program agendas, framework to pinpoint groups with a high potential to become new customers is extremely important. By particular reference to Slatter and Mohr' unique insight that the marketing strategy should focus on the niche that consists of 'visionaries' and 'innovators' as the early adopters of the new high-tech products, this study provides the way how to identify and select the potential niches within the market in setting of a developing country Malaysia which is collectivist in nature. This way, Schwartz's self-transcendence values represent collective interests and serve as guiding principles when making a purchase decision for green high tech products. The extent of consumers' environmental efforts will likely depend on their value orientations.

This research had some limitations that had to be considered. First, this research used a cross-sectional data not a longitudinal sample which was collected over several points of time to support the findings. Second, only links between limited numbers of constructs were examined. Therefore, future research should examine additional variables that were likely to influence the explored relationships. Finally, the obtained results did not imply definitive conclusion about the analyzed relationships and might have limited generalizability due to the industries and geographical specificity of researched sample. Future studies should be expanded to wider geographical territories so that the findings will be generalizable for developing country of Malaysia.

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"Semiotic Attractor": A Model for the NBICS-Technologies Coherence Management

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Abstract

The system of NBICS-technologies is interpreted as the result of the coherence of different processes: the convergence of research in all scientific fields, the cognitive management realization and the transformation of education contents. A culture reaction expresses itself in the phenomenon of bioethics, which is a transdisciplinary science, humanitarian expertise of innovations in the role of compulsory procedure of cognitive management and a new academic discipline at the same time. The "semiotic attractor" model helps to define the stages of mutual proliferations of NBICS-technologies symbolism and bioethics symbolism. It is proposed to read these stages as invariants in the development of innovation strategies and in the impact estimation for education and cognitive management in the NBICS-technologies field.

Keywords: Management of coherent processes, NBICS-technologies, semiotic attractor, bioethics symbolism.

Introduction

Pace of different science convergence is illustrated by speed with which correspondent acronym gets longer: first NBIC (Roco & Bainbridge 2003) included the first letter of "Social science" (Kovalchuk 2011), and now "and beyond" (NRC 2014) was added. Diagnosis "a science and technology revolution is occurring" (NRC 2014, p. 13) states incompleteness of convergence, and more than that, states its initial phase. But it's already clear that NBICS-technologies as a product of convergence turned into self-organizing system.

Obligatory conditions of a self-organization initial phase include coherent behavior of all parts of the system and forming of spectrum of attractors as objective goals of the system. These conditions define the problem – management of coherent processes and management of attractors' configuration. Coherence is uniformity of synchronized actions, but the strict co-ordination of behavior does not mean co-ordination of tendencies to such behavior and goals of such behavior. Complexity of problem solution caused by absence of means of fundamental natural science for exact measuring all spectrum of attractors as objective goals of self-organizing systems' dynamics. In the humanities there are approaches to research social tendencies by diagnostics of on-going changes of symbols.

"Revolutions in symbolism" as a summary of "the final of wisdom" of any management (Whithehead 1927, p.61) retrospectively mark phases of socio-cultural dynamics, and yet they can point to its "semiotic attractors" because translation of such images and concepts as "today", "the day after tomorrow", "distant future" targeted at those "semiotic attractors". We used the model of "semiotic attractor" to understand the mechanism of how aims of innovations' management compete (Melik-Gaykazyan, Evdokimov & Melik-Gaykazyan 2015). Aim of given article is to apply this model to semiotic diagnostics of coherent processes' management. Foundations of the model are: 1) kinetic equation of competition between three types of information (Chernavski 1990); 2) approved method of

numeral solving the equation (Evdokimov & Melik-Gaykazyan 2013); 3) structure of process-occasion described by A.N. Whitehead. In this structure there are three consecutive phases: “the responsive phase”, “the supplemental stage” and “the satisfaction” (Whithehead 1929, p. 323), so while modeling coherent processes we will accentuate these three states formed by carriers of aims for “today” (element 1), “the day after tomorrow” (element 2) and “distant future” (element 3). It is relevant to tasks of cognitive management aimed at creation of “scientific product”, its implementation, prediction of innovations' after-effects, as well as goals of subjects managed: short-term goals of technologies' developers, predicted goals of education structures, asymptotic goals of the science.

Model of information dynamics system

In this section we introduce a model to describe dynamics of number density of elements n_i. Here subscript i corresponds to certain element carrying i-th type of information, and number densities are functions of phase coordinates and time. The model is based on generalized Lotka-Volterra model and the following processes are considered: 1) competition of j-th element and i-th element with rate $\left(-b_{ij} n_i n_j\right)$, where b_{ij} is competition coefficient; 2) self-competition with rate $\left(-a_i n_i^2\right)$, where a_i is corresponding coefficient; 3) autocatalytic reproduction with rate n_i/τ_i, where τ_i is characteristic time of self-reproduction; 4) element number distribution in phase space due to diffusion with rate $\nabla\left(D_i \nabla n_i\right)$, where D_i is diffusion coefficient for i-th element. Phase space coordinates and time are dimensionless.

The model is realized in the following system of equations:

$$\frac{\partial n_i}{\partial t} = \nabla\left(D_i \nabla n_i\right) + \frac{n_i}{\tau_i} - a_i n_i^2 - \sum_{i \neq j} b_{ij} n_i n_j, \quad i, j = \overline{1,k}; \tag{1}$$

$$n_i\left(t=0, \mathbf{r}\right) = \sum_{j=1}^{m} \alpha_j \, e^{-\beta_j \left(\mathbf{r}-\mathbf{r}_j\right)^2}, \quad i = \overline{1,k}; \tag{2}$$

$$n_i\big|_{\partial V} = 0, \quad i = \overline{1,k}; \tag{3}$$

where k is maximum number of elements. Here equation (2) describes initial distribution of elements. In this work we choose random distribution of m Gauss-shaped peaks in phase space, where α_j, β_j are peak parameters, and $\mathbf{r}_j$ is random vector in phase space. Equation (3) describes zero number density boundary conditions, where V is a phase space volume under investigation, and ∂V is the boundary of this volume. Element number density dynamics is visualized by the following algorithm: each element has its corresponding color and if i-th element dominates in some position of phase space, the i-th color is assigned to that position.

In this work we consider the three-element model with two spatial variables and one time variable. The system (1-3) was solved numerically using Wolfram Mathematica. Fig. 1, Fig. 2 and Fig. 3 represent the results of calculations with the following parameter values: $D_1 = D_2 = D_3 = 0.05$; $\tau_1 = 1.1$; $\tau_2 = 1.15$; $\tau_3 = 1$; $a_1 = a_2 = a_3 = 0.1$; $b_{12} = b_{13} = b_{21} = b_{23} = b_{31} = b_{32} = 5$.

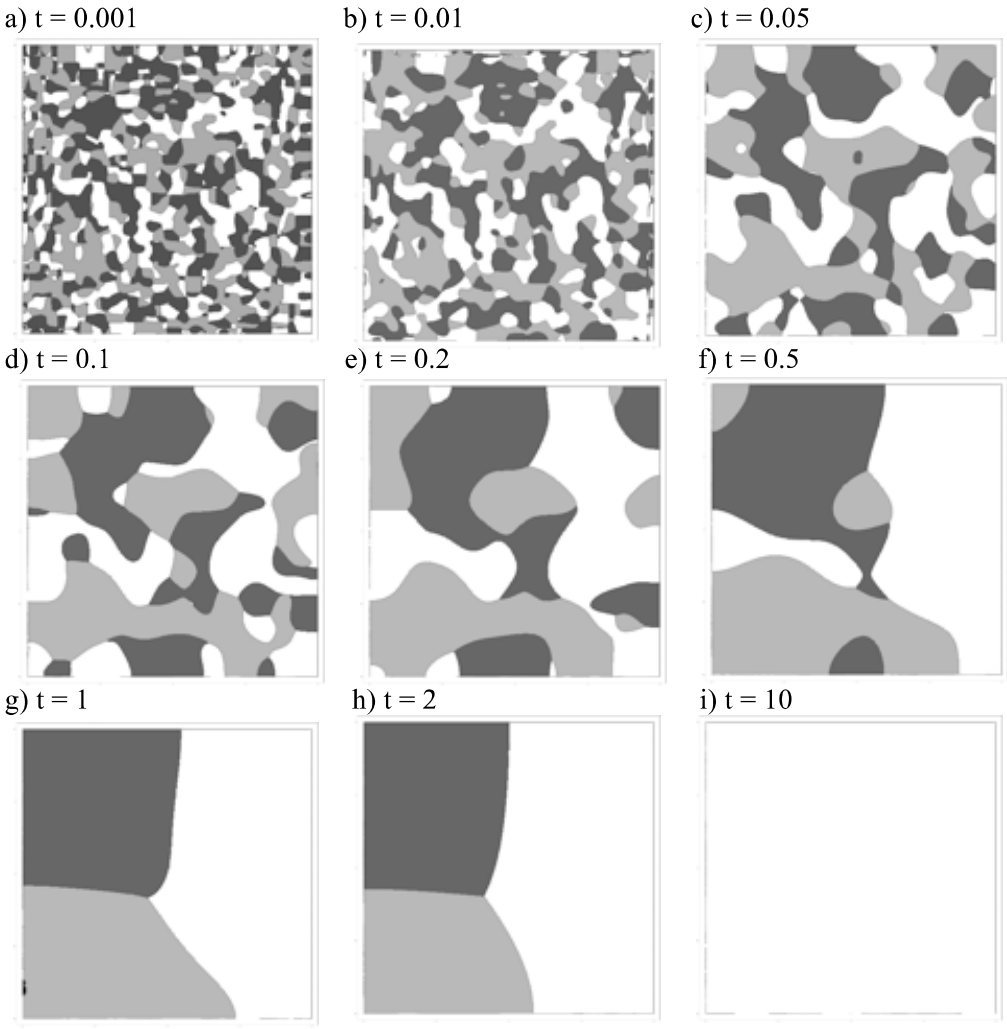

Fig.1 Distribution of element domination over phase space and time. Charts a)-i) correspond to different moments of time. Abscissa and ordinate correspond to spatial variables. Dark gray color corresponds to the element 1, light gray to the element 2 and white to the element 3.

The analysis of results shows that considered system pass through the following stages: “the responsive phase”, when all phase space is covered by a “mosaic” of small pure clusters of certain elements (Fig. 1b); “the supplemental stage”, when cluster boundary curvature and the number of clusters decreases (Fig. 1h); “the satisfaction” – the pure cluster stage, when one element dominates over all phase space (Fig. 1i). Parameter values, initial and boundary conditions may influence on dynamics only quantitatively, and general sequence does not change.

It should be pointed out that at the “mosaic” stage it is impossible to predict what element will dominate if system parameters are unknown. We illustrate this thesis by results of calculations with the same initial condition as presented at Fig. 1 and with different parameter values (Fig. 2, 3).

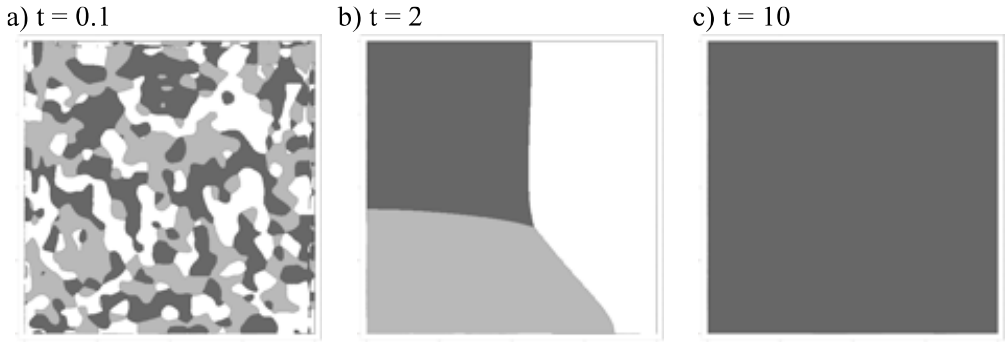

Fig.2 Time and space dynamics of element distribution leading to domination of the element 1 (dark gray). Stages: a) “the responsive phase”, b) “the supplemental stage”, c) “the satisfaction”.

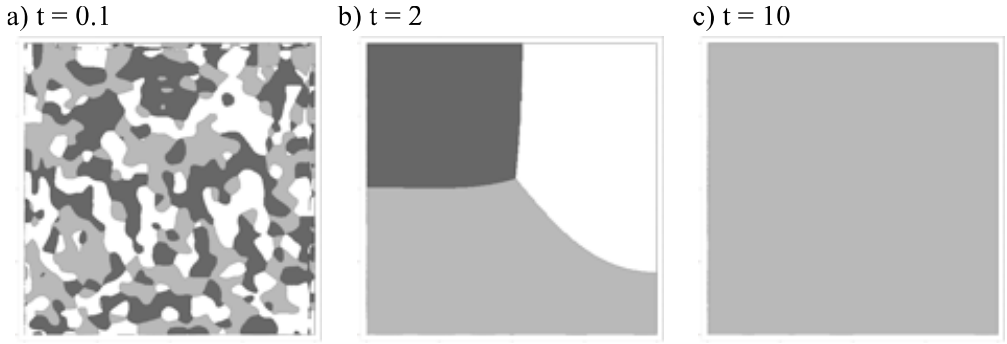

Fig.3 Time and space dynamics of element distribution leading to domination of the element 2 (light gray). Stages: a) “the responsive phase”, b) “the supplemental stage”, c) “the satisfaction”.

It should be noted that at the final stage three different elements dominate (Fig. 1i, Fig. 2c, Fig. 3c) despite the fact that at the “mosaic” stage the distribution of elements is virtually the same (Fig. 1b, Fig. 2b, Fig. 3b).

Semiotic diagnostics of NBICS-technologies dynamics’ trajectory

Illustrations (Fig. 1-3) make specific the content of A.N. Whitehead's abstract descriptions. His “responsive phase” is “pure reception of the actual world in its guise of objective datum” (Whithehead 1929, p. 323), “reception of the actual world as a multiplicity of private centers of feeling, implicated in a nexus of mutual presupposition” (Whithehead 1929, p. 323).

Here every new state of instability or some challenge should be receipted and “responded”. State of instability is common for the whole system but each part of the system looks for “response” to it independently. At the given phase it's impossible to estimate whether found “response” will solve the problem only for “tomorrow” or for “distant future” as well. But in any case all parts of the system have to mutually suppose each other – “implicated in a nexus of mutual presupposition”, i.e. co-operate each other with. Variants of co-ordinated behavior of parts are shown at the model (Fig. 1-3). Substance of the next “supplemental stage” is governed by spectrum of ideals “gradually shaped in the process itself”. “The satisfaction” completes the process. This stage is described by A.N. Whitehead as “marking the evaporation of all indetermination”, it “embodies a determinate attitude of «yes» or «no»” (Whithehead 1929, p. 323), when an actual occasion happens. The given occasion is always spontaneous and its content always brings novelty. These features correspond to the specifics of a “scientific product”

completely. At the same time innovation can become an occasion that irreversibly changes an orbit of the system's dynamics. The model shows (Fig. 1-3), that any innovation can reach “the satisfaction” stage. This result is dramatic because an asymptotic aim is typical for the innovation having only short-term value. Irreversibility of the process is compensated by its speed, so the result of “the satisfaction” may be corrected. But payment for this correction will be 1) an inevitable return to the initial problem situation that is already laden with negative consequences, and 2) losing pace of innovative dynamics that contradicts the destination of cognitive management. This conclusion is extremely actual for the management related to NBICS-technologies. So far as NBICS-technologies make it real to voluntarily manipulate natural forces, human corporeality and human self-perception that results in deformation of spiritual immunity that limits creation and using technologies related to constructing human by human. In other words, for convergent dynamics, i.e. the dynamics aimed at human being the error in selection of goal can become fatal one. But in this situation there is a reason for optimism. Firstly, “the satisfaction” and “the supplemental stage” are divided by more period of time than “the responsive phase” and “the supplemental stage” (Fig. 1-3). Secondly, as stressed by A.N. Whitehead, at “the supplemental stage” the “scalar” form overwhelms the original “vector” form. It means that at “the supplemental stage” all corrections are allowed. Finally, in Introduction we quoted diagnosis for a modern state of convergence – “revolution is occurring” (NRC 2014, p. 13). It indicates that innovations of NBICS-technologies still belong to “the supplemental stage”, and its “scalar” form permits possibilities for external interference.

Bioethics opposes to enthusiasm of NBICS-technologies. Due this opposition bioethics obtained specific features of NBICS-technologies: 1) belonging to many sciences simultaneously (Nicolescu 2008), 2) attention to innovations' expertise and risk assessment (Yudin 2011), 3) solid belonging to biomedical education (Melik-Gaykazyan & Mescheryakova 2015), 4) new understanding (especially for the Russian context) of the purposes of legal regulations for the impact on any living object (Gorbuleva, Melik-Gaykazyan & Melik-Gaykazyan 2016). High economical effectiveness of NBICS-technologies (Roco & Bainbridge 2003; Kovalchuk 2011; NRC 2014) poses a problem for management to accelerate “time to innovation” (NRC 2012, p. 11) while bioethics requires to provide the exact estimate of anthropological consequences after implementation of these innovations. The both sides debate and their arguments have the “scalar” form. Since nobody denies an innovations' “vector” is necessary. Mutual penetration of innovations' symbolism or proliferation corresponds to the same “scalar” form which shows their common slogan – “facilitating the transfer of knowledge, ideas, and technology to society” (NRC 2012, p. 11). It's worth to mention discussion is conducted within framework of University community and so aimed at selection of further strategies of innovative education. It is important because the mathematical equation of the model take into account 2 parameters – auto-catalytic reproduction and diffusion, that correspond generation of definite goal's followers and attraction of competing goal's followers to competing cluster. In NBICS-technologies environment these functions are fulfilled by education. Thus, that is “the supplemental stage” which is a point of application of cognitive management force and the main anxiety while developing innovative strategies of education.

Nowadays (NRC 2014; NRC 2012) a new strategy in development of NBICS-technologies came up for discussion. This strategy is aimed at the development of technologies' “component parts” for their voluntary combining in some future implementations. Given circumstance increases the urgency of NBICS-technologies dynamics' trajectory diagnostics hence bioethical expertise can deliver positive verdict in regard of development of all “component parts” but disagree with absence of anthropological risks while combining those “parts”. Semiotic diagnostics of aims as images of states supposed to reach “today”, “day after tomorrow” or in the “distant future” can be a palliative solution to this problem. For instance such fixations as “in order to achieve our national goals” (NRC 2012, p. 12) or “Global Future 2045” (Tishchenko 2014).

Advantage of the presented model is that it obviously shows a trajectory of appearing all the parts' coherent behavior in the system. This trajectory can be traced (Fig. 1-3) by the way disconnected parts of the system independently and “without any constraint” got in the same cluster. The trajectory unifies

stable stages but their stability does not exclude variable dynamics' scenario that is confirmed by different endings of the modeling process (Fig. 1-3). The model denotes “the supplemental stage” for effective external influence on managed system. This stage has the most susceptibility to management signals and the most duration that gives opportunities for monitoring and correction of transition process to the final stage. Here monitoring and correction will be aimed only at the symbolization of system parts' aims.

Conclusion

Influences of NBICS-technologies initiate variety of reactions in complex-organized socio-cultural space, and each produced variant of development creates its own possible future – its own attractor. Cause of influence is the goal selected (expressly or occasionally) for “production” of the new knowledge. Symbolization of goals embodies or transforms existing conceptions of correlations between actuality and reality, scientific and extra-scientific. Firstly, the model of “semiotic attractor” reveals invariant stages of innovations' development. Secondly, it shows the innovation aimed at short-term goals is able to reach “the satisfaction” stage. It explains position of bioethics as opponent of NBICS-technologies because attention of any humanitarian expertise is concentrated at asymptotic goals of human being existence. Finally, it shows the stage at which it's possible to conduct correct of coherent processes.

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Prediction of Debtor Solvency: Developing Bankruptcy Framework in Russia

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Abstract

The paper addresses the methodological issues of debtor solvency assessment. The results of this process have extremely high importance in the case of corporate bankruptcy. If solvency can be recovered, turnaround management is advisable. Otherwise, it does not make sense to continue the business: a legal entity should be liquidated. The Russian legislation contains such provisions but there has been no methodological support provided. Therefore, the purpose of the study was to develop the methodology, which let evaluate the possibility of solvency recovery. The authors discuss a 'static' solvency model contained in the Draft Federal Financial Analysis Standard and propose an alternative 'dynamic' model. The idea of the original approach is to predict debtor solvency considering cash flows from operating, investing and financing activities of the company. It is assumed that the forecast period generally corresponds to the period of recovery procedures and debt repayment, cash flows reflect crisis financial condition of the debtor, and the discount rate is built in a cumulative way. The proposed model is tested on the example of an extracting company. The choice of this industry reasoned by its importance for the Russian economy. We suggest that even common guidelines on the debtor solvency assessment will strengthen bankruptcy framework in Russia. However, corresponding methodology should be adapted to the conditions of financial insolvency, requiring further empirical research.
Keywords: corporate bankruptcy, insolvency, debtor solvency.

1 Introduction

Prediction of debtor solvency is one of the priority tasks within financial analysis carried out to justify the choice of different bankruptcy procedures. The Russian legislation formulates such a task but there has been no methodological support provided. As a result, decisions on the future of the debtor are often not economically justified. This problem has been widely discussed in literature as a part of the discussion on low rehabilitation potential of the Russian bankruptcy system (Dushanina, 2011; Mamaeva, 2013; Akulova, Rjahovskij, 2014; Kochetkov, 2014; Kovan, 2014; Kovan et al, 2014; Lvova, Pokrovskaia, 2015). One of the possible approaches to its solution was presented in the Draft Federal Financial Analysis Standard (the Draft, 2012).

However, the proposed approach was introduced as a general concept only, what has determined the purpose of our study aimed to develop the methodological support for assessing recoverability of debtor solvency. The article covers three key questions: application issues of the debtor solvency model, which was proposed in the Draft; characteristic of the alternative authors' model; testing the suggested model through the example of an insolvent debtor.

Assessment of the financial condition considerably corresponds to tasks within investment analysis. Thus, American practice uses a profit capitalization method for justifying rehabilitation procedures (Altman and Hotchkiss, 2006). In Russia, the application of this method is limited due to at least two main reasons: underdeveloped stock market and profit indicator manipulation. Financial statements of an insolvent debtor are subject to manipulation. This situation is typical for developing markets being no exception for the developed ones (Agarwal, Taffler, 2008). In Russia, this is one of the most pressing issues. According to the official statistics, on average one third of the Russian companies

make losses year after year (Russian Finance, 2002-2014), what can be to large extend explained by low quality financial reporting. It is widely held that cash flow should be given priority for assessing financial condition of the enterprise (Ivanov, Tsitovich, 2009) including recoverability of debtor solvency.

Application of the dynamic model requires justification of the discount rate. Since this model engages Cash Flow to Equity (CFE), the Capital Asset Pricing Model, CAPM is traditionally used for this purpose[1]. However, it is inadvisable to turn to the CAPM as privately-held companies prevail in the Russian corporate sector while public ones, as a rule, show low liquidity of shares (Darushin, Lvova, 2015). Abstracting away from extensive criticism of the CAPM which was meticulously systematized in E. Fama and K. French's study (Fama, French, 2004), it should be pointed out that this model can be modified taking into consideration liquidity risk (e. g., Acharya, Pedersen, 2005). But the possibilities to apply it within the Russian market are limited as a lot of issuers' free-float level is low. In our view, the Adjusted Capital Assets Pricing Model (ACAPM) is preferable as it allows to approach special features of business in a more flexible way.

2 Methodology

2.1 The Static Model of Debtor Solvency

As noted above, prediction of debtor solvency is much-needed in bankruptcy procedures. It can be resorted to complete the following tasks: choose bankruptcy procedure (rehabilitation or liquidation); develop strategy and tactics for recovering solvency; justify the decision to dismiss crisis management and pass on to business liquidation.

According to the Draft, such an assessment should be made by comparing two sums: money that can be obtained through rehabilitation procedures and debts to be settled within the running period. The reliability of conclusions made through this formula is questionable enough. As a matter of fact, this is about the static model of debtor solvency. However, the assessment of the forecasted cash flow, elements of which belong to different time points, should be carried out with reference to the time value of money (TVM), also it is necessary to compare figures discounted by the time of assessment and, furthermore, every period should have a justified discount rate.

The order of cash flow assessment should be outlined more clearly while in the Draft it is described in broad terms (what is proposed is taking into consideration the sum that might be accumulated by a debtor through an economic activity during rehabilitation procedures as well as another sum that can be obtained through selling surplus assets).

The assessment of surplus assets is a separate issue. The value of assets which can be sold to pay off creditors, cover legal costs and pay court-appointed manager remuneration is determined as the total value of assets excluding the value of those assets without which primary activity becomes impossible; input VAT; and assets sales of which is problematical. The proposed method is inconsistent as this refers to book values.

2.2 Dynamic model of debtor solvency

The idea behind our approach is to predict solvency using a model based on cash flows from operating, investment, and financial activities. Structuring cash flow based on main activities reflects the traditional approach of planning corporate solvency through a direct method (Ivanov, Tsitovich, 2009). As it is known, operating cash flow is related to the income-generating main activity. Cash flow from investment activities shows the incurred cost of acquired resources intended for generating future income. Cash flow from financial activities renders inflows and outflows emerging as a result of raising funds as well as following interest and principle.

Following this logic, it is necessary to take into consideration cash flow related to regular business activity when assessing debtor's solvency over the forecast period by operating cash flow. Suppose

these kinds of inflows and outflows do not fundamentally differ from corresponding cash flow at a regularly functioning enterprise. However, as for investment and financial cash flows, they have their own specific. Investment cash flow should include inflows obtained through selling surplus assets. Taking into consideration difficult financial position a given company is in, capital expenditures are unlikely to be made, what is, in contrast, a typical situation for a solvent company. Whereas it is suggested that interest to be paid during rehabilitation procedures is considered as a part of financial cash flow.

Forecast values should not be accepted as a single sum as it is put in the Draft, but it should be taken into consideration that surplus assets shall be liquidated and income from ongoing operations shall be distributed over time. The same approach is relevant in terms of meeting debt obligations. Consequently, this provides basis for applying dynamic model of debtor solvency[2]. Forecast period in a common case corresponds to the period of rehabilitation procedures and settlements with creditors (according to Russian law, such a period may not exceed two years).

The proposed model of debtor solvency can be described by the following formula:

$$PV_{CF} = \sum_{k=1}^{2} \frac{CF^{op}{}_k + CF^{inv}{}_k + CF^{fin}{}_k}{(1+R)^k} \quad (1)$$

PV_{CF} – present value of expected cash flows; CF^{op} – cash flows from operating activities; CF^{inv} – cash flows from investment activities; CF^{fin} – cash flows from financial activities; R – discount rate; k – the number of periods.

As for conclusions regarding financial condition of a debtor, *in case the final result is not negative one may state that corporate recovery is possible*.

In this study, we apply the ACAPM model to determine a discount rate. This model can be described by the following formula (see e. g., Grjaznova, Fedotova, 2009):

$$R = R_{rf} + \beta(r_m - r_{rf}) + S_1 + S_2 + C \quad (2)$$

R – discount rate in question; R_{rf} – risk-free rate; β – beta; R_m – expected market return; S_1 – small capitalization premium; S2 – risk premium due to company-specific risk factor; C – country risk premium.

This build-up model, which is widespread in the Russian practice of business valuation, goes back to a study by C. Mercer (Mercer, 1989)[3]. Taking into consideration that there is no straightforward recommendations regarding applying the ACAPM in Russia, the authors used recommendations on business valuation as it was put in Deloitte & Touche best practices (Methods and Guidelines, 2006)[4]. Discount rates were calculated for most important industries in the Russian economy based on the minimal value of corporate capitalization (Ibbotson, 2015) and the country risk premium for the Russian Federation (Damodaran, 2016). Authors' calculation results are presented further in a table (Table 1) and a diagram (Fig. 1).

Table 1: Discount Rates for the Most Important Industries of the Russian Federation

Industry	Rate
Aerospace Defense	26.43%
Building Materials	25.84%
Bank	25.77%
Coal & Related Energy	26.17%
Farming & Agriculture	25.83%

Industry	Rate
Homebuilding	25.56%
Metals & Mining	26.91%
Oil Gas (Integrated)	20.49%
Oil Gas (Production)	27.36%
Oil Gas (Distribution)	25.61%
Paper & Forest Products	27.26%
Power	24.08%
Retail (General)	25.81%
Steel	26.28%
Telecom. Services	24.52%
Transportation (Railroads)	25.64%

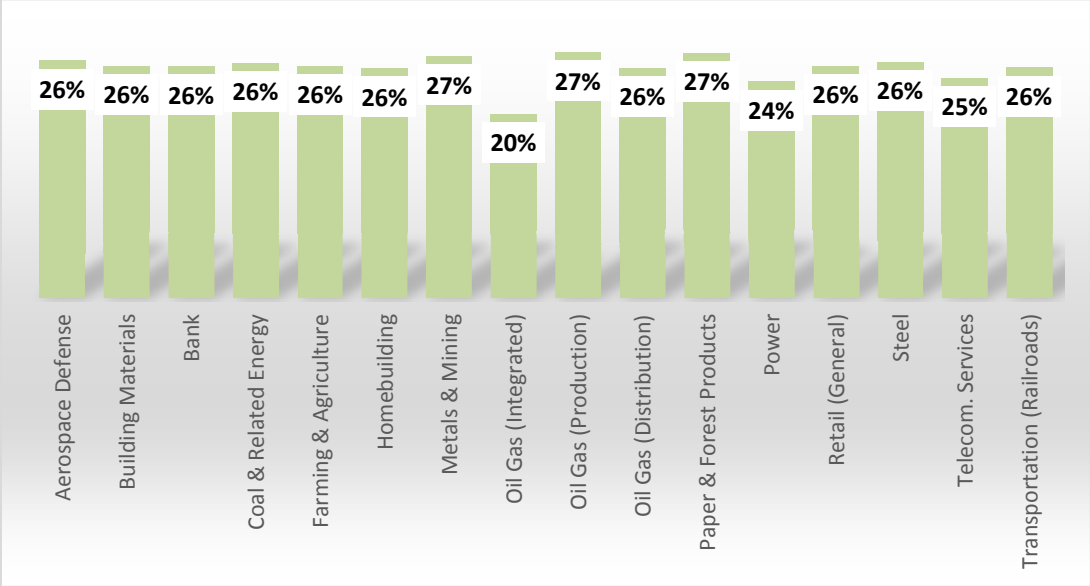

Fig. 1. Discount rates for the most important industries of the Russian Federation

As the above data show, values do not differ much. Specific corporate risks were set at an average level of 2.5%. However, this estimate is an approximate one as any enterprise has specific features that are often rather critical.

3 Application

The application of the suggested model will be considered through the example of an insolvent company residing in the Russian Federation, functioning as an LLC (limited liability company) and representing medium-size business. An extracting company was chosen to illustrate the suggested method purposely. Extractive industry is the most interesting to research taking into consideration its importance for the Russian economy.

The company extracts building stone from a gabbro-diabaser deposit in Kondopozhsky District, Republic of Karelia and also produces gabbro-diabaser breakstone of different grades, road base and surface materials. Owned crushing and screening equipment processes 400 tons of mined rock per hour. Shipping is done by train with loading at a separate railroad track. The company holds a license for mining building stone and breakstone production valid through 30.12.2025. The term of using the site of subsurface resources may be prolonged if it is necessary to complete mining and carry out liquidation activity.

Currently the company has overdue taxes, charges, and salaries payable, loans and credits indebtedness and has limited control of its bank account. The company is involved in approximately twenty lawsuits. Namely, the commercial court is hearing a legal action for recovery of debts for provided works, services and products as well as a liquidation of a legal entity due to the negative value of net assets over the last three years. Upon the application of a counterpart, bankruptcy proceedings were initiated against the Company. The observation procedure was introduced (it is a compulsory opening procedure in case of corporate insolvency).

Financial report shows considerably unsatisfactory financial condition of the Company. In particular, total balance has declined and net assets have been negative over the last few years. The Company operates at a loss. The main sources of financing are credits and loans. The efficiency of business operations declined due to the reduction in revenue, what increased financial cycle that lasted according to the results of the last reporting period more than 180 days.

The information on current financial condition of the Company, marketing research and experience and knowledge of the financial consultant in the industry served as a basis for valuation. A forecast on sales, cost price, commercial and administrative expenses, other revenues and expenses, and working capital was made when generating cash flow from operating activities.

Sales forecast of the Company was made by volume of sales and prices. Volume of sales was forecasted based on equipment capacity. Given that the quarry operates 365 days a year on a double-shift basis with the new crushing and screening machine capacity of 300 tons/h (7,200 tons/day) maximum annual efficiency is 2,628,000 tons/a. Standard volume of production is 1,423,500 tons/a utilization rate being 54%. Price forecast takes into account current average prices for corresponding grades and expected price increase at the rate of inflation.

Cost price forecast was made on information about average cost price per piece of product (breakstone of different grades) based on historical data. Cost price of delivery was defined based on corresponding profitability of the service. Average profitability of delivery services varies from 30 to 35%. The value of 30% was used as the forecast one. Inflation rate growth was taken into consideration to make cost price forecast.

Administrative cost forecast was based on information that monthly conditional-constant expenses of the Company were approximately 13,708 thousand rubles at full available capacity of the equipment[5]. Whereas other costs forecast took into consideration quarterly tax payments and other mandatory payments. Besides, expenses for bankruptcy administration were taken into account as a single value according to the Company's data.

Amortization costs were forecasted according to corresponding standards and taking into account the purchase of fixed assets, i.e. a locomotive engine[6].

Working capital forecast was based on the following: such parameters as sales of current inventories, recovering of accounts receivable, satisfaction of accounts payable; and creating current assets as a result of operating activities.

The sales of current inventories corresponds to the volume of products in stock and market prices. Corresponding incoming cash flow is expected to be 25,119 thousand rubles. The Company's accounts receivable are estimated to be 52,086 thousand rubles. This amount is maximum that can be received upon the results of debt recovery. In case of assignment of receivables, the incomings will not exceed 10-20% of the claimed sum. Therefore an average value of 15%, i. e. 7,813 thousand rubles was used as a forecast value. As for accounts payable, creditor's register of the Company includes claims for 656,014,606.59 rubles, such as:

– RUR 32,224.75 – claims of secondary lenders;
– RUR 633,515,791.66 – claims of third-priority lenders;

– RUR 22,466,590.18 – claims of third-priority lenders regarding compensation for damages, penalty recovery, and imposing other financial sanctions.

Apart from register claims, the Company is in arrears with current payments accounting for RUR 64,543,724.41 that have priority status. According to the plan, accounts payable are satisfied as soon as funds become available until Q3 2016.

Working capital forecast is based on the data of the company analysis system 'SPARK' regarding the days sales of inventory typical for the given business area: for inventories average days sales over the analyzed period is 5 days, for both accounts receivable and payable it is 30 days.

Discount rate is used to evaluate cash flow and is defined with the ACAPM method for the extractive industry (tab. 1) at the level of 29.41% per annum[7].

This is followed by the final financial and cash flow statements of the Company (tab. 2, 3).

Table 2. Income Statement Forecast

In thousands of rubles	Q4 2014	2015	2016
Total revenue	383 469	1 913 744	2 012 449
Cost of revenue	(290 343)	(1 442 373)	(1 515 033)
Gross profit	93 125	471 371	497 416
Selling expenses	-	-	-
Admin. expenses	(16 707)	(60 932)	(61 776)
Operating income	76 418	410 439	435 641
Other expenses	(2 858)	(4 368)	(4 668)
Income before tax	73 560	406 071	430 972
Tax	-	(34 492)	(86 194)
Net income	73 560	371 578	344 778

Table 3: Cash Flow Forecast

In thousands of rubles	Q4 2014	2015	2016
Operating Activities			
Net Income	73 560	371 578	344 778
Amortization	8 061	33 608	33 608
Changes in Working Capital	(80 538)	(392 282)	(233 880)
Changes in Inventory	21 252	(1 907)	(279)
Changes in Accounts Receivable	(23 705)	(15 547)	(2 276)
Changes in Accounts Payable	(78 085)	(374 827)	(231 325)
Other changes	-	-	-
Cash from Operating Activities	1 083	12 905	144 507
Investing Activities			
Capital Expenditures	(800)	(12 000)	-
Other Investing Cash Flow Items	-	-	-
Cash from Investing Activities	(800)	(12 000)	-
Financing Activities			
Changes in Long Term Debt	-	-	-
Changes in Short Term Debt	-	-	-
Cash from Financing Activities	-	-	-
Net cash flow	283	905	144 507
Cash flow at the beginning of the period	-	283	1 188
Cash flow at the end of the period	283	1 188	145 694
Discount rate	29,4%	29,4%	29,4%
Discounted cash flow	274	745	84 849

It is possible to conclude upon the results of the presented statements that Company is able to recover its solvency in the upcoming years as its cash flow is positive. However, it is important to point out that the cash flow becomes tangible not until the second half of 2016 whereas in prior periods its amount is too sensible to the smallest changes in sales volume, prices, and cost price, and in case of unfavorable changes in business environment this positive result may become negative.

4 Conclusions and Discussion

Prediction of solvency under the threat of bankruptcy is a complex task that has no one-and-only solution. The suggested model needs to be specifically adjusted to an analyzed company and requires further investigation of financial insolvency. However, even common guidelines on this issue will surely improve the quality of the Russian bankruptcy system since corresponding decisions become more transparent.

As for further studies, forecast assessment of debtor solvency can be made for a longer period and not limited by the period of crisis management and debt repayment. The suggested model may be developed according to the scenario approach in the framework of which the recoverability of solvency gets a probabilistic assessment. Besides, the question of specific features of an industry deserves a dedicated approach.

In conclusion, faulty forecast may be explained not only and not so much by the lack of clear-cut and wise guidelines regarding this issue, but also by a number of specific reasons. Direct and indirect costs related to bankruptcy procedures are often so high that inviting additional specialists becomes impossible or economically unjustified. At the same time, financial forecast accuracy depends largely on the quality of planning crisis response measures. It is impossible to completely abstract from the risk of having unanticipated loss related to illegal actions in case of bankruptcy. It is hard to assess precisely this kind of risk while its impact on Russian companies is often rather critical.

Notes

[1] Cash Flow to Firm (CFF) is a possible alternative (Kaplan, Ruback, 1995; Gilson et al, 2000), WACC being used for its assessment or other additional adjustments being introduced (Ruback, 2002). However, in this case the cash flow related to raising debt funding is not taken into consideration, what does not correlate with assessment purpose.

[2] Initially, this approach was introduced in (Abramishvili, Lvova, 2015).

[3] Other models also exist. For instance, there is a so-called 'polling approach' that implies that cost of capital is figured after holding a poll among persons who might invest in a given industry based on a required profitability (Damodaran, 2012). However, this approach is unlikely to be applicable to insolvent enterprises due to confidentiality of investments in a business at risk of liquidation. For an alternative representation of the ACAPM see (Sorin, 2009).

[4] In addition, theorizations regarding the evaluation of certain parameters of the model by T. Ogier and A. Damodaran were taken into consideration. The data from Ibbotson SBBI, 2015 Valuation Yearbook were used to determine low capitalization risk.

[5] Administrative costs forecast took into account not only such factors as inflation and seasonality of production, but also utilization rate as these costs are conditional-constant and consequently depend partially on dynamics of debtor's main activity.

[6] Amortization costs are forecasted separately for an indirect cash flow forecast (based on profit indicator).

[7] The rate indicated earlier in the table was increased by 2.5%: specific risks of the company were taken into account at the maximum level due to experienced financial difficulty.

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Trust-Based Recommender Systems: An Overview

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Abstract

In a highly dynamic and decentralized environment, where data are uncertain, Trust has become a key factor in the process of decision making. Trust-based recommendation is based on Trust between users. It was the main subject of several studies such as: Haydar (2014), Simon et al (2012), Fabiana et al (2011), Golbeck (2005), Josang and Pope (2005). In fact, for relevant recommendation, it is very important to define the adequate techniques for modeling and evaluating trust between agents. In this paper, we give a state of the art of modeling trust in recommender systems. Furthermore, we make a comparative study between various existing methods.

Keywords: trust, trust relationship, trust models, trust-based recommender system.

1. INTRODUCTION

Simon et al (2012) mentioned that internet has become a tool used in several activities such as personal activities, educational activities, associative activities, etc. The available resource information which is heterogeneous and huge make the user perplexed to find the relevant information. To address this problem, classical information retrieval systems need an intelligent component to help user during his retrieval session. This component is defined as a recommender system. The main objective of this component is to provide information based on user needs and preferences. The task of recommendation is decomposed on subtasks which are realized by appropriate agents. To ensure a good recommendation, agents must cooperate between them. The cooperation assumes that there is a trust relationship between agents. The trust is defined in some works by some measures and modeled as a trust network.

In this paper, we present a state of the art on different methods of trust based recommender systems. The rest of the paper is organized as follows: the second section focuses on the recall of basic concepts of trust. The third section contains a state of the art of existing trust models used in recommender systems. The fourth section, describes a comparative study between these different models while emphasizing their advantages and disadvantages. At the end, we give a conclusion and some future works.

2. BASIC CONCEPTS OF TRUST

Trust has become a functional necessity in a social system that is characterized by the development of interpersonal relationships. In fact, the presence of this type of relationship encourages the sharing of knowledge. In Connelly and Kelloway (2000), trust is the most important condition for sharing knowledge between users.

In fact, Trust is a general concept that can be applied to any context. It plays an important role in several disciplines such as: sociology, psychology, computer sciences, recommender systems, etc.

In the following section, we present trust definitions and we describe their properties. At the end, we explain how trust value could be used as a binary or fuzzy value.

2.1 Definitions of trust

Trust has been defined in several fields such as psychology Deutsch (1962), sociology Dumouchel (2002), computer sciences Golbeck (2005) and recommender system Victor et al (2011).

In Psychology, Deutsch (1962) defined trust as: "the individual is confronted with an ambiguous path, a path that can lead to an event perceived to be beneficial (Va+) or to an event perceived to be harmful (Va-)". He perceives that the occurrence of Va+ or Va- is contingent on the behavior of another person and he perceives the strength of Va- to be greater than the strength of Va+.

In Sociology, Dumouchel (2002) described trust as: "a bet about the future contingent actions of the trustee. This bet, or expectation, is considered to be trust only if it has some consequence upon the action of the person who makes the bet (i.e., trustor)".

In computer sciences, Golbeck (2005) defined trust as: "a commitment to believe in the smooth running of the future actions of another entity". In another manner, Entity A trusts entity B, means the satisfaction of A on the performance of a task realized by B.

In recommender system, Victor et al (2011) described trust as: "the local belief of one user in the usefulness of recommendation provided by another user".

2.2 Properties of trust

In the web based social environment, trust has been described by some properties Bhuiyan et al (2010) and Golbeck (2005). These properties identify where trust exists in social networks, and how it can be used in computation Sana (2016).

In the following, we present some properties that are proposed by Golbeck (2005):

- Trust is asymmetric: if a user A trusts user B, this doesn't mean that B trusts A.
- Trust is not distributive: if user A trusts user B and C, this doesn't mean that A trusts B and A trusts C.
- Trust is not generic: if user A trusts user B in computer science, this doesn't mean that A trusts B in the health field.
- The property of transitivity is a challenge in trust modeling. Little works consider that trust is not transitive Abdul-Rahman and Hailes (2000), which goes against the majority of works that consider the transitivity as a critical feature in the modeling phase Haydar (2014) Herzig et al (2010), Josang and Pope (2005) and Simon et al (2012). There are also several works assume that trust is transitive but this transitivity needs certain constraints Christiansoon and Harbison (1996) and Josang and Pope (2005).

2.3 Values of trust

In social networking, trust present information about a social relationship between two users. This relationship is represented by a label. The label is described with different manners on different social networking such as Epinions[i], Advogato[ii].

The Epinions web of trust is a who-trust-whom online social network of a general consumer review site Epinions.com. Members of the site can decide whether to trust each other. The network consist of individual uses connected by directed trust and distrust links. Edges have the weight +1 for trust and -1 for distrust.

Advogato is an online community and social networking site for developers of free software. Users of this site can publish news about software they have released or post updated on anything they are working on. In fact, users certify each other in a kind of peer review process. On Advogato, nodes are users and the directed edges represent trust relationships. A trust link is called "certification". Three different levels of certifications are possible on Advogato, corresponding to three different edge weights: Apprentice (0.6), Journer (0.8) and Master (1.0).

3. Modeling Trust in Recommender System: State of the Art

According to Ma et al (2009), Massa and Avesani (2007) and O'Donovan and Smyth (2005), trust-based recommender systems are collaborative systems based on user relations who express trust between them. A famous example is the Epinions website, which recommend items liked by trusted

users. In fact, trust between two user means that a user believes on the utility of the recommendation of a trusted user.

Several Trust-based systems have been proposed since more than two decades. They affect many areas such as: semantic web Donovan and Yolanda (2007) and Wolfgang et al (2004), multi-agents systems Herzig et al (2010), cloud computing Wenjuan and Lingdi (2009), recommender system Massa and Bhattacharjee (2004) and multi-agent recommendation systems Fabiana et al (2010), etc.

In our work, we are interested on trusted relationships between users taking into account their skills in a given context (we mean by context the field of user's expertise). The relationship between users depends on the skill areas.

In the following sections, we examine different modes for trust based recommender systems. To do this, we classified these models into two categories: those that take the skill domain trust and those who doesn't take this property.

3.1 Approach with trust contextualization

Model of Abdul-Rahman

In Abdul-Rahman and Hailes (2000), the authors proposed a trust model that takes into account the trust context. They define trust as a subjective measure or a belief on a personal experience in a given context. This Belief takes a value among four values: *very bad, bad, good and very good* according to the user's opinion. For Abdul-Rahman, trust between two users is determined only by the interactions between them, since transitivity isn't taken into account. Two types of interactions are possible: the evaluation of experiences between two users and the acceptance of recommendations from user.

In this model, each user u has two sets X and Y where X contains his interactions and Y stores his opinions about users who provide recommendations.
Each element of X or Y is composed by a triplet (us, c, S); witch us, c and S represent respectively the affected user (the user who's trusted by u in the case of X or the user who recommended an item to u in the case of Y), the context (the topic of the task) and the set of user's opinions. An opinion can have four values: very bad, bad, good and very good.
Each element s of S represent an opinion of u about a user v in a context c. The opinion s is defined by a vector of four counters corresponding to the four values of the opinion. When u expresses an opinion about an interaction with v in a given context c, the counter corresponding to the value is updated. This vector is represented as follows:

$$\boldsymbol{S_u} = \{(\boldsymbol{s_{vb}}, \boldsymbol{s_b}, \boldsymbol{s_g}, \boldsymbol{s_{vg}})_{v_{c0}}, (\boldsymbol{s_{vb}}, \boldsymbol{s_b}, \boldsymbol{s_g}, \boldsymbol{s_{vg}})_{v_{c1}}\}$$

Where vb, b, g, vg denote respectively "very bad", "bad", "good" and "very good". The degree of the trust between u and v is the max between values of the four counters.

While this model is among the first that took into account the context of trust, it didn't take the transitivity of trust. Seen that the opinions of credible friends provide a positive effect on system performance. In Josang and Pope (2005), authors confirm that transitivity is very important for improving performance of trust-based recommender systems.

Model of Charif Alchiekh Haydar

The author proposes a three trust models taking into account the trust context such as: a local trust model, a collective trust model and a global trust model. The models are based on subjective logic Haydar (2014). For each model, the relationships between users are modeled by a trusted network. The trust relationship between two users X and Y is given by the opinion (according to subjective logic) of X on Y.

In the first model, each user uses his own opinions, and consults those of his friends in the absence of his own ones. The purpose of this model is to predict the response that the user will accept for his question. Formally, the final score is given by the following formula:

$$\boldsymbol{score}(\boldsymbol{r}) = \begin{cases} \boldsymbol{e}(\boldsymbol{a},\boldsymbol{r}) & \boldsymbol{if}\ \boldsymbol{e}(\boldsymbol{a},\ \boldsymbol{r}) \in \boldsymbol{E} \\ \sum_{j} \oplus \left[\boldsymbol{e}(\boldsymbol{a},\boldsymbol{f_j}) \otimes \boldsymbol{e}(\boldsymbol{f_j},\boldsymbol{r})\right] & \boldsymbol{else} \end{cases}$$

Where E and $e(a,r)$ represent respectively a set of opinions and a personal opinion between two users a and r.

Compared to the previous model, in the collective trust model, direct interactions between users aren't always sufficient to provide relevant information on the user. For this reason, collective opinions are used in all cases in this model. Thus, the user requests always the opinion of his friends to consolidate his opinion. The function that determines the opinions is given by the following formula:

$$\boldsymbol{score}(\boldsymbol{r}) = \begin{cases} \boldsymbol{e}(\boldsymbol{a},\boldsymbol{r}) \oplus \sum_{j} \oplus \left[\boldsymbol{e}(\boldsymbol{a},\boldsymbol{f_j}) \otimes \boldsymbol{e}(\boldsymbol{f_j},\boldsymbol{r})\right] & \boldsymbol{if}\ \boldsymbol{e}(\boldsymbol{a},\ \boldsymbol{r}) \in \boldsymbol{E} \\ \sum_{j} \oplus \left[\boldsymbol{e}(\boldsymbol{a},\boldsymbol{f_j}) \otimes \boldsymbol{e}(\boldsymbol{f_j},\boldsymbol{r})\right] & \boldsymbol{else} \end{cases}$$

For the context of trust, a global trust model is proposed by Haydar (2014), that is to say, the user X relies on the reputation of the target user to decide whether to cooperate with him or not. In this context model, the reputation score of a user is not absolute; it varies depending on the keywords extracted from the questions that the target gave a correct answer. Thus, the user profile is created based on its reputation by keywords. When the user provides an accepted response to a question, a link (opinion) is established between him and each of keywords associated with the question. After determining the reputation scores for different users who responded to a question, the new model attempts to order the list of users with the aim of predicting the accepted answer. The user with the highest reputation score will provide the accepted answer.

3.2 Approach without trust contextualization

MoleTrust

MoleTrust is a trust model proposed by Massa and Bhattacharjee (2004). In this model, Trust is defined by a binary value. The trust propagation is a basic property in MoleTrust. It is assumed that trust degree between X and Z isn't the same trust degree between X and Y. The propagation of Trust is expressed by transitivity. In fact, when user X trusts user Y, and Y trusts user Z, then X trust Z. In order to fix the trust propagation, authors defined a propagation having 4 as maximum distance between two users.

MoleTrust predicts the trust value between to users X and Z by using the following formula:

$$\mathrm{tr}(\mathrm{X},\mathrm{Z}) = \begin{cases} \dfrac{(\mathrm{d} - \mathrm{n} + 1)}{\mathrm{d}} & \text{if } \mathrm{n} \leq \mathrm{d} \\ 0 & \text{if } \mathrm{n} > d \end{cases}$$

Where d is the maximal distance of propagation and n is the distance between X and Z. Using transitivity, n = 2 because, there is only one intermediate between X and Z.

When existing several paths between X and Z, MoleTrust takes the shortest path and considers it the best one which maximizes the trust value. Compared to collaborative filtering, MoleTrust showed his performance in terms of recommendation accuracy. However, the choice of the shortest path doesn't always guarantee the best performance. Since, we can find a longer path with more knowledge about the target.

TidalTrust

In Golbeck (2005), author proposed the model TidalTrust for social networks. It is dedicated to recommend movies to users. In this model, each user can evaluate movies with a scale of 1 to 5 stars. He can also evaluate his trust to another user with a scale of discrete values in [1, 10]. In fact, the trust networking between users is represented by a directed graph.

TidalTrust allows a source to deduct the score of a movie m from the recommendation scores of other evaluators of the same movie. Formally, the recommendation score rsm deduced by a source s of a movie m is determined by the following formula:

$$\mathbf{r_{sm}} = \frac{\sum_{\mathbf{s} \in \mathbf{adj(S)}} \mathbf{t_{si}} \times \mathbf{r_{im}}}{\sum_{\mathbf{s} \in \mathbf{adj(S)}} \mathbf{t_{si}}}$$

Where: $\mathrm{adj}(s) \in S$, t_{si} and r_{im} represent respectively the nodes directly connected to the source, the trust score between the node s and its neighbor and the score of the movie m given by the node i.

Compared to MoleTrust, Massa and Bhattacharjee (2004), in which the trust value is binary, TidalTrust allows the user to express a gradual trust to other users. However, this model didn't take into account the trust contextualization. Also, it didn't consider neither the length of path nor the various possible paths.
In addition, author hadn't studied the risk, that's to say he hadn't defined a threshold that allows the user to choose the movie or not.

Model of O'Donovan

Authors propose a model for trust-based recommendation systems. It is mainly based on collaborative filtering. The main idea of this model is to add a layer of trust to the collaborative filtering with changes in the used terms. In this new model, the user is called "consumer" and the neighbors are called "producers". To add trust to the collaborative filtering, three methods are proposed: a weighting method, a filtering method and a combining method, O'Donovan and Smyth (2005).

The first method consists on replacing the similarity in the collaborative filtering by the value w (c, p, i) where c represents the consumer, p represents the producer and i represents the item. Formally, it is defined by the following formula:

$$w(c,p,i) = \frac{2 \times similarity(c,p) \times reputation(p,i)}{similarity(c,p) + reputation(p,i)}$$

Knowing the reputation of a user which is expressed by the percentage of correct predictions in which he was produced.

The second method consists of three steps:
Firstly, the determination of the set of neighbors using the collaborative filtering. Secondly, selection of only neighbors with a reputation of the item which exceeds a threshold using a trust filters. Thirdly, the prediction of the recommended items by applying the same formula used for collaborative filtering is done.
The third method is called hybrid because it combines the two previous ones. In fact, after determining the set of neighbors by collaborative filtering (used in second method), the hybrid method computes the weighting using the formula w(c, p, i) defined in the first method.

Although this model shows its effectiveness in improving the performance of collaborative filtering, Haydar (2014). However, it didn't take into account the trust contextualization.

Model of Simon

The author proposes a social recommender system based on the social connections between the users. In this system, only trusted users can communicate. Thus, trust is an explicit value. The purpose of this system is to predict the missing notes which are called scores between a user and an object. To do this, they proposed an algorithm based on five different steps which allow obtaining the missing scores. Each step tries to perform the last one and they are more described in Simon et al (2012).

The first step called Immediate Social Scoring, determines the score of an object i by user a. In fact, it is equal to the score between them; if it exists elsewhere the score is the combination of the different scores of his friends.

The second step called K-Depth Social Scoring, is an extension of the first one. Its principle is to use the friends' propagation which means to apply the first step on friends of friends to a deep K.

The third step called Correlative Social Scoring, the authors introduced a correlation coefficient between users to refine trust between them. The correlation is calculated only among direct friends.
Relative Social Scoring is the fourth step which computes a relative score that is defined by the difference for each user between the score and the average of ratings. Furthermore, it aggregates and adds the relative scores for the average of scores of the affected user.

The last step of the algorithm called CorrRelative Social Scoring which consists of a combination of different steps.

Although this model shows its effectiveness in terms of prediction, experimental studies have shown that it has given poor coverage using direct relations (k=1) compared to other algorithms of recommendation. Propagating at a depth k=2, to improve coverage, the obtained results show that this propagation implied a loss of accuracy.

4. COMPARATIVE STUDY OF TRUST MODELS

In this section, we present a comparative study on different trust models. We take the comparison criteria used in Haydar (2014). Furthermore, we observe that there are two kinds of techniques for trust modelling. The first one is based on mathematical foundation such as subjective logic and the second one is based on measure to predict the trust scores. To differentiate between models according to this observation, we use the criteria "the used technique".

Criteria's used in Haydar (2014) are: trust relationship, trust note, trust value, trust propagation, trust aggregation and trust contextualization.

Trust relationships: for modeling trust, each model uses a type of trust relationships which could be local, collective or global. In local relationship user uses their own opinions to collaborate with other users. However, in the collective relationship, the user must usually take into account the opinion of his friends about whom user he will collaborate. The global relationship is based on the reputation of the user.

Trust note: the note of trust between two users is either Explicit or implicit. The first one is defined directly by users, but the second one is obtained by inference on the user's history.

Trust value: trust between two users can be a binary value or gradual value which is between [0, 1].

Trust propagation: is obtained by a prediction process of trust score along a path between two users.

Trust aggregation: is a process of combining several trust scores from different paths.

Trust contextualization: trust between users is strongly related to the context. It is not an absolute value: that's to say, a user X can give a low trust to Y for the health field but it can give it a strong trust to the computer field.

Table 1: Comparison of trust models

		Abdul-Rahman and Hailes (2000)	Massa and Bhattacharjee (2004)	Golbeck (2005)	O'Donovan and Smyth (2005)	Simon et al (2012)	Haydar (2014)
Trust relationships	**local**	x	x	x	x	-	x
	collective	-	-	-	-	x	x
	global	-	-	-	x	-	x
Trust note	**explicit**	x	x	x	-	x	x
	implicit	-	-	-	x	-	-
Trust value	**binary**	-	x	-	-	-	-
	gradual	-	-	x	x	x	x
Trust propagation		-	x	x	x	x	x
Trust aggregation		-	-	x	x	x	x
Trust contextualization		x	-	-	-	-	x
Used technique	**used theory**	-	-	-	-	-	subjective logic
	used measure	-	distance between two nodes	-	similarity between users	similarity between users	-

Based on this comparative table, we note that:

- Most of the proposed models are based on local trust. This influences the recommendation performance because the local modeling has problems related to the lack of data Haydar (2014). In another manner, the decision is made with minimal user knowledge.

- For the trust propagation, we find that all research works except Abdul-Rahman and Hailes (2000), are based on the trust propagation between users. The trust propagation allows users which aren't directly connected to be able to predict a trust score. It is expressed by a conjunctive combination.

- Most of research works are based on trust aggregation mechanism to estimate trust between two users. This is to combine different trust scores determined by the propagation process from different paths. To compute the final score between two users, the disjunctive combination is used.

- To our knowledge, the trust contextualization is considered only in Abdul-Rahman and Hailes (2000), and Haydar (2014). Although, the model of Abdul-Rahman and Hailes (2000) is among the first models that treated this concept, but it didn't take into account the transitivity of trust that has become important in decision making.

The criterion of trust contextualization is considered in several works as essential for the quality of the decision. In our comparative study, we found that Abdul-Rahman and Hailes (2000), and Haydar (2014) take it into account.

In order to define a trust model taking into account the local, collective and global trust, the author Haydar (2014) uses the Subjective Logic (LS). Indeed, the LS has a better formal framework for modeling trust. It also allows representing the relationship of trust between users in the form of probabilistic opinions. An opinion in the subjective sense represents a resulted accumulation of several interactions between the user and the object of opinion (one item or another user). However, at the modeling of opinions, this theory has two drawbacks Emmanuel et al (2008): first, it models different views in the same way, that is to say, by the principle of equal probability. On the other hand, it only models singleton opinions.

Actually we are working on trust model definition which is based, on the theory of belief functions, introduced by Smets (1994), for several advantages thanks to his Transferable Belief Model. It is a richer and more flexible framework to model different ways distinct opinions. Indeed, it allows modeling of composite hypotheses, imperfect information and merging information from different resources Ahmaed (2014), Emmanuel et al (2008) and Patrick (2001). The strength of this model is manifest in the fusion of information from different sources to make an interest decisions.

Furthermore, we will use formal concept analysis approaches for organization and representation of agents. The choice of formal concept analysis is justified by the sound mathematical foundation and its algorithmic branch for organizing agents in the form of groups that support the notion of collective trust. In addition, the Galois lattices allow expressing a semantic due to the partial order relation between groups Ganter and Wille (1999).

5. Conclusion

In this paper, we presented an overview on trust-based recommendation models. We have highlighted the advantages and limitations of each model. We did this work in the objective to justify the choice of our new approach for trust-based recommendation system. In the future work we plan to implement our new model which is based on formal concept analysis for agent representation and the theory of belief function for decision making.

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[ii] http: //www.advogato.org/

Introduction des items inversés dans les échelles de mesure : Application à l'échelle du partage des connaissances

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Résumé

Cette recherche a pour objectif de discuter l'intérêt de l'utilisation des items inversés dans une échelle de mesure. La variable Partage des connaissances a été prise comme cas d'application. L'étude des qualités psychométriques de celles-ci, menée sur un échantillon de 383 collaborateurs appartenant à deux grandes entreprises, a montré que cette échelle présente une validité et une fiabilité satisfaisantes. Toutefois, les deux items inversés initialement introduits ont été supprimés lors des analyses factorielles exploratoires. Ce résultat sera discuté dans le cadre de ce travail.

Mots-clés : Items inversés, Echelle de mesure, Partage des connaissances, Validité, fiabilité.

Introduction

La présente communication a pour objectif de discuter l'intérêt de l'utilisation des items inversés (*reverse-coded*) dans une échelle de mesure. Un item inversé est définit comme un item dans la structure grammaticale est opposée au contenu de la variable, c'est-à-dire aux autres items de l'échelle (par exemple, structure grammaticale positive *versus* structure grammaticale négative). A ce titre, plusieurs auteurs notamment Igalens et Roussel (1998) ont recommandé d'introduire ces items inversés dans les échelles de mesure. L'objectif étant de susciter plus de concentration de la part du répondant et améliorer la fiabilité et la validité du questionnaire. En effet, l'utilisation des items inversés permettrait d'éviter l'effet de halo, définit comme le risque de voir une personne répondre avec la même modalité de réponse à l'ensemble des énoncés. Néanmoins, il faut noter que si Igalens et Roussel (1998) ont insisté sur l'utilisation des items inversés, d'autres auteurs comme McLaughlin (1999) ont souligné l'impact négatif de l'introduction de ce type d'items sur la validité et la fiabilité d'un instrument de mesure. Ceci dit, la présente recherche naît de ce constat, et soulève de ce fait une problématique très rarement traitée dans les travaux en Sciences de Gestion. Celle-ci a donc pour objectif d'étudier l'impact et l'intérêt de l'utilisation des items inversés dans une échelle de mesure.

Par ailleurs, afin de répondre à cette problématique, nous avons choisi l'échelle 'Partage des connaissances', comme objet d'étude. Cette échelle initialement constituée de 7 items comprend deux items inversés. A ce titre, la démarche qui sera suivie pour la validation de l'échelle étudiée est celle du paradigme de Churchill (1979).

Ainsi, après la phase de spécification du domaine du construit et la génération d'un échantillon d'items à partir de la revue de littérature, la démarche du paradigme de Churchill sera poursuivie selon deux principales phases : une phase d'analyse exploratoire et une phase d'analyse confirmatoire. L'objectif étant de purifier les échelles initialement adaptée de la littérature. Concernant la dernière étape, dans ce travail, nous ne pouvons établir des normes à partir de l'échelle étudiée. En effet, cette étape suppose que la validité des échelles soit parfaitement établie et nécessite un échantillon représentatif (Le Louarn, 1997).

Ainsi, nous présentons dans un premier temps l'échelle « Partage des connaissances ». Ensuite, nous exposerons les résultats de l'analyse factorielle exploratoire et confirmatoire avant de les discuter.

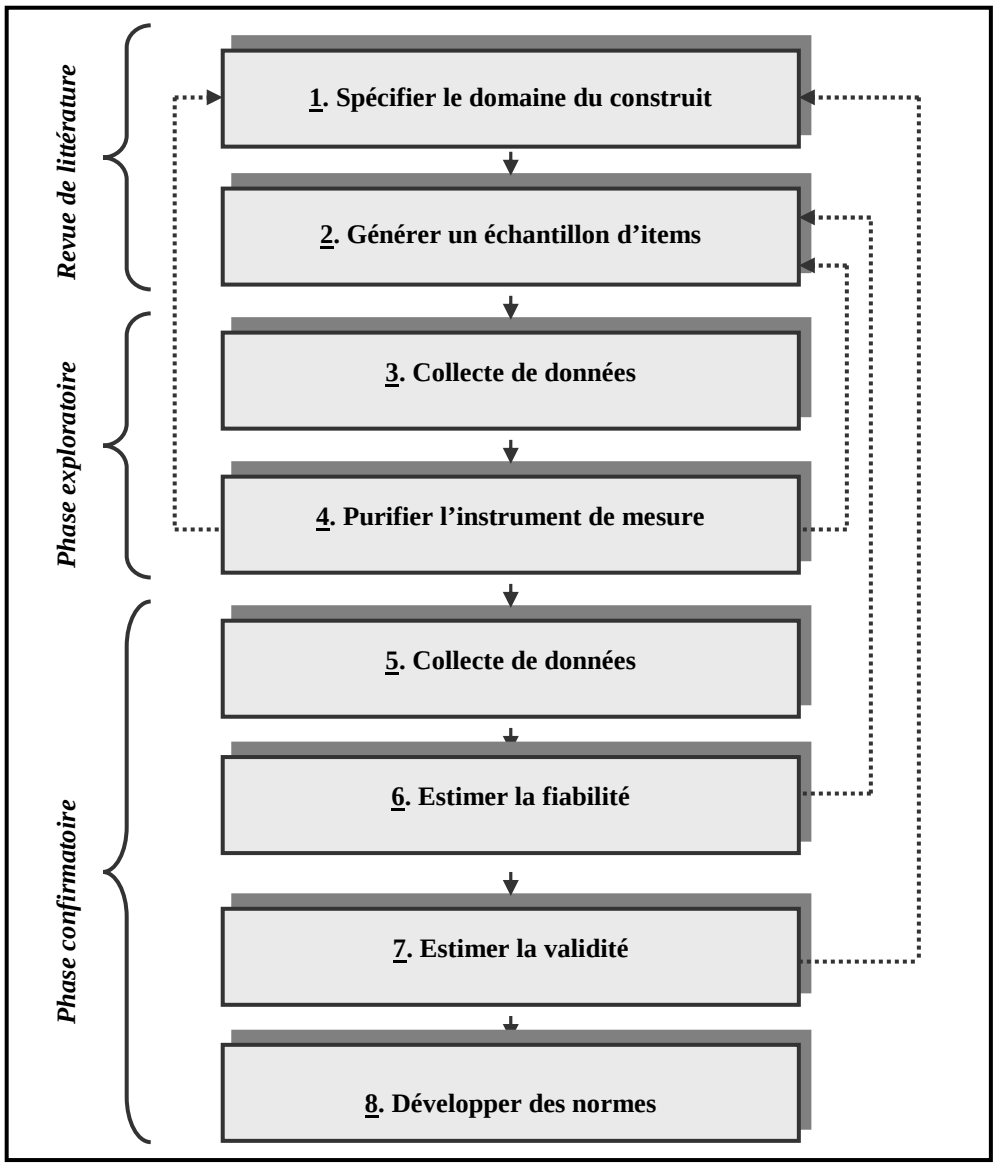

Fig. 1 Démarche du paradigme de Churchill (1979)

1. Présentation de l'échelle étudiée

La variable Partage des Connaissances mesure le degré selon lequel un individu estime partager ses connaissances avec les autres membres de son organisation. Afin d'opérationnaliser cette variable, nous avons recensé dans la littérature concernant la gestion des connaissances, les différentes mesures de cette variable. Le tableau suivant représente une synthèse de ces mesures.

Tableau 1: Mesures de la variable 'Partage des connaissances'

Auteur(s)	Echantillon	Mesures utilisées
Constant et al. (1994)	Etudiants appartenant à *Boston University's School of Management*	**1.** How appropriate it is of John to ask you for a copy of the program ? **2.** How justified would you be in refusing to give john a copy of the program ? **3.** All told, what is the likelihood you would give a copy of the program to John ?
Lee (2001)	195 entreprises coréennes.	Partage des connaissances explicites : **1.** We and our service provider share business proposals and reports with each other. **2.** We and our service provider share business manuals, models, and methodologies with each other. **3.** We and our service provider share each other's success and failure stories. **4.** We and our service provider share business knowledge obtained from newspapers, magazines, journals, and television. Partage des connaissances tacites : **1.** We and our service provider share know-how from work experience with each other. **2.** We and our service provider share each other's know-where and know-whom. **3.** We and our service provider share expertise obtained from education and training.
van den Hooff et al. (2003)	Des managers (nombre non précisé)	**1.** When I've learned something new, I see to it that my colleagues are able to learn it as well. **2.** I share my information with colleagues outside my department. **3.** I share my skills with colleagues outside my department. **4.** Colleagues outside my department inform me about what they know, when I ask them. **5.** Colleagues outside my department inform me about their skills, when I ask them.
Cummings (2004)	182 groupes de travail dans le secteur des télécommunications.	**1.** On average, how often did you share each type of knowledge during the project with group members ?
Koh et Kim (2004)	641 participants appartenant à 77 communautés virtuelles en Corée.	**1.** Mesure du contenu des flux (pages visitées, nombre de visiteurs fréquents, fréquence et durée du chat). **2.** Contenu des e-mail et du chat. **3.** Activités de partage des connaissances fondamentales : le nombre moyen de connaissances envoyées ou consultées.
Liao et al. (2004)	33 participants à un projet de gestion des connaissances.	**1.** It is my pleasure to share my working experience and knowledge to my colleagues voluntarily. **2.** I will share my working experience and knowledge to

		my colleagues conditionally.
Burgess (2005)	480 managers	**1.** Outside of requests within your project team(s), how many hours per week do you spend sharing information with others ?
Zhao et Luo (2005)	121 filiales étrangères aux Etats-Unis, en Europe et au Japon.	**1.** How often do you engage in the exchange of the (expertise / information…) using phone, fax, email and other means with peer subsidiaries and headquarters ?
de Vries et al. (2006)	424 employés appartenant à différentes équipes de travail et différentes organisations.	**1.** When I've learned something new, I tell my colleagues about it. **2.** I share information I have with my colleagues. **3.** I think it is important that my colleagues know what I am doing. **4.** I regularly tell my colleagues what I am doing.
Lu et al. (2006)	246 participants (étudiants et employés)	**1.** In daily work, I take the initiative to share my work-related knowledge to my colleagues. **2.** I keep my work experience and never share it out with others easily (r). **3.** I share with others useful work experience and know-how. **4.** After learning new knowledge useful to work, I promote it to let more people learn it. **5.** I never tell others my work expertise unless it is required in the company (r). **6.** In workplace, I take out my knowledge to share with more people. **7.** I actively use IT sources available in the company to share my knowledge. **8.** So long as the other colleagues need it, I always tell whatever I know without any hoarding. (Items 6, 7, 8 sont adaptés de Bock et Kim, 2002)
Hsu et al. (2007)	274 participants à 9 communautés virtuelles, organisées sur Yahoo.	**1.** I frequently participate in knowledge sharing activities in this online community. **2.** I usually spend a lot of time conducting knowledge sharing activities in this online community. **3.** When participating in this online community, I usually actively share my knowledge with others. **4.** When discussing a complicated issue, I am usually involved in the subsequent interactions. **5.** I usually involve myself in discussions of various topics rather than specific topics.

r : reverse-coded item est un item inversé par rapport au contenu de la variable.

Les différentes échelles synthétisées dans le tableau ci-dessus mesurent le comportement de partage des connaissances. Comme l'expliquent Lu et al. (2006), la recherche empirique portant sur le partage des connaissances est encore à ses débuts. C'est pour cette raison qu'il n'existe pas encore une échelle communément admise afin de mesurer cette variable.

Afin de répondre à notre objectif de la recherche, nous avons choisi de mesurer cette variable par l'échelle proposée par Lu et al. (2006). En effet, outre sa richesse (une multitude d'items), cette échelle représente un excellent degré de fiabilité avec un alpha de Cronbach de 0,90.

Toutefois, nous n'utilisons pas cette échelle dans son intégralité. En effet, nous sommes réservées quant à l'utilisation de l'item n° 7. Cet item, emprunté au travail de Bock et Kim (2002), nous semble, proche de l'utilisation du Système de Gestion des connaissances plus que du partage des connaissances. C'est pour cette raison que nous l'excluons. Après cette modification, nous présentons ci-dessous la traduction des items retenus pour mesurer la variable 'Partage des connaissances'.

Tableau 2 : Echelle de mesure de la variable 'Partage des connaissances'

Item	Libellé
PARK_1	Dans mon travail quotidien, je prends l'initiative de partager mes connaissances avec mes collègues.
PARK_2	Je garde pour moi mon expérience professionnelle et ne la partage pas facilement.
PARK_3	Je partage avec les autres des expériences et savoirs-faire professionnels utiles.
PARK_4	Après avoir acquis de nouvelles connaissances utiles au travail, je les diffuse afin que les autres puissent en profiter.
PARK_5	Je ne parle jamais de mon expertise professionnelle aux autres sauf si ma hiérarchie me le demande.
PARK_6	Au travail, je diffuse mes connaissances en les partageant avec d'autres personnes.
PARK_7	Tant que mes collègues en ont besoin, je partage toujours tout ce que je sais sans aucune rétention.

2. Méthodologie de collecte des données

Après la phase d'opérationnalisation de la variable 'Partage des connaissances', nous avons administrés le questionnaire auprès de 2200 collaborateurs, appartenant à deux grandes entreprises, considérées comme des leaders mondiaux de l'industrie alimentaire et de la haute technologie. La diffusion de celui-ci s'est effectuée par Internet, en envoyant un message électronique (e-mail) à la population cible. Le message électronique diffusé comportait une adresse URL sur laquelle le répondant doit cliquer afin d'accéder au questionnaire. Aussi, deux versions, française et anglaise, ont été prévues. Au final, 383 questionnaires valides ont été intégrés dans notre base de données.

Cet échantillon, conformément à la démarche du paradigme de Churchill, a été par la suite scindé en deux sous-échantillons. Le premier est destiné aux analyses exploratoires (N=100). Le second a servi aux analyses confirmatoires (N=283). Cette répartition a été effectuée sous SPSS, de manière aléatoire à partir de l'échantillon global.

3. Résultats

Nous présenterons dans un premier temps les résultats de l'analyse factorielle exploratoire, ensuite ceux de l'analyse factorielle confirmatoire.

3.1 L'analyse factorielle exploratoire

L'analyse factorielle exploratoire (AFE), en l'occurrence l'analyse en composantes principales (ACP), permet d'identifier un ensemble de dimensions latentes à partir de variables observables initiales. L'ACP permet également de réduire le nombre de variables initiales en un ensemble plus restreint, destiné à se substituer aux précédentes dans les analyses statistiques (Evrard et al., 2003).

Avant de lancer une ACP, il convient tout d'abord de s'assurer que les données sont *factorisables*, c'est à dire que celles-ci constituent un ensemble suffisamment cohérent pour qu'il soit raisonnable d'y chercher des dimensions communes (Evrard et al., 2003). A ce titre, deux tests formels sont effectués : le test de sphéricité de Bartlett et le KMO. Les deux tests susmentionnés sont complétés en vérifiant la diagonale de la matrice anti-image. Celle-ci reprend le MSA (Measure of Sample Adequacy) pour chaque variable. Un MSA inférieure à 0,5 peut indiquer que la variable concernée n'est pas adaptée à la structure des autres variables.

Une fois les conditions d'application d'une ACP remplies, il faudrait déterminer le nombre de facteurs à retenir. En effet, l'objectif d'une ACP consiste à déterminer de nouvelles variables composées à partir d'un ensemble de variables initiales. Il faut donc choisir un nombre restreint de facteurs afin d'avoir une analyse lisible. D'un autre côté, il faut que les axes retenus reproduisent l'essentiel de l'information fournie par notre base de données. Nous nous trouvons donc face à deux objectifs contradictoires. Afin de répondre à ces deux objectifs et déterminer le nombre d'axes factoriels à retenir, nous nous appuyons sur quatre méthodes différentes : le test de Cattell, la restitution minimum, le critère de Kaiser et le test MAP de Velicer. Une fois le nombre d'axes factoriels déterminé, il convient d'effectuer une rotation *Varimax* afin de mieux interpréter les facteurs obtenus. Une rotation permet d'augmenter artificiellement la valeur des coefficients de corrélation des variables les plus corrélées, et de diminuer celle des variables les moins corrélées.

Enfin, la fiabilité (ou fidélité) sera également étudiée dans le cadre de ces analyses. Celle-ci correspond à la cohérence entre les items qui sont censés mesurer un même concept. Une échelle fiable produit les mêmes résultats lors de mesures répétées, quelles que soient les personnes qui l'utilisent et quel que soit le moment où le test est effectué (Nunnally et Bernstein, 1994; Evrard et al., 2003). A ce titre, le coefficient alpha de Cronbach (1951) est l'indicateur le plus utilisé pour mesurer la fiabilité d'une échelle.

Nous présenterons ci-dessous les résultats de l'étude de la dimensionnalité de l'échelle suivis de ceux de la fiabilité.

3.1.1 Dimensionnalité

La première étape dans l'étude de la dimensionnalité d'une échelle consiste à s'assurer que les données sont « factorisables ». Ainsi, le calcul de la matrice des corrélations avec les seuils de signification montre que les corrélations sont toutes positives et majoritairement significatives (Cf. Annexe). Cette matrice révèle également l'absence de corrélations significatives entre quelques items. A ce titre, nous pouvons souligner que les items PARK_2 et PARK_5 sont bien corrélés entre eux (0,587) et faiblement corrélées avec la plupart des autres items. Notons également que l'item PARK_7 est faiblement corrélé avec les items PARK_1 et PARK_4. Ceci nous laisse supposer que l'échelle étudiée nécessite d'être épurer. Le test de sphéricité de Bartlett permet de rejeter sans risque l'hypothèse de nullité simultanée de tous les coefficients de corrélation. Le test KMO, dont la valeur est supérieure à 0,7 (KMO=0,741), donne un résultat qui autorise la factorisation. Enfin, la diagonale de la matrice de corrélations anti-image rend compte d'indices MSA supérieurs à 0,5 (MSA

comprises entre 0,671 et 0,829). Toutes les conditions de factorisation sont remplies, nous pouvons donc conduire notre analyse factorielle.

Une ACP est lancée sur l'ensemble initial des sept items, sans préciser le nombre de facteurs demandés. Le critère de Kaiser indique l'existence de deux facteurs qui permettent de restituer 66,3% de la variance totale expliquée. Le premier facteur permet d'extraire 42% de cette variance, alors que le second facteur permet d'en extraire 24,3%. Le troisième facteur qui n'extrait que 10,5% est exclu par application du critère de Kaiser (Cf. tableau 3).

L'observation du graphique des valeurs propres indique la présence de deux facteurs puisque le coude est marqué au niveau du 3ème facteur. Le test MAP de Velicer n'est pas vraiment explicite puisque le résultat de ce test selon la version 1976, indique l'existence de deux facteurs. Tandis, que l'application de la version 2000 de ce même test n'indique qu'un seul facteur (Cf. Annexe). Enfin, l'application du critère de restitution minimum confirme le résultat à deux facteurs. En effet, le seuil minimum de variance totale expliquée est atteint si on prend en compte le premier et le second facteur (Cf. tableau3).

Tableau 3 : Valeurs propres et % de variance expliquée relatives à l'échelle 'Partage des connaissances'

Composante	Valeurs propres initiales		
	Total	% de variance	% cumulés
1	**2,870**	**42,033**	**42,033**
2	**1,658**	**24,278**	**66,311**
3	0,717	10,506	76,817
4	0,546	7,991	84,808
5	0,465	6,804	91,612
6	0,288	4,223	95,835
7	0,284	4,165	100,000

La majorité des méthodes déployées afin de déterminer le nombre de facteurs à retenir convergent vers une solution bidimensionnelle. Or, telle que cette échelle a été opérationnalisée, nous nous attendions à ce qu'elle soit unidimensionnelle. Le tableau suivant récapitule les résultats issus de l'application des différentes méthodes utilisées.

Tableau 4 : Choix du nombre de dimensions à retenir pour l'échelle 'Partage des connaissances'

Méthode	Nombre de dimensions à retenir
- Critère de Kaiser	2
- Test de Cattell	2
- Test MAP de Velicer (1976)	2
- Test MAP de Velicer (2000)	1
- Seuil de restitution minimum	2

En nous basant sur le critère des communalités, l'item PARK_7 est candidat à suppression car sa communalité est inférieure à 0,4 (Cf. tableau 5).

Tableau 5 : Communalités de l'échelle 'Partage des connaissances'

	Communalités
PARK_1	0,515
PARK_2	0,664
PARK_3	0,794
PARK_4	0,731
PARK_5	0,861
PARK_6	0,494
PARK_7	**0,329**

Nous supprimons l'item PARK_7 et relançons l'analyse. Ainsi, toutes les corrélations sont positives et majoritairement significatives. Le test de sphéricité de Bartlett et le test KMO autorisent la factorisation. Enfin, les indices MSA sont tous supérieurs à 0,5 (MSA comprises entre 0,588 et 0,850). Le critère de Kaiser indique toujours l'existence de deux facteurs qui permettent d'extraire 72,3% de la variance totale expliquée. Le premier facteur permet d'extraire 45% de cette variance, alors que le second facteur permet d'en extraire 27,3% (Cf. tableau 6). Ce pourcentage s'est donc amélioré après suppression de l'item n°7. Le test de Cattell, quant à lui, devient plus clair et indique également la présence de deux facteurs. Le coude est maintenant bien marqué au niveau du 3ème facteur. Nous remarquons aussi que les quatre autres valeurs propres sont à peu près alignées (Cf. Annexe).

En revanche, le test MAP de Velicer (versions 1976 et 2000), désigné dans la littérature comme étant le plus robuste, indique l'existence d'un unique facteur. Le minimum de la somme des corrélations résiduelles élevées au carré est atteint pour un seul facteur (Cf. Annexe). Enfin, pour le dernier critère appliqué qui concerne le seuil de restitution minimum, celui-ci indique l'existence de deux facteurs (Cf. tableau 6).

Tableau 6 : Valeurs propres et % de variance expliquée relatives à l'échelle 'Partage des connaissances', après 1ère purification

Composante	**Valeurs propres initiales**		
	Total	**% de variance**	**% cumulés**
1	**2,686**	**44,982**	**44,982**
2	**1,631**	**27,322**	**72,305**
3	0,546	9,149	81,453
4	0,488	8,168	89,621
5	0,334	5,593	95,215
6	0,286	4,785	100,000

Le résultat des méthodes utilisées afin de déterminer le nombre de facteurs à retenir est contradictoire. Nous notons que trois méthodes parmi les cinq utilisées indiquent l'existence de deux facteurs. Nous allons opter provisoirement pour cette solution en attendant d'examiner les communalités et la structure factorielle de l'échelle en question (Cf. tableau 7).

Tableau 7 : Choix du nombre de dimensions à retenir pour l'échelle 'Partage des connaissances', après 1ère purification

Méthode	Nombre de dimensions à retenir
- Critère de Kaiser	2
- Test de Cattell	2
- Test MAP de Velicer (1976)	1
- Test MAP de Velicer (2000)	1
- Seuil de restitution minimum	2

En nous basant sur le critère des communalités, tous les items ont des communalités supérieures à 0,4 (comprises entre 0,482 et 0,909). Concernant la structure factorielle de l'échelle, nous remarquons que celle-ci n'est pas claire. Ainsi, certains items notamment PARK_3 et PARK_4 ont des corrélations supérieures à 0,4 avec les deux facteurs retenus (Cf. Annexe). Afin, d'obtenir une structure factorielle plus claire qui nous aiderait à mieux interpréter les facteurs identifiés, nous effectuons une rotation Varimax qui permet d'optimiser les corrélations de ces variables sur les deux facteurs. Après rotation, la structure factorielle de l'échelle apparaît plus clairement. Ainsi, les items PARK_3 et PARK_4 sont à présent fortement corrélés au facteur 1 (0,877 et 0,857) et faiblement corrélés au facteur 2 (0,156 et -0,004). Les items PARK_1 et PARK_6 sont aussi fortement corrélés au facteur 1 et leurs contributions factorielles sont largement supérieures à 0,5 (comprises entre 0,697 et 0,686). Tandis que les items de PARK_2 et PARK_5 sont fortement corrélés au facteur 2 et leurs contributions factorielles sont largement supérieures à 0,5 (comprises entre 0,787 et 0,952). Le tableau ci-dessous présente les résultats après rotation Varimax.

Tableau 8 : Structure factorielle de l'échelle 'Partage des connaissances', après 1ère purification et rotation Varimax

	Communalités	Facteur 1	Facteur 2
PARK_1	0,526	**0,697**	0,201
PARK_2	0,654	0,187	**0,787**
PARK_3	0,794	**0,877**	0,156
PARK_4	0,734	**0,857**	-0,004
PARK_5	0,909	0,058	**0,952**
PARK_6	0,482	**0,686**	0,109

Avant de valider cette structure factorielle à deux facteurs, il est nécessaire de pouvoir interpréter ces derniers.

- Le premier facteur réunit les quatre énoncés suivants : PARK_1 : « *Dans mon travail quotidien, je prends l'initiative de partager mes connaissances avec mes collègues* », PARK_3 : « *Je partage avec les autres des expériences et savoirs-faire professionnels utiles* », PARK_4 : « *Après avoir acquis de nouvelles connaissances utiles au travail, je les diffuse afin que les autres puissent en profiter* », et PARK_6 : *« Au travail, je diffuse mes connaissances en les partageant avec d'autres personnes* ». Ces quatre items traduisent clairement le comportement de partage des connaissances. Ce premier facteur est donc nommé 'Partage des connaissances'.
- Le deuxième facteur regroupe les deux énoncés suivants : PARK_2 : « *Je garde pour moi mon expérience professionnelle et ne la partage pas facilement* » et PARK_5 : « *Je ne parle jamais de mon expertise professionnelle aux autres sauf si ma hiérarchie me le demande* ». Ces deux items sont des items initialement inversés qui ont été introduits dans l'échelle sous forme négative afin de susciter plus de concentration de la part du répondant et d'éviter l'effet de halo au moment du remplissage du questionnaire. Avant de lancer l'ACP, les réponses concernant ces deux énoncés ont

été recodés. Or, comme résultat de l'ACP, nous remarquons que ces deux items sont isolés des quatre autres qui mesurent le partage des connaissances (facteur 1) et forment un facteur à part (facteur 2). Cela nous laisse supposer que soit les répondants ne se sont pas rendus compte de l'existence de ces deux items inversés au moment du remplissage du questionnaire et ont répondu au questionnaire de manière aléatoire ou rapide ; soit la notation attribuée par les répondants aux items PARK_1, PARK_3, PARK_4 et PARK_6 est différente de celle attribuée aux items PARK_2 et PARK_5 (nous que le premier groupe d'items exprime le partage des connaissances, alors que le deuxième, dans sa structure originale (inversée) exprime plutôt le non partage ou encore la rétention de connaissances. L'examen de plus près des statistiques descriptives relatives à ces six items ainsi que la vérification des réponses notées dans notre base de données, montrent que les répondants se sont bien rendu compte de l'existence des deux items inversés au moment du remplissage du questionnaire. Seulement, l'évaluation obtenue pour les items affirmatifs est relativement différente de celle obtenue pour les items inversés, même si les réponses vont dans le même sens (corrélations positives entre les six items). Cela signifie donc que les réponses ne sont pas tout à fait symétriques entre les items affirmatifs et les items inversés (négatifs).

Cette conclusion est très intéressante car elle permet de mettre en relief la question concernant l'intérêt de l'introduction des items inversés dans une échelle ou un questionnaire. Alors que certains auteurs conseillent l'utilisation de ce type d'items (Igalens et Roussel, 1998), d'autres ne le recommandent pas (McLaughlin, 1999), vue les problèmes que peut induire leur utilisation au niveau de la fiabilité et la validité d'un questionnaire de recherche.

Maintenant que nous avons décelé l'origine de l'existence de deux facteurs, nous décidons de supprimer le deuxième facteur, composé des deux items inversés et de ne garder que le premier facteur qui regroupe les quatre items restants et qui exprime clairement le comportement de partage des connaissances.

Nous relançons l'analyse sans les items n°2 et n°5. Ainsi, toutes les corrélations sont positives et significativement différente de zéro au seuil de risque de 5%. Le test de sphéricité de Bartlett et le test KMO autorisent la factorisation. Enfin, les indices MSA sont tous supérieurs à 0,5 (MSA comprises entre 0,705 et 0,826). Le critère de Kaiser indique maintenant l'existence d'un seul facteur, qui permet d'extraire 65% de la variance totale expliquée. Le test de Cattell indique également la présence d'un seul facteur (le coude se situe au niveau du 2ème facteur). Enfin, le test MAP de Velicer ainsi que le critère de restitution minimum viennent conforter la solution à un seul facteur (Cf. tableau 9, et Annexe).

Tableau 9 : Valeurs propres et % de variance expliquée relatives à l'échelle 'Partage des connaissances' après 2ème purification

Composante	Valeurs propres initiales		
	Total	**% de variance**	**% cumulés**
1	**2,197**	**64,975**	**64,975**
2	0,559	16,525	81,501
3	0,334	9,893	91,393
4	0,291	8,607	100,000

Tous les critères utilisés convergent donc vers une solution à un seul facteur (Cf. tableau 10).

Tableau 10 : Choix du nombre de dimensions à retenir pour l'échelle 'Partage des connaissances' après 2ème purification

Méthode	Nombre de dimensions à retenir
- Critère de Kaiser	1
- Test de Cattell	1
- Test MAP de Velicer (1976)	1
- Test MAP de Velicer (2000)	1
- Seuil de restitution minimum	1

Les quatre items sont bien représentés sur le facteur retenu. En effet, les communalités dépassent toutes 0,4 (comprises entre 0,487 et 0,793). Aussi, les contributions factorielles sont nettement supérieures à 0,5 (comprises entre 0,698 et 0,891). Le tableau ci-dessous reprend les communalités et la structure factorielle finale liées à cette échelle.

Tableau 11 : Communalités et structure factorielle de l'échelle 'Partage des connaissances' après 2ème purification

	Communalités	Facteur 1
PARK_1	0,530	0,728
PARK_3	0,793	0,891
PARK_4	0,707	0,841
PARK_6	0,487	0,698

L'analyse exploratoire opérée sur l'échelle 'Partage des connaissances' indique que celle-ci est unidimensionnelle. Cette première analyse a permis d'épurer l'échelle en question de trois énoncés, PARK_2, PARK_5 et PARK_7. Elle a également permis de soulever une question importante qui concerne l'introduction des items inversés. La nouvelle structure factorielle à quatre items sera réexaminée dans le cadre d'une analyse confirmatoire.

3.1.2 Fiabilité

L'analyse de la fiabilité montre que le degré de consistance interne de l'échelle de mesure 'Partage des connaissances' est de 0,805. Le score de l'alpha de Cronbach est d'un niveau satisfaisant et reflète une bonne consistance interne. Les quatre items de notre échelle contribuent tous à la fiabilité de celle-ci.

3.2 Analyse factorielle confirmatoire

L'analyse factorielle confirmatoire (l'AFC est réalisée sous le logiciel AMOS) se situe dans le prolongement de l'analyse factorielle exploratoire (AFE). L'AFC confronte aux données empiriques les hypothèses relatives à la structure des relations entre les variables observées et les variables latentes. Dans l'AFC, les liens entre telle variable observée et telle variable latente sont définis *a priori* par le chercheur (Gerbing et Hamilton, 1996 ; Roussel et al., 2002). Elle confirme donc les différents modèles de mesure issus de l'AFE (Roussel et al., 2002).

Par ailleurs, afin de mettre en œuvre l'AFC, trois critères doivent être étudiés (Roussel et al., 2002). Il s'agit du degré d'ajustement du modèle de mesure, de la fiabilité et de la validité du construit. Ainsi, afin de mesurer la qualité de l'ajustement du modèle de mesure, trois familles d'indices sont pris en compte. Il s'agit des indices absolus, des indices « incrémentaux » et des indices de parcimonie. Les

indices d'ajustement absolus permettent d'évaluer dans quelle mesure le modèle théorique posé a priori reproduit correctement les données collectées (Roussel, 2002). Ici, nous utiliserons les trois indices suivants : GFI (Goodness of Fit), AGFI (Adjusted Goodness of Fit) et RMSEA (Root Mean Square Error of Approximation). Les Indices « incrémentaux » mesurent « l'amélioration de l'ajustement en comparant le modèle testé à un modèle plus restrictif, dit 'modèle de base'. Le modèle de base le plus couramment utilisé est le 'modèle nul' ou 'modèle indépendant' (Bentler et Bonett, 1980). Il s'agit d'un modèle pour lequel toutes les variables observées seraient non corrélées, c'est à dire qu'aucune relation structurelle entre les variables n'est supposée ». Ici, nous utiliserons les deux indices incrémentaux : NFI (Normed Fit Index) et CFI (Comparative Fit Index). Enfin, les indices de parcimonie ont pour objectif d'éviter de surestimer un modèle donné, de détecter si le mauvais degré d'ajustement d'un modèle provient d'une sous-estimation du modèle testé et de déterminer, parmi plusieurs modèles plausibles équivalents, celui qui présente la meilleure parcimonie et qui devrait, par conséquent, être préféré aux autres (Roussel et al., 2002). Ici, nous utiliserons l'indice de parcimonie : χ^2 normé (χ^2/ddl).

Par ailleurs, la fiabilité est mesurée par le coefficient rhô de Jöreskog. Le rhô de Jöreskog est préféré à l'alpha de Cronbach, d'une part parce que ce coefficient est moins sensible au nombre d'items d'une échelle, et d'autres part parce que celui-ci intègre les termes d'erreur dans son calcul (Gerbing et Anderson, 1988). La validité, quant à elle, est appréhendée par la validité convergente. La validité convergente consiste à vérifier si les indicateurs qui sont supposés mesurer le même phénomène, sont fortement corrélés entre eux (Evrard et al., 2003 ; Pittenger, 2003; Malhotra, 2004; Jolibert et Jourdan, 2006). Un construit montre une bonne validité convergente lorsque le test t associé à chacune des contributions factorielles est significatif, c'est à dire supérieur à 1,96 (Roussel et al., 2002). Cette validité est forte si la variance moyenne extraite (rhô de validité convergente, ρ_{vc}) est supérieure à 0,5 (Fornell et Larcker, 1981).

3.2.1 Ajustement du modèle de mesure

L'étude de l'ajustement du modèle de mesure montre que tous les indices absolus, incrémentaux et de parcimonie respectent les normes de bon ajustement les plus communément utilisées. Le modèle assure donc une bonne représentation des données empiriques (Cf. tableau 12).

Tableau 12 : Indices d'ajustement du modèle de mesure relatif à l'échelle 'Partage des connaissances'

	χ2	ddl	χ2/ddl	GFI	AGFI	RMSEA	NFI	CFI
PARK	6,72	2	3,36	0,99	0,94	0,091	0,98	0,99

L'échelle 'Partage des connaissances' est unidimensionnelle et comprend quatre items qui sont fortement corrélés à la variable latente. Tous les coefficients de régression standardisés sont supérieurs au seuil fixé de 0,4 (compris entre 0,656 et 0,855). Aussi, tous les T associés aux contributions factorielles sont nettement supérieurs à 1,96 (Cf. tableau 13 et Annexe). Enfin, aucun résidu standardisé n'est supérieur à 2,58 et aucun indice de modification n'est suggéré (Cf. Annexe).

Tableau 13 : Analyse factorielle confirmatoire de l'échelle 'Partage des connaissances'

Item	Coefficients de régression standardisés	C.R	P	Coefficients de corrélation multiple
PARK_1	0,656	9,786	***	0,431
PARK_3	0,702			0,493
PARK_4	0,706	10,395	***	0,499
PARK_6	0,855	11,035	***	0,732

La figure suivante reprend le modèle de mesure relatif à la variable latente 'Partage des connaissances'.

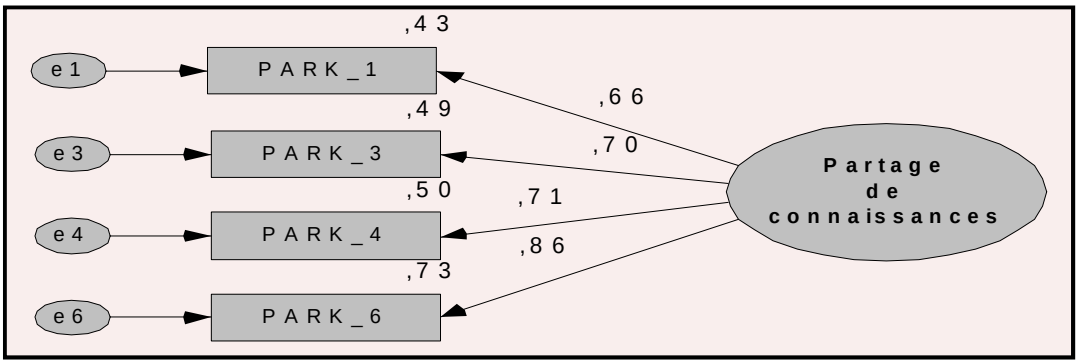

Fig. 2 Modèle de mesure relatif à la variable 'Partage des connaissances'

3.2.2 Fiabilité

Pour cette échelle, nous obtenons un ρ de Jöreskog qui reflète une cohérence interne du construit, satisfaisante (ρ = 0,822). Nous remarquons que cette valeur est proche du score obtenu pour l'alpha de Cronbach.

3.2.3 Validité convergente

L'échelle atteste d'une validité convergente correcte puisque d'une part, le test t associé à chacune des contributions factorielles est significatif, c'est à dire supérieur à 1,96 et d'autre part, la variance moyenne extraite (rhô de validité convergente) a une valeur supérieure à 0,5 (ρ_{vc} = 0,538).

4. Discussion et conclusion

L'échelle 'Partage des connaissances' est adaptée du travail de Lu et al. (2006). Elle est initialement composée de sept items et elle a été retestée, à notre connaissance, pour la première fois. L'épuration de cette échelle a permis d'aboutir à une structure factorielle définitive composée de quatre items. Les analyses exploratoires et confirmatoires montrent que cette échelle est unidimensionnelle. Celle-ci présente également des caractéristiques psychométriques satisfaisantes et donc est valide et fiable.

Cependant, il faut rappeler que lors de l'épuration de l'échelle, nous avons soulevé le problème concernant l'intérêt des items inversés (PARK_2 et PARK_5), figurant dans l'échelle. Nous rappelons que l'introduction d'un item inversé dans une échelle de mesure a pour objectif de susciter plus de concentration de la part du répondant et d'éviter l'effet de halo au moment du remplissage du questionnaire. Le résultat auquel nous avons abouti montre que les répondants ont pris conscience de l'existence des items inversés dans le questionnaire (effet souhaité). Toutefois, ces derniers ont attribué une notation différente aux items affirmatifs et aux items négatifs (une notation non symétrique). Cette différence, même si elle n'est pas très importante, a suffit pour que ces deux items soient éliminés de notre échelle (effet non souhaité).

Ceci dit, conformément aux recommandations de McLaughlin (1999), l'échelle de mesure 'Partage des connaissances' devrait être retestée sans les deux items inversés (soit en les réécrivant sous une forme affirmative, soit en les supprimant de la liste des items composant l'échelle). Le résultat obtenu concernant la validité et la fiabilité de l'échelle doit être comparé à celui auquel nous avons abouti, dans le cadre du présent travail de recherche (où les deux items inversés sont pris en compte). Cette comparaison permettra d'une part, d'apporter un élément de réponse au débat concernant l'introduction des items inversés dans un questionnaire de recherche et leur impact quant à la validité

et la fiabilité de cet instrument de mesure (Igalens et Roussel, 1998 ; McLaughlin, 1999) et d'autre part, de décider avec certitude de la conservation ou de l'élimination des deux items de l'échelle 'Partage des connaissances', dans le cadre des futures recherches.

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ANNEXE

1. Analyse factorielle exploratoire

Résultats initiaux

Matrice des corrélations inter-items de l'échelle 'Partage des connaissances'

	PARK_1	PARK_2	PARK_3	PARK_4	PARK_5	PARK_6	PARK_7
PARK_1	1,000						
PARK_2	0,243	1,000					
PARK_3	0,517	0,274	1,000				
PARK_4	0,410	0,155	0,674	1,000			
PARK_5	0,213	0,587	0,203	0,081	1,000		
PARK_6	0,475	0,189	0,537	0,454	0,146	1,000	
PARK_7	0,141	0,411	0,248	0,105	0,331	0,321	1,000
PARK_1							
PARK_2	0,007						
PARK_3	0,000	0,003					
PARK_4	0,000	0,061	0,000				
PARK_5	0,016	0,000	0,021	0,211			
PARK_6	0,000	0,030	0,000	0,000	0,073		
PARK_7	0,080	0,000	0,006	0,148	0,000	0,001	

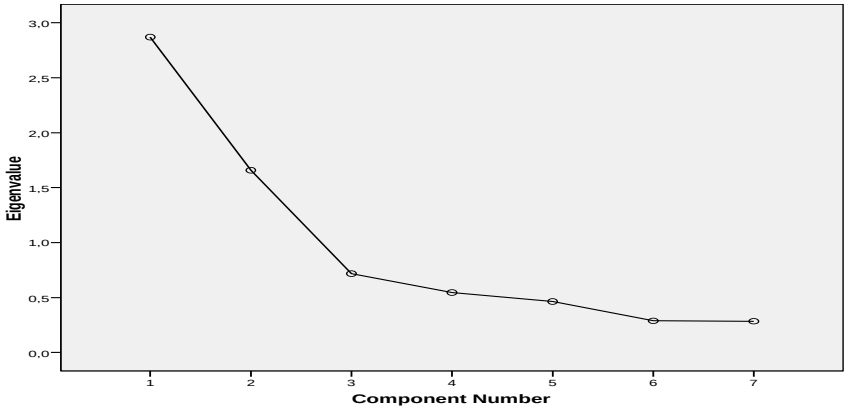
Tests de KMO et Bartlett relatifs à l'échelle 'Partage des connaissances'

Indice KMO		0,741
Test de sphéricité de Bartlett	Chi²	209,913
	ddl	21
	significativité	0,000

Matrice anti-image de l'échelle 'Partage des connaissances'

	PARK_1	PARK_2	PARK_3	PARK_4	PARK_5	PARK_6	PARK_7
PARK_1	0,829	-0,079	-0,243	-0,061	-0,086	-0,274	0,102
PARK_2	-0,079	0,678	-0,080	-0,020	-0,503	0,052	-0,262
PARK_3	-0,243	-0,080	0,741	-0,542	-0,037	-0,214	-0,096
PARK_4	-0,061	-0,020	-0,542	0,723	0,061	-0,149	0,101
PARK_5	-0,086	-0,503	-0,037	0,061	0,671	0,021	-0,115
PARK_6	-0,274	0,052	-0,214	-0,149	0,021	0,806	-0,258
PARK_7	0,102	-0,262	-0,096	0,101	-0,115	-0,258	0,727

Test de Cattell relatif à l'échelle 'Partage des connaissances'



Test MAP de Velicer relatif à l'échelle 'Partage des connaissances'

Velicer's Minimum Average Partial (MAP) Test:

Eigenvalues

2,9662
1,4980
,7763
,6234
,4478
,3919
,2965

Average Partial Correlations

	squared	power4
,0000	,1304	,0320
1,0000	,0847	,0116
2,0000	,0797	,0156
3,0000	,1409	,0716
4,0000	,2418	,1812
5,0000	,4788	,3752
6,0000	1,0000	1,0000

The smallest average squared partial correlation is ,0797
The smallest average 4rth power partial correlation is ,0116
The Number of Components According to the Original (1976) MAP Test is 2
The Number of Components According to the Revised (2000) MAP Test is 1

Structure factorielle de l'échelle 'Partage des connaissances'

	Facteur 1	Facteur 2
PARK_1	0,607	0,382
PARK_2	0,705	-0,408
PARK_3	0,716	0,531
PARK_4	0,573	0,635
PARK_5	0,712	-0,596
PARK_6	0,574	0,406
PARK_7	0,534	-0,210

Résultats après 1ère purification : suppression de l'item PARK_7

Matrice des corrélations inter-items de l'échelle 'Partage des connaissances' après 1ère purification

	PARK_1	PARK_2	PARK_3	PARK_4	PARK_5	PARK_6
PARK_1	1,000					
PARK_2	0,243	1,000				
PARK_3	0,517	0,274	1,000			
PARK_4	0,410	0,155	0,674	1,000		
PARK_5	0,213	0,587	0,203	0,081	1,000	
PARK_6	0,475	0,189	0,537	0,454	0,146	1,000
PARK_1						
PARK_2	0,007					
PARK_3	0,000	0,003				
PARK_4	0,000	0,061	0,000			
PARK_5	0,016	0,000	0,021	0,211		
PARK_6	0,000	0,030	0,000	0,000	0,073	

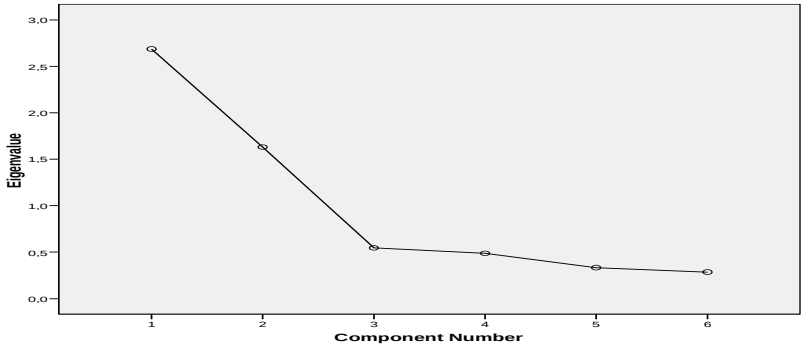
Tests de KMO et Barlett relatifs à l'échelle 'Partage des connaissances' après 1ère purification

Indice KMO		0,731
Test de sphéricité de Barlett	Chi²	182,057
	ddl	15
	significativité	0,000

Matrice anti-image de l'échelle 'Partage des connaissances' après 1ère purification

	PARK_1	PARK_2	PARK_3	PARK_4	PARK_5	PARK_6
PARK_1	0,850	-0,055	-0,235	-0,072	-0,076	-0,257
PARK_2	-0,055	0,625	-0,109	0,006	-0,555	-0,017
PARK_3	-0,235	-0,109	0,728	-0,537	-0,049	-0,248
PARK_4	-0,072	0,006	-0,537	0,731	0,073	-0,128
PARK_5	-0,076	-0,555	-0,049	0,073	0,588	-0,009
PARK_6	-0,257	-0,017	-0,248	-0,128	-0,009	0,843

Test de Cattell relatif à l'échelle 'Partage des connaissances' après 1ère purification



Test MAP de Velicer relatif à l'échelle 'Partage des connaissances' après 1ère purification

Velicer's Minimum Average Partial (MAP) Test:
Eigenvalues
2,7823
1,3681
,6248
,5163
,4075
,3009
Average Partial Correlations

	squared	power4
,0000	,1509	,0411
1,0000	,0880	,0110
2,0000	,1168	,0638
3,0000	,2019	,1670
4,0000	,4534	,3920
5,0000	1,0000	1,0000

The smallest average squared partial correlation is ,0880
The smallest average 4rth power partial correlation is ,0110
The Number of Components According to the Original (1976) MAP Test is 1
The Number of Components According to the Revised (2000) MAP Test is 1

Communalités et structure factorielle de l'échelle 'Partage des connaissances' après 1ère purification, avant rotation

	Communalités	Facteur 1	Facteur 2
PARK_1	0,526	0,646	0,330
PARK_2	0,654	0,674	-0,447
PARK_3	0,794	0,747	0,486
PARK_4	0,734	0,623	0,588
PARK_5	0,909	0,692	-0,655
PARK_6	0,482	0,576	0,389

Résultats après 2ème purification : Structure factorielle finale

Matrice des corrélations inter-items de l'échelle 'Partage des connaissances' après 2ème purification

	PARK_1	PARK_3	PARK_4	PARK_6
PARK_1	1,000			
PARK_3	0,517	1,000		
PARK_4	0,410	0,674	1,000	
PARK_6	0,475	0,537	0,454	1,000
PARK_1				
PARK_3	0,000			
PARK_4	0,000	0,000		
PARK_6	0,000	0,000	0,000	

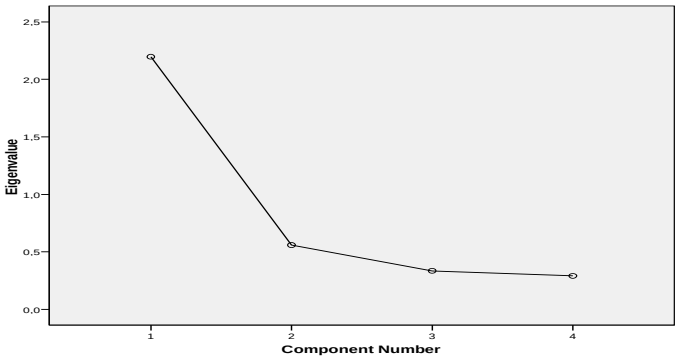
Tests de KMO et Barlett relatifs à l'échelle 'Partage des connaissances' après 2ème purification

Indice KMO		0,759
Test de sphéricité de Barlett	Chi²	131,653
	ddl	6
	significativité	0,000

Matrice anti-image de l'échelle 'Partage des connaissances' après 2ème purification

	PARK_1	PARK_3	PARK_4	PARK_6
PARK_1	0,822	-0,265	-0,061	-0,264
PARK_3	-0,265	0,705	-0,535	-0,257
PARK_4	-0,061	-0,535	0,731	-0,126
PARK_6	-0,264	-0,257	-0,126	0,826

Test de Cattell relatif à l'échelle 'Partage des connaissances' après 2ème purification



Test MAP de Velicer relatif à l'échelle 'Partage des connaissances' après 2ème purification

Velicer's Minimum Average Partial (MAP) Test:
Eigenvalues
2,5407
,6322
,5193
,3078
Average Partial Correlations

	squared	power4
,0000	,2683	,0804
1,0000	,1288	,0223
2,0000	,3391	,2614
3,0000	1,0000	1,0000

The smallest average squared partial correlation is ,1288
The smallest average 4rth power partial correlation is ,0223
The Number of Components According to the Original (1976) MAP Test is 1
The Number of Components According to the Revised (2000) MAP Test is 1

Alpha de Cronbach relatif à l'échelle 'Partage des connaissances' en supprimant un item x

	Alpha de Cronbach si item éliminé
	0,788
PARK_3	0,698
PARK_4	0,751
PARK_6	0,776

2. Analyse factorielle confirmatoire

Estimation et ajustement du modèle de mesure relatif à l'échelle 'Partage des connaissances'

Regression Weights			Estimate	S.E.	C.R.	P
PARK_3	<---	Partage_de_connaissances	1,000			
PARK_1	<---	Partage_de_connaissances	,871	,089	9,786	***
PARK_6	<---	Partage_de_connaissances	1,115	,101	11,035	***
PARK_4	<---	Partage_de_connaissances	1,116	,107	10,395	***

Variances	Estimate	S.E.	C.R.	P
Partage_de_connaissances	,465	,076	6,140	***
e3	,477	,052	9,236	***
e1	,467	,046	10,103	***
e4	,582	,061	9,535	***
e6	,212	,039	5,502	***

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	8	6,721	2	,035	3,360
Saturated model	10	,000	0		
Independence model	4	397,467	6	,000	66,244

Model	RMR	GFI	AGFI	PGFI
Default model	,022	,989	,944	,198
Saturated model	,000	1,000		
Independence model	,381	,538	,229	,323

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,983	,949	,988	,964	,988
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,091	,021	,172	,133
Independence model	,481	,441	,522	,000

Marketing Justification of a Project Focused on Introducing the Innovative Cloud Service "MedKid" to the Market

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Abstract

The article presents marketing justification of a project on introducing the innovative information product MedKid to the market intended for use by medical staff of Tomsk preschool childcare institutions. The article includes results of complex marketing research: elements of market analysis and its segmentation; study of microenvironments' development trends; study of consumer needs on the basis of source information collected via expert interviewing; analysis of competitive conditions in the field on the basis of M. Porter's techniques and definition of a future product competitiveness; identification of strengths and weaknesses of a marketing proposal developed by company-manufacturer UMSSoft on the basis of SNW-analysis.

Keywords*:* software product, cloud service, marketing justification of a project, market research.

Introduction

Selevich et al (2015) mentioned that social institutions use marketing techniques increasingly. The crisis in the economy are the cause of this. Nowadays there is a number of management models used in medical organizations. However, the state of administration in medicine still remains unsatisfactory. Today one of crucial tasks in the Russian medicine is the organization of continuous data collection and storage to ensure proper health of the population with the focus on filling patients' medical records since the first days of their life. The cost for organizing such processes constitutes significant and constantly increasing part of the medical institutions' budget, which by different estimations can make from 10 to 33% of their total budget, according to UMS Company (2012). In order to reduce such costs specially developed medical information systems, which allow quick information processing and transfer are used thus increasing management efficiency.

Since 2013 UMSSoft Company has initiated the preparation for implementation of a start-up on creation and sale of a new information product for medical use on the market of preschool childcare institutions. Program complex MedKid implies automation of work of a doctor, nurse and deputy manager on economic affairs of a kindergarten. The decision shall be supplied through SaaS model (software as a service) and shall ensure high capacity.

When writing a business-plan one of its key items was marketing justification of a project MedKid. It contributes to deeper understanding of an organization's external environment functioning mechanisms, adjustment of marketing proposal to market features and hence increasing chances of an organization for commercial success. This justification based on the results of complex market research. It allows the company not only to prove its potential for entering the market with the innovative product but also to correct the marketing proposal taking into account the features of the external environment.

The methodology of this approach with the marketing project justification should include:
1. Analysis of the macro-environment (PESTLE analysis and Porters' 5 competitive forces analysis in the industry).
2. Analysis of the microenvironment (competitor analysis, an assess of the product competitiveness, SNW-analysis, scan of consumers and their needs).

This approach allows assessing the attractiveness of the company's external environment, seeing its threats and opportunities, as well as the strengths and weaknesses of the company. This is usually done in the form SWOT-analysis. In addition, the company has a chance to adapt and improve their marketing proposal at the initial project stage, without spending a quantity of resources at the same time.

Market analysis of MedKid product

As of 2012 the total amount of the Russian market of information technologies has made approximately 620 bln. rubles. The sales volume of software products inside the country has reached 120 bln. rubles, and services – 150 bln. rubles. According to various estimates in 2012 the total growth of the information varied from 3.9 to 6 % against the previous year results, thus the growth of hardware part of this market exceeded 10 percent.

By 2017 it is planned to finish the transition of governmental institutions to electronic document control that will provide a breakthrough to further increase of informatization level of governmental and corporate sectors of the Russian economyб according to 'Iteranet' IT Journal (2016). It is possible to say that the information industry in Russia is in the condition of a constrained growth. In highly specialized market niche of preschool childcare institutions only now we can identify players with offers for automation processes in kindergartens.

PEST-analysis which is often used to estimate key market tendencies of an industry was used to analyze macroenvironment factors and tendencies of market development. PEST-analysis is a tool of long-term strategic planning and is designed for some years upfront with annual data update.

PEST-analysis made for MedKid service demonstrates that political factors (P) produce positive impact on the company developing the given software product as there is gradual decrease in corruption level and stimulation of information processes in municipal organizations by officials.
Social factors (S). These days the birth rate exceeds the death rate thus overloading preschool childcare institutions, which makes MedKid product currently important since the developed software will allow to decrease the workload of kindergarten employees. Moreover, 53% of children living in the Russian Federation have poor health, which also contributes to service popularization as its main task is to keep medical records of a child, according to RG.ru (2011). Gribczova J. (2013) confirms that part of parents' money spent on a child remains constant (on average 20–30%), which also provides an advantage for software as the program complex implies additional functions for parents for extra payment.

High level of technologies enables to make service readily available. Moreover, the legislation of the Russian Federation promotes development of small IT-companies by reducing taxes on insurance payments from 34% to 14%, according to Ministry of Telecom and Mass Communications of the Russian Federation (2016). However, economic factors, namely stagnation of the RF economy or social factors (resistance of the senior generation to informatization), can slow down the process of software product distribution. In fact, different formats and standards in various software development companies may cause problems of report (statistics) delivery in an electronic format to state authorities due to its incompatibility.

When analyzing competitive conditions on the market, Michael Porter's approach was used. In a research study by Porter (2008) there are five driving forces on the market that define potential profit level on the market, i.e. industry attractiveness. Such forces include the level of competition within the industry, threat of occurrence of new players, market power of consumers, market power of suppliers, threat of appearance of alternative products.

The level of every factor can be estimated on a scale from low to high by its decomposition into factors of smaller order. Table 1 shows final results of the analysis.

Table 1. Results of five forces analysis

Competitive force	Level	Description	Focus area
1. Threat from alternative products	Average	Alternative products are present on the Russian market, but only have appeared.	Support and improve uniqueness of the product.
2. Threat of interindustry competition	Average	There is a small amount of players which appeared rather recently in a considered segment are present on the Russian market. Their products differ functionally. Rate of market growth is rather high due to overpopulation of kindergartens that in its turn leads to establishment of new preschool childcare institutions; moreover, there is an opportunity of price increase, however only within the limits of covering the growth of costs.	Conduct steady monitoring of competitors' offers. Develop product uniqueness and raise perceived value of the product. Reduce influence of price competition on sales. Increase the level of knowledge about the product.
3. Threat from new players	Average	As the economy of scale in the given segment is significant, there are some strong players on the market; moreover, there are micro-niches on the market that can be occupied. The return on investment when entering the industry will make approximately one year, thus large players will not reduce their prices. Access to distribution channels is completely open. Moreover, the state does not impose any limiting actions.	Conduct steady monitoring of new companies' occurrence. Perform actions aimed at continuous contact between a consumer and a company. Increase the level of knowledge about the product.
4. Threat of losing potential clients	Average	Among buyers the sales volume is distributed uniformly. Change of a client to other products is only possible in case of significant difference in price. Consumers have an interest in purchasing the product, but the interest is not high enough yet.	Increase the quality of the product on lagging behind parameters. Develop special offers for "sensitive" clients.
5. Threat of suppliers' instability	Low	There is a wide choice of suppliers, there is no restriction in volumes, in case of changing the supplier the company will bear low costs.	Hold negotiations on price reduction

During market segmentation it was defined that the basic potential consumers of the developed software product are preschool childcare institutions. Preschool childcare institution is a type of educational establishment in the Russian Federation, which ensures general educational program of preschool education with a different focus. Preschool educational institution provides education, training, supervision, care and health of children at the age from two months to seven years.
Classification of kindergartens is presented in Figure 1.

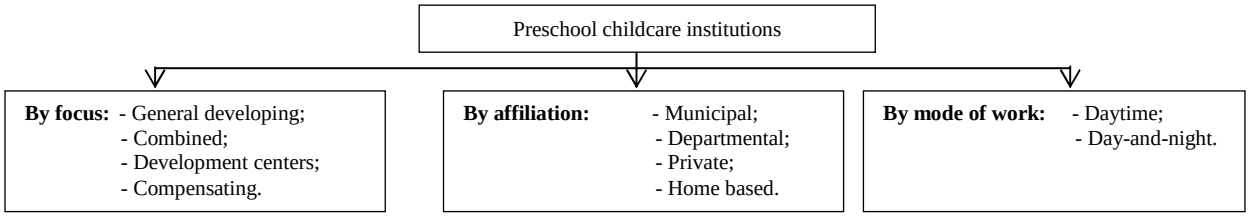

Fig. 1. Classification of kindergartens in Russia

Quantitative and qualitative structure of Tomsk preschool childcare institutions is shown in Figure 2.

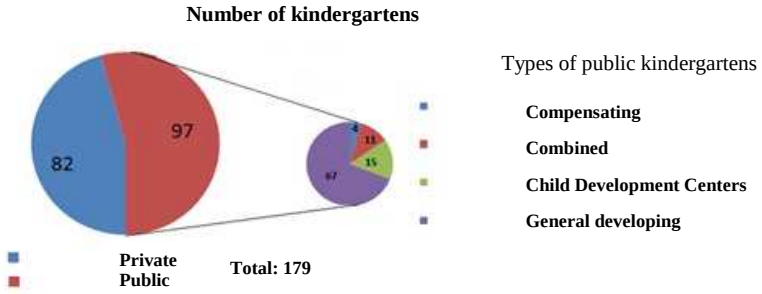

Fig. 2. Segmentation of kindergartens in Tomsk

Special distinctions between state and private kindergartens are not revealed besides the cost of service, quality of rendered services and territorial capacity.

Further an attempt to calculate the volume and nature of demand for automation services (segment capacity) of kindergartens in Tomsk was made. Today the total number of kindergartens in Tomsk amounts to 179 (82 private and 97 governmental). Taking into account the fact that the cost of service delivered by the company is 1.000 rubles a month, if connecting all kindergartens to the service the sum per year will make 179 * 1.000 * 12 = 2.148.000 (two million one hundred forty eight thousand) rubles.

This is the size of a potential gain. If we consider that when questioning the consumers they indicated the sum of 1.000 rubles as acceptable, it is possible to draw a conclusion that at present the given amount of 2.148.000 approximately reflects the market capacity. Nevertheless, it is necessary to specify the limiting sum of purchase of a client, as well as the number of preschool childcare institutions not willing to use such services. It will allow to correct the numbers on market capacity.
Seasonal prevalence of demand is demonstrated by increase, reduction or complete termination of work during certain periods of the year. Usually from September to May-June kindergartens work according to the established schedule. But in July and August the schedule often changes, and the institution may even be closed for that period. During these months the kindergartens staff usually has vacation since the number of children coming to a kindergarten is considerably reduced. Thus, the activity of preschool childcare institutions has strong seasonal nature that will impose some restrictions on MedKid sales.

Study of MedKid competitors and its competitiveness

At studying of competitors it was found out that the most probable and potentially dangerous competitor for today for service MedKid is the product "Smiles. Kindergartens". Having conducted preliminary researches from secondary sources, table 2 has been made.

Table 2. Comparison of presence of software products' basic characteristics

Functional features of a product	MEDKid	Smiles
Build statistics of preschool educational institutions	+	+
Issue electronic medical certificates to parents	+	+
Keep records of medicines	+	+
Make requests for medicines and vaccines	+	+
Conduct electronic medical records	+	+
Vaccination records	+	+
Keep certification log-books	+	-
Parental control	+	+

Attendance monitoring	+	+
Web site as a gift	+	+
Use of cloud technologies	+	+
Product sale as a service	+	-
Product sale as a license	-	+

According to Table 2 the Smiles Company is the closest competitor within a spectrum of services. However, their basic profile is aimed at attendance of children and parental control, moreover, every module of their product is sold separately. Whereas MedKid is more aimed at a medical part and provides full access to all functions for insignificant monthly payment.

Use of competitive intelligence methods (telephone interviews and results of electronic correspondence) allowed to reveal the fact that the software product and pricing of the competitor are only in their presales stage. But it is possible to say that their product will be much more expensive as they sell their software by modules, and moreover, without installation of basic modules needed to ensure proper operation of the required modules.

For the analysis of MedKid product competitiveness the target audience was identified. It comprised of nurses, teachers and managers of kindergartens, whose inquiry includes availability of software functions capable to provide high speed of employees' work at minimum expenses and resources. Further the circle of priority competitors was selected. After that the factors of software competitiveness were developed: software quality, functionality, price, service (support), market promotion, company's experience.

Competitive intelligence methods, potential consumer survey and analysis of secondary information were used to collect the necessary data. Factors of competitiveness have different weight, which was defined via opinion poll of consumers, experts and company workers. Promotion, price, quality and functionality have the greatest rate of importance for the client.

After that all factors were decomposed. Estimation of functionality included availability of necessary functions for the user, resource requirement for further use. Clarity and simplicity of software application, stability to defects (reliability), completeness, and response rate were considered during quality analysis. The parameter "price" was analyzed according to product cost, payment method, and availability of discounts. Service was estimated in terms of a service rate, completeness of documentation, support. Promotion was analyzed according to availability of advertising, width of dealer network, participation in exhibitions. Experience of a seller was estimated against implementation in other establishments and existence period of a company. All the above mentioned followed the comparison of microindicators by transferring quantitative and qualitative estimates into points (5-point scale was used). As a result factors of competitiveness (Table 3) were estimated.

Table 3. Comparison of objects against factors of competitiveness

Factors of competitiveness	Relevance coefficient	MedKid	MedKid with $K_{relevance}$	Smiles	Smiles with $K_{relevance}$	Leader
1 Functionality	0,19	5	0,95	5	0,95	no
2 Quality	0,19	4	0,76	3	0,57	MedKid
3 Price	0,21	5	1,05	4	0,84	MedKid
4 Service	0,15	4	0,6	5	0,75	Smiles
5 Promotion	0,21	4	0,84	3	0,63	MedKid
6 Experience	0,05	5	0,25	5	0,25	no
Total (market position)	1	27	4,45	25	3,99	MedKid

Then MedKid competitiveness with relation to primary competitor – Smiles was calculated

considering that at competitiveness > 1 the object is more competitive.
Competitiveness with correction factor of relevance = 4.45 / 3.74 = 1.12 (1)

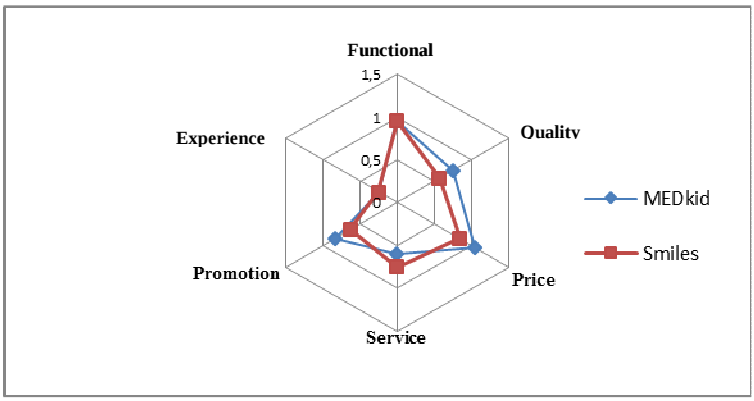

Fig. 3. Polygon adjusted to weighting coefficient

Then, the results of competitiveness were visualized (Figure 3). The given diagrams contribute to further understanding of competitive advantages and disadvantages of MedKid projects and its competitor. With relation to other players, MedKid has strong positions in terms of price, quality and promotion, but concedes in service.

Study of consumer needs

The purpose of research was to create deep understanding of potential consumers' needs that will form a basis for adaptation if software product functions for document circulation in preschool childcare institutions. The basic target audience included managers, nurses and teachers of preschool childcare institutions.

The basic method of research was questioning of kindergarten workers through interviews with rigid and soft questions. Copies of accounting log-books given to interviewers were used as the secondary data for research. At the beginning of research the information on the quantity of necessary documentation to conduct the activity of nurses at preschool childcare institutions was collected. After that, the log-books were split into categories against answers of respondents to the following question: "Which log-books do you use at work and how often?" On the basis of responses received from kindergarten employees it was decided to break all log-books according to frequency of their use into three relative categories. Besides, the asterisk indicates those log-books and forms which should be included into program complex first of all due to certain interrelation between them, which shall be considered in software product development.

Types of log-books are grouped by frequency of use by employees of preschool childcare institutions. The classification allowed not only to develop the structure and operating procedure of a new software but also to carry out detailed study of the working process of a medical employee in a kindergarten.

After interviewing the kindergarten workers the basic problems which were later transferred into the list of tasks were selected and analyzed. Results of respondents showed that nurses, as a rule, carry out duties of several employees, simultaneously combining several positions. Moreover, functions of nurses include not only filling medical records of a child but also daily record keeping of various documents and log-books. This information should be compiled into statistical data necessary for nurses and managers of kindergartens. Additionally, it is possible to display data presenting certain interest for children's parents (by creating "parental control" function). It generates the need of expanding software functions on the basis of planned schedule since dates are an important component of work of preschool childcare institutions in general.

The software should simplify and reduce time efforts for such routine processes as attendance monitoring; planning of medical measures (medical inspections, preventive vaccinations); entering data into medical records of a child; keeping nutrition log-book. Moreover, the system should ensure the possibility of entering medical data of a patient into electronic medical records by any authorized person (doctors, parents, etc.). Every user may receive authorization to perform operations within the limits of electronic medical records of a child for a limited period of time. Besides, the results of research affected the definition of marketing tactics and strategy aimed at popularization of the service in the Russian market and, as a consequence, further monetization of a product.

Analysis of the environment is one of the parts of a marketing justification of a project. It allows to determine how the innovative product will be valuable for the target audience, and hence calculate the potential demand. And we can also discover what opportunities and threats are in the external environment, which will allow to adjust the company's market strategy. The presented approach is consistent with the general practice of project management in the business environment (as described, for example, in the article by Sirazitdinova et al (2015)). However, social services (kindergartens, schools, medical institutions) in Russia is not yet learned to apply such research tools in their business practices.

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The Phenomenon of Dynamic Competences in University Graduates Professional Training

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Abstract

The adaptive nature of the dynamic competences is one of the most debated issues in the Russian education system. Communicative component, the ability to generate new knowledge, the ability to learn teaching methods are the basis for the formation of the projected results of the higher education management in practice-oriented pedagogical process.

***Keywords*:** knowledge economy, dynamic competences, higher education management, innovative model of higher education.

1. Introduction

In modern society - a knowledge society - the rates of producing and consuming information have significantly increased. The same situation is observed in the science and education sphere: "... in 2013, there has begun the growth of Russian researchers' publications in the world's scientific journals. In 2013-2014, this rate was 2.11%, at the beginning of 2016 this value is - 2.28%. In absolute indexes, the number of Russian researchers' articles is growing steadily. Thus, in 2013 the number of peer-reviewed articles was 29,010 units, in 2014 - 30,044 units, in 2015 - 31,542 units" (according to the website of Ministry of Education of the Russian Federation, as well as the materials of the collection "Science and education statistics"). This may result in the processes of generating, storing, and transferring of knowledge will soon undergo significant changes. In the education system, it can be expressed in the following: the knowledge students receive for 4 (bachelor course) or 2 (master course) years at the time of graduating will lose its relevance. In such circumstances, the productivity of professional activity depends neither on the possession of any kind that has been once and for all given nor specific information but on the ability to navigate in the information flows, initiative, ability to cope with problems, find and use the missing knowledge or other resources to achieve this goal (Teece D. J., Pisano G. A. Shuen A., 1997). And therefore the competence set of the future professional should include such competencies that can neutralize this rapid obsolescence of knowledge and will successfully be included in social and professional activities. "The dynamics of changes in the economics, science, production leads to the rapid obsolescence of knowledge, depreciation of certain skills, so along with the generated competence for employers, the assessment of the potential employee opportunities to learn new knowledge and to develop new skills becomes very important" (Klimenko T. V., 2010, p. 98). In this paper, the author gives the definition of companies' dynamic competences, which, at a certain adjustment, can be used in characterizing the dynamic competence of the individual (student): the ability of purposeful creation, expansion and modernization of own knowledge and skills in response to changes in environmental conditions (Klimenko T. V., 2010).

2. The goal

In other words the professional implementation of Master program by the graduate (his social and professional adaptation) is largely determined to the successful development of dynamic competences in the learning process.

3. The concept of dynamic competencies

The necessity of dynamic competencies formation can be caused by several reasons:

1) the increase of graduates competitiveness. Formation of dynamic competences that meet the needs of potential employers and the labor market, will give a definite competitive advantage due to characteristics such as flexibility and adaptability;
2) the compensation for time spent on obtaining a diploma of professional education (obsolescence of professional knowledge during studying at the university) with an effective mechanism of adaptation to the changing workspace;
3) the using of modern educational technologies, development of interdisciplinary connections, the effect of self-studying and co-studying, the availability of different educational programs, etc. - All these, and not just these, factors turn the necessity to the inevitability in the dynamic competencies formation .

The concept of dynamic competencies which have adaptive nature and which allow to integrate into the work space more successful, have not fully settled yet, especially in the Russian education system. We believe that a set of such adaptive components may vary and depends on many factors, such as the situation in the region's economy; the development of private business and employers' requests; political situation; the emergence of new professions and activities, etc. But, in any case, from the point of view of knowledge economy developing, the most frequent and the most perspective dynamic competencies are the following: 1) linguistic / communicative competence, communication skills. The development of this competency has a positive impact on the common development of thinking and the ability to respond adequately to any abnormal situations; 2) the ability to generate new knowledge (as knowledge tend to become obsolete very quickly, so the worker must either constantly improve his/her qualification or to learn how to generate knowledge independently - basically, this can save a lot of time and finances of the organization, on the other hand, will give a competitive advantage in the form of a new information; 3) possession of learning disability learning methodology. In many teams there is an instinctive co-studying when newcomers are attached to the masters, who tell them about the peculiarities of a work on the particular place (sharing experiences). This technique is used in the factories, the industrial enterprises, in the construction when there is no time for theoretical training and it is much easier to attach the young employee to an experienced one, which will give this knowledge in clear and understandable form. And if to develop this ability intentionally (the ability to teach others to teach), the process of knowledge economy managing can has more informed and predictable character.

Moreover, the education policy of the modern educational institution is constructed in such a way that students have to learn a large amount of information on their own. This format of knowledge acquisition is laid in educational standards, as well as is dictated by reality itself, as a former graduate is often put in the position of uncertainty and forced to develop the necessary knowledge array independently on the workplace. Therefore, the developed skill of self-studying is necessary for student's successful adaptation to society (socialization) and professional environment (Allayarova, Z.S. Kalashnikova T. V., Moiseenko Y. A., 2014).

4. Dynamic competences integration

Integration of dynamic competences is quite complicated and time-consuming process, not only because of the methodology and tools of dynamic competencies formation are selected for each individual case, but also because a number of issues require constant refinement and adjustment:

1. What are the dynamic competences in this particular case for (which problem can be solved with their help).
2. What competences an employer needs? (questionnaires, surveys, interviews).
3. Whether will this increase the demand for such specialists on the labor market - a survey of potential employers?

4. Will the integration of this kind of competences to the learning process economically profitable to a university / faculty (expenses- teacher training, educational materials, technical equipment of classrooms / departments, outsourcing specialists attraction).
5. How serious will be the changes in the educational process with the orientation on these competences? Does the working out of these competencies essential at all training sessions, or it is enough to include several modules (what year?)
6. How to form these dynamic competences? Whether it is better to take already-made Western models or to try to develop a domestic methodology?
7. How can we check these competences assimilation at Masters? It is essential to have a tool for verification of the results of the dynamic competences implementation (comparison with the masters, studying the traditional program: questionnaires of themselves, a survey of employers, feedback from work colleagues, feedback from teachers about performance, the objective quality improvement of the work).

As an element that enhances the usefulness of dynamic competences there can be considered the possibility of mixed groups' formation (domestic and foreign students) in master's degree programs design. This will allow, firstly, to attract additional contingent of Russian students who are interested in getting an active language practice, and secondly, to increase the interest of foreign students (for the same reasons). There are a number of tasks to enhance the success of attracting foreign students: 1) attraction of foreign students, with an orientation of their work in our country, in our organizations. The integration of dynamic competencies will contribute to a successful adaptation of foreign graduates to the realities of the Russian labor market. 2) The variant of mixed groups - there are foreign and Russian students studying together in one groups (co-studying effect, the competitive element, language practice). 3) Searching for foreign students for a specific workplace (i.e., we find an employer who needs a foreign employee, look for a foreign student, teach, sent to the employer).

5. Conclusion

In general, it should be noted that the phenomenon of dynamic competencies in the structure of higher education is still poorly studied and requires a specific approach, taking into account the internal interests of the educational organization as well as, in general, the social and professional environment, in which the student is located and which has a significant pressure in the individual educational trajectory selection.

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Empirical Research on the Link between Corporate Governance and Financial Performance of Technology Companies on Nasdaq Stock Exchange

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Abstract

The purpose of this paper is to analyze the empirical link between corporate governance and financial performance on a sample of 51 companies mostly from the technology sector and NASDAQ listed, during 2010-2013. Performance was measured using as proxy the return on assets (ROA) and the return on equity (ROE) and for the corporate governance measures there were selected variables as duality, seniority and remuneration of the CEO, size, independence and gender diversity related to Boards of Directors. As estimation techniques we used multivariate regression models, generalized least squares (GLS) and standard error correction for heteroskedasticity using White's method. The empirical results have confirmed the influence of mixed corporate governance variables on financial performance indicators at the company level. Hence, we obtained in both models a positive influence on financial performance from variables age, years listing and CEO's remuneration with bonuses.

We obtained negative influence for the variables size / independent members of the Board of Directors and for the CEO duality. The difference between the two models was marked by the positive influence of the percentage of womens in Board of Directors' members and the CEO salary on ROA. The control variables had a positive influence only on the ROE model. The Risk Commitee variable had a negative influence on ROE. The paper highlights issues related to human nature such as the lack of fear for penalty which can lead to the loss of use of rationality and morality, a fact which leads to dangerous behavior if that people have a significant decision-making power.

Keywords: corporate governance, financial performance, econometrics

JEL Classification: G32, G34

1. Introduction

The 2007's represented for the US economy, but also for the entire world, the triggering of the famous financial crises. After the Great Crash of 1929 it would have been expected that this kind of events will not be repeated anymore and the participants from the financial market will take protective measures. But human nature, greed, globalization and derivative instruments, all combined, have pulled the alarm within financial markets, leaving behind a hard lesson to forget. Kotler and Casoline (2009) believe that with the 2007s we have entered into "a new era of turbulence" in which the cyclicality has been replaced by the uncertainty (and the economic and financial environment became "chaotic").

The academic literature contains numerous papers describing the causes and effects of the 2007's crisis, but the purpose of this paper is to analyse the corporate governance for us companies that are found listed on NASDAQ market and also are components of the dow jones index.

The paper seeks to identify if and how companies have implemented corporate governance rules in the period after the crisis. Viewed from the crisis perspective, it can be said that corporate governance was ineffective, but at a closer look it can be seen that there has been a lack of attention to the rules imposed by it. Apart from the link between corporate governance and financial performance, the novelty of this research study is the attention to the idea of moral hazard and voracity for earnings without regard to corporate governance. This study is important because it highlights the meaning of

corporate governance within capital markets and its influence on the financial performance of listed companies. Another important issue followed in this paper is the research of human nature, which lose its use of reason when there is no fear of being penalized. This is a dangerous behavior if that people have a significant decision-making power (for example the CEO duality inside of a large company).

The rest of the paper is structured as follows: Section 2 presents significant works of literature aimed to the proposed topics. Section 3 contains the assumptions chosen for the econometric research. Section 4 includes the presentation of the methodology chosen to investigate the influence of corporate governance on the financial performance of the company and how it could interfere with the realationship of the shareholders - managers. Section 5 contains the results of the econometric study. The last section contains conclusions on corporate governance, results and proposals for future research.

2. Prior research about corporate governance in academic literature

Monks and Minow (2011) define the corporate governance as a tool for warning and risk prevention, used by managers in the benefit of shareholders. Such risks can also affect the community, an idea supported by Haldane (2011) who said that in the 13th century the bankers had been bankrupted banks and now they are bankrupting more than banks, referring to the 2007's crisis. Bebchuk and Fried (2003) noted, contrary to economic theory that the managers goal is not necessarily to maximize the shareholder wealth, a fact which leads to asymmetry of information. Empirical evidence obtained by Lee et al (2013) support the idea that the application of the rules of corporate governance codes can reduce the asymmetry of information. Kanagaretnam et al (2007) defined the corporate governance as the combination of procedures to ensure the protection of both the majority and the minority shareholders. To better understand this problem must start from its roots. Turner (2009) presents the Anglo-Saxon financial and banking system from the 19th century which was composed of majority stakeholders ("low concentration") and with total power control ("unlimited liability partnerships"). Being the majority shareholders they literally risked their own fortune, so they were more disciplined with the clients' deposits. This may be the reason why corporate governance has emerged so late. But Industrial Revolution and modern society were in a constantly expanding so the development of railways was needed and massive capital investments were required. Owners of banks were not willing to take the risk and they didn't allow loans. Thus, in the second half of the 19th century, the United States was the first state who adopted the so-called "limited liability" which allowed dividing the equity to a greater number of shareholders, paving the way to the actual capital markets, but the Pandora's box of financial irregularities was opened. Then it was perhaps the right moment to impose the corporate governance code but they didn't do it.

Another problem pursued is specified by the Executive Director of Financial Stability at the Bank of England, Haldane (2011) who said that in 1989 the CEO rewards of the largest US banks were 100 times higher than the average income of a household. By 2007 it had become 500 times bigger. This spectacular increase is not due to the imposition of the corporate governance but contrary, to the fact that CEOs have minimized the extent of the risk of non-compliance. The American Corporate Governance Code suggests that managers' salaries should reflect performance and seniority, but should not exceede more than one million dollars in order to be tax efficient. This situation is specific to companies deemed "too big, to fail". Haldane (2011) noted that the importance of corporate governance was belittled without taking in consideration the risk, a fact which eventually led to the crisis.

The academic literature analyzes the corporate governance from several perspectives. The main empirical studies include CEO characteristics, characteristics of the Board of Directors, the CEO remuneration and other transmission mechanisms of corporate governance within a company. The authors devoted to studies of corporate governance are Shleifer and Vishny (1997), La Porta et al (1999), Drobetz et al (2003) and others. The most of the papers have focused mainly on the characteristics of the Board of Directors. Adams and Ferreira (2007) considered as tasks of the Board the activity of monitoring the way where the company "goes". Boone et al (2007) examined this fact, based on two assumptions regarding the Board of Directors. The first assumtion considers that the

Board is often ineffective, and should be regulated in order to increase the financial performance of a company. The second scenario considers the Board of Directors as part of the company, noting that it should be structured according to company characteristics and the business environment in which it operates to achieve higher performance. Boone et al (2007) concluded that the Boards of Directors have adjusted themselves to respond effectively to the characteristics of the companies, with a dynamic management's strategy that takes into account the cost of monitoring the managers. Their companies have become more competitive and hence, more efficient by reducing the information asymmetry. Mashayekhi and Bazaz (2008) obtained a positive correlation between governance and performance and they have theorized that an effective Board of Directors can significantly reduce the cost derived from the agent problem. Beside informational asymmetry and agency costs, many authors, including Core and Larcker (2002), noted that elements of corporate governance influence the company's value. Correlating the two ideas with ownership structure and the board members who hold shares in that company, they highlighted the theory proposed by Jensen and Meckling (1976) and the bond between governance and financial performance. Armstrong et al (2015) examined the link between governance and financial performance, focusing on legal tax avoidance and on the incentives of the managers. Although initially they did not obtain a significant link between governance and tax avoidance, using quantile regressions, they have identified a positive relationship between the number of independent members of the Board of Directors and the reduced levels of tax avoidance. On the other hand, Armstrong et al (2015) have found that the use of high level of tax avoidance has a negative relation with the number of independent members. Thus, one can believe that non-executive members accept the use of legal tax avoidance in reduced conditions to get a higher financial performance, but they don't allow that these methods to be used excessively for could adversely affect the company, and hence, the shareholders. Itturalde et al (2011) obtained a nonlinear relation between ownership structure and the corporate value. The idea is supported by Erkens et al (2012) who showed that firms with Boards of Directors with more non-executive members and which were held (from number of shares) mostly by institutional investors had the worst returns during the crisis. Beekes et al (2010) showed that firms which include a large number of members in Board of Directors had a negative link between their number and the economic profitability. Al-Najjar (2013) studied the link between governance and financial performance based on three indicators: ROA (return on assets), ROE (return on equity) and Market-to-book ratio. The results showed that the role of independent members is statistically significant on both profitability indicators ROA, ROE and on the performance indicators from stock market. Al-Najjar (2013) concluded that corporate governance positively influences a company's financial performance only if it is supported by the macroeconomic conditions of the industry. The theories support the idea that corporate governance is better applied if in Board of Directors there are representatives of institutional investors. Bushee et al (2013) studied corporate governance from the perspective of institutional investors but they did not obtain clear evidence to support this theory. McCahery et al (2010) studied the issue of institutional investors for US companies and they noted that institutional investors prefer companies where corporate governance has an active connection on the financial performance. Loderer and Waelchli (2011) believed that as a company matures, the financial performance declines, especially in the technology sector which is in a continuous development. This is reflected by a lesser degree of economic rentability and a lower market share because the company can not grow more. Li and Maksmovic (2010) considered that companies from industries that can not have a maturity very high, such as the technology sector which advances continuously, the trend is to choose managers who are known for their performance in other areas, but they do not have the expertise to get a notable financial performance.

Another issue debated in academic literature is the CEO compensations. The statistics compiled for 2014 by Investor Responsibility Research Center Institute (IRRCi) for companies in the S&P 1500, showed that 90% of directors are remunerated based on the accounting results obtained in less than three years and only 12% of the remunerations were based on financial performance indicators. Thus, it is not surprised the long-term impact on financial performance of the managers' decisions. In the USA, for determining the remuneration it is taking into account the protection of shareholders' interests and the idea of maximizing their wealth. Thus, the Board of Directors must adopt a transparent remuneration policy that reflects the long-term interests of shareholders but also take into account the remuneration paid in previous years. Ozkan (2006) observed that CEOs who are overseen by a big Board of Directors with many independent members, receive higher wages, a fact which suggests that a large number of independent members is not necessarily effective in monitoring

activity. Bhagat et al (2010) concluded about the remuneration that it is not appropriate to settle the pay level according to the academic studies of the manager. Another work performed by Frydman and Jenter (2010) showed that a better observation of the impact of the CEO remuneration is through the revaluation of stocks and options' packages which are awarded to the manager. Thus, the CEO is directly involved in company and he will want to achieve a better financial performance. El Baroudy et al (2008) obtained in an econometric research that remuneration as bonuses and stock packages is closely linked with the company's size and financial performance but the basic salary is not correlated with the financial performance. Honoré et al (2015) have investigated the connection between corporate governance and financial performance in terms of the link between investments and research and development expenses made by the manager and the interests of shareholders. In other words, they analyzed the relationship governance - performance starting from asymmetry of information. Honoré et al (2015) obtained results which had showed a negative link between remuneration based on the financial performance and the shareholders' right to vote for investment in research and development. In other words, it was observed that corporate governance practices have no influence on decisions regarding the CEO's long-term investments in research and development.

Coates and Kraakman (2010) have studied the issue of tenure for the CEO post and they observed that there are certain patterns about the leading positions influenced by the degree in which the company is able to merge or be taken over by another company.

OECD published the Corporate Governance Factbook for the year 2014 which contains details about corporate governance within the OECD members. According to the report, the US is alongside Australia and the UK characterized by a dispersed ownership structure (see Holderness et al, 2010). Members of the Board of Directors are elected every three years or are re-elected annually and the number of independent members depends on the ownership structure.

Another part of the literature focuses on the existing committees within the company. They may be audit, nomination and remuneration committees. After the crisis of 2007, a new form of committee arose, the risk committee. Albring et al (2013) studied the issues regarding the committees in the context of governance - performance. Albring et al (2013) have noticed that, where are more independent members, audit committee with members who have higher expertise in financial accounting and CEO duality, companies have more financial perfomance. They also prefer to issue more new shares. Thus, a better accounting expertise provides a higher monitoring from the audit committee, yielding a higher financial performance, fact which indicates a positive influence on the part of corporate governance. Aebi et al (2012) have studied the link between governance and financial performance for companies in the banking sector. They wanted to identify how the elements of corporate governance reacted to the danger which threatened the financial performance of selected companies and even their very existence. Among the governance variables analyzed, it were counted the presence of the chief risk officer, CRO, and if he answers to the Board of Directors or to the CEO. The aim was to find the existence of a direct link between risk and financial performance. Aebi et al (2012) considered as proxy for financial performance, ROE and the returns of buy-and-hold shares and for governance structure they took the board members and the ownership structure. The study results showed that the companies, in which the CRO reports directly to the Board of Directors, recorded a higher level for ROE and yields during the crisis. The novelty of the study was the fact that the authors have shown that in the crisis context, the classical governance variables do not capture a significant impact on financial performance and it is more useful to be made variables that contain the risk element. Giannetti and Yafeh (2012) showed that the variables of corporate governance must reflect the characteristics of the credit system to capture a broader influence on financial performance. Stulz and Williamson (2003) showed that the opening level of the financial environment and the cultural level of the Board's members have influence on financial performance. Bae et al (2010) showed that the dividend distribution rate is important for studying the link between governance and performance.

Gupta et al (2013) studied the impact of corporate governance on the financial performance of US companies. The results showed that companies with a good corporate governance are not necessarily performing better, in financial terms, compared to companies that have a less developed corporate governance. Gupta et al (2013) identified three possible causes for these results. The first said that the differences in institutional development affects the impact of governance on financial

performance. The second one is based on the fact that during the crisis there has been a reduction in the informational efficiency of capital markets, which distorted the influence of governance, because each company have waited the crisis impact. How smaller companies were not confined by the restrictive conditions imposed by the Boards of Directors from the big companies, they took riskier financial decisions, but they have brought benefits reflected in better financial performance. Thus, there was a balance between companies with developed but restrictive governance and companies with a less developed corporate governance. Erkens et al (2012) have investigate the influence of corporate governance on financial performance during the crisis of 2007. They observed that firms with more independent members and more institutional investors inside the ownership structure, have recorded poor yields. This supports the idea that these governance's structures were anchored against the risk without seeking solutions to increase the financial performance, a fact which had a negative effect on performance. Another negative effect induced by the large number of independent members was the increase of indebtedness which resulted in a transfer of the shareholders' wealth to the creditors. Beltratti and Stulz (2012) observed that the Board of Directors focused only on the interests of shareholders, had a negative impact on financial performance. Ammann et al (2011) found a positive link between corporate governance and financial performance represented by the company's value. The study results showed that the proper application of the corporate governance will be reflected in higher market values. They also found that it is cheaper and more appropriate to apply corporate governance mechanisms than to implement methods for monitoring the managers, resulting in higher cash flows for shareholders and lower capital costs. Another aspect studied by the literature is the share of women in the Board of Directors. Adams and Ferreira (2009) believes that women are more prone to join the monitoring committee of the company. Khan and Vieito (2013) showed that companies with women as CEO, have took less risky decisions and thus, the financial performance, measured by ROA, was higher.

3. The assumptions chosen for the empirical research

The main aim of the research is the connection between corporate governance and financial performance for the NASDAQ listed companies in the technology sector. Starting from the models shown in the literature, we have established the following assumptions for empirical research:

▪ Hypothesis 1 (H_1): The existence of a positive link between the the share of women in the Board of Directors and financial performance (Fidanoski et al, 2013)

▪ Hypothesis 2 (H_2): The existence of a negative link between the number of non-executive members (independent) and financial performance (Erkens et al, 2012; Guest, 2008; Metrick and Ishii, 2002; Hermalin and Weisbach 2003)

▪ Hypothesis 3 (H_3): The existence of a positive link between the CEO's remuneration and financial performance (Kang et al, 2006; Perry, 2000)

▪ Hypothesis 4 (H_4): The existence of a negative link between the CEO's duality and financial performance (Erkens et al, 2012)

▪ Hypothesis 5 (H_5): The existence of a positive link between the size of Board and financial performance (Al Najjar, 2013; Adams and Merhan, 2005)

▪ Hypothesis 6 (H_6): The existence of a negative connection between the CEO's tenure and financial performance (Berger et al, 2014)

▪ Hypothesis (H_7): The existence of a positive link between the presence of the risk committee and financial performance

▪ Hypothesis 8 (H_8): The existence of a link between the year of listing on the stock market and financial performance

4. Econometric research metodology

4.1 Database and variables' description

The empirical analysis is to identify the existence of a correlation between financial positions of NASDAQ listed companies and corporate governance. Another topic of interest is the extent to which CEOs of the most powerful US companies follow the Governance Code and the rules of corporate governance. The period under review covers the 2010-2013 representing post 2007's crisis when governance has become a necessity. Although it is a relatively large difference between the crisis triggering year and the analyzed period, this difference is not random. We considered that the 2010 was the first year in which companies should start normal operation after the tumult of the crisis. The purpose was to analyze the CEO's reaction on corporate governance and what measures they took to avoid another crisises. The sample analyzed comprises 51 companies, of which 27 companies belong to the Dow Jones and 24 to NASDAQ (chosen at random), aiming to relatively equal proportions. As a result of this, we registered a total of 205 statistical observations. The selected companies are majority from the technology sector, except companies like McDonald's and Coca Cola which we retained in analysis due to their significant importance. The contagion effect of volatility within capital markets, and the fact that many investors have diversified portfolios made us to keep those companies. We excluded the financial companies like Goldman Sachs, JP Morgan and Visa.

The data source is the annual accounts statements available on Thomson Reuters Eikon' platform, as well as the reports that include ownership structure, and other information necessary to achieve corporate governance variables. We also used the websites of companies to establish corporate governance variables.

The description of the variables used in the empirical study is presented in Table 1.

Table 1. Description of variables used

Variables	Description variables
1.Dependent variables – Financial Performance	
ROA (%)	Net Income / Total Asset The economic return, ROA express the ability of the CEO to generate income by using the total asset invested by the shareholders. It may be associated with the internal rate of return, IRR.
ROE (%)	Net Income / Total Equity The financial return, ROE express the performance through the eyes of the shareholders. It shows the capacity of the company to distribute dividends or to reinvest the profit.
2. Independent variables – Corporate Governance	
BONUS_CEO	It is computed as ln (Bonuses and compensations)
CEO_DUAL	It is a dummy variable equal to 1 if the CEO is the Chairman of the Board of Directors or equal to 0 if he is not the Chairman
BDSIZE	The size of the Board of Directors. It is computed as ln (Total number of the executives / insiders + total number of the non-executives / independent / outsiders)
BDFEM	The ratio of the total number of women within the Board and the total number of members from Board of Directors.
BDINDEP	The ratio of non-exectutives members and the total number of members from the Board of Directors
RISKCOM	It is a dummy variable equal to 1 if there is a Risk Committee and equal to 0 if there is no Risk Committee
SALARY_CEO	It is computed as ln (Base salary, no compensation)
TENURE_CEO	The number of years since the CEO is leading in that function
YLIST	The number of years since the company was listed on public markets
3. Independent Variables - Control Variables	
SIZE	It represents the size of the company computed as ln (Total Assets)
LEV	Total Debts / Total Equity Leverage shows the ability of the company to honour the long term

obligations.

The YLIST variable shows the age of the company, since the public listing on stock exchange markets. The USA have a system for financing companies, relied primarily on the capital market with high level of development, so that an American company may be regarded as being "effective", in terms of corporate governance, after the listing years. The role of corporate governance is to ensure the proper functioning of the company, in terms of managerial and financial performance, but from the perspective of investors, corporate governance is important because it shows the level of protection of minority shareholders.

Between the selected companies, we included large companies (MSFT) listed in the 80s when it can not speak of an impact of corporate governance and recently listed companies when governance was already implemented.Thus, it can be seen the impact of the corporate governance over the years. It should be noted that in the early years of the listing, a company has a high degree of concentration of ownership (3-4 major investors), and governance indicators are of interest to potential minority investors, along with the performance indicators.

4.2 The empirical methodology

To analyze the relationship between corporate governance and financial performance of companies listed on NASDAQ stock market, we used date panel model, with multifactor regression and we estimated them using the least squares method (OLS). We used generalized least squares (GLS) and the standard error correction for heteroskedasticity using White's method. To test the hypotheses proposed in Section 3 of the paper we chose a multifactor regression in which differing only the independent variable which quantifies the performance (ROA, ROE). Basically is the same econometric model, the difference being made by financial performance variables.

The econometric model used:

1) $Performance_{it} = \alpha + \beta_1 \times BONUS\_CEO_{it} + \beta_2 \times CEO\_DUAL_{it} + \beta_3 \times BDSIZE_{it} + \beta_4 \times BDFEM_{it} + \beta_5 \times BDINDEP_{it} + \beta_6 \times RISKCOMC_{it} + \beta_7 \times SALARY\_CEO_{it} + \beta_8 \times TENURE\_CEO_{it} + \beta_9 \times YLIST_{it} + \beta_{10} \times SIZE_{it} + \beta_{11} \times LEV_{it} + e_{it}$

where:
α is the intercept; is the constant parameter that quantifies the influence of all the variables not included in the model on financial performance
i = the 51 companies listed on NASDAQ stock market, chosen for the econometric models
e_{it} is the residual term or the error term which cuantifies the influence of the random factors nonincluded in the model

In Table 2 there is attached the Descriptive Statistics to capture some of the key statistical information that may be immediately seen to the data. The number of observations is 204. The Descriptive Statistics show that the size of the Board of Directors varies between 12 and 32 members; the maximum CEO's tenure was 26 years (stock symbol EPIQ); an interesting fact is the percentage of women in the total number of members from the Board. The percentage has a high variation, switching from 0.0% for Astro-Med Inc (ALOT) to the maximum value of 42% registered by Procter & Gamble Company (PG).

Table 2. Descriptive Statistics

Variabile	Mean	Median	Max	Min	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Prob	Obs.
ROA	0.12	0.11	0.38	-0.07	0.07	0.73	3.57	20.99	0.00	204
ROE	0.21	0.17	0.35	-0.17	0.18	3.17	18.25	2319.52	0.00	204
BONUS_CEO	7.45	9.71	15.83	0.00	7.19	-0.04	1.06	31.38	0.00	200
BDSIZE	2.88	2.89	3.50	2.08	0.36	-0.15	2.07	8.06	0.02	204
CEO_DUAL	0.55	1.00	1.00	0.00	0.50	-0.22	1.05	34.02	0.00	204
LEV	0.69	0.29	18.85	0.00	1.56	8.24	92.57	70493.65	0.00	204

BDFEM	0.19	0.20	0.47	0.00	0.10	-0.28	2.87	2.80	0.25	204
BDINDEP	0.45	0.47	0.67	0.00	0.12	-1.01	4.79	61.53	0.00	204
RISKCOM	0.05	0.00	1.00	0.00	0.22	4.18	18.45	2622.73	0.00	204
SALARY_CEO	14.05	13.93	20.05	10.42	1.34	0.82	6.55	129.82	0.00	204
SIZE	15.36	16.62	20.43	5.04	4.13	-0.99	2.76	33.80	0.00	204
TENURE_CEO	4.46	3.00	26.00	0.00	5.57	1.98	6.93	264.55	0.00	204
YLIST	3.27	3.26	3.93	2.40	0.41	-0.05	1.92	10.02	0.01	204

Source: Author's computation in Eviews 7

We attached the Pearson Correlation Matrix inside Table 3 to observe the the existent correlation in the data, and therefore the informational redundancy brought by them where there is a high correlation.

Table 3. Pearson's Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13
Corr	BONUS_CEO	BDSIZE	CEO_DUAL	LEV	BDFEM	BDINDEI	RISKCOM	SALARY_CEO	SIZE	TENURE_CE(	YLIST	ROE	ROA
1	1												
2	0.28	1.00											
3	0.29	0.12	1.00										
4	0.14	0.21	0.19	1.00									
5	0.05	0.23	-0.10	0.03	1.00								
6	0.13	-0.17	0.10	0.16	0.20	1.00							
7	0.20	0.19	0.20	0.37	0.14	0.20	1.00						
8	-0.10	0.27	0.00	0.07	0.05	-0.08	0.08	1.00					
9	0.27	0.58	0.19	0.24	0.22	-0.04	0.16	0.40	1.00				
10	-0.03	-0.18	0.21	0.15	-0.18	0.17	0.24	-0.06	-0.24	1.00			
11	0.49	0.43	0.10	0.29	0.23	0.03	0.22	0.31	0.58	-0.35	1.00		
12	0.00	0.14	-0.13	0.28	0.05	-0.08	-0.02	0.17	0.30	-0.26	0.37	1.00	
13	-0.01	0.06	-0.35	-0.14	0.19	-0.18	-0.10	0.27	0.08	-0.24	0.18	0.39	1

Source: Author's computations in Eviews 7

From Table 3 there can be observed some interesting correlations. Strong positive correlation is observed between the size of the Board of Directors (BDSIZE) and company size (SIZE). The two indicators are composed from different data and are different from an economic point of view. This correlation could be attributed to the fact that it is expected that a large company to have a high number of directors on the Board.

5. Results

The first estimation contains the independent variable ROA. We estimate by OLS method and by using the generalized least squares (GLS). The correlation matrix results led us to apply the standard error correction for heteroskedasticity using White's method.

Table 4. Model 1 ROA

	ROA			ROA GLS			ROA White		
	Coef. β	Std Error	T- Stat	Coef. β	Std Error	T- Stat	Coef. β	Std Error	T- Stat

BONUS_CEO	0.00	0.00	1.25	**0.00***	0.00	3.50	0.00	0.00	1.57
BDSIZE	-0.03	0.02	-1.52	**-0.02***	0.01	-2.06	**-0.03***	0.01	-2.44
CEO_DUAL	**-0.05 ***	0.01	-4.34	**-0.04***	0.01	-6.18	**-0.05***	0.00	-17.43
LEV	0.00	0.00	-1.21	0.00	0.00	-1.20	0.00	0.00	-1.13
BDFEM	**0.13***	0.05	2.54	**0.15***	0.03	4.63	**0.13***	0.02	8.86
BDINDEP	**-0.11***	0.04	-2.59	**-0.09***	0.03	-3.24	**-0.11***	0.02	-6.72
RISKCOM	0.00	0.03	-0.03	0.00	0.02	-0.23	0.00	0.03	-0.03
SALARY_CEO	0.02*	0.00	3.84	**0.01***	0.00	4.51	**0.02***	0.00	4.87
SIZE	0.00	0.00	-0.74	0.00	0.00	-0.22	0.00	0.00	-1.62
TENURE_CEO	0.00	0.00	-0.81	**0.00***	0.00	-4.31	0.00	0.00	-1.30
YLIST	**0.03****	0.02	1.74	0.00	0.01	-0.04	**0.03****	0.02	1.70
C	-0.05	0.07	-0.71	0.04	0.04	1.00	-0.05	0.05	-1.11
R-squared		0.29			0.61			0.29	
Adjusted R^2		0.25			0.59			0.25	
F-statistic		6.99			27.11			6.99	
Prob (F- stat)		0.00			0.00			0.00	

Source: * variables statistically significant for a confidence level of 5%
** variables statistically significant for a confidence level of 10%
Names of the variables are presented in Table1
Author's computation in Eviews 7

Table 5. The significance of influence exerted on ROA by corporate governance variables

	BONUS_CEO	BDSIZE	CEO_DUAL	LEV	BDFEM	BDINDEP	RISKCOM	SALARY_CEO	SIZE	TENURE_CEO	YLIST	C
ROA	+	-	-		+	-		+		+	+	-

Source: Author's computation in Eviews 7

The relevance of an estimator is bigger and it may be given a greater confidence if its dispersion is reduced (Std. Error). For the regression in which the financial performance is defined by ROA, standard errors indicate a high degree of confidence that can be associated to the coefficients. In Table 4 it can be find the model of determination ratio for ROA, which has values between 29% to 69%, a fact that exceeds the 15% limit proposed by the econometric theory (see Andrei and Bourbonnais, 2008). The statistical inference involves applying the Student t-test which has a P-value less than 5% for the bolded variables from Table 4 which are statistically significant. Another test is the F test that has zero probability associated, a fact which supports the validity of the model for a confidence level of 95%. We used to combat heteroskedasticity the GLS estimation method.

Analyzing the data from Tables 4 and 5, from an economic perspective, it can be observed a positive influence of the variables BONUS_CEO, BDFEM, SALARY_CEO, TENURE_CEO, and YLIST on the financial performance quantified by ROA. It was expected that the remuneration variables to have a positive influence on the economic return, also known as the manager's return. Through compensations, the CEO is incentivized to raise the performance of the company because, these kind of compensations, are linked to performance indicators.

However, it appears that the influence of bonuses on financial performance is very low, aspects explained by the fact that in the post crisis period, the CEOs of companies from US, received bonuses

reduced or even have not received at all, as a penalty, but also as an reduceing expenses in fornt of the uncertain environment. In most studies, company size has a mixed influence on the financial performance. Among the studies recorded by the literature about the link between the CEO's compensations and the financial performance, there is the study of Perry (2006) who demonstrated the existence of a positive connection between the two. Perry (2006) concluded that the CEOs take better decisions if they are rewarded in the form of bonuses. Kang et al (2006) obtained positive correlation between CEO's compensations and financial performance. Hence we have demonstrated the Hypothesis H_3 regarding the existence of a positive link between CEO's compensation and financial performance.

The number of women in the Board of Directors as a variable of corporate governance has a positive influence on ROA. The explanation can be attributed to the fact that they are more balanced in their decisions and presents a higher risk aversion than men do. Women will take less risky decisions that could affect the company's performance and the performance indicator, ROA. Women as CEO have the ability to use more efficiently the company assets, especially human resources, being close to employees and they have a better understanding of their personal problems. Women's creativity combined with the sensitivity can bring new ideas and concepts in the company. Similar results can be found in study of Fidanoski et al (2013) who obtained a negative correlation between the womwn ratio within the Board and proxy indicators for financial performance such as ROA and ROE. Thus, for the analyzed companies we checked the Hypothesis (H_1).

The tenure of CEO is in close relation with human nature. This variable has a positive influence, attributed to the fact that a higher seniority implies more professional experience. The long tenure in the same company makes the manager to fully understand all the mechanisms operating within that company and he knows the real financial performance to which the company is able to reach. However, in the literature, some authors consider that long tenure can have a negative effects, because the manager is to sure of his position and his experience and thus, he can take risky decisions that might have negative effects on the financial performance of the company. Boone et al (2007) obtained a negative correlation between the CEO's tenure and financial performance measured through market indicators (MBR) for US companies. With these results, we did not check the Hypothesis (H_6) regarding the link between CEO's tenure and financial performance.

We obtained negative influence on financial performance measured with ROA from the governance variables such as BDSIZE, CEO_DUAL and BDINDEP. We checked the Hypothesis (H_2) regarding the existence of a negative link between the non-executive members and financial performance. With the correlation obtained for BDSIZE and ROA we did not check the Hypotesis (H_5). The economic explanation which can be attributed to these results is linked about the costs associated to these kinds of variables. The efficiency of the Board of Directors is not given by the large number of members or by the number of independent members. It must be found an optimal level of members to ensure maximum financial performance, reflected by the economic and financial returns. The associated costs will induce a fall in the net profit observable at the level of financial performance indicators. Similar results were registered by Bhagat and Black (2000). Guest (2008) used as proxy for performance ROA and obtained a negative correlation between financial performance and the number of independent members from the Board of Directors inside companies from the US. Erkens et al (2012) also obtained similar results for US companies.

The variable for duality of the CEO registered a negative influence on financial performance, a fact which is explained by the idea that a manager who has the position of the CEO and Chairman at the same time obtains an overgrown power of control. As we find repeatedly in history, a person with great power has the propensity to abuse of it. In case of duality, a CEO can be influenced by the dominance effect and can take wrong financial decisions, believing that he has absolute control, but that decisions can affect the financial performance on long term perspective. Another possible explanation is that the duality may give the CEO an excessive influence and control over other members of the Board of Directors or over the subordinates, inducing a state of irritation and indignation because of the abuse of control, or the abuse of hierarchical superiority (the authoritarian manner), reducing the employees' productivity by increasing the stress levels. The negative correlation between CEO's duality and financial performance was obtained by Bhagat and Bolton (2008).

Table 6. Model 2 ROE

	ROE			ROE GLS			ROE White		
	Coef. β	Std Error	T-Stat	Coef. β	Std Error	T- Stat	Coef. β	Std Error	T-Stat
BONUS_CEO	0.00	0.00	-1.57	**0.00***	0.00	-2.78	**0.00***	0.00	-8.00
BDSIZE	**-0.13***	0.04	-2.86	**-0.07***	0.03	-2.66	**-0.13***	0.03	-3.99
CEO_DUAL	**-0.05***	0.02	-2.08	**-0.05***	0.01	-5.75	-0.05	0.03	-1.58
LEV	**0.04***	0.01	4.62	**0.03***	0.01	3.26	0.04	0.03	1.55
BDFEM	0.00	0.12	-0.01	-0.05	0.06	-0.76	0.00	0.08	-0.02
BDINDEP	-0.14	0.10	-1.43	**-0.15***	0.05	-3.06	**-0.14***	0.09	-4.38
RISKC	**-0.16***	0.06	-2.53	**-0.14***	0.04	-3.30	**-0.16****	0.09	-1.75
SALARY_CEO	0.00	0.01	0.15	0.01	0.00	1.63	0.00	0.00	0.69
SIZE	0.01	0.00	2.02	**0.00****	0.00	1.74	**0.01***	0.00	3.43
TENURE_CEO	0.00	0.00	-1.19	**0.00***	0.00	-2.94	**0.00***	0.00	-3.50
YLIST	**0.17***	0.05	3.57	**0.16***	0.02	7.53	**0.17***	0.01	12.76
C	**-0.01***	0.17	-0.08	**-0.15****	0.08	-1.94	-0.01	0.05	-0.29
R-squared		0.32			0.65			0.32	
Adjusted R^2		0.28			0.63			0.28	
F-statistic		7.88			31.78			7.88	
Prob (F- stat)		0.00			0.00			0.00	

Source: * variables statistically significant for a confidence level of 5%
** variables statistically significant for a confidence level of 10%
Names of the variables are presented in Table1
Author's computation in Eviews 7

Table 7. The significance of influence exerted on ROE by corporate governance variables

	BONUS_CEO	BDSIZE	CEO_DUAL	LEV	BDFEM	BDINDEP	RISKC	SALARY_CEO	SIZE	TENURE_CEO	YLIST	C
ROE	+	-	-	+		-	-		+	+	+	-

Source: Author's computation in Eviews 7

From Table 6 it is observed that Model 2 which observes the influence of corporate governance variables on financial performance represented by ROE, shows a high degree of confidence for the coefficients obtained. The degree of confidence is supported by the standard errors. Both indicators of the determination ratio, square and adjusted, have an acceptable level, for the GLS estimation (65%), a fact which supports the validity of the models analyzed. The P-value probability associated with the F test is null so we accepted as valid all three forms of estimation used in Model 2 for a confidence level of 95%. Some indicators seem to support the presence of the autocorrelation. We

highlighted by bold form the variables which are statistically significant to be easier to detect. To interpret the results it is required the informations contained in Table 7. There is a positive influence on financial performance exterd by variables BONUS_CEO, LEV, SIZE, TENURE_CEO, and YLIST. The financial return can be interpreted as the sharholders' return. The economic interpretation of the results is the same as the explanations from Model 1, so we have skipped them. Paradoxically, the BONUS_CEO variable is statistically significant but has a very low value as we expected. One explanation for the positive influence on ROE from this form of CEO's compensantion is that the CEOs of the selected companies hold stakes in the companies they are managing and thus, they are stimulated thereby to increase the financial performance. The CEO's compensation is based on ROE. The LEV variable has a positive influence on ROE, which could indicate the presence of the information asymmetry, indirectly. A high indebtedness is preferred by shareholders who like to finance the company's activity with funds from the loans. Also, the Modigliani - Miller theory demonstrated that a company more indebted is more valuable, and because the performance and the value of a company are directly connected, it was expected to achieve a negative influence between LEV and ROE.

The control variable SIZE has an inmportant role in corporate governance and recored a positive link between corporate governance and financial performance. Similar results were ontained by Al-Haddad et al 2011. The positive influence of the size of the company on ROE is not surprising. It is natural that a large company to use resources for increasing the financial performance, and a larger size requires a higher number of shareholders who seek and demand high financial performance from the manager. Erkens et al (2012) obtained for US companies similar results using variables as BDSIZE and LEV. Hillier and McColgan (2006), Lasfer (2006) have proved that large firms had a lower performance when they considered in the models the effect of corporate governance. The CEO's tenure has also a positive influence on ROE and the explanation is based on the fact that tenure brings more experience for the CEO. From the shareholders' perspective, a long tenure can be a tool used by the CEO to convince them that he should remain in the company because he is able to maintain a proper financial performance. The YLIST variable had a positive correlation with ROE. These results can be linked to the idea that over the time, the company gathered more shareholders precisely because it was powerful, and their investment in the company's shares, helped to increase the financial profitability. Thus, it captures the spiral effect of the increasing number of shareholders and the company's financial performance. We disapprove for both Models the Hypothesis (H_6) about the negative relation between CEO's tenure and financial performance.

The negative influence on financial performance it can be observed from the variables BDSIZE, CEO_DUAL, BDINDEP, and RISKC. As in the Model 1, the negative correlation exerted by BDSIZE and BDINDEP can be attributed to the costs which must be paid by the shareholders to have a large number of members within the Board of Directors. Negative correlation between the number of non-executives members and financial performance was obtained by Hermalin and Weisbach (1991), Yermack (1996); Metrick and Ishii (2002). Regarding the negative correlation between BDSIZE and ROE, similar results were obtained by Haniffa and Hudaib (2006); Cheng (2008), Dutta and Chang (2012). The CEO_DUAL had a negative effect on the financial performance due to reasons linked to human nature. Too much power leads to slippages that may affect the financial performance. Shareholders do not want the CEO to hold two senior-level hierarchical positions inside the company because it can lead to specific problems brought by the informational asymmetry. This is recognized by the codes of governance, since many prohibit the CEO duality. The results support the Hypothesis (H_4). Paradoxically, the RISKC variable had a negative impact on ROE contrary to the expectations. The only explanation that can be ascribed to this is related to the nature of costs. The shareholders can consider the Risk Committee redundant from the cost perspective. The time when the Risk Committee works is important. If such committee is established after the crisis was happened, the shareholders may consider that it is pointless to pay that committee after the hard time has already passed. Erkens et al (2012) have used this variable in the model but they did not obtain statistically significant results.

For the Model 2, the remaining variables were statistically insignificant.

6. Conclusions

The aim of this study was to identify a link between variables of corporate governance and financial performance in a context of the human nature. To study this relationship empirically, we used a sample of 51 companies listed on NASDAQ stock market from technology sector. We used two econometric models, the difference between them being the independent variable considered as proxy for financial performance (ROA, ROE). Among corporate governance variables we used the total number of members of the Board of Directors, the number of independent members, gender diversity and specific characteristics of CEO (duality, seniority, remuneration). We used the OLS, GLS methods and the White's method for correcting the heteroskedasticity.

For Model 1, were verified some of the empirical study's hypotheses. The results show that ROA is positively influenced by the share of women in the Board of Directors. This was attributed to the adversity towards risk, characteristic to women. That adversion leads to less risky decisions which can adversely affect the financial performance. The CEO compensation variables have a positive relationship with the economic return, which is expected since we considered ROA as a manager's return. Positive links with financial performance represented by ROA was registered for the variables TENURE_CEO and YLIST. It can be explained by the fact that they provide trust that the company and the CEO can support a financial stability over time.

We obtained negative correlation between financial performance represented by ROA and governance variables. The results verify the existence of a negative link between the number of the independent members and ROA. Similar negative relation was obtained for the BDSIZE. From the perspective of the manager, a large number of members, regardless of origin within the Board of Directors, is a financial problem regarding the costs, which are reflected negatively on the financial performance. Last variable of corporate governance which negatively impacts the economic profitability is CEO_DUAL, a fact explained by the human nature and much power available to a single man who can gets to wrong decisions that may affect the financial performance.

In Model 2 we wanted to study the financial performance in context of corporate governance from the perspective of another category of stakeholders involved in a company - the shareholders. Thus, we chose as proxy for financial performance, the return on equity (ROE) that can be called by some authors as the shareholder's return. The empirical results obtained in the econometric study showed a positive relationship between ROE and CEO's compensation through bonuses and salaries an surprising fact because the shareholders want a lower costs. On the other hand through these compensantions, the informational asymmetry is reduced and this reflects positively on the financial performance. The variables SIZE and LEV had a positive influence on the financial return being an clue that on financial performance there are other influence factors. In fact, the influence of corporate governance variables although statistically significant, is reduced as the value of the coefficients. It supports the idea that the American companies have the financial performance influenced more by peculiarities of the corporate finance. The variables YLIST and TENURE_CEO have had a positive influence on financial profitability.

The Model 2 with financial return as an indicator of performance, presents in the results of the econometric study conducted, negative links similar to Model 1, the difference being the variable RISKC. This variable captures the presence of a Risk Committee in the company and would be expected to have a negative value on the financial performance. The positive result can be attributed to the fact that the analyzed period is post-crisis and a special commission for risk it does not have sense, from a financial point of view, being for the shareholders additional costs. For future research we propose increasing the sample of companies, the number of sectors analyzed, by applying complex models of analysis.

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Tax Reforms for Sustainable Economic Growth of the National Economy: Case of China

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Abstract

The paper provides characteristics of the tax reforms carried out in the People's Republic of China from the second half of the twentieth century. The practice of tax reforms in terms of building socialism with Chinese specifics is linked to the Rostow's Stages of growth model. The example of China illustrates how successful the tax targeting can be in the implementation of a consistent program of sustainable development of national economy. The objectives of the tax reforms in People's Republic of China differed according to the stage of economic growth: the simplification of the tax system in the traditional society, reducing the tax burden as a precondition for the take-off, increase of the tax burden on business at the stage of the take-off, the focus on social justice at the 'drive to maturity' stage.

Keywords: taxation, tax reform, stages of economic growth, China's tax system.

Introduction

Transformational shifts of economic systems are always accompanied by dramatic changes in national taxation. The implementation of the China's market-oriented economic reform that started in 1978 and pursuing an open foreign economic policy also led to profound changes in the tax system. The development of the non-state sector in the economy and improvement of state enterprises' economic independence dramatically narrowed the possibility of administrative redistribution for economic resources. In these circumstances, the taxes acquired a fundamentally new role: they have not only become an important channel for mobilization of financial resources by the state, but also one of the main economic regulators for the entire economic life of the country, deliberately built into the global economy not as a supplier of raw materials, but as one of its drivers. The PRC accomplishes a transformational shift from an extremely backward society to a post-industrial society, that wins in the fierce competition on the global markets, building up an unprecedented financial and economic potential, openly claiming the world leadership (China, 2013).

Despite the fact that China's economic growth has become an object of close attention from scientists around the world (Yueh, 2013; Singh, 2015; Zhao, 2015), the contribution of the tax system to the overall economic progress of the country is poorly reflected in the literature. At the same time the correlation between economic and a tax system is obvious: tax burden is a key component of country's investment climate, which constitutes the basis for economic growth.

The process of China's economic growth was not uniform. Economic development of modern China, in our view, may be considered in the framework of the Stages of economic growth model proposed by Walt Rostow (Rostow, 1960). Existing studies that link tax regimes with the stages of economic growth on historical examples (Einhorn, 2009) represent a worthy model for such an analysis of the tax reforms in modern China.

Methodology

The purpose of the paper is to study the experience of reforming the tax system of the PRC aimed at ensuring sustainable growth of the national economy in the context of the different stages of economic growth. A particular interest in this problem is caused by the fact that in the period of transition to a market economy the inherent features of the Chinese tax reforms were the gradualism and cautiousness as well as measured approach to the planned changeovers in the economic system. As a result, the successful tax reforms, along with other factors, laid a financial foundation for the future transformation of the national economic system in accordance with the requirements of adaptation to the global market.

The first phase of the study covers the analysis of the parameters and characteristics of the economic growth of the People's Republic of China from 1953 until present. As a result, the stages of economic development were distinguished and correlated with the stages of economic growth proposed by Walt Rostow.

The second phase of the study examines the impact of Chinese socio-economic reforms of 1953, 1978, 1994 and 2006 on national taxation. The gradual transformation of the national tax system is in the spotlight. On each of the distinguished stages of economic growth, we analyzed the direction of the tax reforms and tax systems structure. In particular the following topics were considered: 1) the list of taxes, 2) the details of the taxes that are key for fiscal revenues - their subjects, payers, rate structure, tax incentives, 3) periods and reasons for the levy and lifting of taxes; 4) the significance of particular taxes in the state's tax revenue system in dynamics; 5) tax revenues comparing to GDP in dynamics.

Growth stages

The Rostow's stages of economic growth are applied by researchers to the western as well as to the eastern economies (Arora, 2009; Ortolano, 2015). While the model itself is the subject of discussion (Kuznets, 1963), including the context of its applicability to the regions (Parr, 2001). Nevertheless, China's social and economic reforms carried out in the second half of the XX century (in 1953, 1978, 1994 and 2006) represent a vivid illustration of the Rostow's stages of economic growth.

W. Rostow described *first stage* – the traditional society – as one whose structure is developed within limited production function. These societies, because of the limitation on productivity, had to devote a very high proportion of their resources to agriculture. Both in the longer past and in recent times the story of traditional societies was thus a story of endless change. However, the level of productivity was limited by the inaccessibility of modern science, its applications, and its frame of mind (Rostow, 1960).

This stage was present in People's Republic of China from 1953 to 1977. The defining attributes of building a planned economy in a society defined as "traditional" are: 75% of working population is employed in food production; national income is used mainly unproductively; political power is vested in central government.

The *second stage* of growth embraces societies in the process of transition; that is, the period when the preconditions for take-off are developed. Investment increases, notably in transport, communications, and in raw materials in which other nations may have an economic interest. The scope of commerce, internal and external, widens. In addition, here and there, modern manufacturing enterprise appears, using the new methods. Nevertheless, all this activity proceeds at a limited pace within an economy and a society still mainly characterized by traditional low-productivity methods, by the old social structure and values, and by the regionally based political institutions that developed in conjunction with them (Rostow, 1960).

The preconditions for the take-off were built in the People's Republic of China from 1978 to 1993 during the transition from a planned economy to a market economy (economic policy of "Reform & Opening up").

The *third stage* - the take-off - is the interval when the old blocks and resistances to steady growth are finally overcome. The forces making for economic progress, which yielded limited bursts and enclaves of modern activity, expand and come to dominate the society. Growth becomes its normal condition (Rostow, 1960).

The growth of investment rate, the significant increase in the output per capita, the rapid introduction of new technology in industry and agriculture from 1994 to 2005, testified to the take-off in modern China.

After take-off there follows a long interval of sustained if fluctuating progress, as the now regularly growing economy drives to extend modern technology over the whole front of its economic activity. The economy finds its place in the international economy: goods formerly imported are produced at home; new import requirements develop, and new export commodities to match them. (Rostow, 1960). The fourth stage - the drive to maturity – began in PRC from 2006.

Tax reforms on different stages of economic growth

1. Tax reforms in the traditional society (1953 to 1977**).** The modern tax system in the PRC began to take shape in the course of the first Five-Year Plan (1953-1958) aimed at the country's industrialization and gradual socialist reforming. A modification of the tax system was carried out in the process of its realization: were imposed industrial and commercial taxes, excise taxes on alcohol, wine, beer, matches, tobacco products and other goods; was corrected transport tax; were abolished special consumption tax, commodity circulation tax (table 1). In general, there was a significant reduction in the number of taxes and duties.

Table 1:Tax system of PRC in 1953

Taxes	Share in total tax revenues
Industrial and commercial tax	41%
Agriculture tax	23%
Transport tax	2%
Excise taxes	4%
Salt tax	3,9%
Business tax	6%
Tax on livestock	3%
Custom duties	4,2%
Stamp tax	1%
Vessel tonnage tax	11,9%
Slaughter tax	
Duty on the sale of real estate	
Special consumption tax	
Commodity circulation tax	
Interest income tax	
Urban real estate tax	
Other taxes	

Source: based on (Nai-Ruenn, 2009)

At this stage the thesis about tax system simplification was fulfilled. For this purposes the taxes on state and collective enterprises were consolidated, a unified industrial and commercial turnover tax started to be charged, tax rates and taxable items changed. The most indicative changes occurred with the industrial and commercial tax: from 1958 to 1977 it combined six types of taxes. Before 1978 one hundred four categories of taxable goods existed within the framework of industrial and commercial tax.

After gradual industrialization the share of tax revenue from agriculture in total fiscal revenue began to decline step-by-step; the industrial and commercial tax become a primary source of funding the needs of the Chinese government (table 2).

Table 2: Tax system of PRC during the "cultural revolution" (1966-1977)

Taxes	Share in total tax revenues
Industrial and commercial tax	91,16%
Interest income tax	8,84%
Duty on the sale of real estate	
Agriculture tax	
Tax on livestock	
Urban real estate tax	
Custom duties	
Other taxes	

Source: based on (Sokolov, 2014)

In general, the tax system of those years was adequate to the existing economic system, which was dominated by the principle of egalitarian justice alongside with an extremely low level of consumption: the state's resources were equally divided between the citizens, the taxes were not numerous, and they were calculated by a simple scheme. At the same time, the established traditional economic system made it impossible for the country to develop. The main obstacle was the fact that China remained economically closed with its state-controlled economy without large-scale sources of investment, in the total absence of links with the international trade community. In the economic sphere the spirit of healthy competition was lost, the state provided support to all enterprises, regardless of their economic efficiency. As a result, many enterprises lost the incentives for further development; the growth of economic indicators was unstable.

2. Tax reforms as precondition for take-off (1978–1993). In 1978 was implemented a tax reform, after which a rejection of the simplification principle took place and some taxes and fees were restored.

To avoid a dangerous decrease in fiscal revenues and unreasonable increase of social payments by the state, the former method of payments from state enterprises' profit was replaced by a enterprise income tax, that became an important element of fiscal reform. Initially the enterprise income tax was levied in parallel with the payments from profits. Then the payments from profits were replaced by taxation, based on actual profits. Advantages of the new tax system are as follows:

- The companies stopped spending time on fighting for the fixed sum of the assignments to the budget and allocation rates, and started to make efforts to upgrade technical equipment, search for internal reserves, increasing the economic efficiency of their manufactures;

- After replacing the payments from profits by a income tax the enterprises began to pay an equal sums to central and local budgets.

During 1979-1993 the tax system was changed together with the development of the national economy. A modern legislative framework began to form, the structure of taxes was transformed, the tax administration improved.

However, the tax system had a significant disadvantage, which manifested itself in its duality. In practice, two tax systems worked simultaneously. The first system was applied to state, collective and private enterprises, while the second system, which included a privileged tax treatment, was functioning in the enterprises with foreign capital participation (table 3). In addition, the enterprises with foreign capital were subject to industrial and commercial tax according to the law of 1958, while the domestic state, collective and private enterprises paid production charges, tax on economic

activity. As a result, the domestic enterprises and enterprises involving foreign capital were in different economic conditions.

Table 3: Tax system of PRC during creation the precondition for take-off

Groups of taxes	Taxes in 1990	Tax rate	Beginning of imposition
1. Turnover taxes	Industrial and commercial tax	3%-60%	11.09.1950
	Production charges	3%-60%	01.10.1984
	Value added tax	0%; 3%; 13%; 17%	01.10.1984
	Business tax	3%; 5-20%	01.10.1984
2. Income taxes	State enterprises income tax	10%-55%	10.03.1985
	Collective enterprises income tax	10%-55%	01.10.1984
	Private enterprises income tax	35%	11.04.1985
	Household income tax	7%-60%	25.06.1988
	Income tax on enterprises with foreign investment and on foreign enterprises	15%-24% 33%	07.01.1986
	Individual income tax	5%-45%	10.09.1980
	Individual income regulatory tax	5%-25%	25.09.1986
	State enterprises regulatory income tax	5%-25%	01.10.1984
	State enterprise bonus tax	30%	28.06.1984
	Collective enterprises bonus tax	30%	24.08.1985
	State enterprise wages regulatory tax	30%	03.07.1985
3. Resource taxes	Resource tax	1%; (1+0.5)%; (1+0,6)%; (1+0,7)%	18.09.1984
	Salt tax	40-160 yuan per 1 ton	18.09.1984
	City and township land use tax	0,6-30 yuan per 1 sq. meter	27.09.1988
4. Property taxes	Housing property tax	1,2%; 12%	15.09.1986
	City maintenance and construction tax	1,2%; 18%	08.08.1951
5. Taxes for special purposes	City Maintenance and Construction Tax	1% ; 5% ; 7%	08.02.1985
	Farmland occupation tax	12,5-45 yuan per 1 sq. meter	01.04.1987
	Fixed assets investment orientation regulation tax	0%;5%;15%;30%	16.04.1991
	Vehicle and vessel usage plate tax	0,3-8 yuan; 15-80 yuan; 0,2-1,1 yuan per 1 ton	13.09.1951
	Vehicle and vessel usage tax	0,3-8 yuan;15-80 yuan; 0,2-1,1 yuan per 1 ton	25.09.1986
	Stamp tax	0,005%;0,03%-0,1%	06.08.1988
	Deed Tax	3%-5%	03.04.1950
	Slaughter Tax	10%; 8-12 yuan	19.12.1950
	Regulatory tax on oil and fuel oil	20-70 yuan per 1 ton	22.04.1982
	Special consumption tax	5-40000 yuan 100-550 yuan	14.04.1989

	Tax on the sale of animals	5%	31.12.1982
	Banquet Tax	15-20%	22.09.1988
6. Agricultural taxes	Agricultural tax (tax on crop production)	5-25%	03.06.1953
	Tax on livestock	0,2-1 yuan	11.09.1950
7. Custom duties	total rate - from 0% to 8% up to 270%; the average rate of the customs tariff - 47%.		07.03.1985

Source: based on (Li, 1991)

By the end of 1993, China had almost no income taxation of individuals due to low income level of the vast majority of the population. Income taxation of individuals existed only in theory, being declared in tax legislation; the actual non-taxable minimum of the biggest part of population was higher than the average wage. The main payers of the income tax were the owners of private enterprises and foreigners.

Turnover taxes focused on fixed retail and wholesale prices and charged by the administrative order could not be effective in market economy. Therefore, on a trial basis in a number of provinces were introduced consumption tax, VAT, business tax instead of industrial and commercial tax The VAT included in the price of goods was the most reliable in providing the fiscal revenue.

As a result, they established a tax system that was based on turnover taxes, enterprise income tax and personal income tax, while all other taxes were minor. The formed tax system laid the foundation for a tax reform of 1994 in the framework of the "take-off", focused on building a socially oriented market economy; and to start expanding the tax base.

Tax reforms at the 'take-off' stage (1994–2005). At the stage of the economic "take-off" a new tax structure (table 4) and a new system of national tax administration were created.

Table 4: Tax system of PRC at the "take-off' stage

Groups of taxes	Taxes in 2005	Tax rate	Beginning of imposition
1. Turnover taxes	Value added tax	0%; 3%; 13%; 17%	01.01.1994
	Consumption tax	3%-56%	01.01.1994
	Business tax	3%; 5-20%	01.01.1994
2. Income taxes	Enterprise income tax	15%-24%;33%	01.01.1994
	Income tax on enterprises with foreign investment and on foreign enterprises	15%-24%; (30+3)%	01.07.1991
	Individual income tax	5%-45%;5%-35%;20%	10.09.1994
3. Resource taxes	Resource tax	8-30 yuan per 1 ton; 2-15 yuan per 1,000 cubic meters.	01.01.1994
	Urban and township land use tax	0,2-10 yuan per 1 sq. meter	27.09.1988
4. Property taxes	Housing property tax	1,2%; 12%	01.10.1986
	Urban real estate tax	1,2%; 18%	08.08.1951
5. Taxes for special purposes	City maintenance and construction Tax	1% ; 5% ; 7%	08.02.1985
	Farmland occupation tax	12,5-45 yuan per 1 sq. meter	01.04.1987
	Fixed asset investment orientation regulation tax	30%-60%	01.01.1994
	Additional education tax	1-3%	01.01.1994

6. Behavior taxes	Vehicle and vessel usage tax	1,2-30 yuan; 360 yuan; 0,6-5 yuan per 1 ton	01.01.1994
	Vehicle and vessel acquisition tax	1,2-30 yuan;360 yuan; 0,6-5 yuan per 1 ton	01.01.1994
	Stamp tax	0,005%;0,03%-0,1%	06.08.1988
	Deed tax	3%-5%	03.04.1950
	Slaughter tax	10%; 12-30 yuan	01.01.1994
	Banquet tax	15-20%	01.01.1994
7. Agricultural taxes	Agriculture tax	8%	30.01.1994
	Tax on livestock	0,2-1 yuan	11.09.1950
8. Customs duties	Reduced tariffs on imports: agricultural products from 22% to 17%, vehicles – from 80-100% in 2001 to 25% by mid-2006. Eliminated tariffs on information technology products - by 2005.		

Source: based on (China, 2005)

Due to the expansion of the tax base, since 1995, a trend of relative increase in tax revenue to the budget appeared (figure 1).

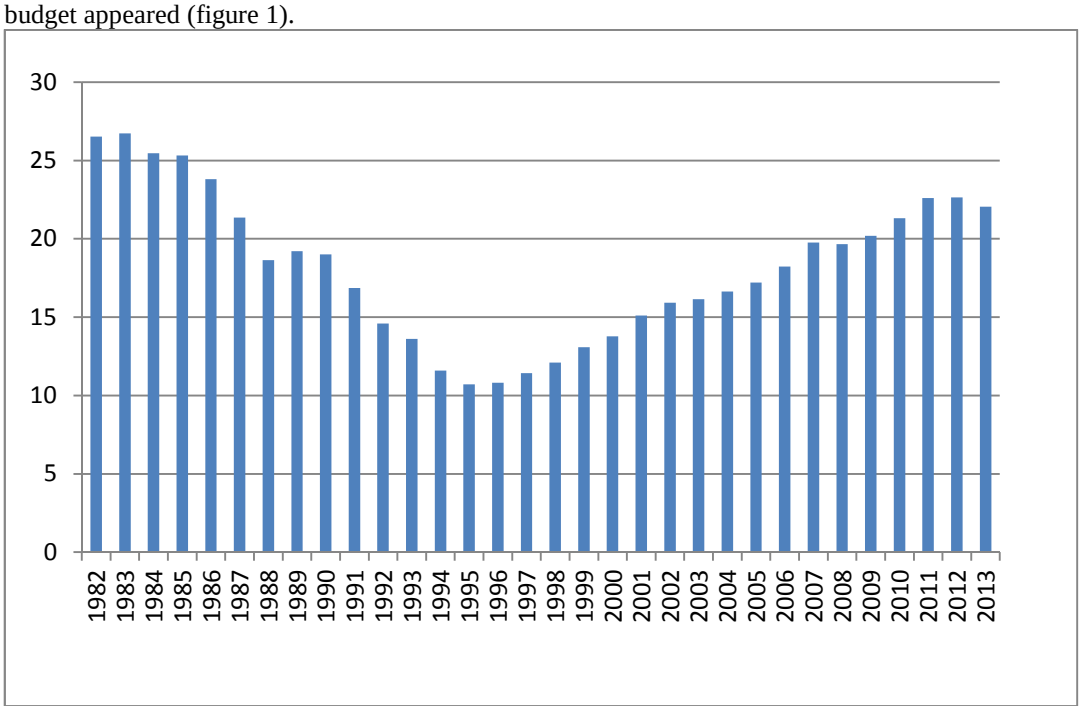

Figure 1: State revenues in PRC,% of GDP

Source: based on (China statistical yearbook, 2014)

Although the tax reform of 1994 led to significant results, due to which the Chinese tax system provided the growth of fiscal revenues, it contained certain disadvantages. Vestiges of the old system (collection of the enterprise income tax in accordance with the administrative subordination) hampered the free movement of capital between different areas, so it was necessary to take measures for eliminating these barriers. It was also important to improve the system of tax differentiation to standardize the rates and put right the administration of new taxes, such as individual income tax.

In light with China's course for accession to the WTO since 1994, the government began to implement a reform of the new tax system based on international standards and principles of globalization. After having joined the WTO on December 11, 2001, China first of all had to cancel the vast majority of non-tariff barriers. The most important task of the tax reform after an adaptation

period (5 years) was not only a change in the tax system in accordance with international standards, but also a maximum protection and support of weak industries.

In 1978-2005 one of the objectives was to create a system for attracting foreign direct investment, so the particularity of the tax regulation was to develop a system of tax incentives for companies with foreign capital and their legal registration. Tax credits, tax exemptions on a territorial basis (for example, registration of the enterprise in special economic zones) were set for companies with foreign capital. The national capital, as a rule, could not benefit from these privileges.

With the course of time, the success of the tax reform of 1994 identified the need to improve the model of tax differentiation and tax rates standardization primarily in the sphere of individual income tax.

Tax transformation at the drive to maturity stage. Since 2006, the purpose of the tax reform is to ensure the social justice. Reforming of the tax system in China at this stage is aimed at creation of equal tax conditions for companies both with national and foreign capital. In addition, the Chinese government introduced amendments to the Individual Income Tax Law and raised the level of incomes that are exempt from personal income tax that created a favorable tax climate for the overall internal and external activities of the domestic small and medium enterprises.

To increase the competitiveness of the national economy and improve the economic situation the tax system was mainly focused on the enterprise income tax, the VAT and the individual income tax (table 5). In general, the “drive to maturity” was politically formalized as a movement in the direction of market economy with Chinese specifics.

Table 5: The transformation of the tax system for building a market economy with Chinese characteristics

Groups of taxes	Taxes from 2012	Tax rate
1. Turnover taxes	Value added tax	0%; 3%; 4% 6% 11% 13%; 17%
	Consumption tax	3%-56%
	Business tax	3%; 5-20%
2. Income taxes	Enterprise income tax	15%-20%; 25%
	Individual income tax	5%-45%;5%-35%;20%
3. Resource taxes	Resource tax	0,3-60 yuan; 5%-10%
	Urban and township land use tax	0,6-30 yuan per 1 sq. meter
4. Property taxes	Housing property tax	1,2%; 4%,12%
	Vehicle and vessel usage tax	60-5400 yuan 4-6 yuan per 1 ton
5. Taxes for special purposes	City maintenance and construction tax	1% ; 5% ; 7%
	Farmland occupation tax	5-50 yuan per 1 sq. meter
	Fixed asset investment orientation regulation tax	30%-60%
	Additional education tax	3%
6. Behavior taxes	Stamp tax	0,005%;0,03%-0,1%
	Deed tax	0%; 1%; 3%-5%
7. Custom duties	The number of custom products in 2012 increased to 7977. The average customs tariff rate in China was 9,8%. The average tariff rate on agricultural products - 15.2%. The average rate of tariffs on industrial goods - 8,9%.	

Source: based on (Gao, 2015)

The global financial and economic crisis created an opportunity for domestic economic growth, advanced the China's economy in the direction of the fifth stage - the age of high mass consumption. In general, a shift was made from the proposal on the international market to the domestic demand,

from export production to national consumption. This set up a problem and broke the ice in shifting the focus of taxation from production to consumption and starting the development and introduction of environmental taxes.

The ongoing tax reforms in China were reflected in the structural changes in tax revenues (table 6).

Table 6: Tax revenues in PRC,% of GDP

	Total	Value added tax	Consumption tax	Business tax	Enterprise income tax	Individual income tax
1985	23%	2%	-	2%	8%	n\a
1986	20%	2%	-	3%	7%	n\a
1987	18%	2%	-	3%	6%	n\a
1988	16%	3%	-	3%	4%	n\a
1989	16%	3%	-	3%	4%	n\a
1990	15%	2%	-	3%	4%	n\a
1991	14%	2%	-	3%	3%	n\a
1992	12%	3%	-	2%	3%	n\a
1993	12%	3%	-	3%	2%	n\a
1994	11%	5%	1%	1%	1%	n\a
1995	10%	4%	1%	1%	1%	n\a
1996	10%	4%	1%	1%	1%	n\a
1997	10%	4%	1%	2%	1%	n\a
1998	11%	4%	1%	2%	1%	n\a
1999	12%	4%	1%	2%	1%	0%
2000	13%	5%	1%	2%	1%	1%
2001	14%	5%	1%	2%	2%	1%
2002	15%	5%	1%	2%	3%	1%
2003	15%	5%	1%	2%	2%	1%
2004	15%	6%	1%	2%	2%	1%
2005	16%	6%	1%	2%	3%	1%
2006	16%	6%	1%	2%	3%	1%
2007	17%	6%	1%	2%	3%	1%
2008	17%	6%	1%	2%	4%	1%
2009	17%	5%	1%	3%	3%	1%
2010	18%	5%	2%	3%	3%	1%
2011	19%	5%	1%	3%	4%	1%
2012	19%	5%	2%	3%	4%	1%
2013	19%	5%	1%	3%	4%	1%

Source: based on (China statistical yearbook, 2014)

The tax reforms performed on the stages led to reduction in tax revenues in absolute terms, as well as in the structure of budget revenues and with respect to the gross domestic product (the smallest figure of tax revenue relative to GDP for the period was observed in 1996). What is more, this progressive reduction in tax revenue was carried out at the expense of direct business taxes, while the revenues from indirect taxes increased. Beginning from 1997 the growth in tax revenues was accompanied by a decrease in revenues from indirect taxes (especially the VAT) and the growth of direct taxes, especially the taxes on financial results of the business. The importance of the individual income tax is much less than that of the enterprise income tax.

The evolution of China's tax system is correlated with the global trend of reducing the share of indirect taxes and increasing the share of direct taxes. At the same time, the role of indirect taxes in generating revenues for the state is still high.

Also in the course of the reforms a trend of increasing the number of tax incentives and deductions in taxation of both individuals and enterprises appeared. Tax incentives are a tool against economic instability and one of the factors attracting foreign investment.

From a long-term perspective, the aim of tax structure improvement of the PRC should be in bringing the tax system in line with the tax structures of the advanced countries (Brys, 2013: Yang, 2011) through optimization, creating a high-performance, reasonable tax system, in which the central role would be given to the VAT, but the enterprise income tax and individual income tax would be of equal importance.

Conclusions and Discussion

The most important features of the tax reforms held in the period of building the market economy in China is their uniformity, consistency and gradualism.

It is a common practice in China when the viability of any new idea is firstly tested on the example of a single province. If experiment is successful, the relevant amendments to the legislation are made, and the changes will be applied to the entire state. This ensures a uniformity of the impact of changes in the tax system on the economy as a whole. It should be mentioned that the importance of the economic experiment is manifested in the fact that the measures of tax incentives are implemented on the zones of economic and technological development.

The China's tax reforms of the second half of the twentieth century are a good example of how the tax system can put no obstacles to the development of the economy and even to promote the rapid and successful passage of the stages of economic growth. Depending on the stage of economic growth, the goal setting changes in tax targeting as follows:

- The simplifying of tax system is a reference point in the *traditional society*,

- A part of the taxes is re-established on the background of the overall decrease in tax burden as a *precondition for the take-off*,

- A new structure of tax system is formed, which leads to the increase in tax revenues at the stage of *take-off*.

- The '*drive to maturity'* stage is focused on social justice.

In the process of reforming the tax system of the PRC we could always see the effect of such factors as the huge working-age population with limited domestic energy resources and other raw materials, the dominant role of public enterprises in the national economic structure, and others. Despite the evident peculiarity of China, the taxation factor in the rapid economic growth can serve as a subject for scrutiny and be implemented on transition economies of Russia, Belarus and Ukraine in particular along with monetary policy (Mishchenko, 2015).

Despite the record economic growth over the last 35 years, the emerging market economy of China has accentuated very acute social problems, such as the significant dependence of economic development on exports, increasing income inequality, the excessive growth of house prices, etc. In the process of reforming the tax system there are still unsolved problems that significantly worsened during the global financial crisis. For example, a tax reform aimed at the division of taxes paid to local and central budgets is still not completed; the structure of local taxation is inefficient; unfair distribution of the tax burden between economic entities still exists. These problems remain a significant deterrent to structural transformation of the national economy and an obstacle in the creation of the preconditions for sustainable economic growth in all regions.

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Tax Burdens of Russian Oil Producing Companies – Comparative Analysis

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Abstract

The tax burden is not only a tool for monitoring and planning of financial and economic affairs of the company, but also an important reference point for the state tax policy development as well as for inter-budgetary relations. Taking into account the issues related to the current tax system, a method of oil companies tax burden calculation is presented considering the production of hydrocarbons in oil equivalent. The proposed method makes it possible to reveal the impact of the current taxation system on the affairs of oil companies' which differ in the scope of activities, commodity and territorial diversification.

Keywords: tax, oil, oil equivalent, Tomsk region

Introduction

The relevance of the tax issue is retained from the times of Adam Smith, who was the first to formulate the basic principles of the tax system, which were further developed in the researches of scientists studying the tax burden of oil companies in various aspects. In a research study by John Harper (1963) different methods of oil companies tax burden calculation were investigated. This allowed him to draw the conclusion about tax burden distortions in the industry as well as about federal tax burden which was significant for further changing of the fiscal regime in the US [10]. In the work by Matthew Berman (2014) subject of tax allocation in the budget system and the real oil-producing state income budget on the example of Alaska, considering oil price dynamics at fiscal regimes for the period from 1959 to 2013 was studied [12].

Matthew Berman concludes that sharp reducing of the effective tax rates may negatively affect Alaska state revenue, thus tax rates should be different depending on the field. This will boost the development of the oil industry. Another important issue is the distribution of oil revenues and the profits of the states or provinces in the US. Subject of accumulating money in the oil funds of the regions and proposals of funds creation are viewed in his work as – "It can be an important tool for enhancing growth, diversification of the production base and competitiveness in the economy" [7, P. 123]. The Scottish Government should seek, in principle, to establish a stabilisation fund such as an Oil Fund, to help manage its natural resources and to enhance future economic resilience [7, P.15]. These issues are similar in the taxation of oil-producing companies in Russia, which is a factor of oil and gas sector investment potential reduction, reduction of oil-producing regions tax potential, and financial and investment constraint of regional authorities in solving social and economic issues [20, 9]

Methodology

The study aims to evaluate the tax burden of Russian oil and gas companies on the basis of financial data and annual reporting. The applied nature of the research involves the application of the suggested method of calculating the tax burden on oil companies, which are different in size and area of activity, during the tax system adjustment and implementation of strategic programs of socio-economic regions development.

Interrelation of current oil companies' taxation system and financial and economic processes of Russian economy

The share of Russia in the world oil production is 12.6% and of the world gas production - 18.1%. This stipulates the high dependence of the Russian economy on oil and gas revenues. In our study we will focus on the aspects that characterize the relationship of the current oil companies' taxation system and the financial and economic processes of Russian economy.

Petroleum sector is the main income source into the budget system of the country, and despite the measures taken by the Government of the Russian Federation, this tendency remains. This is supported by data presented in Table 1.

Table 1. The share of companies' revenue in a state budget (in % GDP)

	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Total revenue	39.17	35.04	34.62	37.26	37.69	36.93	36.93
Tax revenues and payments	36.04	30.88	31.12	34.5	34.97	34.11	34.42
Mineral Extraction Tax (MET)	4.14	2.72	3.04	3.65	3.96	3.89	4.07
MET on oil	3.81	2.41	2.74	3.3	3.43	3.31	3.45
MET on gas	0.24	0.21	0.2	0.25	0.43	0.49	0.52
Export custom duty on oil	4.32	3.1	3.61	4.17	4	3.53	3.67
Export custom duty on gas	1.19	1.12	0.42	0.69	0.7	0.72	0.68
Export custom duty on petroleum products	1.27	0.98	1.3	1.67	1.82	1.82	2.09
Custom duty (during the export of crude oil and definite categories of oil produced products from the Republic of Belarus outside the Custom Union)	0	0	0	0.16	0.19	0.16	0.15
Mineral oil excise tax	0.34	0.38	0.37	0.51	0.59	0.63	0.54

As it is seen from the Table, about 93% of the budget system revenues are the tax payments. In the tax revenues more than 40% are oil and gas revenues - the specific taxes paid by oil and gas companies as a minerals extraction tax (MET) on hydrocarbons (oil and flammable natural gas, gas condensate) and export customs duties on crude oil, natural gas, petroleum products (Art. 96.6 of the Budget Code of Russian Federation) [15]. The table shows that MET on oil exceeds more than 6 times the MET on gas, which is associated with a lower taxation of the gas industry. This becomes more obvious after calculations given below. Similar difference is observed in gas export duties and MET on gas [16, P.6]. Despite the changes in MET calculating formulas and export duty in order to stimulate the activities of oil and gas companies, as well as the state fiscal gap as a consequence of these changes, the share of oil and gas revenues is significant [8].

Another important point is the centralization of oil and gas revenues in the federal budget. The impact of uneven distribution could be seen from the example of Tomsk region. Tomsk region is located in Western Siberia - the main oil-producing region of Russia. It ranks third in production after the Tyumen region and Khanty-Mansiysk Autonomous Region. At that, from 131 deposits of Tomsk region, only 6 could be referred to large. Oil deposits are prevailing. Reducing of the tax potential is well illustrated by the data presented in Table 2. In 2010 there was a centralization of revenue from MET in the federal budget. Prior to the global financial and economic crisis 5% of MET on oil got into the budget of RF oil-producing subjects. Earlier before the year 2005, 40% got into the regional budgets.

Table 2. The share of MET in the structure of Tomsk region budget income.

	2003	2004	2005	2006	2007	2008	2009
The share of MET in the structure of region budget income (%)	20.51	17.92	6.91	5.85	5.27	6.26	3.58

This is a factor that explains the reduction in the financial and investment opportunities of the regions in the realization of socio-economic issues (Table 3). The table reflects the substantial increase in fiscal gap, the increase of deficit, and therefore debt obligations, which is partially offset by grants and subsidies from the federal budget. In 2015 the increase of fiscal gap was especially significant. This was due to federal budget obligations default before the Russian Federation subject [13].

Table 3. Dynamics of Tomsk region fiscal gap

	Tomsk region fiscal revenue, mln RUB	Tomsk region fiscal gap, mln RUB
2009	31851.3043	-442.5649
2010	34177.9528	+193.2263
2012	52 580.7	-2 062.1
2013	53 684.4	-6 830.7
2014	48 598.3	-5 365.6
2015	51 135.4	-176609.0

Oil and gas sector structure analysis shows the predominance of large, vertically integrated companies (VICs) in the oil industry of the country. The share of such VICs as "Rosneft", "LUKOIL", "Gasprom neft", "Surgutneftegas" is 70.7%. The share of small companies is less than 10%. Therefore, the petroleum market structure is oligopolistic: from 292 organizations, only 10 are vertically integrated oil companies. The oligopolistic market prevalence is marked by low competition in the industry, the possibility of collusion and market sharing between the vertically integrated oil companies, the pressure on other oil companies' activity. All these negatively effects on the dynamics of prices in the consumer market and becomes an indirect factor of the inflation and innovation activities of both petroleum sector and the national economy [11].

Another feature is the increase in oil production by state companies. Through acquisition of TNK-BP, "Rosneft" increased its share in the total volume of oil production from 22% in 2010 to 36.2% in 2014. In the gas sector, the role of state-owned companies is even more significant: "Gazprom" - 71, 5%, "Rosneft" - 5.9%.

Tax burden analysis

The relative indexes were applied during the analysis of the tax burden of business entities. During calculation the numerator may include the amount of tax payments, severance tax, income tax and other tax payments realized by mining companies. The denominator may include net income, tax payments and other indicators depending on the research objectives. The Ministry of Finance of the Russian Federation determines the tax burden as a ratio of the amount of taxes to the volume of sales; the Federal Tax Service - as a ratio of the amount of taxes paid from sales [14, P.44]. Oil and gas companies suggest their own calculations of the tax burden. The "LUKOIL" company during tax burden analysis considers the share of tax revenues, excluding the cost of crude oil and petroleum products purchase (%), the share of income before income taxation, excise taxes and export duties payments (%) [1, P.65]. Besides, the tax burden is expressed in the form of financial indexes: a) Effective income tax rate (%), which is calculated as the ratio of income tax to pre-tax earnings before non-controlling interest; b) the share of pre-tax earnings in revenue (%) [1, P.72]. The company also focuses attention on the fact that the amount of the MET per 1 ton of produced and refined oil is steadily increasing. The average rates of MET, applied by companies for the taxation are shown in Table 4.

Table 4. Average MET rates on oil and gas

	2010	**2011**	**2012**	**2013**	**2014**
MET (oil), RUB/t	3 075.8	4 456.5	5 066.0	5 329.6	5 827.5
MET (natural gas), RUB/thous. m³	147.0	237.0	251.0	333.5	301.5

The formula of MET calculation involves base rate and applied concessionary rates, provided for the development of hard-to-recover reserves, depleted deposits, high-viscosity oil deposits located in new oil and gas provinces and small deposits [17].
The size of MET on gas depends on the degree of production difficulty and transportation costs. However, these methods, according to the authors, do not take into account the specifics of the oil and gas companies. Major oil and gas companies are called vertically integrated companies (VICs), because they include the entire production cycle - exploration, production, processing and marketing. In addition, they have the license areas, geographically located in the traditional and new oil and gas provinces. The deposits under production are: a) oil and gas; b) large and medium; c) Brownfields and Greenfields; d) various in oil quality (light, high sulfur, high viscosity, etc.). The activity of small companies does not include all the stages of technological processes. The main activity is the exploration and production of hydrocarbons. The majority of small production companies acquired a license for exploration and production of minerals only in the past 10 years, thus they are at an early stage of its development. Small oil and gas companies have from 1 to 3 license areas, deposits of which are classified as small, with the amount of reserves of up to 5 million tons [18].

Consequently, the amount of MET calculated considering preferential rates and preferential rates free, is different. Therefore, it is preferable to use the following index: MET / 1 ton of oil equivalent. According to the Decree of the State Statistics Committee, 1 ton (thousand cubic meters, thousand kWh, Gcal), multiplied by the conversion factor (on oil k = 1.43, on natural combustible gas - 1,154) in the conventional fuel equals to 1 ton of oil equivalent [19, P.9].

Results

The authors made the calculations taking into account the suggested index. The data of "Rosneft", "LUKOIL", "Tomskgasprom" and "Tomskaya Neft" [5, 6, 3, 2] companies were used for the analysis. These companies vary in the scope of their activity and in the territorial belonging of industrial diversification licensed areas. The results are shown in Table 5

Table 5. Comparative analysis of petroleum companies' tax burden

«Rosneft»	**2013**	**2014**
Mineral Income Tax (MET) in billions of RUB	829	982
Oil production in millions of tons	192.6	190.9
Natural gas production in billions of m3	30.9	37.3
Oil production in millions of oil equivalent	275.418	272.987
Gas production in millions of oil equivalent	35.6586	43.0442
Production in millions of oil equivalent	35934.018	43317.187
MET in RUB per 1 oil equivalent	2664.938475	3107.288141
Revenues from oil, gas, petroleum and petrochemicals sales in billions of RUB	4624	5440
MET/Revenues from oil, gas, petroleum and petrochemicals sales	0.179282007	0.180514706
Net revenue in billions of RUB	555	350
MET/Net revenue	1.493693694	2.805714286

LUKOIL	**2013**	**2014**
MET in millions of US Dollars	12410	11647
US Dollar rate for the end of the year, RUB/ $	32.73	56.26
Oil production in millions of tons	86.7	86.6
Natural gas production in billions of m_3	18.2	18.7
Oil production in millions of oil equivalent	123.981	123.838
Gas production in millions of oil equivalent	21.0028	21.5798
Production in millions of oil equivalent	21126.781	21703.638
MET in RUB per 1 oil equivalent	2801.549552	4506.052354
Net revenue in millions of US Dollars	7832	4746
MET/Net revenue	1.584525026	2.454066582
Tomskneft VNK	**2013**	**2014**
MET in billions of RUB	53881.773	57588.143
Oil production in millions of tons	10.152	9.939
Natural gas production in billions of m_3	1996.45	1979.829
Oil production in millions of oil equivalent	14.51736	14.21277
Gas production in millions of oil equivalent	2.3039033	2.284722666
Production in millions of oil equivalent	16.8212633	16.49749267
MET in RUB per 1 oil equivalent	3203.194198	3490.720934
Revenues from oil, gas, petroleum and petrochemicals sales in billions of RUB	111592.029	119817.236
MET/Revenues from oil, gas, petroleum and petrochemicals sales	0.482846073	0.480633212
Net revenue in billions of RUB	13761.844	16845.208
MET/Net revenue	3.91530183	3.418666187
Tomskgazprom	**2013**	**2014**
Revenues from oil and gas sales in thousands of RUB	28 665 103.00	25 865 067.00
Oil production in thousands of tons	1 084.86	1 178.01
Gas production in millions m^3	2 732.01	2 477.89
Oil production in thousands of oil equivalent	1 551.35	1 684.55
Gas production in thousands of oil equivalent	3 152.74	2 859.49
Production in oil equivalent, thousand tons	4 704.09	4 544.04
Net revenue in thousands of RUB	5 751 495	4 012 325
MET in thousands of RUB	5 834 822.54	6 861 348.69
MET/ Revenues from oil and gas sales	0.203551424	0.265274731
MET/Net revenue	1.014487979	1.710068025
Production in thousand tons of oil equivalent	1564077.158	1695936.414
MET/1 ton of oil equivalent	1240.372391	1509.966826
Tomskaya neft	**2013**	**2014**

Revenue in thousands of RUB	10 189 073	9 538 392
Production in thousand tons	993. 403	883. 214
Production in thousand tons of oil equivalent	1420.56629	1262.99602
Net revenue in thousands of RUB	837 664	398 747
MET in thousands of RUB	5 191 134	5 219 426
MET/Revenue in thousands of RUB	0.509480499	0.547201876
MET/Net revenue in thousands of RUB	6.197155423	13.08956807
MET/1 ton of oil equivalent	3654.270861	4132.575176

The data presented in Table 5 shows that companies' indexes of MET/Revenue from sales, MET/Net revenue and MET/1 ton of oil equivalent differ as for the year 2013 and 2014. Each company shows the growth of MET/Revenue from sales and MET/Net revenue indexes besides OAO "Tomskneft". Only "Rosneft" shows MET/1 ton of oil equivalent index reduction, while the rest of the companies show the growth of this index.

Summarizing the above mentioned, the conclusion could be drawn regarding the dynamics of the suggested index of MET / 1 fuel equivalent:

1. Factors determining the increase of tax burden of OAO "LUKOIL" are the territorial and product diversification. "LUKOIL" develops its production activity primarily in Western Siberia, the Volga region, the Urals, Timan-Pechora region [4], deposits of which have been developed for more than 30 years, thus reflecting on quality characteristics of the produced fluid. Since the average water cut in 2014 was 87.3%, the "Rosneft" company activity concentrated in new oil and gas provinces of Eastern Siberia, where the development was stimulated by tax holidays on MET, and the zero export duty. In addition, the volume of gas production in "Rosneft" exceeds in 2 times the volume of the "LUKOIL" company production.

2. Deposits, developed by "Tomskgazprom" and "Tomskaya Neft" are located in Tomsk region. Considering the amount of reserves these deposits could be referred to small and medium. "Tomskgazprom" develops Myldzhinskoye gas condensate field. According to the obtained results, the tax burden of the small company "Tomskaya Neft" is growing alongside with the production fall. At that, there is a significant difference in values between the companies, which is defined by the fact that "Tomskaya Neft" is involved only in oil production. Oil production by OAO "Tomskgazprom" has risen in 8.58%, the value of MET/1 ton of oil equivalent index - in 21.74%. Oil production in OOO "Tomskaya Neft" has fallen by 11.1%, and the value of MET/1 ton of oil equivalent index increased by 13,1%. The growth of the tax burden in terms of the MET / net profit index also confirms this unevenness.

3. Influence of the current tax system, when there is a direct correlation in the formula of MET amount calculation to the payment from oil prices in the world market, produces greater effect on small oil and gas business, which is clearly illustrated by MET / net income index. In OOO "Tomskaya Neft" the amount of MET exceed 6 times the net profit in 2013, while big companies were having the exceed in 1.5 times.

Conclusion

Thus, the tax laws underexamine the tax base formation in relation to MET depending on the production and geological characteristics, field development stages and scope of oil companies' activities. There is also a lack in tax mechanisms which lay the foundation for business development in the long term. Therefore, further research is needed to improve tax legislation regarding the development of incentives for small oil companies

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Perturbation Innovatrice et Dynamique De La Concurrence: Cas Des Entreprises Algériennes

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Résumé

La rivalité concurrentielle oriente les entreprises à suivre une démarche perturbatrice innovatrice, source d'un avantage concurrentiel. Cette recherche s'est réalisée à travers une étude qualitative exploratoire à partir de 42 entretiens menés au niveau d'une série de cas d'entreprises. A cet effet, nous avons résolument opté pour deux types d'acteurs : les nouveaux entrants et les entreprises existantes, ce qui nous a permis d'avoir une analyse détaillée de la dynamique concurrentielle qui prévaut au sein ce secteur et par conséquent les manœuvre innovatrices adoptées par les firmes, ce qui constitue l'originalité de notre étude empirique.
Nos résultats montrent que les entreprises ayant choisi de suivre la perturbation innovatrice ont toutes joui d'une performance en termes de croissance, bénéfices et chiffres d'affaires et sont devenues leaders dans le segment où la perturbation a eu lieu. Cependant, l'inertie a conduit d'autres firmes à l'absorption par la concurrence et la disparition à terme du secteur, en dépit de leur statut de leaders. Nous terminons notre article en apportons des informations pour de possibles recherches futures sur la thématique de la perturbation innovatrice et la dynamique concurrentielle.

Mots clés: Avantage concurrentiel, perturbation innovatrice, dynamique concurrentielle, entreprises algériennes.

Abstract

The competitive rivalry directs companies to follow an innovative disruptive approach, source of a competitive advantage. This research was carried out through an exploratory qualitative study from 42 interviews conducted at the level of a series of business cases. For this, we have resolutely opted for two types of actors: new entrants and the existing firms which allowed us to have a detailed analysis of the competitive dynamics prevailing in this sector, and therefore, the innovative manoeuvres adopted by firms, which constitutes the originality of our empirical study.
Our results show that companies having chosen to follow the innovative disruption have all enjoyed a performance in terms of growth, profits and turnover and have become leaders in the segment where the disturbance occurred. However, inertia has led other companies to absorption by competition and ultimately resulting in the disappearance of these companies in the sector, in spite of their status of leaders. We conclude our article by proposing tracks of research that will complement the current studies on the theme of the innovative disruption and the competitive dynamics.

Key words: Competitive advantage, innovative disruption, competitive dynamics, Algerian companies.

Introduction

La littérature en management stratégique a fait l'objet d'un renouvellement profond d'où l'apparition de plusieurs approches en stratégie, défendant un héritage par rapport aux travaux des économistes de l'école de Vienne, c'est le cas des recherches qui porte sur les thèmes de la disruption (Ferrier, 2000), de l'agressivité concurrentielle (Ferrier et al., 2002), de l'innovation radicale (Blanco, 2007), d'innovation stratégique (Markides, 1997; Baden-Fuller et Pitt, 1996) ou encore de révolution stratégique (Hamel,

2006). Notre présente démarche s'inscrit dans la continuité de ces pistes de recherche et principalement celles proposées par Moingeon & Lehmann-Ortega (2006) et Roy (2009) sur la perturbation innovatrice. Ayant constaté un déficit d'études académiques, ces auteurs ont surtout cherché à expliquer les fondements de cette nouvelle démarche en démontrant son intérêt croissant. Cependant, les études concernant le croisement de la dynamique concurrentielle avec la perturbation innovatrice, susceptibles d'expliquer les liens entre les nouvelles approches comportementales et le choix de cette stratégie, restent rares dans la littérature. Nous tentons à travers cette contribution de combler cette brèche en proposant la perturbation innovatrice dans une logique comportementale mobilisant le courant de la dynamique concurrentielle.

L'objectif de notre étude est de mettre en lumière la dynamique concurrentielle qui règne au sein du secteur des Produits Laitiers Frais en Algérie en décryptant les manœuvres innovatrices adoptées par les acteurs. Notre étude porte sur les principaux opérateurs intervenant sur le marché du yaourt en Algérie, c'est-à-dire Danone Djurdjura Algérie, Hodna Lait, Trèfle, Ramdy et Soummam. Dans un environnement hypercompétitif qui a connu l'accroissement du nombre d'intervenants, notre problématique de recherche est de savoir comment la dynamique concurrentielle génère et encourage l'adoption d'une perturbation innovatrice source d'un avantage concurrentiel ?

Dans un premier temps, nous reviendrons sur l'état de la recherche sur le courant de la dynamique concurrentielle. Ensuite sur la base des recherches consacrées aux approches comportementales, une démarche stratégique sera distinguée celle de la perturbation innovatrice, dont nous nous focalisons plus particulièrement de souligner ses sources. Dans un second temps, nous exposerons notre terrain d'étude ainsi que le dispositif de recherche mis en œuvre. Dans la section suivante, nous proposerons une discussion de nos résultats au regard de la littérature existante. Enfin, nous conclurons en énonçant les limites de notre recherche et proposerons des pistes pour des recherches futures.

Perturbation innovatrice et Volontarisme Total

Dynamique interactive et agressivité

Deux approches complémentaires sont à la base de l'analyse des relations concurrentielles entre les entreprises sur un marché : l'analyse structurelle et l'analyse comportementale. Les insuffisances du niveau d'analyse découlant de l'approche statique de la concurrence (Porter, 1980) ont entraîné l'émergence d'une nouvelle perspective qui est celle de l'approche dynamique des mouvements concurrentiels qui intègre plus nettement les intentions stratégiques animant les entreprises et les règles du jeu concurrentiel (Hamel et Prahalad, 1989). L'émergence du courant de la dynamique concurrentielle a été soutenue par beaucoup de chercheurs en stratégie dont notamment Mac Millan, Mc Caffrey et VanWijk (1985) et développée à travers plusieurs auteurs comme Chen et Miller (1994), D'Aveni (1994), Craig (1996). Adoptant plusieurs niveaux d'analyse, les travaux de ces auteurs (dont notamment ceux de Lee et al. 2000, Bensebaa, 2000 ; Young et al., 2000) atteste que l'avantage concurrentiel dépend de la rapidité des interactions concurrentielles, les entreprises les plus performantes sont celles qui prennent les initiatives d'entreprendre des actions/réactions innovantes contre leurs rivaux à savoir l'agressivité (Brockhoff et Pearson, 1992 ; Calantone et al. 1994; Covin et Covin, 1990; Zhara et Covin ,1993), en introduisant de nouvelles variables innovatrices qui affectent les positions des concurrents. Ce qui leurs permet, tout d'abord, de bénéficier des effets de « first mover » (Makadok, 1998), ensuite, de garder une longueur d'avance sur leurs concurrents, en allant d'un avantage concurrentiel à un autre.

Dans cette perspective, les travaux de D'Aveni (1994,) et Rühli (1997) consolident l'idée précédente selon laquelle l'hypercompétition pousse les marchés vers une concurrence accrue, dans laquelle l'avantage concurrentiel, désormais précaire, va à ceux qui agressent leurs adversaires. D'Aveni (1994) insiste sur le fait que les entreprises qui ne chercheraient pas délibérément à perturber leurs concurrents devraient elles-mêmes être l'objet de manœuvres agressives et donc, connaître de graves difficultés. De ce fait, être plus agressif que ses concurrents en adoptant un comportement perturbateur des règles du jeu concurrentiel, est désormais le seul moyen de rester viable et d'acquérir des parts de marché (Le Roy, 1998).

Vers la perturbation innovatrice

Dans le prolongement des travaux de Bower et Christensen (1995), Abraham et Knight (2001), Markides (1997) les auteurs Lehmann-Ortega et Schoettl (2004) proposent la perturbation innovatrice dont l'idée centrale consiste à déverrouiller et reconfigurer le marché en vue de dégager de nouvelles perspectives de développement encore non explorées. En se basant sur la contribution de Kim et Mauborgne (2005), Schoettl (2005) , Lehmann Ortega et Bourdon (2006), les stratégies perturbatrices consistent à construire de nouveaux espaces inexploités, espace dans lequel la demande est à créer, portant sur une introduction réussie dans un secteur d'un nouveau business modèle, né sur l'un des deux axes suivants : une modification radicale de la valeur pour le client (correspond à une rupture produit/marché), un réaménagement radical de l'architecture de valeur (correspond à une rupture process). Pour mieux comprendre comment créer une perturbation innovatrice.

Partant de ce qui précède, notre proposition se présenterait comme suit :

Proposition : l'intensité de la dynamique des mouvements concurrentiels incite à adopter une démarche agressive à travers un comportement perturbateur innovateur.

Choix Méthodologique Et Empirique

Méthodologie de recherche et traitement de données

Le choix de la méthode de recherche a porté sur une étude de type exploratoire, structuré autour d'études de cas. Plusieurs critères associés à notre recherche justifient l'intérêt de retenir cette option méthodologique. D'abord, l'étude sur les perturbations innovatrices se situe encore dans une phase récente dans la discipline stratégique, ce qui nécessite un travail d'exploration (Charreire et Durieux, 1999). Ensuite, il s'agit de saisir un phénomène dynamique qui est celui de la compréhension de la dynamique des mouvements concurrentiels et l'étude de cas apparaît comme une stratégie de recherche adaptée (Roy, 2003).

Fondée sur une interprétation qualitative de données, nous avons réalisé 42 entretiens d'approfondissement, menés face-à-face avec 33 personnes au niveau de 5 études de cas. Nos entretiens se sont déroulés entre le 8 septembre 2013 au 12 mars 2015. Ils ont duré en moyenne une heure et demie. Ces entretiens nous ont permis de récolter des informations et des données qualitatives et quantitatives. L'analyse des données se concentre principalement sur la période 1996-2015. Le choix concernant les personnes interviewées consistait essentiellement à se concentrer sur les personnes clefs de l'entreprise et la plupart des entretiens ont été réalisés avec l'ensemble des responsables des entreprises étudiées.

Champs d'étude et acteurs sélectionnés – justification

Par rapport au champ d'étude, comme notre idée initiale est d'activer notre objet de recherche dans un contexte où la concurrence est rude, nous avons choisi le secteur des Produits Laitiers Frais (PLF) en Algérie et particulièrement celui du yaourt, d'abord parce que ce secteur est caractérisé par une forte dynamique concurrentielle, ensuite il comporte des opérateurs avec des positions concurrentielles différentes : leader, challenger et suiveur, ce sont des firmes soient déjà installées dans le secteur, soient des nouveaux entrants, et de ce fait, ce secteur présente un contexte particulièrement riche en termes d'enseignements sur la dynamique des attitudes stratégiques ce qui nous permettra ainsi de questionner des problématiques de management stratégique concurrentiel dans un contexte concret.

a) Les acteurs existants :

- Soummam est leader depuis 2006 dans le segment du yaourt en pot avec plus de 35 références. Il dispose d'environ 48% de parts de marché.

- Danone Djurdjura Algérie (DDA), est une firme multinationale, filiale du groupe français Danone en Algérie, c'est le principal challenger de Soummam avec 27% de parts de marché.
- Trèfle (7% de parts de marché), une des sociétés pionnières, elle est actuellement suiveur dans le marché.

b) Les nouveaux acteurs :

- Hodna (13% de parts de marché) est un des deux plus grands opérateurs après DDA et a notamment pris une position de force sur le marché algérien.
- Nous avons également accordé une place particulière à Ramdy, c'est la plus jeune dans le marché. Elle détient 2% de parts de marché avec des perspectives de croissance dans le futur.

Résultat De La Recherche Et Discussion

Rivalité concurrentielle et option stratégique

L'intensité concurrentielle dans le secteur des PLF

Avec le passage de l'Algérie à l'économie de marché, le secteur laitier a connu l'accroissement de l'intensité concurrentielle, ceci étant dû à plusieurs facteurs dont nous citerons :

- l'émergence d'un tissu très dynamique des entreprises privées qui ont investi massivement dans la production laitière et des produits laitiers. En effet, le secteur privé compte 172 PME/PMI réparties sur tout le territoire national. Ces entreprises sont orientées particulièrement dans la fabrication de produits laitiers (80% contre seulement 20% pour les laits de consommation).
- l'accroissement de la consommation globale du yaourt en Algérie, celle-ci s'élève à 13,7 kg par an et par habitant, alors qu'elle était de moins de 5kg en 2001, ce qui rend le marché algérien porteur, et a conduit en effet à l'accroissement du nombre d'intervenants et par conséquent, l'amplification de l'intensité concurrentielle.
- l'arrivée des firmes multinationales (l'implantation de groupe français Danone en Algérie en 2001 via une alliance avec une entreprise locale « Djurdjura », Yoplait via une franchise) a poussé le reste des entreprises privées, celles qui ont gardé la propriété familiale (Soummam, Hodna, Trèfle….etc.), de renforcer leur position compétitive en fournissant davantage d'efforts dans la communication et la segmentation fine des produits à travers l'innovation.

Tous ces facteurs ont créé plusieurs changements dans le secteur ce qui explique la forte tension concurrentielle et la rivalité inédite sur le secteur. A cet effet, ce constat place toutes les firmes dans le secteur dans l'obligation d'innover en permanence afin de créer la perturbation et le changement à leur avantage sous peine de se voir dépassées par la concurrence rude qui règne au sein de cette industrie. Le Directeur Commercial de Ramdy évoque cette réalité : *« L'intensité de la concurrence est très forte, elle sera plus forte durant les temps à venir ».*

Perturbation innovatrice et agressivité

Le secteur des PLF en Algérie est composé de quelques firmes de renom qui dominent le segment du yaourt. Le traitement des données démontre que le leader du marché est très agressif, car c'est lui qui a initié plusieurs actions radicales dans le secteur. Il a créé l'évènement concurrentiel (Ilinitchet al., 1996) choisissant l'axe de la modification conséquente de la valeur (c'est le premier qui a introduit le yaourt au 'gingembre', à la 'mandarine', ou encore à la 'noix de coco', 'aux biscuits'. Même en terme de design des pots, c'est le premier au niveau national qui a fait des 'pots noirs', dans le but d'attirer la curiosité des consommateurs). Grâce à cette politique stratégique initiative, Soummam a créé l'instabilité (D'Aveni, 1994) et par conséquent, il s'est emparé d'une très large gamme de produits exclusivement à lui. Il a

bénéficié ainsi, du « first mover advantage » (Makadok, 1998) et devenue la référence dans le marché de yaourt en pot.
Dans la mesure où les choix stratégiques du leader affectent l'ensemble des acteurs, toutes les entreprises dans l'industrie des PLF se trouvaient dans l'obligation de suivre le rythme d'agressivité et de rivalité. Le Cogérant de Ramdy, témoigne en ces termes : *« On est devant un géant, on doit suivre le rythme de Soummam et évoluer »*.

En effet, il ressort de notre recherche empirique que, DDA, Hodna et Ramdy ont toutes mené des attitudes agressives via des perturbations innovatrices. Premièrement, par rapport à DDA, d'après notre analyse, elle a fait émerger une nouvelle piste stratégique, en créant le segment du bifidus, prenant l'initiative de lancer pour la première fois en Algérie « l'Activia ». Suite à cette modification radicale de la valeur, DDA en tant que challenger a bousculé la domination qui régnait au sein du secteur en imposant ses propres règles du jeu, cette dernière étant devenue leader dans ce segment depuis 2004 à ce jour (Baden-Fuller et Stopford, 1994), elle en est à 95% de parts du marché. Ce produit est classé le premier en termes de vente avec plus de 3 milliards de dinars par rapport aux autres produits. À cette première série d'actions agressives s'ajoute une autre initiative nationale, cette fois concernant la variable commerciale. DDA a perturbé les règles du jeu concurrentiel à son avantage grâce à la modification radicale de sa chaîne de valeurs choisissant le maillon de commercialisation et de distribution comme une nouvelle piste concurrentielle. Elle a réussi à créer un déséquilibre en rationalisant ses ressources commerciales (Soummam utilise le triple de ce qu'utilise DDA). Ainsi, malgré que Soummam les dépasse de loin en termes de gamme de produit (36 références contre 8 références seulement de DDA), elle est parvenue à créer une symétrie en termes de présence sur les principales wilayas entre ses produits et les produits du leader. Cette perturbation innovatrice a permis à DDA d'être leader sur les grandes villes à 80%-90% de ses marques (Hamel and Prahalad, 1994). Le Responsable de Département Analyse des Ventes de DDA atteste par ces propos : *« On a la plus grande maîtrise de distribution sur le marché […]. C'est pour ça, je peux me permettre de dire qu'on est leader»*.

Secondement, Hodna-lait a su se démarquer des autres concurrents en choisissant le secteur du yaourt à boire comme un nouvel espace, prenant l'initiative d'introduire une nouvelle variable dans le jeu concurrentiel par la mise en œuvre sur le marché des yaourts à boire 100% lait cru, alors que les rivaux le font à base de lait en poudre (Sachant que tous les PLF en Algérie se préparent à base de lait de poudre). Malgré qu'elle est récente dans le marché, cette action agressive complètement originale en termes de proposition de valeur, lui a permis de faire face aux grands comme Soummam ou Trèfle qui sont plus anciens qu'elle dans ce segment. Suite à cette perturbatrice innovatrice, Hodna a bénéficié d'une préemption du marché (Lee et al., 2000), elle est actuellement à 80% de parts de marché au niveau national. Le Directeur de Production de Hodna lait affirme que : *«On est leader sur le territoire national, par ce qu'on avait un produit à base de lait de vache»*.

Troisièmement, Ramdy est le deuxième nouvel entrant, qui a réussi à pénétrer dans le marché du yaourt, il a choisi de se différencier à travers un comportement agressif vis-à-vis de la concurrence, en prenant une piste concurrentielle inexploitée à travers une proposition radicale de valeur via la production des yaourts en pot à base de lait (Baden-Fuller et Stopford, 1994 ; Kim et Mauborgne, 2005), alors que les autres acteurs font la spécialité laitière (c'est la substitution d'une partie de la poudre de lait par l'amidon, par conséquent, le produit perd sa valeur nutritive en calcium). Comme implication à cette perturbation innovatrice, Ramdy a bouleversé l'ordre établi en créant un nouveau segment où elle est la seule entreprise, sur le territoire national, qui fait du yaourt aux fruits et le yaourt mini-prix , ce qui lui a permis de bénéficier d'une régénération de l'activité et une extension du marché potentiel du yaourt en pot (Barker, 1992) traduit par une hausse de la rentabilité globale de l'activité engendrant à son avantage une augmentation de rendement avoisinant un taux d'évolution de 1219% pour l'année 2014 par rapport à 2009, et du coup, elle est devenue une référence du yaourt naturel au niveau national.

Enfin, le cas de Trèfle nous permettra d'étudier plus finement l'impact de l'absence d'agressivité et de la perturbation innovatrice. Le cas tire sa spécificité du comportement défensif de Trèfle face à la

concurrence. En effet, malgré qu'elle est la plus ancienne entreprise dans le secteur, elle ne prend pas d'initiatives pour innover et perturber le jeu. L'absence de l'agressivité et par conséquent de la perturbation innovatrice a engendré une décroissance totale de l'entreprise. Elle a été l'objet de manœuvres agressives et du coup, elle a perdu sa place de leader, dépassée par des concurrents récents dans le secteur. La rivalité inédite et l'absence de perturbation ont entraîné la disparition de l'opérateur, le début juin 2015, Trèfle a été absorbée par la concurrence, cédant toute l'activité de yaourt au profit de DDA (D'Aveni, 2001). L'agression et la perturbation innovatrice ont permis à Soummam d'être leader et de bénéficier d'une croissance perpétuelle, réalisant un taux d'évolution annuelle de plus de 15%, et ce, malgré la présence des firmes multinationales dans le secteur. Ainsi, ce comportement a permis aux restes des operateurs de bénéficier d'une croissance considérable en terme d'évolution de bénéfice et de chiffre d'affaire comme ainsi : (DDA : + 1507%, + 70.72% ; Hodna : + 11.14%, + 2134% et Ramdy : + 2468%, + 53969%), par contre l'inertie et l'adoption des attitudes défensives a engendré une détérioration de la croissance pour la firme passive (Trèfle). Ce qui confirme la performance des perturbations innovatrices.

L'objet de la réflexion engagée s'articule autour de la stratégie de perturbation et plus particulièrement en démontrant ses performances comme un choix stratégique indispensable dans un contexte à forte dynamique concurrentielle. Dans cette optique et en observant de façon rétrospective les comportements concurrentiels véhiculés par les operateurs dans le secteur et leurs implications, force est de constater que le la perturbation innovatrice est devenu une option stratégique vital pour les acteurs existants et pour les nouveau entrants. Nos résultats renforcent donc l'idée selon laquelle les acteurs ont intérêt à prendre part de façon active à la transgression des règles du jeu concurrentiel et des référents qui y sont associés (Chen et Miller, 1994). La quête de l'inertie, prescrite par Porter (1980), se trouve ici quelque peu contestée par les comportements des opérateurs au cours de la période étudiée.
Ce constat, nous amène a avancé au sens de D'Aveni (1994, 2001) , Le Roy (1998), que, qu'il s'agisse d'une firme déjà installée dans le marché ou nouvel entrant, dans un univers où la dynamique concurrentielle est forte et d'une incertitude intense, un comportement d'initiation des actions concurrentielles et des attitudes perturbatrices du statu quo sont des démarches stratégiques performantes pour tous les acteurs, car c'est le seul moyen qui leur garantit la survie et la croissance qu'ils ont cherché ou recherchent encore. Le tableau III illustre les fondements de la perturbation innovatrice ainsi que ses implications pour les 5 études de cas.

Conclusion

L'objet de cette recherche résidait dans la volonté d'approfondir la connaissance sur la stratégie de la perturbation innovatrice et d'apporter des éclairages concrets sur la mise en œuvre et les clés de réussite. Une approche théorique principale a été mobilisée : le courant de la dynamique concurrentielle *(« competitive dynamics »* Baum et Korn, 1996; Chen et Miller, 1994; Bensebaa, 2000 ; Lee et al. 2000; Young et al., 2000).
Dans cette logique, nous nous sommes intéressés plus précisément aux comportements stratégiques dans le secteur des PLF en Algérie. En effet, ce contexte concurrentiel a connu la multiplicité des entreprises, qu'elles soient nationales ou multinationales, ce qui a conduit à la croissance du niveau de rivalité, d'où l'apparition des perturbations innovatrices des règles du jeu concurrentiel. L'étude longitudinale menée au niveau de ce secteur entre 1996 et 2015 offre deux apports principaux :

- Premièrement, l'intensification de la concurrence conduit les entreprises à la redéfinition du statu quo, et ce choix stratégique s'impose à toutes les entreprises. De ce point de vue, la perturbation innovatrice, qui s'inscrit dans cette vision, constitue une source de l'avantage concurrentiel. A posteriori, d'abord la performance des 4 opérateurs agressifs dont Soummam, DDA, Hodna et Ramdy, au cours de la séquence, s'explique par l'adoption de ce comportement, ce qui a permis même à ces acteurs d'être leaders dans le segment où la perturbation a eu lieu. En outre, la décroissance de l'acteur passif, à l'image de Trèfle, qui a préféré l'inertie a eu comme effet

l'absorption par la concurrence et la disparition du secteur en dépit de sa position de précurseur dans la production nationale du yaourt.

- Deuxièmement, le point de départ de notre recherche consistait à mieux comprendre la perturbation innovatrice. Définie comme une nouvelle initiative stratégique qui repose ici sur deux sources principales : modification radicale de la valeur et/ou de l'architecture de valeur, qui sert à construire un nouveau business model à travers la création d'un nouvel espace stratégique. Cette stratégie relève, en effet, d'un intérêt majeur, que ce soit pour les acteurs existants comme le cas de Soummam et DDA ou pour les nouveaux acteurs à l'instar de Ramdy et Hodna si nous considérons les gains enregistrés pour les deux types d'acteurs.

Les résultats obtenus ne peuvent être compris que relativement aux limites de l'étude. Cette recherche possède certaines limites inhérentes au caractère empirique de notre recherche. La première limite s'apparente au secteur, les PLF, bien qu'il apparaisse comme un champ d'étude correspondant parfaitement à la problématique et à l'objectif de notre recherche, il nous paraît souhaitable d'entreprendre une étude comparative avec le même secteur d'un autre pays. L'introduction d'une analyse de même secteur d'un pays étranger permettrait de généraliser les résultats de notre recherche. La seconde limite a trait au fait que notre recherche s'appuie uniquement sur les informations recueillies auprès des responsables de chaque entreprise. Or, la prise en considération des points de vue d'autres acteurs externes dont les distributeurs, les grossistes et les superviseurs consoliderait certainement nos résultats. Comme nous ne pouvons pas éliminer ce biais potentiel, de futures recherches seraient susceptibles d'accroître la diversité des points de vue. En définitive, la recherche sur la dynamique concurrentielle et la perturbation innovatrice étant nouvelle, elle demeure largement au stade exploratoire. Elle ouvre la voie à d'autres travaux sur une échelle plus large et des moyens plus élaborés.

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Accounting for Lease: History, Development and Challenges

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Abstract

In this paper, we will focus on the study of features accounting leases in economically developed countries. We will examine the problem of definition in the accounting legislation such categories as financial and operational leasing. The logic of this division is considered, explanations for criteria of financial lease are offered. We will study the prospects for change in the current accounting legislation on lease in internationally recognized financial statement's formats. The need for these changes is dictated by the project of convergence of accounting systems, currently being implemented under the auspices of the International Federation of Accountants (IFAC). In this case different ways of the decision of the specified problems are offered. We will show the accounting lease evolution from US Accounting Research bulletins in 1930s to new International Financial Reporting Standard 16 Leases, which was adopted in January 2016.

Key words: corporate reporting, professional accounting institutions, leasing, financial lease, operational lease, IFRS, GAAP, comparability

Introduction

Lease (leasing) operations gained enough widespread in modern business. Despite the seeming simplicity of these operations, it is impossible not to note the existence of a large complex of methodological problems in the field of interpretation, classification and accounting for lease transactions. In particular, in the decades before the scientific and professional communities was relatively easy task of correlating real economic essence of rent with its formalized representation in civil legislation. Of course, a peculiar leader in the development of accounting support of lease transactions were and are the American scientific community and the business environment. Their experience in the field of interpretation and lease accounting are widely recognized throughout the world; moreover, the American experts formulated the ideas and principles of lease accounting which served as a methodological basis for the development of appropriate standards used in international practice. Of course, in many respects, this fact was dictated by the certain that the US rental service is the most developed and powerful in the world in every way, but we must also note about deeply-developed system of methodological support of leasing operations in American accounting legislation. In this article we will discuss the development of complex accounting software of rentals in the US, and later in the world.

Accounting lease legislation has always been a certain contentious issues in accounting and financial practices of different countries. Discussions were subjected to classification of leases and their symptoms, the reflection of different types of leases in the accounting, methods of correlation approaches in the treatment of domestic and international recognition of the lease (in particular with the approaches, adopted International financial reporting standards (IFRS) or generally accepted accounting principles (GAAP)). In particular, as a general rule, ownership was a defining feature in the recognition of an asset in the balance sheet. In this regard, the leased property should be taken into account on the balance sheet of the owner, ie the lessor. But now if we turn to the practice of current IFRS, we see another fundamental approach in the recognition of assets – asset is a resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity.

Despite the apparent variety, accounting standards in most countries with certain reservations identified two broad categories of rent – financial and operating leases. Accounting problems in the area of rental operations arise primarily from a financial lease. Currently, a single, universal set of criteria for the classification of lease transactions in the global accounting practice does not exist.

Blake, Amat (1993) concludes that each country with national accounting legislation treats different classification features leases, but in general, if we look at the regulators devoted to rent, we can identify a definite trend. Its essence lies in the fact that the classification of the lease is necessary to take into account the economic content of the certain operation. Under normal operation the lease can be understood, when the owner, for any reason, does not use his existing property, and therefore prefers to give it out to get at least some benefit, and (or) at least partially recoup their investment costs. Background finance lease is different - it's more targeted investment and the operation of a financial nature.

In general we can say that a finance lease is defined as a form of financing of asset's acquisition by the lessee, i.e. the so-called «hidden purchase» when the tenant is not formally being the owner of the property during its lifetime, using the property for its own purposes, offsetting the cost of payments to the lessor the leased object (Lewis, Pendrill, 2004, p.216).

The study used a range of scientific methods (observation, comparison, grouping, abstraction, analysis and synthesis, induction and deduction, historical and logical methods).

The history of the accounting lease legislation

Looking in retrospect the evolution of accounting legislation on rent, it should be noted that much of the ideologists of modern interpretations of the lease in terms of its classification and accounting were American scholars and practitioners. They justified the logic of allocating financial and operating leases, and that their achievements have been used in the development of International accounting standard (IAS 17, Leases).

The starting point in the interpretation of the logic of lease transactions is to understand the principles of construction of balance sheet. There are two alternatives for the formation of an asset: (a) the ownership of the property (balance sheet reflects only those assets, ownership of which belongs to the economic entity) and (b) control function (balance sheet reflects the resources controlled by an entity which has revenues on their use, although it has no right of ownership to them). Historically dominated the first variant. In some countries (such as the Soviet Union and, until recently, Russia) ownership is a determinant in the choice of balance. Causes of this approach have been described in detail in the study Sokolov, Kovalev (1996). In the 30-ies. the last century due to the expansion and re-interpretation of the practice of business operations, it became a subject to criticism in the American financial environment. In 1938, the US accounting legislation[1] mentioned capitalization object rent tenant reported (IASB, 2007, p.2). It certainly was not any rental transactions, but only on long-term contracts. The Bulletin ARB 38 mentioned the desirability of disclosure obligations of the lessee for long term rentals over the life of the transaction. It was assumed that the tenant can do this in a fairly arbitrary manner.

In the mid-60s. twentieth century US lease transactions received peculiar rebirth. From the standpoint of the lessor's lease was perceived not as a kind of compulsory measure (the property is rented, because I did not find the proper application of the owner), but as a deliberate business activities for the purchase of property and renting it. From the perspective of the tenant lease transactions began to be viewed as a long-term source of funding on a par with bonds.

It was at this time when in professional accounting and financial community began to talk about the issue of so-called transactions "off-balance sheet financing», when firms instead of buying assets prefer to take them in rent (Zeff, 1999, p. 9). Recommendations for reflection tenant lease obligations are not always respected, in addition, firms often veil the real terms of the lease of succes-

[1] For 20 years (from 1938 to 1959) Special Committee on Accounting Procedure of the American Institute of Accountants (AIA) released the so-called Accounting Research Bulletin (ARB), dedicated to the various accounting matters. With some degree of conditionality, these papers can be considered prototypes of modern accounting standards. To rent was devoted to ARB 38 «Disclosure of long-term lease contracts in the lessee's financial statements». Learn more about professional associations practicing accountants in the United States in The History of Accounting (1996).

sive short-term contracts. In 1962, the American Institute of Certified Public Accountants (AICPA) published a study in which on the basis of information about the market of leased assets for the first time noted the need to consider all of the leased property to the lessee's balance sheet, regardless of the terms of the transaction (IASB, 2007, p. 9). Directly by the author of this research material was professor John Mayers[2]. It is obvious that there are no mandatory guidelines of this study, but it is actually anticipated the current trend in the change of regulators rental - the need for full disclosure of all liabilities and controlled assets, implying a capitalization of the leased object.

In the following discussion regarding the classification and accounting for lease transactions in American professional community has been reduced to the delimitation of lease transactions into two groups - the financial and operating. For the first time the need to introduce specific criteria by which one can identify a finance lease, spoke at the end of the 60s. In 1972, the Board of Accounting Principles (APB) AICPA[3] has issued a special report-study (Opinion[4]) № 27 «Accounting for Lease Transactions by Manufacturer or Dealer Lessors», in which these criteria were formulated. In general terms, they are almost identical to the existing criteria as the current system US GAAP, as well as in IFRS.

The process of obtaining US accounting regulators lease was logically completed in 1975, when the Financial Accounting Standards Board (FASB) has issued a draft accounting standard on leases, which in general, and was put into effect in 1976 under the name of SFAS 13 (Accounting for Lease, Statement of Financial Accounting Standard 13). Developments of American professional accounting community have been used in the international practice. In October 1980 the International Accounting Standards Committee (IASC[5]) issued a preliminary document for discussion dedicated to the interpretation and integration of lease transactions, which largely repeated the American standard. For two years (1981 and 1982) in the professional community was a process of discussion of this document[6], and finally, in 1982, was published the final version of IAS 17 Accounting for Leases. The standard was put into effect on January 1, 1984. In 1997 a new version of the standard with a slightly modified name of IAS 17 Leases.

Total beginning from 40-ies of the last century in the US, and subsequently the international accounting environment were released about 50 of various regulators (standards, projects, papers, research reports, etc.) directly or indirectly to the accounting of lease operations. The table below reflects only some of the most important documents, and a complete list can be found in Dye, Glover and Sunder (2015).

[2] Professor John Myers has taught at Northwestern University in Illinois, and has been a practicing accountant and auditor in the company «Arthur Andersen». Professor Myers died in 1993 at age 78.

[3] Board lasted until 1973, when its functions were transferred to the Financial Accounting Standards Board (FASB).

[4] The literal translation into other languages of the document – «opinion» should not confuse the reader. Appearing in the American system of accounting professional institutions are not vested with authority. Produced documents they are advisory, but their appearance is usually preceded by an active discussion in the scientific community and the business environment. Therefore, under the vague term "opinion" actually refers to some advice on accounting, which adopted major players in the business. Of course, each company in principle is not obliged to follow them, but it was the fact that most companies perform these recommendations contributes to the dissemination and implementation of the provisions set forth in these documents.

[5] In 2001 the Committee was renamed the International Accounting Standards Board (IASB).

[6] The procedure for the adoption of accounting standards in the US and international accounting practices, is fundamentally different from the corresponding procedures in the countries of the so-called continental accounting. Professional accounting institutes publish preliminary versions of the standards, and then for some time, collect all comments and corrections to them, to continue to take some revised versions, often by voting members of the Committees of the procedure.

Table 1: Lease accounting standards

Year	Author	Doc	Title
1966	APB	APB Opinion 7	Accounting for Leases in Financial statements of Lessors
1972	APB	APB Opinion 27	Accounting for Lease Transactions by Manufacturer or Dealer Lessors
1973	SEC	ASR 132	Reporting of Leases in Financial Statements of Lessees
1973	SEC	ASR 141	Interpretations and Minor Amendments Applicable to Certain Revisions of Regulation S-X
1973	APB	APB Opinion 31	Disclosure of Lease Commitments by Lessees
1978	FASB	FASB Interpretation 21	Accounting for Leases in a Business Combination
1978	FASB	FASB Interpretation 23	Leases of Certain Property Owned by a Government Unit or Authority
1978	FASB	FASB Interpretation 24	Leases Involving only a Part of a Building
1978	FASB	FASB Interpretation 26	Accounting for Purchase of a Leased Asset by the Lessee During the Term of the Lease
1978	FASB	FASB Interpretation 27	Accounting for a Loss on a Sublease
1980	IASC	ED (E19)	Accounting for Leases
1982	IASC	IAS 17	Accounting for Leases
1997	IASC	ED (E56)	Leases
1997	IASC	IAS 17 (revised)	Leases
2003	IASB	IAS 17 (revised)	Leases
2009	FASB/IASB	Discussion Paper	Leases: Preliminary Views
2010 - 2015	FASB/IASB	Proposed Standards Update	Proposed Accounting Standards Update—Leases
2016	IASB	IFRS 16	Leases

These data allow us to get at least a general idea of the efforts that have been made to create a regulatory and methodological support, at first glance, is not the most technically complicated operation such as the operation of the lease. An analysis of documents shows the existed in the US and international accounting practice, the trend aimed at raising awareness of external users of financial statements with respect to the participants of the lease. All the proposed changes, one way or another, affect and touch-sensitive liabilities reflect tenant when renting, which obviously fits into the general trend of change in the target destination of Accounting and Reporting, namely, the transition from the control and analytical accounting functions to information and communication.

Comparative analysis of financial and operating leases in accounting

It should be noted that an international approach to the classification and accounting of lease transactions, which in a sense is expressed in IFRS always kept separate mention of the lease, in particular, it has been subject of a separate accounting standard (first accounting standard about lease in IFRS has been introduced from 1 January 1984). To determine the financial lease in IFRS take into account the distribution of risks in the lease transaction, a finance lease is recognized, provided that

the agreement transfer substantially all the risks and rewards associated with ownership of an asset from the lessor to the lessee (Iasplus.com, 2016).

As already mentioned finance lease is defined as a form of financing of acquisition of the asset by the lessee, in particular it can be called «hidden purchase», the tenant, is not formally being the owner of the property during its lifetime using the property for its own purposes, offsetting the cost of payments to the lessor the object of the lease. Of course, the term «hidden purchase» is not quite correct because it does not characterize the entire set of relations that arise between the landlord and the tenant, and, moreover, in a sense, is wrong, because we are not talking about the actual transfer of ownership to the lessee. Nevertheless, it is quite convenient for understanding the current operations.

Interpretations of financial lease in various countries may differ significantly from each other. For instance, in US GAAP finance lease is divided into two types - direct finance lease and sales-type lease. Direct financing lease is an agreement when the future tenant needs some property, but does not have to purchase its free financial resources or do not wish to purchase it at any other reason. Then he finds a specialized leasing company, which according to his application to acquire ownership of the property, and then transmits it to the temporary possession and use of the lessee for a fee. In this situation, we have a particular transaction which involves three parties: the seller of the property, the buyer-lessor and the lessee. Potential tenant wants to get a property from a particular seller, and contract with a specialized leasing company which acquires the property and leases it. In this transaction leasing company generates revenue from the lease of property.

If a potential lessor is also the seller of the property, the transaction is called sales-type lease. It involves two participants - manufacturer or seller of the property (lessor) and lessee. In this transaction seller's revenues consist of income from the sale of the leased object (book value) and rental income. More information about direct financial lease can be found in (Welsh, Zlatkovich, 1989, p.1052).

If we turn to the IFRS we do not find there such detailed classification of financial lease (direct financing and sales-type), although the principles of rent division into financial and operational in IFRS and GAAP are the same. Detailed comparison between approaches in accounting for the lease in accordance with GAAP and IFRS can be found in (Bloomer, 1996, pp.237-258).

Thus, based on the separation of transactions on the financial and operating lease is, above all, the risk category in relation to the subject of the lease. In fact, if the lease agreement allows us to speak about the transfer of all of the benefits and risks of the use and possession of property of the other party, the transaction has features that allow you to bring it out of the category of normal rent.

Formally, having no right of ownership, the owner acts as a kind of «economic owner» of the subject of the transaction. The economic owner is the person that formally has no legal ownership of the asset, but it owns all of the risks and benefits from this asset. The annex to the modern accounting, this situation is entirely subject to the one of the fundamental principles of his – substance over form. On the one hand deal on its face, is the rent and the owner of the leased property is uniquely determined – it is the property owner. On the other hand the economic characteristics or conditions of the agreement are such that it is the tenant has all the benefits of the use of the subject and bears all the risks of ownership.

In practice, the legal owner of the leased property may not even care about the subsequent fate of the legal subject of the lease. For him, the meaning of the transaction is to obtain a distributed time income from the investment in the property. In many ways, this situation with finding new ways to implement began to develop when the manufacturing companies of any property had difficulty selling their products (meaning no raw materials, and objects relating accordance with the accounting classification of the buyer of non-current assets). In addition, the property can be quite costly, which also imposes certain problems in its implementation. In this regard, and there were other types of transactions, implying deferred cash payments, but with the preservation of the manufacturer of the legal control of the realizable property. It is important to understand that a finance lease transaction is

basically just involves the transfer of property to the tenant, but from a legal point of view, it is not considered a sale. Nevertheless, the economic substance of the transaction is to compensate the owner of the entire value of the property and the payment of certain lease fee for the temporary installment payments. In a sense, this deal is very similar to the implementation of any object by installments, with the only difference being that the title to a certain time is not passed on to some reasons.

Definition of financial lease's liabilities

In addition to defining the phenomenon of a finance lease, we must also try to bring his assessment, i.e. identify a set of criteria to separate a specific economic situation of finance lease transaction. Currently single, absolutely identical number of criteria for the classification of lease transactions in the global accounting practice does not exist, however, is basically the criteria set forth in the IFRS that best define the key points of discharge operations finance leases. The logic of occurrence of each criterion is well considered in the modern scientific and educational literature (e.g. (Kieso, Weygandt and Warfield, 2011, pp.1121-1122)), so just concentrate on the key factor classification.

Fundamentally, from an economic point of view, all the criteria are general aggravating circumstances – in fact there is a veil the implementation of the leased property to the lessee, in particular, the amount received by the lessor from the lease of property, at least comparable to (or more likely, greater than) the sum of the costs lessor's acquisition or creation of the said property. Legally, an indication of the implementation, of course, cannot be spelled out in the lease agreement, as this will immediately change the actual definition of the contract. In addition, one of the aggravating circumstances of a finance lease in accordance with IFRS for the transfer of ownership at the end of the transaction, from a formal point of view, does not mention anything about the economic underpinnings of the operation. However, under conditions of freedom of contract and taking into account transactions of a commercial nature transfer of ownership of property in the general order must be accompanied by a certain cash flow yield in excess of the company's expenses related to the emergence of the object on the balance sheet. Of course, in the presence of affiliated parties in the transaction, this rule may be waived, however, civil law does not accidentally contain sufficiently clear guidance on the need to respect the principle of commercial entities in the relationship.

Currently, the professional accounting community discusses recycling provisions of IFRS 17 «Accounting for Lease» (e.g. Lease accounting, 2013). Existed for a long time division rent into financial and operating was also accompanied by clear instructions regarding the balance sheet the leased property (under finance leases – lessee, when operating – the landlord), as well as in the methods of revenue recognition in the case of a finance lease (use discounting mechanism for determining the value revenue in each period). It should be noted that virtually all of the problems of delineation and lease accounting emerged from the discussion on the following key issues – and whether the lessee's balance sheet to reflect the full amount of its obligations under the lease.

Possible changes in accounting for financial leases

Formal consideration of the object of rent for the balance of the tenant may run counter to the economic substance of the transaction, as to some extent hides the actual level of the financial company's dependence on foreign investors. This technique veiling the real financial situation is very actively used by many companies: they provide to its shareholders and potential investors balances with very satisfactory structure of sources of funds, but the actual level of financial dependence could be quite high, if not critical. In many countries, such practices are not excluded, and still. Demonstration of the reality of the level of financial dependence is important, not from the position of the anchor is to lease transactions, but, above all, from the perspective of the feasibility of fiscal policy as a whole, since, for example, any operation to attract long-term funding sources (issue of shares, obtaining long-term loan or banking loan) obviously directly linked to the actual capital structure.

It is in order to eliminate such misunderstandings and reflection lease transactions in accordance with their economic nature of the accounting standards of most countries has been fixed capitalization requirement under finance leases by the lessee (i.e., the reflection on the balance sheet), and one way or another have been identified a situation where the rental transaction is treated as a finance lease. However, to completely eliminate these contradictions are not managed, many companies continue to execute and execute leases as operating lease transactions. *The current international account-*

ing practice is actually moving to ensure that recognize the need to completely abandon the possibility of taking into account the subject of a long-term lease on the balance sheet of the owner – the property owner. This trend is entirely fit into the mainstream ideology of IFRS on the recognition of assets, only on the right of control, and leveling civil features of their selection. Currently, the IASB and FASB, engaged in the process of convergence of IFRS and GAAP models, noted the need to take into account all obligations under leases the tenant in the balance sheet (actually this is the capitalization of the leased item is taken into account).

Division rental types, methods of accounting interest income, depreciation methods, and so on, of course, will be important in accounting practice. However, the basic framework of the essential records of lease agreements - common approach to the identification of assets and liabilities of parties to the transaction when renting (capitalization of the leased asset by the lessee with the relevant disclosure obligations in liabilities is precisely the core logic of the last professional discussion (rental in IFRS and GAAP).

However, the availability of sufficiently defined criteria division leases does not contribute to the full resolution of conflicts in terms of accounting. Analyzing the evolution of accounting regulators for lease in the 30-s of the last century, it is easy to discern trends in the adoption of a number of key changes. Innovations in the area of trying to take in order to demonstrate to the statements of the tenant leased assets and associated liabilities. The key idea is to accept the changes - the company must show the actual financing of their activities, and public reporting should contain a list of all the resources that are controlled by the company. Implementation in the US in the lease accounting standard with the system criteria for its division seemed theorists and practitioners of accounting sufficient condition for the correct reporting of assets and liabilities on the basis of their economic nature.

Nevertheless, the international accounting practices in in 80-90th years of the last century showed that the question of veiling the financial situation of the tenant has not been resolved, and the recognition and consolidation of the part of the lease transactions of the term "financial" was actually a kind of palliative measure. We cannot exclude the existence of a bona fide nature of certain financial conflicts (hardly justified and appropriate to assume that absolutely all the companies are trying to hide the amount of liabilities and all assets related to finance leases, include operating lease). Many companies continue to execute and execute transactions on operating leases are entirely legitimate, but a comparison of the extent of different types of lease allows you to doubt the correctness of the current delimitation. For example, in a research report IFRS in August 2014 was given an interesting statistic. In particular, one of the UK's largest retailers, the company «Woolworths» (UK) for the last 5 years has taken operating leases property in the amount of $ 2.4 billion. While its balance sheet was reflected in the average debt for lease totaling 147 million dollars (Project Update: Leases, 2014). Moreover, the reader can find many examples of such "disparities" in the absolute numbers of transactions of financial and operating leases. For example, in the annual report of the company «Royal Dutch Shell» for 2014 is available for information on obligations under finance leases and operating leases, which are, respectively, 6.7 and 31.1 billion dollars. (Royal Dutch Shell, 2014). With regard to the present situation of the management of the company «Royal Dutch Shell» considered it necessary to reflect in its annual report information on operating lease, which is not always revealed, even very large public companies.

In connection with the collision in the international accounting community has repeatedly raised on the adjustment of the existing order of lease accounting. The beginning of this process was, of course, in the works of a number of scholars and practitioners in the field of accounting and analysis. In particular, in the 90s of the last century some American financial analysts have expressed the need for capitalization of the leased asset and demonstrate all the obligations of the tenant under lease to increase the reliability of financial reporting (e.g. Knutson, 1993 and McGregor, 1996).

The debate in the scientific and professional accounting environment in the 90s led to increasingly strengthens the position of the supporters of a complete renunciation of the possibility of taking

into account the subject of the lease on the balance sheet of the owner[7]. Currently, IASB and FASB, working together to implement the process of convergence of accounting models specified by IFRS and GAAP, noted the need to reflect all lease obligations on the balance sheet of the lessee. Moreover, in the release of a new standard on lease, the tenant is called directly by the buyer, the seller and the lessor, highlighting the obvious similarities of economic processes in renting and buying and selling.

Said process of change in the current rules of accounting of lease operations actually started in 2006 when the IASB and FASB announced the launch of a joint project to improve the accounting of lease operations. As follows from the teaching materials IFRS, initially it was only a cosmetic change in the standard IAS 17, but over time the developers started to talk about fundamental change in the classification and the accounting for leases. In particular, in May 2013 IASB published the first systematic list of changes that are planned to be implemented in the new version of the standard (Exposure Draft, 2013). The following year, in March 2014, was released a new version of a number of changes based on comments received to the address of the business environment and the scientific community. Finally, in February 2015 it released the latest version to date of planned change (but still not the standard!) (Project Update: Leases, 2015), and in October 2015 a special newsletter dedicated to the terminology used in rental operations (glossary) (Project Update Definition, 2015). Finally, in January, 13, 2016 IASB announced and issued a new accounting standard, called IFRS 16 Leases. It replaces accounting requirements introduced more than 30 years ago that are no longer considered fit for purpose and is a major revision of the way in which companies account for leases. The mainstream of the standard is the capitalization of the leased property by the tenant.

Conclusion

It should be noted that in some countries (e.g. Russia) lease transactions accounting procedures were radically different from the IFRS standards. The reasons for these discrepancies are described in detail in Kovalev (2014). However, it is necessary to articulate a very optimistic development trend of the russian system of accounting legislation. Even very conservative accounting countries adapt their national accounting standards in accordance with the provisions of IFRS. More details of this trend are described in Generalova N, Soboleva G, Sokolova N. (2015). Draft of the new lease standard introduced by the Russian Ministry of Finance is fully in line with the recent discussion between the International Accounting Standards Board and the Financial Accounting Standards Board (USA).

Discussion only the order is subject to cancellation of the leased item, i.e. in a certain sense, the technical issues associated with the definition of depreciation methods. The adoption of these changes actually lead to the fact that the issues of division of financial and operating leases in this way lose their exclusive urgency – *any subject of the lease the tenant and the respective obligations under the contract should be reflected in the lessee's balance sheet.* Selected issues relating to methods of charging depreciation improper tenant property, the procedure for determining interest income, etc., will undoubtedly be differentiated according to the terms of the contract. However, there is a substantial reform of the entire system of accounting for lease. The core design innovations – a capitalization of the leased property at the tenant. The adoption of these provisions is aimed at increasing the reliability of the reporting of assets and liabilities in the financial statements of the company. The changes in new lease legislation were announced in 2014 (Project Update, 2014) and final version of the standard IFRS 16 Leases was presented in January 2016. IFRS 16 is effective from 1 January 2019.

[7] It may be noted a certain vision of American researchers in the 60s of the last century (we are talking about the already mentioned work of Professor John. Myers) in respect of the lease. In particular, one of the arguments capitalization is the following fact: the existence of any separation criteria rent financial and operating company will provoke any legal ways to circumvent these restrictions for a certain veiling their obligations. The capitalization of the leased property by the lessee is the only possible way out of this situation.

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Owner Family: Critical Success Factor for the Success of Business Succession in Family Owned Companies

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Abstract

The foremost purpose of this research was to evaluate the level of influence coming from owner family on business succession processes in various successor modes. The targeted population was selected were the successors of family owned businesses that contain between 50 and 149 employees and who were involved in a business succession process within the last 10 years. Sample units were selected through simple random sampling method and consist of 128 units. The main data collection modes were a structured research questionnaire mail-out, and also in-depth discussions held on successors. All factors have a positive relationship to Initial satisfaction in Business Succession Process. However, the relatively important factor is family harmony. When succession is conducted with family member successors, the most important factor for success is family harmony. In practice business succession process encourages stakeholders to work for higher levels of satisfaction for the successor. Furthermore, the study recognizes Unrelated Manager Successor as a suitable alternative succession mode for family owned business.

Keywords: Owner Family, Business Succession, Satisfaction, business Performance

Background of the Study

When the incumbent is getting close to retirement, the Family Owned Business (FOB) and the owner-family is in a dilemma about the new successor appointment, and the success after the new appointment. If this process fails, that occurs just occasionally, it is the biggest loss in the entire life of the business entity. It is clearly not a regular incident in these generic types of businesses. Succession in FOB usually means one generation handing management to the next generation.

If one or few families have the majority of ownership and the controlling power of the company, then simply it can be identified as a FOB (Shanker and Astrachan,1996). Astrachan et al (2002) developed a new model for assessing to what extent family influence has on business organizations, using three dimensional powers, experience, and culture. Klein et al (2005), developed another scale named “F-PEC” to measure family influence on power, experience, and culture within a firm. Chrisman et al (2003), defined FOBs based on “familiness” which is current and next generation business control of a firm. Carsrud (1994), defined FOBs as when “A firm’s ownership and policymaking are dominated by members of an ‘emotional kinship group’ whether members of that group recognize the fact or not.”

Globally, FOBs are the prevalent form of business organizations, and they represent 60% to 75% of all worldwide enterprises - from the most developed countries to developing countries. However according to Ward (1987); Davis and Harveston (1998); and Kets de Vries (1993) “only 30% of FOB survive into the second generation, and 15% survive into the third generation.” As per Miller et al (2003) poor Business Succession Process (BSP) is the central cause for this and factor behind this failure is stakeholders influence is one of the factor to the unsuccessful BSP. Successor, Incumbent and Owner family are the most influential stakeholders for the succession process (De Alwis, 2012).

As a group, family members are the most important internal stakeholders in FOBs because the successor must continually deal with families in financial and social transactions (Sharma et al., 2001) throughout succession process and after. Therefore successful continuation of the business, family managers must accept each other's role, and if they reject the successor, it hurts to the entire BSP.

If owner-family act against the BSP, it will block the entire process of the BSP (De Massis et al., 2008; Lansberg, 1983). The challenges running the business for the successor are somewhat complex, especially when family members have different expectations for what they must do for the FOB. For instance, some family members may be directly involved with the FOB, and some not. However, all of them may have hidden or open expectations of goals for the FOB. The worst situation happens when the successor cannot accomplish those expectations from other family members, and then family members will go against the BSP as well as the successor. This encourage to appoint an outsider as a successor. Therefore their commitment, trust and agreement to work is very important for a successful BSP.

Churchill and Hatten, (1987) believed that family harmony helps the succession process be successful because it brings great trust and mutual understanding among participants (Dyer, 1986 and Handler, 1990). Malone (1989) included mutual respect, trust, understanding among family members, and the presence of open lines of communication as the main features to help family harmony. This brings a shared vision for their future (Sharma, 2001).Further, Morris et al. (1997) confirmed that the quality of family relationships is a reliable indicator of whether a BSP will be successful, more reliable than either succession planning or preparing heirs. If there is family disharmony, it will badly affect the business such as discontinuing business involvement, put family stakes into jeopardy, and cause stakeholder powers to be dysfunctional. Those badly affected must still attempt to successfully continue on with the business. If the family chooses not to continue the FOB, the BSP cannot be seen to implement this decision. In some instances, children of the owner do not have any interest to join the FOB due to various reasons because family relationships are complex and people conflict with each other, which then damages the continuity of the business.

According to research findings, FOBs give foremost preference to hand over the business to family members because their ambition is to preserve family company ownership. To achieve this, they transfer management and control to the next generation (Morris et al., 1997; Lansberg, 1999), without considering the level of competence of the successor. The leading argument for this generational succession is the belief that family members can gather social capital, resources and specific knowledge on running the firm in a more efficient and profitable manner (Bjuggren and Sund, 2001). According to Davis et al (1997) "the family successor could perform better than other managers because they are exposed to higher non-monetary rewards associated with the firms' success that other successors do not share." They further argue "to get solid, specific knowledge and high levels of trust from key stakeholders is very difficult to outsiders."

However due to the failures with family successor, BSPs have gone beyond that stage by considering alternative succession modes, not for family control but for the survival of the organization as a FOB. Nelton (1997) expressed that "families are now starting to recognize that it is not the end of the family enterprise if you bring in a non-family executive to lead the firm". In other words, at present there is a trend to be a FOB as a "family owned - non-family managed" model, not as a "family owned-family managed" model. Therefore, the business succession process of FOBs is better defined as "the passing of the leadership baton from the founder/owner or incumbent owner to a competent successor, who will be either a Family Member Successor (FMS) or a non-family Unrelated Manager Successor (UMS) (De Alwis, 2011)."This paper defined FMS as "individuals who have a relationship with the incumbent and family by blood or by law (De Alwis 2012)." In general, the transition will come from generation to generation, but sometimes, due to the unavailability of blood relations; there is consideration given to whether the business should be handed over to more distant, legally

binding relations. Thus, this study considers both types of successors. The adoption of UMS signifies the separation of ownership and control, or at least it dilutes the family control in the actual management of the business. Under these circumstances, the UMS is defined in this paper as "an individual who takes full charge of the day-to-day operations while retreating to the board of directors to assume advisory and supervising duties (De Alwis 2012)."

A successful changeover is extremely dependant on two foremost decisions. The first one is choosing the appropriate successor, and the second one is managing influential factors so as to maximise successor satisfaction because this directly affects PSP of the business unit. Under these circumstances, the author was in a conceptual puzzle: What are the family related factors influencing successful business succession process, and so on. Finally, this motivated the author to conduct empirical study to investigate that question.

Research Problem

As explained previously, BSPs of FOBs have become a serious issue for the longevity of this business entity. Therefore, there is a high tendency among researchers and practitioners to find feasible solutions to this succession issue, however in FOB literature; no one has researched owner family influences under the same conditions with different succession alternatives. This study aims to develop an understanding of this phenomenon, identified in the previous section. Hence, the research problem can be stated as follows:

"What are the influences from owner family members on a successful business succession of a family owned business in generally and under alternative type of succession modes? How is the influence different with each type of succession mode?"
The aim of this study is to examine the influence of owner family member's related factors to the success of the BSP under different succession modes.

Therefore, the objective is:

i. To compare influences from owner family relevant factors of the BSP with different successor modes: family members and non-family unrelated managers.

Study Design

Conceptual framework

This conceptual framework has identified family related factors of the BSP as the independent variables and the Post Succession Business Performance (PSBP) and Initial Satisfaction on Business Succession Process (ISBSP) as dependent variables of the study.

Independent variables

- Family Harmony

The factors carrying a high level of influence on the BSP include family members' commitments to the business (Dyck et al., 2002); their trust in the successor's capabilities (Dyck et al., 2002; Sharma, 1997; Sharma et al., 2001); and their mutual agreement to accept the new successor and continue the business (Sharma et al., 2003). Churchill and Hatten (1987); Dyer (1986); Handler (1990) all identified the combination of these qualities as increasing family harmony, and this generates a shared vision for every participant (Sharma et al., 2001). This study defines family harmony as "the level of trust, commitment to business and mutual agreement among family members." Therefore, this study was measured "family harmony" through three indicators: "trust, commitment to the business", and "mutual agreement."

- Willingness to support succession process

According to Tagiuri and Davis (1992), “an overlapping and interdependent relationship can be seen between the FOB, the owners of the business, and the family that controls the business.” If family members are not committed to the succession, it blocks the opportunity to demonstrate the requisite management abilities of the successor (De Massis et al., 2008). Moreover, most frequently, family members are more willing to offer higher positions to their relatives than to outsiders. In addition, they should be very willing to share their knowledge and portfolio of professional capabilities with relatives. However, in some instances, family members that hold important roles in the company may threaten to leave the company because of dissatisfaction with the selection. Under this background, this study defines family member’s willingness to the successor as “how much family members conform to the selection of the successor” and the study was measured it through two indicators: “sharing knowledge freely among members”, and “continuing the family role of doing business without any disconnection.”

- Family involvement to the management

Generally, the director of the board of any type of company is consisted the owners of the entity. It is not dissimilar with FOBs, and based on the level of ownership, family members take positions on the board of directors. If the business is totally owned by one company, on most occasions, the entire board is represented solely by family members. If a high percentage of family members are in executive positions, they have the power of decision making. In other words, without interference, they can decide the future direction of the company. This study defines family involvement in management as “family member’s active contribution toward decision making”. Therefore this study was measured this through two indicators: “expert evaluation vs. criticism of successor’s decisions”, and “the supportive role of being members of the board”.

Dependent variables

- Satisfaction

There is no definite agreement among researchers about what contributes to the successfulness or effectiveness of BSP in FOB. Some researchers suggest “satisfaction of the BSP from the incumbent, the successor and other family members, as the indicator of the perceived success” (Cabrera-Suárez et al., 2001; Dyer, 1986).Sharma et al.(2003) employed this performance indicator for their research on “predictors of satisfaction with the succession process in family firms.” Under this study framework however, this study has collected data from FOBs who had their BSP within the period from 2000 to 2013.Therefore, it has failed to collect data from incumbents and their family members. Therefore, this study has come to the decision to measure ISBSP of the successors of various business units. This study defines ISBSP as “perceived satisfaction of succession before post succession FOB performance is accurately known.”

- Business Performance

Apart from that, others have used “successors’ ability to keep the FOB healthy” as the measurement to appraise the business unit. Venter et al.(2005) and Sharma and Irving (2005) express the perceived success of the BSP is determined by the extent of satisfaction with the process and continued profitability. This study used Post Succession Business Performance (PSBS) as the second dependent variable. Business performance has several related terms such as business development, and business improvement. Riding (2005) illustrates that business performance can be divided into four categories: financial performance, customer base performance, employee base performance and environmental base performance. Jarvis et al (1996) have revealed in their organizational theories and accounting literature, that profit maximization is the central goal of firms. In that way, some studies have included both objective measures, which are obtained from organizational records (Seashore and Yuchtman, 1967) and

subjective measures, which are perceptions collected from organizational members and stakeholders (Campbell, 1977).

In order to be objective, this study considered financial performance the same as business performance. Furthermore, Zahra (1991) emphasises that growth measures for performance may be more accurate and available than accounting measures of financial performance. Rosemond (n.d) (cited in Etzioni, 1964) has reported that performance should be viewed in relation to one or more goals in an organization, and has suggested percentages to measure performances for businesses. In this context, this author agrees that business performance is a valid indicator for assessing the effectiveness of BSP (Morris et al., 1997; and Goldberg, 1996).Hence, this has been used to compare pre and PSPs of FOBs.

In various literature, relatively few papers endeavour to address this issue empirically, but most attempts focus on the comparison between family and non-family businesses (Daily and Dollinger, 1992) instead of the different modes of successes. Academics and researchers argue that business performance is a multi-dimensional construct (Fitzgerald and Moon, 1996 as cited in Wang et al., 2004).There are two highly recognise business performance modes for the evaluations named: the European Foundation Quality Management model and the American Malcolm Baldrige National Quality Award model. These provide a comprehensive framework that assesses companies directly and compares them with others. However, these two models are only highly appropriate for large-size companies and not medium and small sized organizations (Wang et al., 2004).
Financial outcomes enable managers and business owners to make decisions and plan business development (Jenkins, 1995 as cited in Wang et al., 2004).Financial outcomes are broadly utilized in the SME and entrepreneurship literature (Morris et al., 1997).However, there is broad agreement that no one single financial indicator can accurately and comprehensively capture business performance, particularly in the scope of small firms (Daily and Dollinger, 1992).Taking this into consideration, it is preferable to devise a multiple measure of financial performance and interpret the results based on one indicator in conjunction with other indicators. This study used business performance as a second dependent variable.

There are a number of performance evaluation tools available for profit-oriented organizations. Most of these techniques directly relate to the financial performance of the organization. “Profitability” and “management efficiency” are the indicators commonly used. Return on Equity (ROE), Return on Sales (ROS), Return on Assets (ROA) and Earnings per Share (EPS) are some common examples of profitability indicators. After considering the study population, this study expected to use Average Returns on Assets (ROA) and Average Returns on Sales (ROS).

Handler (1989) and Morris et al. (1997) also mention that “success has two interactive dimensions: satisfaction with the process and the effectiveness of succession.” Chrisman et al.(2005) express the importance of family relations and the effectiveness of the business entity, and they identified two perspectives to measure the success of the process: business performance and family harmony, and named these as “two pillars for family firm performance.” The author agrees with Cabrera-Suarez et al.(2001) ; Dyer (1986); Handler (1990); Morris et al.(1997); Sharma et al.(2001) and they believe that the success of the BSP is defined as “the subsequent positive performance of the firm, the ultimate viability of the business and the satisfaction of stakeholders with the succession process.” At last, a conceptual argument can be brought toward as an interactive relationship between these two dimensions of success in the BSP of FOB. According to Sharma et al.(2001) “…performance may also alter family member’s satisfaction with the succession process even in the absence of any changes in the relationships among family members.”

In order to be subjective, further, this study considered to use a scale to measure successor’s perception about business performance. For that, this study used scale named “the perceived success of the succession process” developed by Venter el al in 2005.

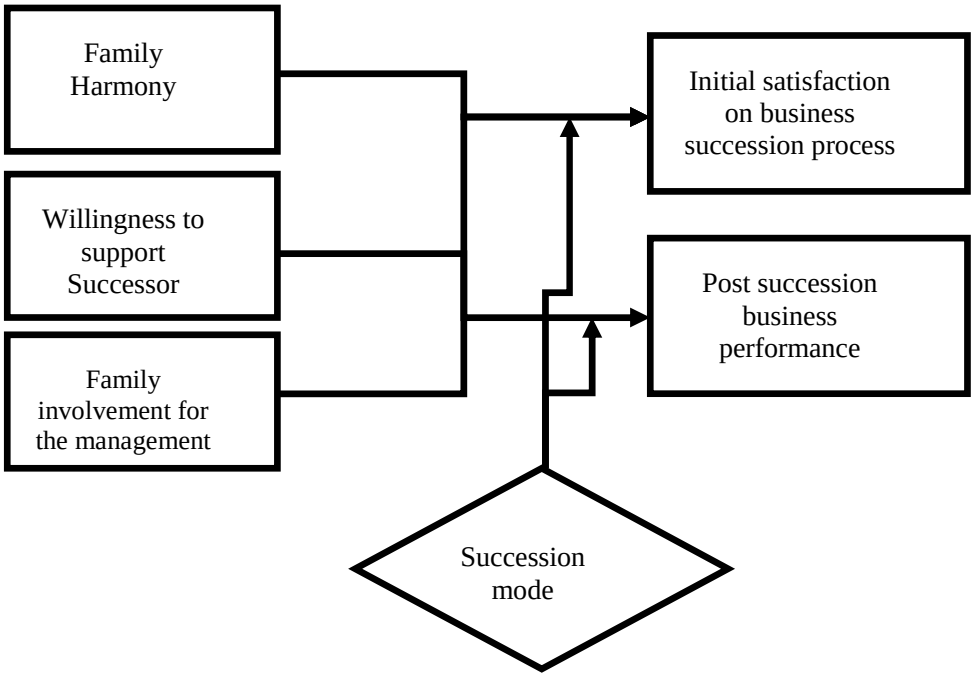

Figure 1: Conceptual framework
Source: Designed by the author based on exploratory study

Hypothesis of the Study

Hypothesis

Alternative hypothesis (H1.a1): Family harmony significantly correlates with the ISBSP.

$$H_{1.a1}: P_{FHAR2SSP} \neq 0$$

Where:

FHAR2SSP = Family harmony influences to the level of initial satisfaction business succession process

Alternative hypothesis (H1.b2): Family harmony significantly correlates with PSBP.

$$H_{1.a2}: P_{FHAR2BP} \neq 0$$

Where:

FHAR2BP = Family harmony influences to the PSBP.

Alternative hypothesis (H2.b1): Family member's willingness to support successors significantly correlate with the ISBSP.

$$H_{2.b1}: P_{FSUP2SSP} \neq 0$$

Where:

FSUP2SSP = Family members' willingness to support the successor influences to the level ISBSP.

Alternative hypothesis (H2.b2): Family members' willingness to support the successor significantly correlates with PSBP.

$$H_{2.b2}: P_{FSUP2BP} \neq 0$$

Where:

FSUP2BP = Family members' willingness to support the successor influences tithe PSBP

Alternative hypothesis (H3.c1): Family involvement in management significantly correlates with the ISBSP.

$$H_{3.c1}: P_{FMGT2SSP} \neq 0$$

Where:

FMGT2SSP = Family involvement in management influences to the level of ISBSP.

Alternative hypothesis (H3.c2): Family involvement in management significantly correlates with the PSBP.

$$H_{3.c2}: P_{FMGT2BP} \neq 0$$

Where:

FMGT2BP = Family involvement in management influences to the PSBP.

Sample Design

This study screened the population of "FOBs that have done their BSP within the period from 2000 to 2010".Under these circumstances it assumes that memories of the BSP are relatively fresh in the minds of the successors and that their responses will be accurate. Due to a national database for screening being unavailable, SME database was used because according to the literature, the majority of SMEs are FOBs (Commission, 2006).Author preferred to use only the "number of employees" for identifying FOB units for their study. According to Sumanasena (n.d) "The most common categorization based on employees in Sri Lanka is 4 to 49 employees for small-scale enterprises, 50 to 149 for medium scale enterprises and more than 149 employees for the large scale."

Thus, for this study, the population is defined based on the following criterion: The sample unit must fit into the aforementioned definition; the SME has had a succession within the period 2007 to 2013; a FMS or an UMS has been appointed to the top executive senior position (CEO/ Chairman).The database managed by the National Chamber of Commerce in Sri Lanka used to distinguish FOBs from SMEs. For selecting sample units, the following procedure has been applied.

A structured research questionnaire that has developed by combining with universal accepted scales and author developed scales. This questionnaire was basically divided into two sections by considering the following objectives: Section 1designed to collect demographic information about FOBs. This section also helped collect data on pre and post business performance. Owner family related factors were measured by the scales originally developed by the author based on the exploratory study. In addition to the financial data, the study used Venter et al.(2005) "the perceived success of the succession process" scales for collecting business performance information subjectively. The original alpha values for this scale was 0.84.Initial satisfaction with the succession process was measured through the scale developed by Sharma et al.(2003). This instrument was constructed by 12 statements which were equally weighted. Every independent variable was also a construct calculated as an equally weighted average of the relevant indicators. The original alpha values for this scale was 0.93.

This study utilized postal and electronic mail surveys simultaneously as the data collation method. The questionnaire was sent with a covering letter and return-paid envelope to ensure it was convenient for the respondents to submit their information. The first reminder was sent three weeks after the initial mailing and the second reminder was sent after six weeks. In addition, selected FOBs were personally visited to some selected FOBs in order to get a deeper understanding about their BSPs.

The Bivariate Pearson correlation was used as the statistical tool for measuring hypotheses 1 to 3.Tests of significance for the first above-mentioned hypotheses developed to understand the nature and relationship either positive (+0.1) or negative (-0.1) between independent variables and dependent variables, those were designed on an interval scale and measured by denoting "two tailed." The generally accepted conventional level of significance, denoted by 'sig' or 'p' value is 0.5 in social science researches (Shekaran, 2009).In this study also the degree of correlation was accepted if the variables had a significance of $p \leq 0.5$, which reflected 95 or more times out of 100 make sense of relationship existing among the variables were fallen true.

Reliability and validity

For the pilot survey, 10 successors were selected from the population, and the survey instrument was a structured questionnaire. Each successor took about 20 to 25 minutes to complete the questionnaire after the study objectives were explained. The author directly assisted the respondents to fill in the questionnaire by clarifying instructions and explanations. As a result of the pilot survey, a number of changes were made to improve the clarity of the questionnaire and to improve the construct validity of the questionnaire. This helped to increase the efficiency of the questionnaire and survey data.

Moreover, to test the internal consistency and reliability of the study, it used Cronbach's alpha. The study employed the scales developed by Sharma et al.(2003) and Venter et al.(2005) for the present study. Sharma (2003) and Venter et al (2005) have confirmed that the scales were reliable (Cronbach's alpha values were within the acceptable range).However, these scales were translated to Sinhala and Tamil languages. Therefore, again a reliability analysis was done and all independent and dependent variables were within the acceptable range.

Table 1: Reliability analysis

Construct	Variable	Cronbach's alpha
Family related factors	Family Harmony	.729
	Willingness to support the successor	.766
	Family involvement in the management	.754
Business performances		.821
Initial satisfaction with business succession process		.721

Source: Pilot survey

Data Analysis and discussion

Table 2: Family harmony

Hypothesis No.	Relationship	Correlation	M	SD	N	Sig.
H 1.a1	With initial satisfaction (All successors)	.444**	2.99	0.60	128	.000
H 1.a2	With PSP (All successors)	.384**	2.99	0.60	128	.000
H 1.a1	With initial satisfaction (Family successors)	.615**	3.01	.59	86	.000
H 1.a2	With PSP(Family successors)	.443**	3.01	.59	86	.000
H 1.a1	With initial satisfaction (Unrelated successor)	.096	2.95	.62	42	.546
H 1.a2	With PSP (Unrelated successor)	.254	2.95	.62	42	.104

** Denote significance at 1 percent level (2-tailed)

Source: Survey data

Family harmony directly influences the family member successor because if the family refuses to accept their appointment, or do not believe in their competence, or do not trust them, then the successor is unable perform well.

In the Sri Lankan context, family harmony and willingness to support the successor have not become strong issues because they are highly emphasis collectivism. Individuals are not working for their own self-esteem. They highly concern about people around him. Under this background, that family harmony and willingness to support a successor do not have identified as a big issue. In cases of UMSs, most families have taken the decision to appoint them due to a

serious lack of alternatives within the family, and therefore they must learn to trust an outsider and give their commitment to their role in order to encourage maximum results.

Willingness to support the new successor

Table 3: Willingness to support successor

Hypothesis No.	Relationship	Correlation	M	SD	N	Sig.
H2.b1	With initial satisfaction (All successors)	.371**	2.87	0.54	128	.000
H2.b2	With PSP (All successors)	.129	2.87	0.54	128	.146
H2.b1	With initial satisfaction (Family successors)	.446**	2.84	.52	86	.000
H2.b2	With PSP(Family successors)	.241**	2.84	.52	86	.025
H2.b1	With initial satisfaction (Unrelated successor)	.135	2.94	.55	42	.395
H2.b2	With PSP (Unrelated successor)	.064	2.94	.55	42	.689

** Denote significance at 1 percent level (2-tailed)
Source: Survey data

Willingness to support the new successor is statistically significant with the ISBSP, but there is no statistically significant relationship with the PSP for all successors. If family members are not content with the new appointment, they have the opportunity to work against successor and his appointment. In Sri Lankan culture though, in most families, the eldest son has more appreciation than any other family members and it is second only to respect for the father. Most of the time, the eldest son is directly involved in decision-making at home when the father is absent. Sometimes the father discusses issues with the son before making a decision. He has sacrificed lots of resources such as time and money in order other family members develop. In most cases, the eldest son does not get married until his younger sisters get married. In such a situation, he has automatically become the most powerful member in the family. If the circumstances are like this, then willingness to support the successor is not identified as highly important because family members are generally committed to the business and are happy to follow instructions given by the eldest son.

Family involvement in management

Table 4: Family involvement for the management

Hypothesis No.	Relationship	Correlation	M	SD	N	Sig.
H3.c1	With initial satisfaction (All successors)	.405**	3.12	0.67	128	.000
H3.c2	With PSP (All successors)	.238**	3.12	0.67	128	.007
H3.c1	With initial satisfaction (Family successors)	.460**	3.04	.62	86	.000
H3.c2	With PSP(Family successors)	.345**	3.04	.62	86	.001
H3.c1	With initial satisfaction (Unrelated successor)	.209	3.29	.75	42	.184
H3.c2	With PSP (Unrelated successor)	.263	3.29	.75	42	.093

** Denote significance at 1 percent level (2-tailed)
Source: Survey data

Family involvement in management positively correlates with the successor's ISBSP and post succession performance under the sample categories of all (combine) and FMS. It is statistically significant with both the Initial satisfaction with business succession process and post succession performance concerning the combine and FMS. The presence of the family in the governance structure of the firm may be another source of strength. Consequently, the high percentage of family members sitting on the board of directors and in executive positions give more decision power to the family because altruism is expected from members toward one another due to kinship obligations.

Table 5: Acceptance and rejection of null hypothesis (influential factors and initial satisfaction about business succession process)

Hypothesis No.	All successors	Family Member Successors	Unrelated managers Successors
H1.a1	Rejected	Rejected	Accepted
H1.a2	Rejected	Rejected	Accepted
H2.b1	Rejected	Rejected	Accepted
H2.b2	Accepted	Accepted	Accepted
H3.c1	Rejected	Rejected	Accepted
H3.c1	Rejected	Rejected	Accepted

Source: Survey data

Conclusions

If family members decrease their commitment to the FOB and their involvement in its activities and/or resign from holding company positions during the business succession process, it shows their unwillingness and dissatisfaction with the new appointment. It could also be a sign of their lack of trust about the business future with the new successor. On the contrary, if family members continue in their positions and are committed to supporting the successor, it shows a willingness and trust with the new appointment. If family members give their undivided support to the new successor, willing to share knowledge without hesitation, to help them during difficult situations, and to stand with the successor to protect the company, then it increases the successor's satisfaction and also increases PSP. Family harmony is the relatively important factors to increase level of satisfaction.

Recommendations for future research

This study presents a generic model to evaluate the relationship between family related influential factors and PSP. However, future research may well focus on confirming these results by analysing a larger sample. Furthermore, research is better conducted in diverse countries which have a dissimilar cultural background. This may be done by dividing the total sample into segments: first generation to second succession, and also second generation to third succession etc...

This model considered only 03 independent variables: three factors related to the family. Researchers though may identify other influential factors relating to each stakeholder by scrutinizing various literatures. They can then include these factors into the research framework and testing process. This model is only based on family concerning the BSP. Additionally, Successor related, incumbent related factors, the succession plan, taxation regulations and mode of legislations can all influence the BSP. It is therefore better to develop a conceptual framework with that all and test the factors influencing the BSP.

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Library Therapeutic Landscape Quality of the Public Library: A Conceptual Framework

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Abstract

To cope with daily stresses of modern society, adopting the concept of therapeutic landscape in a public library has become essential for the purpose of satisfying library users' perception and expectation. It began with an attempt to understand the needs of users towards the library therapeutic landscape quality provided by the public library. In addition, this study looked at the relationship between all the twelve (12) dimensions of library therapeutic landscape quality which was adopted based on a modified therapeutic landscape model and service quality framework (SERVQUAL). As the expectation and perception of the users with the overall satisfaction. The purpose of this paper is to discuss the concept of therapeutic landscape and satisfaction. The paper will also propose a research conceptual framework of a potential research which the main main objectives are to assess the public library therapeutic landscape quality and satisfaction. A quantitative research was used to study the gap and the relationship between library therapeutic landscape quality and satisfaction. An evaluation study using questionnaire survey will employ to measure the users' perception towards twelve (12) library therapeutic landscape quality dimensions and their overall satisfaction.

Keywords: Public library, therapeutic landscape, quality, users' expectation, users' perception, satisfaction,

1. Introduction

As a community centre, public libraries serve as centres that support community information needs and society's development. Society uses them as a medium for information sharing and knowledge benefit. Public libraries have helped to transform and improve the quality of people's lives. Research evidence shows how and why natural and landscape characteristics, ease people pressure and change people's moods from various perspectives. Hence, previous research on the public library therapeutic landscape best practices has also been conducted. This is because to cope with daily stresses of modern society, adopting the concept of therapeutic landscape in a public library has become essential for the purpose of satisfying library users' perception and expectation. This study began with an attempt to understand the characteristics of users towards the library therapeutic landscape quality provided by the public library. Consequently, the study will explore the relationship between all the twelve (12) dimensions of library therapeutic landscape quality which was adopted based on a modified therapeutic landscape model and the service quality framework (SERVQUAL) and the expectation and perception of the users with the overall satisfaction. The study will also propose a research conceptual framework of which the main objective is to assess the public library therapeutic landscape quality and satisfaction. A quantitative research approach will be adopted to study the gap and relationship between library therapeutic landscape quality and satisfaction. Questionnaire survey

will be employed to measure the users' perception towards twelve (12) library therapeutic landscape quality dimensions and their overall satisfaction.

1.1. Background

In Malaysia, public libraries serve as part of the community centres which exist to support community and society's development. Students, teachers, educators, parents, people and many more use them as the environment for information sharing and knowledge benefit. It is a basic thing to use the library as an emporium to shop for knowledge, in general to a specific area. Libraries play a major role in a child's development, if used correctly by society. As states by the Institute of Museum and Library Services (IMLS, 2013), Libraries and museums can play a stronger role in early learning for all children. Therefore, a library for children in a public library setting is a must for early child development. No-one should doubt the importance of children's libraries to children and their families all over the world. They are often the first encounter with lifelong learning, introducing the readers and learners of the future to an exciting, rich and varied resource (IFLA, 2003).

Public libraries that are also under categories of state libraries and its branches and its rural libraries or community libraries have an administrative power under state government or local authority and the role of National Library Malaysia is to channel and monitor development and operational budget on behalf of the Federal government. Specifically there is 12, 358 libraries in Malaysia, only (1) National Library of Malaysia, 1401 state Public Libraries, which is state (14), region (1), branch/district (173), town (15), rural (1089) and mobile (82) and the rest fall under academic libraries (366), special libraries – ministries/department/government agencies (493), (174) special libraries (private agencies) and school resource centres (9922) – primary school (7,643), secondary school (2,163) the sources of information is from National Library Malaysia Report at 2012 (NLM, 2012).

1.2. Therapeutic Landscape

The idea of therapeutic landscape has been widely used to describe the relationship between place and improvements in mental health (Brewster, 2014). Therapeutic landscapes itself is taking a role as a platform of recovery process whereby its concept which includes safe spaces, favourite places and enabling places; have been outlined to suggest that the attributes support recovery and encourage well being (Duff, 2012; Yates et. Al., 2012). Wilbert Gesler (1992) developed the concept of therapeutic landscapes in a health geographical thinking. Its theoretical origins in cultural ecology, structuralism and humanism. The framework analysis of natural and built, social and spiritual environment as they contribute to healing and well being in places – broadly termed landscapes (Gesler, 2003). Mainly applied to places that had achieved a reputation for healing (Gesler, 2003) or extended to places that promotes and maintains well being and health (Williams, 1999, 2000). In fact, other research evidences have explained how and why natural views and landscape sceneries ease people's pressure and change their mood from various perspectives, including: medical geography (Gesler, 2003), environmental psychology (Kaplan and Kaplan, 1989; Kaplan, 1992; Ulrich, 1984, 1999), ecological psychology (Vries, 2010); Moore and Cosco, 2010), and horticultural therapy (Detweiler, et.al., 2012; Soderback et al., 2004).

Therapeutic landscapes or spaces of care may be perceived differently by different target audience, what is therapeutic must be seen in the context of social and service conditions and changes. The research emphasis the need to identify the variables and dimensions of the public library therapeutic landscape with special significance as 'healing places'.

1.3. Statement of Problems

Current social problems among youth in Malaysia are challenging their parents, society as a whole and the government. The state of social wellbeing is deteriorating with an increasing number of youth involving in drug addiction, sexual abuse as well as suffering from mental illness. Penalties, such as fines, prison and execution have been used to combat these problems, yet without a great deal of

success. At present, the Malaysian government has shifted its attention to different approaches which take into account social welfare and human services. There is an increased commitment shown by the Malaysian government to providing more training for counsellors and for building rehabilitation centres. Several studies have started to explore the impact of public library on wellbeing by trying to identify the qualities that make the public library an essential element of community life (Curry and Alstad, 2003; Toyned and Usherwood, 2001). However, studies have struggled to define the role of public libraries in the recovery process, and concepts including safe spaces. The rewards of engaging with the public library are seen as intrinsic which involved intangible qualities which is highlighted at the end of the paper. As for the statement of problems concerning the research gaps, the author has categorized it into three:

a. **Practical Gap**: Lack of practical instruments which can be used by library to evaluate the therapeutic landscape quality and satisfaction.

b. **Empirical Gap**: Limited number of literature on Library Therapeutic landscape as factor of Library Therapeutic Satisfaction in the context of Public Libraries in Malaysia

c. **Theoretical & Methodological Gap:** Library Therapeutic Satisfaction: Previous studies focused little attention on the contribution towards library therapeutic satisfaction of public libraries. Library Therapeutic Landscape Quality: Previous studies using qualitative method in studying on public library as therapeutic landscape

2. The Proposed Conceptual Framework

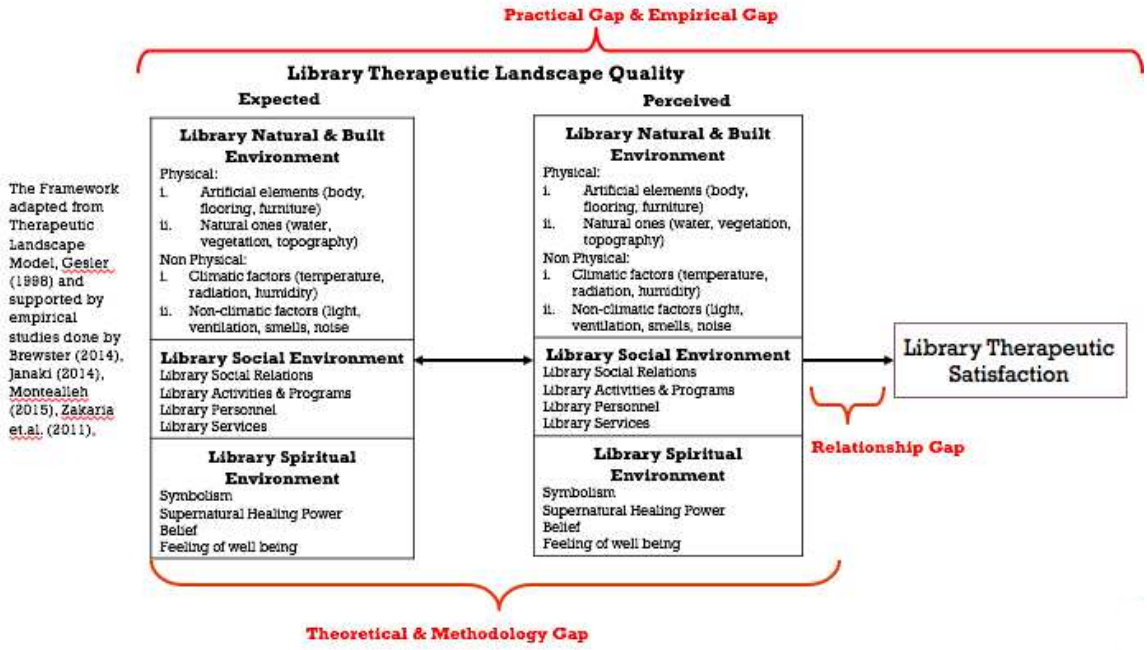

Fig. 1. Proposed Conceptual Framework

This article attempts to highlight a research conceptual framework of a study that will assess the public library therapeutic landscape quality and satisfaction and how it can be used as a platform to encourage children well being. Figure 1. depicts the proposed model for measuring the public library therapeutic landscape quality

The research conceptual framework is constructed based on previous studies of Wilbert Gesler (1998) on therapeutic landscape and also adopting the theory of SERVQUAL. Currently there are many quantitative instruments that are used by libraries such as SERVQUAL and LibQUAL. SERVQUAL which was developed by Parasuraman, Zeithaml, and Berry (1988) and at present it is extensively used by numerous academic libraries in the USA (Nitecki and Hernon, 2000). While, LibQUAL survey evolved from a conceptual model based on the SERVQUAL instrument and offered to the library community by the Association of Research Libraries (Association of Research Libraries Statistics and Assessment Program, 2014).

The framework is conceptualized based on previous studies. For independent variables it is adopted from the model of therapeutic landscapes by Gesler (1998) that consists of 3 dimensions which are natural and built environment, social environment and spiritual environment and supported by empirical studies done by William, 1998; Palka, 1999; Thurber & Malinowski, 1999; Kearns & Barnet, 1999; Scarpaci, 1999; Kearns & Collins, 2000; Williams, 2002, Wilson, 2003; Miligian et.al., 2004; Martin et.al., 2005; Korpela and Ylean, 2007; Ravi, 2008; Brewster, 2014; Montealleh, 2015.

2.1. Library Therapeutic Landscape

Based on previous literature, the characteristics for *Library Therapeutic Landscape* include features such as familiar and welcoming environment, quiet, calm atmosphere, empowerment associated with being able to make non-commercial, unpressured decisions about what to read in which will contribute to the opportunity to conduct an act of self-care by withdrawing from stressful situations while being in the library as a space (Brewster, 2014). Therefore the purpose of the library therapeutic landscape quality measurement is to develop a method of evaluation of therapeutic landscape quality; by measuring the expectation and perception of the library users in relation to the therapeutic landscape satisfaction.

Public Library must improve the quality not only in service but also on the library therapeutic landscapes quality in order to survive and to success by having a quality service performance focus of as it is an institution that may promote condusive environment as to support well being, a space of restoration as well as promoting holistic healing (Martin et.al., 2005; Wood et.al., 2013; Brewster, 2014; Hhusaini, SA Noordin, SM Shuhidan, 2015). The framework also adapting the original concept of therapeutic landscape by Wilbert Gesler (1992, 1998) and the quality model of SERVQUAL and LibQUAL as mentioned above. This study come out with three basic variables; Library natural and built environment, Library social environment and Library spiritual environment. Those variables are developed based on the previous studies, preliminary study and systematic review of the literature.

2.1.1 Library Natural and built environment

Landscape literally means a picture of nature; or is part of nature. Allowing the elements of nature into people's lives may promote the quality of life. Landscape making relationship between nature and both human and human communities. According to Montealleh et. al., (2015), the elements of landscape such as the physical elements, non-physical elements, human elements. For this study, the researcher focusing the two main dimensions of library natural and built environment which are physical and non physical elements. Based on studies by Montealleh, et. al., (2015); Brewster (2014) and Wood et.al. (2013) physical elements comprise the context of space which also include the artificial elements such as building, flooring, furniture and natural elements like water, vegetation and topography. As for non physical elements, the climatic and non climatic factors are included. As for the climatic factors; the features include temperature, radiation, wind and humidity. On the other hand, the non climatic factors are; light, smell/scent, noise and weather in which surrounded the library atmosphere.

2.1.1.2 Library Social Environment

For library social environment, it is consists of four dimensions which are library social relations, library activities and programs, library personnel and library services. According to Aarts & Dijksterhuis (2013), it is a process oriented approach to investigate how situational norms guide

social behaviour. It was posited that situational norms can be seen as associations between environment and normative behaviour in memory that are shaped by social influence.

2.1.1.3 Library Spiritual Environment

The holistic approach has evolved and practices in the library facilities, services and activities. Its to develop a positive mind and soul of the user and ambience. For many people that involves some degree of belief in a higher power that is labelled in many ways (Patel, 2003). Intangible construct that allows people to make sense out of the unexplainable and unanswerable parts of their lives and their worlds.

3. Methodology

All self-developed questionnaire will be used to gauge the respondents' library therapeutic satisfaction on the library therapeutic landscape in the library. The objectives of this study are as below:

i. To identify the dimensions of the public library therapeutic landscape
ii. To determine expected library therapeutic landscape quality provided by public libraries
iii. To examine perceived library therapeutic landscape quality provided by public libraries

This study will explore the public library therapeutic landscape quality based on users experience in using library service & facilities. The research will also propose research conceptual frameworks which assess the public library therapeutic landscape quality and satisfaction. The research will evaluate user's experience using three constructs which includes the elements of natural & built environment, social environment and spiritual environment of the library. Quantitative research approach will be engaged to study the gap for library therapeutic landscape quality and satisfaction. The results of the quantitative assessment of perceived library therapeutic landscape quality may provide some insights on how users rate the library therapeutic landscape quality of public libraries. Thus, the findings can be used as a guide for library management to improve the crucial quality attributes and enhance library therapeutic landscape quality of the library.

4. Summary

The research conceptual framework presented in this paper offers an opportunity for further investigation on the public library adoption of the therapeutic landscape and SERVQUAL and Lib QUAL concept and how the services and facilities influence the users' satisfaction. Hence, in order to validate the framework and the corresponding prepositions, the researcher will adopt a quantitative research approach involving the Malaysian public libraries. The scope of the study covers the public libraries from both the East and West Malaysia. This study will produce a Model of Library Therapeutic Landscape Quality of Malaysian Public Libraries in the context of the public library. Instrument to assess the library therapeutic landscape for public library will also developed. It is hoped that the findings may highlight the insights of the library therapeutic landscape quality conducted by the libraries and how they promote to the quality and healthy life.

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The Impact of Time and Regime on External Debts of Pakistan: An Empirical Study

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Abstract

The focus of this research is in the area of Financing / Loans acquired by Pakistan over the decades. This study is very important for forecasting the future of Pakistan's financial strength. The data was collected from the State Bank of Pakistan, period from 1949 to 2010. The findings from this research provide the evidence that the external debts are growing in a very fast rate, which will create a great hurdle in coming future for Pakistan. The main conclusions drawn from this research is that the external debts are growing at an average rate of 14.40% per year and also demonstrated that if external debts increase by PKR 1 million in a year, in the next year it will increase by PKR 1.155 million. This research recommends that the outstanding debt can be taken care a special attention when fiscal and monetary policies are made in which external debt repayment should be given high importance along with the strict control over corruption. Government must introduce easy trade policies, which may boost up the exports in order to generate balance of trade, which may help in repaying the external debts.

Keywords: External Debts, Forecasting, Evidence, Monetary Policy, Fiscal Policy, Time & Regime

Subject classification codes: B23, E5, H6, O5

Introduction

Background of the research

Like other nations Pakistan has also borrowed huge amount of money from sources outside of Pakistan, making it a large acquirer of external debt. The purpose of debt is commonly to speed up the economic growth, in particular when domestic sources are insufficient. Most economic theories claim that external debt does help in economic advancement through factor gathering and production growth. This is because at the initial stage when the countries are developing and have limited capital and the investment chances are very limited. If the debtor country utilizes the loan funds in creative investments along with macroeconomic constancy, will not only be able to enhance the economic growth, but also pay off the borrowed debt without any hassle.

As external debts have a positive side like economic growth, it also has a harmful side, as it does not remain a useful because it accumulates beyond a limit point. If the external debt crosses that point, it will reduce progress by hindering investment and productivity development. When larger percentages of reserves (foreign currency) are spent in meeting debt obligations, solvency decreases affecting access to external financial resources. It is also observed that increment in external debt burden is continually enhanced by a related increase in debt-service requirement, which has negative effects for economic development and thereby for country's capacity to settle debt and debt-service obligations.

If fiscal policy is not supportive then debt strategy will not succeed. The importance of sensible fiscal policy could not be overemphasized because the core source of increase in debt creates fiscal disparities. A comprehensive fiscal policy is vital for avoiding macroeconomic differences and realizing the full development potential. In 1990's Pakistan observed serious macroeconomic inequalities especially in terms of its fiscal profile. Perseverance of large fiscal deficit outcomes in

unmanageable levels of public debt affected the country's macroeconomic situation. Therefore, Pakistan paid a heavy price for its fiscal intractability in terms of slow economic development and investment, which also increases in the levels of poverty. Extensive efforts have been made over the last decade to instruct financial discipline by pursuing a sound fiscal policy. Pakistan's hard earned macroeconomic stability is supported by fiscal discipline.

Pakistan's external debt reached an extraordinary point during the 1990s followed by an exuberant growth in next decade. A study conducted by Ahmad (2013) finds that there is a rapid increase in external debts right after 2005 and the debt amount becomes doubled by the end of 2012 just in 7 years compared with the era 1972 - 2005 consists of 34 years. The study further reveals that average external debt in democratic regime is significantly higher than the military regime.

The causes of rapid increase in external debt include inadequate use of borrowed funds in the form of careless government expenditure, and financing of present spending, and investing in low priority development projects, and poor implementation of foreign aided projects. Because of an impulsive use of foreign loans debt carrying capacity of the country deteriorated due to its deteriorating real revenues and exports, eventually increasing real cost of government borrowing, both local and external (Ahmed et al., 2014).

In order to shield its forthcoming credit-worthiness, Pakistan like many other nations of the world has introduced certain preventive measures to limit inflationary pressures and to protect the competitiveness of its exports. Though, there is a substantial time-lag for these measures to work their way through the economy, its growth gets affected negatively from disruptions in their efficacies.

Through this study we will compare the fluctuation of external debt burden in different eras.

Brief History

Since its independence Pakistan severely relied on external support. A number of factors and variables are considered for this great reliance of Pakistan on foreign resources. Domestic savings and investment rates were low due to very low levels of per capita income, the persistent need to assist the millions of people displaced by partition, and the need for creating the basic administrative apparatus and institutions, which were needed to run a new country. Pakistan observed persistently large fiscal and current account deficits for a very long duration. Fiscal deficit averaged 7 per cent of GDP during last two decades (1980s and 1990s), while current account deficit averaged 5 percent of GDP in the 1990s. Mostly creating external inflows financed these deficits. The peak of Pakistan's economy remains the decade of the 1960s when the GDP growth rate averaged 6.8 percent annually. The investment rates reached a peak of 23 percent in 1964-65 and foreign saving financed almost half of this investment. The 1965 war with India led to a setback, and the level of aid declined. The higher incomes generated during this period, which boosted the domestic savings rate that reached almost 12 percent. The separation of East Pakistan, the two oil shocks, and a fundamental change in the economic philosophy of Pakistan increased pressures on the external finances of the country in the 1970s.

The Afghan war brought a surprising windfall in the form of increased assistance from the United States. This allowed the government to avoid the need to rearrange the economy and remove the imbalances on fiscal and external account. The growth of the foreign debt increased after 1980s, which created the serious problem of debt servicing in the country and Pakistan cruelly faced budget balance problems. All these years Pakistan's tax to GDP ratio did not improved, making dependence on foreign aid a permanent feature of Pakistan's economy. Pakistan's debt situation continued to get worse in the 1990s. By the mid-1990s debt servicing was consuming more than half of the country's annual revenues, leaving limited space for development and social expenses (Ahmad, 2015).

The problem of high current account deficits and high fiscal deficits became more difficult in the 1990s as compared to previous decades. This led Pakistan into greater reliance on foreign funds to

finance the difference. The 1990s have been considered to be a series of important shifts in the nature of capital flows to the Pakistani economy; the effects of these changes for the country's debt profile are equally important. With the passage of time the debt burden on Pakistan continued to grow. It is evident that after 1990s growth performance of Pakistan deteriorated while the accumulation of foreign debt and aid augmented (Ahmed *et al.*, 2014).

Purpose of Research

The aim of the study is to compare the external debt received from different foreign Institutions and countries on annual basis. The change in amount of external debt during different democratic and military regimes was also analyzed.

Research Question

Does the average External Debts of Pakistan varies in military and Democratic regimes?

Previous Research

Sachs (2002) highlighted that there is a theory developed known as "dual gap" theory. The study focuses on bringing capital and savings to a sufficient level that one can achieve self-sustaining growth. It states that the primary reason for opting for external debt rather than utilizing domestic resources only makes the basis of "dual gap" theory. The theory states that for sufficient investments for economic development we need savings, and in developing countries tendency to save is quiet less hence it is not sufficient enough to invest in the development.

One can borrow external funds as long as the rate of return from its investment is equal to or greater than the overall cost of borrowing (Ajayi & Khan, 2000). In crux, with the aid of this simple principle, the country is using external funds in a positive way and generating revenue from it and not making external borrowing a burden.

Ubok-Udom (1978), says that external debts include the debt service burden and also incorporates all the cost implied by the term for which external debt has been borrowed, cost of the liquidity crisis that might erupt, cost of managing the debt, cost of rescheduling of debts and many other related costs.

Colaco (1985) explains the hurdles and problems in debt service for developing countries in two different situations. Firstly that the size of debt has increased to such a point that they are greater than the equity finance, hence resulting in imbalance of debt and equity. Second that the debt with floating interest rates increases so much that the borrower is hit big when the interest rates rise.

Mehran (1986) states that proper management of debt is quiet important in a complex financial setup. According to him critical components of debt management are, proper policing, making regulations, proper accounting and an in-depth statistical analysis. The nation borrowing needs to make fiscal adjustments and make reforms in its financial structure. Further he states that a transparent system, policies towards erasing corruption, refining of debt management structure and proper decision making are the tools that can convert an external debt from a burden to a blessing.

Ajayi and Khan (2000), state that manageable external borrowing can be measured via several different ratios. Some of them are "debt to export ratio", "debt service to export ratio", "debt to GDP ratio" etc. However, proper levels for these ratios cannot be determined and may have many variances due to many factors. For example if the cost of external borrowing gets higher than the return or value generated from it then the burden will pile up and to reverse these kind of situations and countries need to increase their exports, but if they fail to increase exports then the burden could pile up even above the country's capacity to pay it off.

Claessens and Diwan (1989a, 1989b) argue that the burden of external funds inflow can depress

investment below its optimal level and also slow economic growth. This can occur in two ways, (a) inability to get required foreign borrowing, a liquidity constraint, and debt projection which is strong enough, (b) probable future loss of output to foreign creditors. From the debtor country's perspective, the financing costs of unpaid debt reductions and alterations are likely to exceed the benefits. Thus, that Pareto-improving schemes are difficult to find in practice-unless the debtor uses funds donated for this purpose, or that it gains in exchange some allowance from creditors' group. Therefore, predictable debt rearrangement cannot efficiently restructure under a situation of debt extension.

Karagöl (2002) observed relationship between economic progress and external debt provision for turkey between 1956-1996. He used multivariate co-integration techniques. The research showed that there exists an adverse correlation between external debt and economic growth in the long-term basis. "Granger causality" test results pictured a unidirectional causality running from debt service to economic growth.

Mohamed (2005) examined the effect of foreign debt on economic development of Sudan for 1978-2001. The study tells that inflation and external debt unfavorably affected the nation's economic growth. It also showed that revenue generated from exports have considerably favorable influence on economic development.

Mahmood (1997) found that country might be trapped in a severe debt problem due to negligence of macroeconomic factors, inadequate utilization of aid and improper policies. Another insufficiency of current debt management practice is that it rarely highlighted in policy-making authority in Pakistan is the lack of coordination among domestic and external debt.

The country has to accept the challenge to find the way or mean to overcome the accumulation of external debt problem and minimize the associated risk with it, debt management authorities tend to ignore or give low priority to domestic debt management as compared to routine work. Beside Ahmad (1996, 1997, 1999, 2000), and Ahmad and Ahmed (1998), have a tendency to analyze foreign debt as an issue unconnected to domestic debt. Testing exercises in Ahmad (1999) and Ahmad (2000) prove how closely the external and domestic debts are linked with each other. For example, amazing result of this study is that efforts to decrease external debt through privatization, sales of government owned industries to international investors are likely to result in decreeing domestic debt, with unnoticeable impact on External debts.

According to Hansen and Tarp (2000) efficiency of foreign aid remained a debated issue in development of economies. After the end of the World War-II mostly during 1960s and 1970s, foreign aid in huge amount was transferred to developing countries in the form of project aid to improve their growth performance. As it is well recognized in literature, that foreign aid improves output growth if it is utilized in investment and other productive projects.

As per Burnside and Dollar (1997, 2000) and Roodman (2007), however, during 1980s and especially in 1990s it was recognized that the development strategies of the previous decades in developing countries that were started due to transfer of foreign aid to these countries were no longer maintainable. One reason for the failure of foreign aid in support of the economies of the recipient countries is the formation of weak policies in these countries. Both in theoretical and empirical literature it is well recognized that aid works only in countries with good macroeconomic policies situation.

As per Sachs (1989) findings debt-servicing problem might result either from liquidity problems or due to solvency reasons. A liquidity problem would be faced if the borrower fails in gaining the foreign exchange to make the debt service on scheduled time. On the other hand the solvency problem, will arise if the real interest rate on marginal external loan exceeds the addition to national income made by loan.

Chenery & Strout (1996) stated that the main reason for borrowing external finance in developing countries is to fill the "saving investment gap". External borrowing not only hampers investments but

also economic stability and growth. The study states that besides helping in filling the "saving investment gap" external debt badly impacts the growth of developing countries mainly due to the terms and conditions of the lenders.

Perasso (1992) stated that a relationship was examined between the economic growth and external debt by taking data from twenty countries with middle level income and those who were in huge debt. The findings of this study were that with the help of appropriate policies it was easier to increase investment and growth within those economies that were in huge debt as the impact of policies was quiet strong.

Cohen (1993) studied developing economies and examined the link of external debt and investment. This study showed that there is a minimal impact of levels of stock of debt on the investment. The study further revealed that actual service of debt "crowded out" investment.

Ahmad (2000) has used three-gap dynamic model of macroeconomic model of macroeconomic equilibrium to analyze the external debt problem of Pakistan. The author found that if the pattern of external debt continues then Pakistan's foreign debt position would further deteriorate in the future.

Chaudhary (1994) examined that according to the current borrowing scenario, will Pakistan have a greater liability of external debt? He further studied the impact of trade policy and savings policy on foreign borrowings and found that to reduce the debt burden of Pakistan, it has to focus more on trade policy rather than saving policy, as it is more feasible.

Metwally and Tamaschke (1994) studied the economies of countries like Algeria, Morocco and Egypt and examined the link between debt servicing, capital inflows and the economic growth of those countries. They used "Two Stage Least Square (2SLS)" and "Ordinary Least Square (OLS)" methods.

Iyoha (1999) explored the interconnection between external debt and economic development for Sub-Saharan countries for period 1970-1994. The research results showed that external debts have unfavorable impact on investment. The study also pictured that decrease in debt stock would lead to development in investment and economic progress. He also suggested that debt of those developing countries should be absolved to motivate economic development.

Data and Methodology

Following methods have been used to gather data and interpret the result:

Data and Variables

The data used in the research is secondary and has been collected from State Bank of Pakistan for the period from 1949 to 2010. No other source data was used due to reliability issue. SPSS (Statistical Package for Social Sciences) has been used for analysis of data. There are total 3 variables i.e. dependent variable is External Debt, whereas, the independent variables are Regime & Time.

Sample Size

The sample size taken for this research is 61 annual observations from 1949 to 2010.

Estimation Techniques

T-Test, Correlation and Regression models were applied on data by using SPSS to find out the rate of growth in amount of external debts throughout different regimes.

Results and Findings

Two models have been compared in the Figure 1 and Table 1 given output of model summary, which are Linear & Growth models, both are significant as per the Sig. value but here, Growth model is considered because it has higher value of F compared with linear model. Hence the growth model here tends to be more significant as compared to linear model. The growth model also shows the on an average growth of 14.40% per year throughout the sample period of 1949 to 2010.

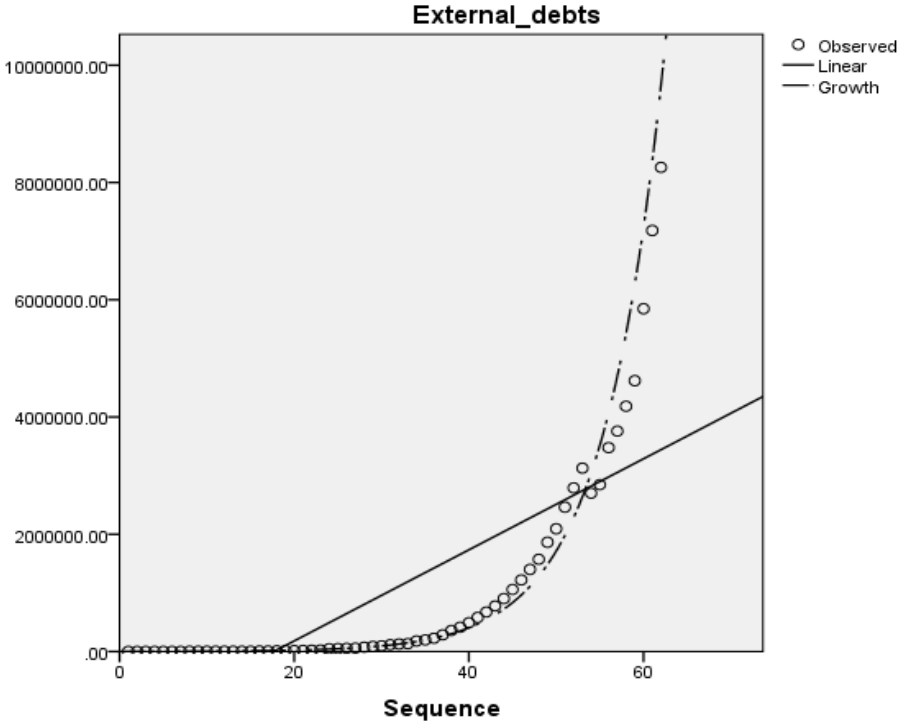

Figure 1: External Debts

Source: Authors' estimation

Table 1: Model Summary & Parameter Estimates

Equation	Model Summary					Parameter Estimates	
	R Square	F	df1	df2	Sig.	Constant	b1
Linear	.586	84.841	1	60	.000	-1371876.642	77655.083
Growth	.993	8707.631	1	60	.000	7.150	.144

Dependent Variable: External_debts

Source: Authors' estimation

Auto Correlation

According to Figure 2, in auto correlation total of 11 lags were significant, whereas, in Partial auto correlation only 1st lag is found significant. In auto-regression, it is only the partial auto correlation, which reflects, the regression model is significant at lag 1 only.

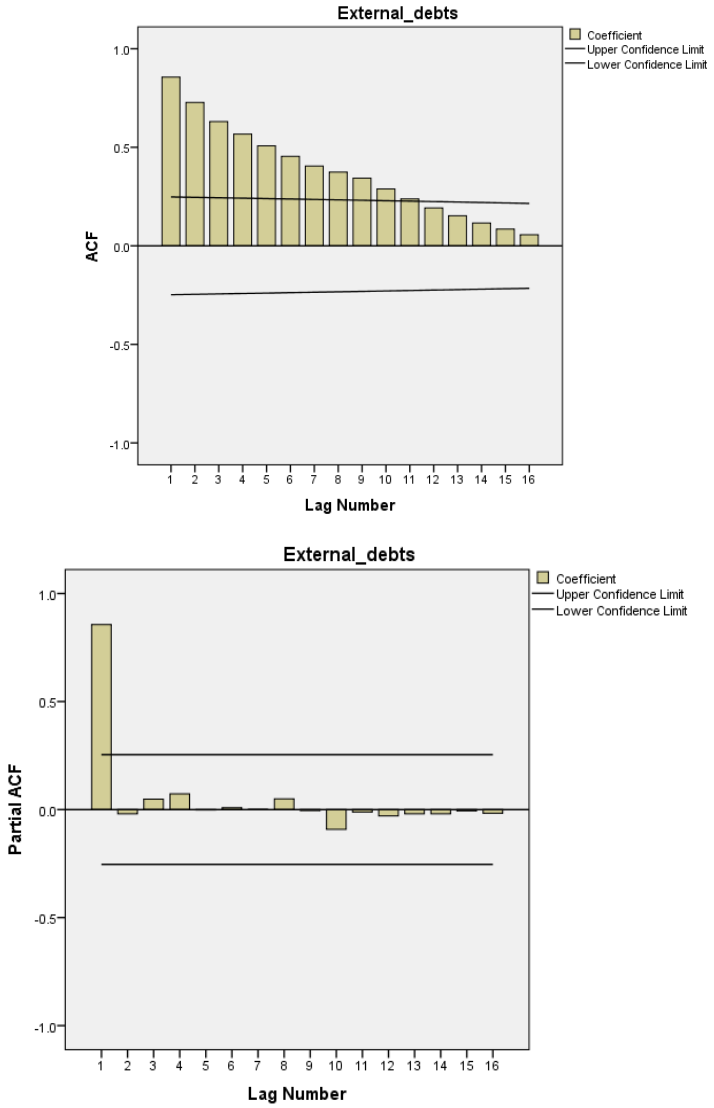

Figure 2: Auto Correlation

Source: Authors' estimation

Correlation Analysis

According to Table 2, the interdependence of External debts with first lag of External debts and Time is positive 99.6% and 76.5% respectively and significant at 1%, whereas, External debt is independent of Regime as the value of correlation coefficient is insignificant.

Table 2: Correlations

		External_debts	External_Debts_1	Time	Regime
External_debts	Pearson Correlation	1	.996**	.765**	-.079
	Sig. (2-tailed)		.000	.000	.540
	N	62	61	62	62
External_Debts_1	Pearson Correlation	.996**	1	.778**	-.098
	Sig. (2-tailed)	.000		.000	.453
	N	61	61	61	61
Time	Pearson Correlation	.765**	.778**	1	-.172
	Sig. (2-tailed)	.000	.000		.182
	N	62	61	62	62
Regime	Pearson Correlation	-.079	-.098	-.172	1
	Sig. (2-tailed)	.540	.453	.182	
	N	62	61	62	62

**. Correlation is significant at the 0.01 level (2-tailed)

Source: Authors' estimation

Model Summary

As we are following backwards regression method in Table 3, we will follow 2nd output. Here, R-square shows explanatory power of the model, which is 99.3% - a significantly high value. Furthermore, there is almost no difference between R-square and adjusted R-square, which endorses that there is no sample error. Durbin-Watson is applicable only for first lag; it has value of 1.597, which predicts that there is positive autocorrelation.

Table 3: Model Summary[c]

Model	R	R-Square	Adjusted R-Square	nate	Durbin-Watson
1	.997[a]	.993	.993	156512.83138	
2	.997[b]	.993	.993	155558.08569	1.597

a. Predictors: (Constant), Regime, External_Debts_1, Time

b. Predictors: (Constant), Regime, External_Debts_1

c. Dependent Variable: External_debts

Source: Authors' estimation

Analysis of Variance (ANOVA)

Table 4 ANOVA shows overall significance of the model. Here, F value is 4170.534, which is substantially higher than its cut-off i.e. 4. When F-value is very high, it establishes a long-term relation. Moreover, significance of F-statistics signifies coefficient of determination (R-square) as well.

Table 4: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	201847031464976.47	3	67282343821658.82	2746.63	.000[b]
	Residual	1396287184083.28	57	24496266387.42		
	Total	203243318649059.75	60			
2	Regression	201839816203660.66	2	100919908101830.33	4170.53	.000[c]
	Residual	1403502445399.10	58	24198318024.12		
	Total	203243318649059.75	60			

a. Dependent Variable: External_debts
b. Predictors: (Constant), Regime, External_Debts_1, Time
c. Predictors: (Constant), Regime, External_Debts_1
Source: Authors' estimation

Coefficients Analysis

As regression was run backwards, system automatically omitted insignificant variables. Over here, time was excluded as insignificant and remaining variables i.e., first lag of External debts and Regime remains significant at 1% and 5% respectively.

According to Table 5, If External debts increase by PKR 1m in a year, in the next year it will increase by PKR 1.155m. Regime was taken as dummy variable value 0 for absence of democracy (military regime) and 1 for presence of democracy. The results show an interesting finding that if there is democratic regime then External debts increases (on average) by PKR 95672.282m compared with military regime. As far as standardized coefficients are concerned, 1st lag of external debts contributes more in the explaining variations in External debts compared with Regime, as the standardized coefficient is 0.999 compared with 0.026.

Table 5: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-44174.785	57864.470		-.763	.448
	External_Debts_1	1.164	.020	1.006	57.519	.000
	Time	-991.169	1826.297	-.010	-.543	.589
	Regime	92904.374	41259.429	.025	2.252	.028
2	(Constant)	-69376.571	34314.609		-2.022	.048
	External_Debts_1	1.155	.013	.999	91.092	.000
	Regime	95672.282	40693.250	.026	2.351	.022

a. Dependent Variable: External_debts
Source: Authors' estimation

Conclusion and Recommendations

Conclusion

The finding of this research shows that the external debts are growing by 14.40% on an average per year. This holds true to the common man's assumption that Pakistan's economy and debt position is worsening day by day. The results also show that If External debts increase by PKR 1 million in a year, in the next year it will increase by PKR 1.155 million. Last five years have been very bad for

Pakistan with regards to increase in external debts, whereas at end of Musharraf era total debts were $35 Billion, whereas, during present governments tenure it has reached surpassed $70 Billion. Be it a democratic government or military regime, only difference regarding the external debts is that during military rule due to strict control on corruption and expenditure the growth rate of external debt somewhat slows down, but still no government has ever been able to fully pay it off or bring it to an easily payable point. Year by year not only the debt is increasing but with the principal amount, the interest to be paid is also piling up.

Recommendations

As we all know that Pakistan's external debts are showing increasing trend and show no sign of decreasing, it will create more hurdles with the passage of time as there will be no source to repay those debts once it surpasses maintainable limits. This outstanding debt can still be taken care of if proper fiscal and monetary policies are made in which external debt repayment is given high importance. Government must make easy trade policies, which may boost the exports to generate balance of trade, which may help in reducing the external debts.

Below given acts are mandatory regarding the government to be implied:

- We need a government, which would make policies that would not only slow down the growth rate of external debts but also work on reducing the debt and paying it off.
- Government needs to control and eradicate corruption.
- Government needs to reduce its expenditures.
- Government needs to properly evaluate the projects it invests in and gage the accounting and non-accounting feasibility of each project.

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Assimilating the Physical, Virtual and Social Characteristics of the Malaysian State Mosque Learning Commons: a Proposed Framework

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Abstract

Learning commons is about the relationships and community between the creators (providers) and users of the information. The concept of Learning Commons which currently being acknowledged as significant to support community-driven resources and lifelong learning seems to be lacking within the Malaysian Muslim communities. In the new era, it is important for Muslim community to have an effective Islamic education and its provision has to be made readily and continuously available. Consequently, the new approach of learning has to be infused along the lifelong learning model as to replace the traditional approach. It has been claimed that the current chaotic condition sweeping across the Islamic nations is self-telling about the life condition those countries are in and to alleviate the Muslim from these situations is through education. Hence, the role of a mosque as a learning center for the community has to be re-positioned. The purpose of this article is to propose a conceptual framework for a study on the characteristics of Muslim community Learning Commons for the Malaysian state mosque library with the objectives are to: a) explore the Malaysian Muslim communities' information needs b) determine the physical, virtual and social characteristics of the Malaysian mosques Learning Commons c) propose a framework for the Malaysian State Mosques Learning Commons. The exploration in understanding the information needs of Muslim communities and Learning Commons' characteristics will generate a framework which can be used as a strategic means in the development of Malaysian Muslim Community Learning Commons in supporting lifelong learning.

Keywords: information learning commons (LC), Malaysian mosques, LC characteristics, community information needs

1.0 Introduction

The internet and digital revolutions have allowed more knowledge and information being created, disseminated and transferred. In fact, with the digitization of content and the ubiquitous nature of internet, knowledge and information are created or generated beyond the printed materials and accessible in a single physical platform (Holland, 2015). Therefore, it making a 'space' that support the physical and virtual interaction and learning, the concept of Learning Commons become more significant. As a relatively new concept, Learning Commons is often being called interchangeably with other terms such as information commons, knowledge commons, research commons, learning centers or just commons (Thorne, et. al. 2013; Weiner, et. al. 2010; Lippincott, 2007; Bradley 2004), as its function is to support learning. The Learning Commons is a place where the self-directed learning occurs through social interactions and communications which information turned into knowledge (Bailey and Tierney 2008; Bennett 2008; Lippincott 2006; Somerville and Collins 2008). Beagle (1999) states that the existence of Learning Commons which focuses on community building place is derived from the evolution of information technology centers which already exist in many

libraries or resource centers (Beagle, 1999). According to Lippincott (2006), most of the information commons exits as part of the renovated library buildings, and minority are being built as new buildings, while small numbers of these commons are in non-library buildings.

Previous literature discusses the components of Learning Commons into several components or contexts which include the physical space or place, the virtual features and the social or cultural elements. It has been clarified that Learning Commons comprises both physical and virtual space which provide resources and values as a platform for access to and advocacy for ideas (Kranich, 2003; Beagle, 1999). However, according to Bradley (2004), Learning Commons is about the relationships and community between the creators and users of the information rather than just about resources. The purpose of this article is to propose a conceptual framework for a study on the characteristics of Malaysian community learning commons specifically focusing on the state mosque library. The objectives of the study are to: a) explore the Malaysian Muslim communities' information needs b) determine the physical, virtual and social characteristics of the Malaysian mosques Learning Commons and c) propose a framework for the Malaysian State Mosques Learning Commons.

2.0 The proposed Research Framework

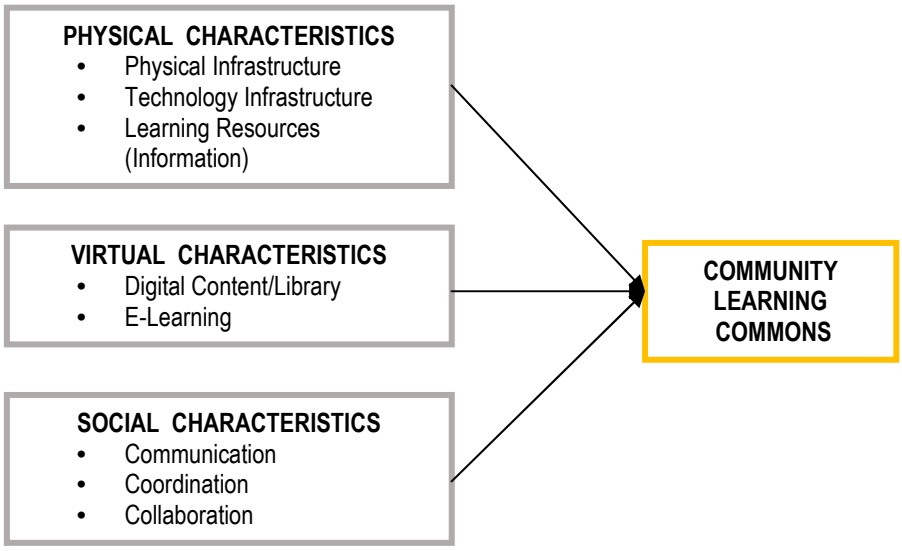

Fig 1. Characteristics of Community Learning Commons

2.1. Learning Communities

According to Coyne & Veetil (2015) learning is an evolving process which emerged as a phenomenon of imperfect human beings attempt to survive in the world. It is noted that a wide spectrum of learning objectives and communities of learners are to be served either through formal or informal education programmes (Manzoor Ahmed, 2014). The author added that the continuing education programs subscribed to the lifelong learning which hold to the concept that all citizens benefit from, and contribute to, learning and society by creating an environment of learning-friendly (Manzoor Ahmed, 2014). As each individual belongs to many different communities, the term 'Community' is defined in many different ways. Depending on the authors, the definitions of the term were being focused on different elements, which include membership, belonging, trust, connectedness, spirit, various forms of support, and the rich and productive setting that community of practice can support for learning (Dede, 1996; Rovai, 2002; Scardamalia, & Bereiter, 1994; Sergiovanni, 1994; Shea, et. al. 2005; Wenger, 1997).

Voluminous literature discusses the benefits of learning community, for example Doolen & Biddlecombe (2014) highlights that the learning communities play a role in promoting learners' success. It is also believed that a strong sense of community comforts the feelings of isolation (Haythornthwaite, et. al. 2000; Morgan & Tam, 1999; Rovai, 2002; Zhu & Baylen, 2005). While the world becomes more complex, learners are getting more unprepared for challenges therefore they need to direct their own learning, work with and listen to others, and develop ways of dealing with the complex issues and problems (Bielaczyc and Collins, 1999). The authors added that generally, through the learning-communities approach, dealing with complex issues, learners will figure things out independently, communicate and work with those from diverse views and backgrounds as well as share what they learn with others (Bielaczyc and Collins, 1999). Shea, et, al. (2005) state that community memberships encourage the likelihood of student/learner support and information flow, coorperation among members and commitment to achieve the goals of the community.

According to Laufgraben (2003), the fundamental outcomes of a learning community include: a) frequent faculty-student/learners interaction, b) frequent student/learner-student/learner interaction, and also c) time devoted to studying and learning through collaboration. However, while the conception of learning community becomes very significant in creating a vision of continuously improving learning or lifelong learning society, there seems to be lacking in advocating the concept of Learning Commons which is currently recognized as the a platform that provide and support community-focused resources (Bradley, 2004).

2.2 Muslim Community and Learning

It is important for all communities to have adequate education and its provision has to be made readily and continuously available. In the new era, learning need to be infused in on the lifelong learning model to replace the traditional approach. The notion of learning becomes very important in creating a vision of continuous learning society (Muhammad Shakirin Shaari & Zulaika Jamaludin, 2011). According to the authors, the chaotic condition widespread across the Arabs nations is self-telling about the condition of those living in the countries in which the only way to relieve the circumstances is education. Similar to other communities, all Muslims need to be given access to effective education. Muslim community regardless of age, groups and other social background must be firmly grounded to the true principles of Islam (Tauhidi, 2001). As Islam came with knowledge, the religion could not be practiced effectively without adequate knowledge (AB Halim Tamuri, Muhamd Faiz Ismail & Kamarul Azmi Jasmi, 2012). Consequently, the authors claim that this has positioned the role of mosques as education centers for the Muslim community which requires appropriate model as an idea of democratizing Islamic education to the community. Hence, there is a need for a new paradigm of learning model to be infused in the Muslim community based on the lifelong learning concept replacing the traditional 'education' (M Shakirin Shaari & Zulaika Jamaludin, 2011). To support this the author added that the Islamic learning community model supported by a proper Information Communication & Technology structure is very much needed to realize the idea.

2.2.1 Mosque as a community learning centre

As human being, finding knowledge is compulsory and important for each Muslim either formally or otherwise as in Islam we are held accountable to guide and lead others (Aminudin Basir et. al., 2015). According to Muhammad Shakirin Shaari & Zulikha Jamaluddin (2011), the current digital age requires an appropriate model and proper implementation of an effective educational system for the Muslim community which will provide an ongoing environment that continuously improve the life of the 'learners' involved. As a way of life, Muslims community goes to the mosque not only to perform their daily prayers, but to acquire and enhance knowledge of their religion as in the mosque the basics of the 'aqīdah (creed), the acts of worship and the Shari'ah rules, economics, politics, judicial, social and others are taught (Oleyade, 2014). It is since the beginning of Islamic civilization, the process of teaching and learning has been extensively associated with the mosque (Nurdin Laugu, 2007). Therefore to increase the Muslim community awareness, mosque which is already a place for worshipping, is also a base for learning knowledge and Quran (Oleyade, 2014). The importance of Mosque in Islam is undoubtedly quite clear as its policy is based on Quran and Sunnah (Umair Uddin & BadshahRehman, 2014). The authors claim that Mosque is such a university which resumes and

open throughout the year, 24 hours a day, and it welcomes every one irrespective of age, gender, color and race.

Muhammad Shakirin Shaari & Zulikha Jamaluddin (2011) further explain that one of the important element in this lifelong learning implementation is flexibility, which allows learners have their own times and places at their own pace, a new paradigm of learning need to be infused in the Muslim community based on the lifelong learning model. Therefore, everyone is welcomed to the mosque at any time without any cost where entrance is free with no differentiation between scholar and non-scholars (Umair Uddin & BadshahRehman, 2014). Most state mosques in Malaysia have libraries as part of the facilities offered to the public. It has been claimed that the library is a natural place to developed learning commons and today libraries may offer more than just electronic and print resources (Roberts, 2007).

2.3. Characteristics of Community Learning Commons

According to Holland (2015) the traditional libraries are rebranding their roles as content becomes more accessible online; from a traditional role of housing books to connecting learners and constructing knowledge. The current concept of learning commons combines both physical and virtual space that supports the process of teaching and learning. According to Roberts (2007), learning commons is a concept with a physical place and in many occurrences it exists in the library being created to support teaching and learning missions of the respective institutions. Conversely, Church (2006) describes learning commons as a physical place as well as virtual space within an innovative concept. To have a functioning learning commons will involve various elements which include; comfortable, practical and attractive physical design, readily available content for projects (i.e. library resources), seamless technology as well as production software (Roberts, 2007). As the roles of libraries and information professionals changed increasingly, information commons are transforming into learning commons (Somerville and Harlan, 2008) which reflect the "human-centered" approach (Brown and Long, 2006). These changes incorporate a deeper understanding of the learners (students) in terms of their independent and active learning behaviors (Bennett, 2003). According to Beagle (2006) describes an information commons as a cluster of network access points and associated IT tools in the context of physical, digital, human, and social resources organized in support of learning. Held (2009) suggests that, learning commons has to be a common space that accommodate various collaborative, highly flexible and technology rich activities in order to meet changes. According to Beagle "the true promise of the Learning Commons model lies in its interweaving of collaborative social resources with enhanced physical spaces, digital toolsets, and expert human support." (Beagle, 2006, p. 35)

2.3.1. Physical Characteristics

As the society lifestyle, taste and preferences changed, transforming from information commons to learning commons requires establishing leaning commons will require a community-driven approach or 'community-friendly'. It is because of the fact that the physical environment is a crucial elements of modern space of learning centers which dictates the variety of activities, events, services as well as the atmosphere and energy of the center (Thorne, et. al. 2014). Therefore, it will indisputably provide a 'space' with flexibility that supports wireless technology as well as encourage collaboration and foster creativity (Wong, 2009). For example, in accommodating the needs of learning community, the learning commons of research university libraries should provide a brand new service platform with a physical presence that integrates network, computer hardware facilities, and information in multiple formats and services. It is a gateway through which users can access traditional services and print collections, electronic information and multimedia resources, an open, free, beautiful, convenient, comfortable, flexible and functional place where users can self-study, group discuss, creative work, interactive communicate, and relaxing socialize (Leye & Liu, 2009).

2.3.2. Virtual Characteristics

The rapid development of ICT and internet technology has accelerated the creation and production of digital content and resources. Although technology is not a silver-bullet, however much of the current interest in learning has been stimulated by recent developments in technology (Fleck, 2012).

According to Taylor (2004), the advancement of the internet technology has seen the voluminous growth of digital resources. Virtually, the learning commons provides access to voluminous resources that enhance community building (Bradley, 2004). Generally, the digital libraries, by virtue of how content has been produced and made available, can be grouped into three categories(Mahesh & Mittal, 2009):

a) born digital (the content is created in digital form with the purpose and understanding that the content is primarily meant for storage and use in digital form)
b) turned digital (contents that are in analog form such as the printed books are converted to digital form; digitization)
c) gained digital (content turned digital at some source which library is not associated with the creation of content but acts as a facilitator to access the licensed resources such as the e-journals, e-books, databases)

In this twenty-first century era, an appropriate way to support learning is via information and communication technology (ICT) (Smith & Barrett, 2014). In this context teaching and learning tools within the virtual environment includes; text chat, verbal discussions, write, draw and paste images on a shared whiteboard, and the ability to view and share documents and resources (Michael, 2012). However, according to Smith & Barrett (2014), most of the research on e-learning is largely within the higher education sector rather than research on its use outside higher education context. However, according to Bennett (2003), often one tend to rush in figuring out the physical layout of the space (furniture and equipment) rather than focusing on its services to support learning with digital content and technology. Gernerally, the , all kinds of internet virtual community allows a communion, interaction, cooperation and sharing environment exploring knowledge portal and integrating library resources, navigation and repository (Shuhuai et al., 2007).

2.3.3. Social Characteristics

We learn many things through our socialization process as learning may occur anywhere either in a formal or informal context. Therefore, according to Lippincott (2010), the key aspect of learning is the 'interaction' between members in the learning community. The author observes that learning commons may supports the social facets of learning as it promotes leisure behavior such as chatting or talking with friend, relax socializing or making plans for non-academic activities. Beagle (2006) states that "true promise of Learning Commons model lies in its interweaving of collaborative social resources with enhanced physical spaces, digital toolsets, and expert human support" (Beagle, 2006: p. 35). In this context, the learning commons can support the social aspects of teaching and learning (Lippincott, 2010). This is because the advancement of internet and social networking technologies is reshaping the means by which information and culture are created and shared between individuals, groups, and societies (Somerville & Brar, 2010).

Although establishing learning commons has been a tendency to focus more on the technology aspect, what is unique and differentiates between learning commons and libraries is the collaboration and partnerships that may occur in the commons environment (Thorne, 2014). Furthermore, according to Beagle (2006), the transformed Learning Commons is a gateway to the full spectrum of information services (print and electronic); a showplace for innovation and new ICT; a place for reflection and communication, as well an inviting and inspiring place for research, learning and reading. Therefore, activities occurring within a learning community should be associated and interrelated to one another as to advocate the environment of knowledge sharing that promotes sharing of expertise and learning.

3.0. Conclusion

Based on the framework depicted above, a study on the characteristics of Malaysian Muslim community learning commons specifically focusing on the state mosque library may be executed. This study may adopt a mixed-method approach by combining both qualitative and quantitative approach. Two phases of the data collection will be engaged; Semi-structured Interviews followed by a survey. Upon the exploration from the literature review, further investigation will be conducted through the semi-structured interviews. Consequently, as the second phase may involve a survey

questionnaire. As the total population of the community more than 170,000 people with majority of them are Muslim, every year there are more than 1000 registered students (aged 19 to 85) enrolling into the mosque formal Islamic classes. These numbers exclude those enrolling into other programs/trainings offered by the mosques as well as those who perform their prayers at the mosque throughout the day. Through this study it may capture the insights of the information needs among the Malaysian state mosque community as well as their learning requirements. The findings of the study may use as a guidelines for libraries (mosques) to strategize their learning commons provision to their stakeholders.

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Community Participation in Jayapura Process Development Program: Towards Good Governance

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Abstract

Community participation in every process of public policy making is essential as the mirror principle of democracy in a country. This becomes particularly appropriate when community participation later became one of the principles which must be implemented by the government in efforts to achieve good governance (good governance). The importance of participation and participation of community that is given is supporting the success of the program that is given by the Road Infrastructure Development pemerintah.Program Jayapura city aims for the welfare of society in order to access the community in activities could be easier that way initially not deserve to be passed during the rainy season because The expected participation of the community to solve the existing problems in the village. This research is an explanatory research with the approach used The with quantitative approach. The study was conducted in the city of Jayapura. Data collection technique is by distributing questionnaires to 80 respondents. The results showed that community participation in the planning stages, expediency and evaluation is good. The planning, implementation and monitoring have significantly influence woth participation rate ($p < 0.05$). Community participation in the implementation of the program of Jayapura city government is determined from the level of community involvement in the planning stages. The resulting regression coefficients entirely positive sign, so it can be interpreted that many people involved in the planning, implementation and monitoring of the participation in the programs of Jayapura city government will increase. Partial test results of each independent variable also gives the conclusion that all variables significantly influence the participation rate ($p < 0.05$).

Keywords: Community Participation, Development

1. Introduction

The Community Empowerment approach holds that before community members will address particular social change goals introduced from the outside, they must first be organized and empowered to address their own concerns and goals .It begins with a true dialogue in which everyone participates equally to identify common problems and solutions. Once the individual strengths and the shared responsibilities are identified, the network begins to work together toward a common goal. The construction carried out by government development efforts undertaken an ongoing basis and in accordance priorities covering the whole life of the people in Indonesia. The existence of laws - No. 32 of 2004 on local government directed to encourage equitable development and development results in improving the welfare of the people, by exploiting the potential of being owned in particular rural development **(Achmanu, 1990).** Willingness of the government to understand the importance of community participation in development planning and development itself is a step forward **(Sumarto, 2003).**

The construction carried out by government development efforts undertaken an ongoing basis and in accordance priorities covering the whole life of the people in Indonesia **(Supriady, Deddy and Riyadi. 2005).** To realize the goal of nation and state are listed in the national development goals, namely to protect the people and the country of Indonesia, realizing the general welfare, the intellectual life of the nation, participate in the establishment of world order based on freedom, lasting peace and social justice. Regional autonomy as a form of decentralization of government, essentially shown to meet the interests of the nation as a whole **(Sumarto, 2003).** This policy is an attempt to get closer to the goal - the goal of governance

mwujudkan ideals to better society, a more equitable society and prosper. The existence of laws - No. 32 of 2004 on local government directed to encourage equitable development and development results in improving the welfare of the people, by exploiting the potential of being owned in particular rural development **(Achmanu, 1990).** In the context of Rural Development, Participatory it became so important, not only targets Development village, but also because most received the impact of the program is the village community itself **(Adisasminta., 2006; Hidayat, 2005; Sumarto, 2003)**

Willingness of the government to understand the importance of community participation in development planning and development itself is a step forward **(Sumarto, 2003).** Exploiting the potential of being owned in particular rural development will be a means towards the welfare of the people **(Kartasasmita, 1996).** In the context of Rural Development, Participatory it becomes so important, not just target Rural Development, Petapi also because most received the impact of the program is the village community itself **(Adisasmita, 2006).**

2. Literature Review

Community Participation

Participation can mean an activity to evoke feelings and to include or take part in activities of an organization **(Hidayat, 2005).** Therefore, the participation of the center of attention because of its position which is important in the scope of the employment relationship **(Sumarto, 2003).** Participation is defined here as the participation or involvement of mental and emotional someone in a group situation prompted him to donate contributions for the purpose of the group or organization and together account for his involvement. **(Sumarto, 2003).** From here compared to alternate actions to be taken, finally gave birth to a specific action and manifest behavior. From this behavior can be tangible participation **(Hidayat, 2005).** Participation of the Community in this context is also the involvement of individuals in total (body, mind, matter and sense) and their willingness to support keberhasialn an activity **(Supriady, 2005).** Public participation can be improved by giving a fillip to the community **(Rukmana, 1993).** This is because all the activities derived from public funding sources, can be controlled directly by the public **(Sumarto, 2004).**

In general, participation has the objective of creating a shared vision, building plans, brainstorm, determine priorities / make a choice, aspiration / input, and gather information **(Siagian, 2005).** From the opinions above can be concluded that the public participation really - really effective community involvement when it occurs in the whole process of development activities which starts from the process of planning, implementation, monitoring, and maintenance up to the involvement in the fruits and benefits of development activities

Development

Development is a business growth and change that is planned and carried out consciously by the nation, the State and the government, towards modernity in order pembinan nation **(Rukmana, 1993).** The concept of development is an effort to make changes towards a better direction than previous condition **(Suryono, 2001; Syafiie, 1999).**

The approach in development activities oriented society, must be changed with the development approach centered society **(Yuwono, 2001).** Along with the development of the concept and implementation of development in many countries, Indonesia also experienced a shift in paradigm of development, ranging from strategy people centered, to community empowerment strategies are regarded as an alternative to the development of society **(Department of Public Works, 2009).** It is at least conformed The new direction of development, such as siding and community empowerment.

Infrastructure refers to the physical systems that provide transportation, irrigation, drainage, buildings buildings and other public facilities are required to meet basic human needs in the social and economic sphere. **(Andrew, 2005; Kodoatie, 2005).** The definition of techniques also provide public services the important one. As already mentioned that the system infrastructure are the main drivers in the economic system therefore each design of each system as well as the whole infrastructure should be done in the context of integration and comprehensive.

3. Methodology

This research is explanatory which aims to test the hypothesis that there is a relationship between participation in planning, implementation and monitoring of participation in government programs Papua Jayapura city. The research variables were four: planning, execution and supervision as independent variables and participation in program participation as the dependent variable. The research is descriptive with quantitative data not qualitative. Respondents who studied amounted to 80 respondents drawn proportional random sampling. Measuring instrument is a questionnaire containing 40 items Likert scale questions. Analysis of the data used is multiple linear regression analysis with SPSS software version 20.

4. Results

Background characteristics of the respondents is high school education (35%) and undergraduate S1 (31%). In the urban community, it appears that the level of primary or secondary education is not much. This description is explained on a small proportion of respondents with elementary education. Data characteristic of most age-based respondents in the age group over 50 years (68%), while in the age group of less than 50 years is as much as 32%. Job characteristics respondents were also scattered in various types such as: employees (29%), housewives (22%), self-employed (13%), civil servants (13%), traders (11%), labor (4%), retired (3%), professional workers (3%) and farmers (2%).

The regression analysis that describes the influence of the planning, implementation and monitoring of participation in Jayapura city government programs described in Table 1 below.

Table 1. Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	T	P
		B	Std. Error	Beta		
1	(Constant)	5.924	2.917		2.031	0.046
	X1. Plan	0.240	0.073	0.320	3.299	0.001
	X2. Implementation	0.231	0.086	0.294	2.683	0.009
	X3. Supervision	0.224	0.084	0.262	2.660	0.010

$R^2 = 0.526$, Adj-$R^2 = 0.508$; $F = 28.144$ ($p=0.000$)

Regression analysis shows that there were significant combined effect of the three independent variables on the level of community participation with a contribution of 52.6%. The resulting regression coefficients entirely positive sign, so it can be interpreted that many people involved in the planning, implementation and monitoring of the participation in the programs of Jayapura city government will increase. Partial test results of each independent

variable also gives the conclusion that all variables significantly influence the participation rate ($p < 0.05$). Based on the already standardized coefficients (beta), planning has the greatest coefficient in comparison to the other is 0.320. The results of this analysis provide interpretation that high community participation in city government program because Jayapura successfully involve the community early in the planning stages of programs that will be conducted

Early stages of development is the Planning / manufacture the decision is: an activity ranging from identifying the needs of the community until the establishment of development programs. People who became the object of development must be fully involved as the society that will be more understanding or grasp of the perceived flaws in society collectively by a village meeting **(Andi, 2009).** Furthermore, the implementation of development requires the direct involvement of poor beneficiaries of development (participatory development) in the form of thought as the information in the development, where only the community participation program recipients, the outcome is in accordance with the aspirations and needs of the community itself **(Astuti, 2014).** With the contribute ideas in the form of advice and input, the fruitful development results in accordance with the wishes and utilization for the community by holding a (building) that unplanned change, believes that community involvement will determine the success of the development **(Mansor 2012).**

Participation in the actual construction should be carried out or implemented through community participation in contributing to support the implementation of development are tangible energy, material (money, goods) or the other and the information that is useful for the implementation of development, willingness to contribute labor and materials is a form of public participation in the implementation of development **(Bergh, 2014).** With the participation of the community in the form of mutual cooperation personnel or material donations, is a form of social support in the community receive the results of development responsibly. This shows that community participation in development of mutual cooperation in the form of donations of material as a support and a sense of belonging to development outcomes **(Soekanto, 2005).** The construction is very imply direct involvement in the public program beneficiaries development (participatory development) because it is only with the participation of beneficiary communities the results of this development program will be in accordance with the aspirations and needs of the community itself. With the results of this conformity pembagunan the results will provide optimum benefit to the community needs.

Supervision is a series of activities to be carried or held for the improvement and assessment in order to achieve the objectives as planned **(Rukmana, 1993; Daim, 2010).** It is important to know to what extent the work already carried out, evaluate and determine corrective action or follow-up, so that development work can be improved implementation. Thus supervision is all business, activities or actions to identify and assess the implementation of the tasks or activities carried out run in accordance with a predetermined plan.

5. Conclusion

Public awareness is high enough to participate in development because people want to feel the benefits of development. From the level of community participation are quite diverse, so the role of socialization of the government to the community is important. Lack of socialization or a further appeal to the public regarding any developments that will be conducted will impede public participation. Involvement of the community is very large, the people will know the process of planning, implementation and evaluation. Communication between village government by the people is good enough so that the information will be up to the community entirely.

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Sustainable Development Influence on the Competitive Advantage of Companies

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Abstract

Sustainable development (SD) has become a direction of the present century like automation began to dominate economic growth since the last century. There are two major directions in which SD acts: macro-Level (country, cities) and micro-Level (companies and its town and regional areas). Rules and legislation at the macro level is manifested in companies. So the macro concerns have been adopted by most companies. In the last decade, sustainability has increasingly become an integral part of the company in any industry. Based on the three pillars of SD (economic, social, and environmental) companies adopt new strategies in order to optimize processes and develop a competitive advantage. The aim of the study is to identify opportunities to reduce fees by adopting sustainable practices in their processes. A review is carried out of the current status and is used to support the analysis of existing data at national and international level. Finally it presents a software tool for assessing the overall index of involvement in sustainable development.

Keywords: Sustainable development, competitive advantage, practices, development.

Introduction

Sustainability is an increasingly common practice in more companies in order to develop competitively. There are many different definitions of sustainability, but the most frequently cited comes from the World Council on Economic Development, which advocates operating in ways that "meet the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987). The 1972 Conference of the United Nations of Human Environment in Stockholm, presented a new model of economic growth compatible with environmental protection and social rights. Starting with this year and so far there are over 60 interpretations of this concept, including social welfare, environmental protection and economic development (United Conference).

From this basis, SD had different interpretations. In fact, SD current activities involve the use of resources without breaching planetary boundaries (Rockström et al. 2009; Gerst et al. 2013). It is therefore a need for a simultaneous and balanced approach of the responsibility for the problems of resource allocation, natural resource consumption and income distribution (Costanza et al., 2007; Farley et al. 2013).

Most company managers see sustainability as an important step in the success of their development (Domil et al., 2013; Cioca et al., 2007). What are the best practices implemented? What are the benefits obtained? These are two keys questions that companies address in their implementation of this concept. In fact, SD should be implemented in organizational culture. This starts from the individual (individual applied sustainable practices), the company, the cluster, then nationwide (sustainable practices applicable to the country / world). However, despite numerous corporate sustainability reports describing sustainability as "the way we do business competitive," most

business leaders do not understand clearly how to incorporate sustainability in their decisions and in company processes.

The adoption of sustainability practices in the company's activities contributes to a range of opportunities and benefits, including reduction of fees (in the field of power generation, environmental taxes on cars, et al.). Starting from the definition of sustainability, this paper identifies opportunities offered by SD for tax reduction. Systematization of the SD concept is shown in Table 1 (International Organization for Standardization, Carroll et al, 2012; Chorafas, 2011; Cioca et al., 2015). Also included are defined three areas: economic, social and environmental.

Table 1 Implications of sustainable development

Dimensions to be developed	Definitions and implications	How?	What is to be sustained
Environment	The impact of the campaign activities on the environment broadly natural resources usage, rejecting the entire nature, territory occupation.	Linked BY Only Mostly But And	Biodiversity Ecosystems
Social	Social consequences of the company as a whole its representatives: employees, solicitors, clients, local community		Cultures, Groups Social Development Places
Economic	In collecting financial performances, the SD means taking into consideration the long term perspectives of the companies, their impact on the economic growth in their field of activity and obeying the ethical principles in business		Ecosystem resources Taxation Financial resources

Economic and social implications of sustainable development

Based on the concept of sustainability, and analyzing dynamic business environment it is seen that money are circulating bidirectional and natural resources turn into resource for the company and eventually turn into waste. Thus the concept of macro- economic sustainability can be summarized as in Figure 1 (own development).

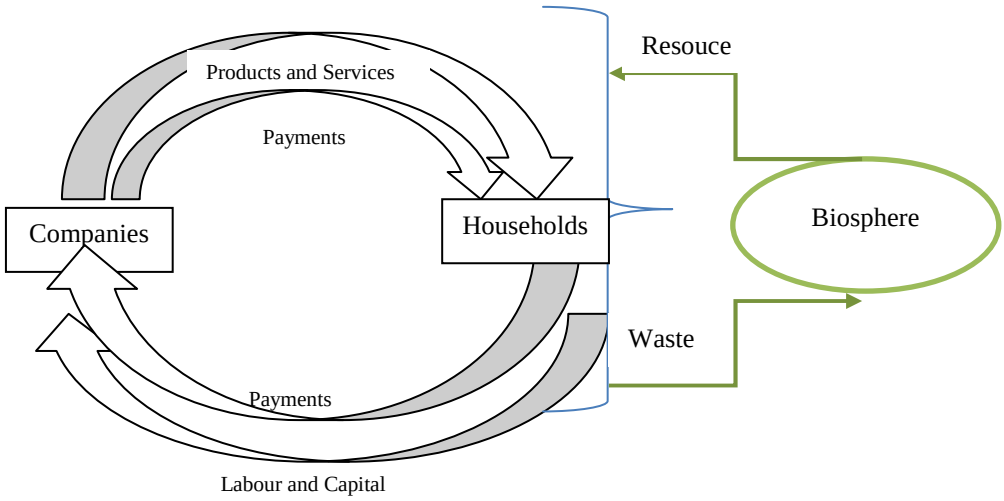

Fig 1. The concept of sustainability of macro-level

Therefore, the resources used in production processes are part of nature and the implementation of rules and procedures that lead to reducing the use of these resources are appropriate at the macro level. Further there are presented a number of implementation measures that support reducing taxes for companies that align with environmental requirements (reducing resources, lowering CO2 pollution, reduce greenhouse gas).

From the perspective of the economic pillar of sustainability, starting from the macro level actions must be implemented in order to develop sustainably. Sustainable development at the macro level contributes to reducing the value-added tax (VAT), corporate tax or income tax because living standards have to be increased in terms of sustainability. VAT is acknowledged to be among the taxes least detrimental to growth. This idea is in contradiction with statistics showing that an increased level of living leads to the generation of more waste and use more resources. So an acceptable level of national taxes contributes to SD.

Reduction of income tax and social insurance contributions helps increasing labor supply and demand, leading to a higher employment rate, lower unemployment and greater use of labor (Murin, 2014). Reducing corporate tax will reduce capital costs and lead to capital accumulation and investment in research and development, which will mean faster economic growth and productivity. In Table 2 indicates the quota levels for a selection of countries. In Romania, VAT decreased currently recording a new rate of 9% for food. In terms of income tax and corporation tax, Denmark recorded the highest rates and Romania the lowest.

Table 2 VAT standard rate, income tax, corporation tax (Source: NIS, 2015)

Country	VAT standard rate			Income tax - rate			Corporation tax - rate		
	2009	2010	2011	2009	2010	2011	2009	2010	2011
DK	25	25	25	59	59	59	35	35	35
HU	25	25	25	56.4	56.4	56.4	34.4	34.4	34.4
CZ	19	20	20	41	41	41	25	25	25
RO	19	24	24	16	16	16	16	16	16
AT	20	20	20	50	50	50	25	25	25
FR	19.6	19.6	19.6	45.8	45.8	46.7	34.4	34.4	34.4
IT	20	20	20	45.2	45.2	45.6	31.4	31.4	31.4
EU	19.3	20.4	20.7	37.1	37.9	36.8	23.5	23.3	23.2

From a social perspective according to Eurostat estimates, in 2060, Romania will occupy the 5th position among EU countries with high share in GDP of social protection expenditure (after Greece, Luxembourg, Slovenia and Cyprus).

Environmental implications and emissions of greenhouse gas

Taxation is one policy instrument available for environmental protection at macro level. When deciding on a specific direction, each country should carefully review the range of measures that could be used to achieve its objectives. A detailed analysis of the costs and benefits of each approach and an assessment of current practices should be conducted in order to assess the impact on the development environment.

Each sector generates greenhouse gases (GHG). Some sectors, such as energy, transport and construction sectors generate a significant amount of GHG. These GHG have a global impact, and

these effects are beginning to be felt, especially by temperature changes. So these GHG lead to additional costs and a good management would reduce polluting factors. National taxation has an important role in this regard. Evaluating these GHG levels in Romania, it is observed that some sectors pollute aggressively.La nivelul Romaniei, sistemul de impozitare pe domeniile poluatoare este diferit. Impozitarea se realizeaza si in functie de emisiile de GHG si de implicatiile companiei in actiunile de reducere a acestor emisii.

By analyzing the amount of C02 in Romania and EU level, Figure 2 (a, b), it is observed that electricity and heat production pollute the most, followed by transport. Romania's situation is similar to that found in the EU. The solution to improve the C02 emission in the transportation sector was to introduce an expensive tax for cars non-compliant with the Euro4 emission standard (the Euro4 emission standard specifies a maximum limit of 25 mg/kg particulate matters (PM) and 250 mg/kg of nitrogen oxides (NOx)).

Thus, the population should buy the cars with the Euro5 and Euro6 standards. For vehicles with Euro 6 no fee is charged, so purchases of cars that pollute as little as possible are backed. So, the Euro5 emission standard requires reducing emissions by 80% compared to the Euro4 emission standard, allowing 5 mg/km of PM and 160–180 mg/km of NOx. The Euro6 emission standard reduces the values of NOx in comparison with Euro5 to 1 mg/km of PM and 40 mg/km of Nox (Cioca et al, 2015).

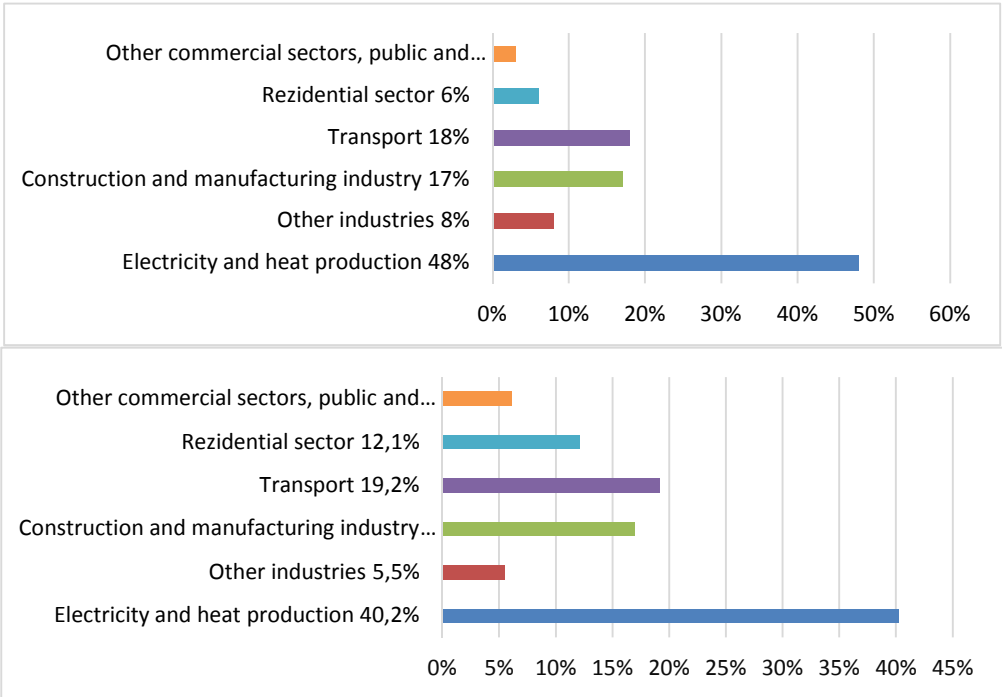

Figure 2 (2a) The CO2 emissions of different business sectors in the EU. (2b) The CO2 emissions of different business sectors in Romania (Source: NIS, 2015)

In terms of energy there are a number of financial incentives (for example in Romania, reducing consumer prices, annual incentives, reducing local taxes, subsidies granted by the state) that lead to the use of renewable energy to reduce consumption. In the EU, renewables are shown in Figure 3: renewable energy sources for electricity (RES-E), renewable energy sources for heating and cooling (RES-H&C), renewable energy sources for transport (RES-T), renewable energy sources for industry (RES-I) and renewable energy sources for residential (RES-R). RES-E is clearly the most important with an expected value of 50% until 2050 and an increase of 35% until 2020.

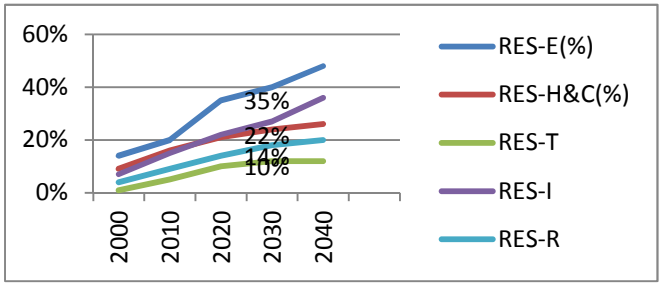

Fig 3. RES indicators at the EU level Source: (Cioca et al, 2015)

The EU legislation on minimum excise duty rates on energy products are justified on the basis of CO2 intensities of different fuels[1]. All these directions support SD at the macro level to reduce natural resources.

The focus is on generating resources on its own, through various technology supported at international[2][3] level, but also on reuse. Thus, another direction intensely debated is the waste management, which emphasizes the reuse of municipal waste. In Europe, we currently use 16 tons of material per person per year, of which 6 tons become waste. From this perspective, waste recycling at EU level speaks of circular economy of waste removed from the production of items and reused in other processes[4]. The intensity of waste reuse at EU level is shown in Figure 4.

Note that both the EU and in Romania, the amount of municipal waste per capita fell in 2013, due to different rules that directs companies to reuse. In the EU, in Denmark, Switzerland, Lithuania, Latvia, Poland and the Czech Republic the amount of waste in 2013 increased compared to 2003 (NIS, 2015; EE, 2014). In Europe there are actions at the macro level, through which towns are implementing various strategies in the direction of CO2[5] reduction.

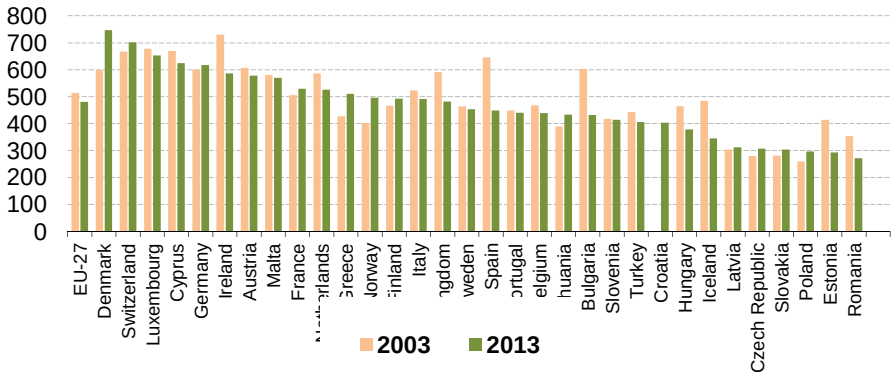

Fig 4. Municipal waste generated by country in 2003 and 2013 (kg per capita) (Source: NIS, 2015)

From the perspective of environmental implications there are certain rules to reduce taxes in order to use the techniques and technologies that consume fewer resources and generate more benefits.

[1] European Commission (2011), Citizen's Summary: EU Energy Taxation Proposal
[2] European Commission (2015), Renewable Energy Report
[3] European Commission (2015), https://ec.europa.eu/energy/en/topics/renewable-energy/renewable-energy-directive
[4] European Commission (2015), Waste Management, http://europa.eu/rapid/press-release_MEMO-14-450_en.htm
[5] Convenant of Mayors, http://www.covenantofmayors.eu/index_en.html

Software framework for assessing the overall index of involvement in sustainable development

The concept of SD involves the implementation of actions to reduce GHG provided in GRI and cost optimization across the company. This part of optimizing costs leads to quick implementation of these software solutions. To assess the overall index of involvement in SD a software tool was developed that is based on the indicators provided in the Global Report Initiative (GRI), which indicates the degree of involvement in SD for a company. The algorithm is based on the three pillars of sustainability (economy, society and environment) with all the life cycle phases and related information about the company. The interface is shown in the Figure 5. To estimate the degree of involvement in the sustainable development model (1) was used in which the level obtained is noted by SD and the pillars used are: economic (Ec), social (So) and environmental (En). These dimensions of sustainability (Ec, So, En) are evaluated quantitatively by assigning a score based on the level met for each indicator within reporting ($\boldsymbol{w_{Ec}, w_{So}, w_{En}}$).

$$S = \begin{cases} Ec \\ So \\ En \end{cases} = \text{f(Ec, So,En)} = w_{Ec} * Ec + w_{So} * So + w_{En} * En \qquad (1)$$

This is a dynamic assessment tool that includes indicators in three dimensions. Because we cannot speak of SD without risk assessment, as risk can be found in each activity or process, the software solution involves risk assessment also, for which finally a report is obtained with measures for prevention and treatment for extremely serious or grave risks and with a high probability of occurrence.

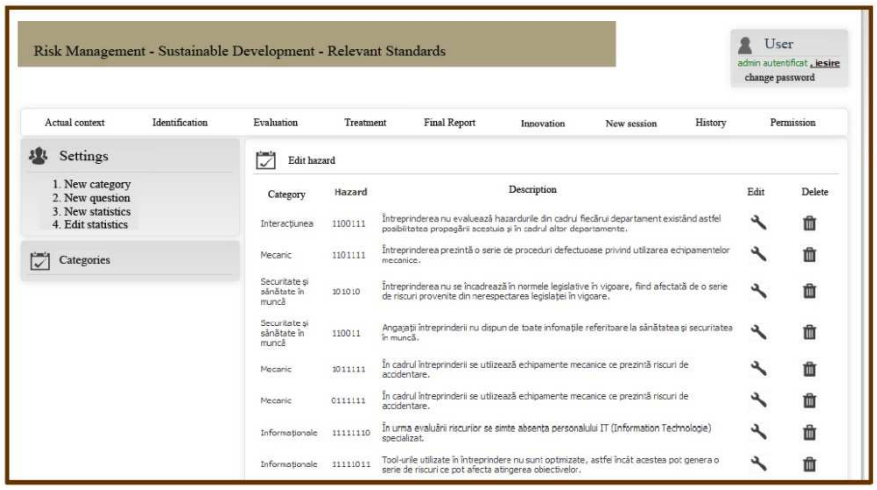

Fig 5. The assessment tool for sustainable development

The solution for evaluating the degree of involvement is dynamic and can be updated depending on the field of activity.

Conclusion and opportunities for tax incentives

Looking at the business environment, it has a complexity in which its interactions have become more uncertain, more numerous, more complex, new types of exposures, emerging risks, and old types of risks were amplified. We're talking about the need to adapt the notions and elements from literature to the needs of micro or macro change or improvement in the company's environment (Seran et al., 2014).

Sustainable development can help companies to identify, quantify, and attract opportunities and tax incentives related to alternative energy, energy efficiency, involving social issues and the environment protection. The opportunities offered by SD answer the question:

- Is your organization paying a significant amount of tax?
- Is your organization actively involved in SD?
- Does the organization try to reduce the total cost by implementing the concept of "going green"?
- Is involvement in society a priority issue for the company?
- Does the organization adopt new directions in terms of waste recycling?
- Is the use of "green technologies" a priority in your activities?

To act in this direction means to anticipate potential long and short-term consequences of an action in today's global market. The involvement of companies in the direction of SD and the implementation of decisions in this respect delivers real business value and increased competitive advantage.

The problems affecting the sustainability are the opposition between the needs of increasing population on the one hand and the planet's resources and the continuous degradation of the environment on the other hand, different interpretations associated with this concept have been developed, speaking in literature of: think green, green manager, green marketing, green hotel, green innovation, green economy, green audit and others. It speaks of a limitation of the concept, practically parallel with the definition from the "real" literature.

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Role of the Banking System in the National Economic Stability

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Abstract

The paper shows the important role of the banking system in Romania for the national economic stability by analyzing three main directions: the evolution of banking system, quality of services and strategies applied to the banking institutions. As a benchmark for the evaluation of the national banking system legislative rules and developments at European level are used. The banking system is the most sensitive national economy mechanism. On the one hand, the privatization and restructuring of the banking system and world economic instability on the other hand, led to a considerable increase in foreign capital in banking system assets (over 85%). There are presented the main stages of the Romanian banking system integration in the European banking system structure and strategies, and at the end of the paper the conclusions.

Keywords: Economic stability, strategies, banking performance, service quality.

Introduction

Since 2007, when unstable economic climate began to be felt, the financial crisis, the European Commission undertook a comprehensive reform of the financial services sector in Europe. The objective of the reform is to develop a solid and stable financial sector, essential for the real economy, by addressing deficiencies and weaknesses highlighted by the crisis. Financial instability started with easing lending conditions in the United States since 2001 (Satzinger et al., 2015). When granting credits the income was not taken into account so the banks have granted loans to low-income customers. Real estate loans had fixed interest rates in the first 2 years, then variable rate.

The stability of the banking system in Romania recorded major changes. Starting with 2006, interest rates have reached 18%, so bank customers had to think strategically. Growing offer in the property market, determined property prices to fall and so the value of the houses came under mortgages. At the same time trust of the holders in financial securities decreased and they proceeded to sell them. The main changes in the banking system in Romania aims: change of names, opening of branches of foreign banks in Romania, establishing branches abroad (e.g. Cyprus) and licensing of banks (e.g. Millennium Bank).

The impact of economic instability crisis on the banking system in Romania materializes in different directions: defining new conditions for contracting the products, restricting the share of assets in the system, reducing the liquidity, reducing broad profitability and maintain the solvency ratio at a comfortable level following stagnation in lending and asset quality deterioration.

In order to counteract the effects of economic instability, the banking institutions have taken a number of measures resulting in the strategies and business models. These are discussed in the fifth section of the present paper.

National stability is a prerequisite for the functioning of the national economy and can be characterized by a situation in which the economy does not register: imbalances that could cause a negative correction in financial markets, the emergence of a financial crisis or inability of financial

institutions to conduct specific financial transactions. The role of banks in maintaining financial stability is complex because it holds a significant share in the financial system. Analysing the current situation of Romania, as it happens also globally, there are recorded stability imbalances, i.e. the state of financial crisis. Therefore, the banking system has an important role in the country's economic condition, and this paper evaluates the elements of the banking system that contribute to exiting the financial crisis, i.e. the installation of financial stability.

To assess the role of the banking system in the national economic stability, the authors first identify the key stages that outlined the current banking system. Further, the authors evaluate the European context and the GDP level consistent with Eurostatt data. This economic situation affects the functioning of the banking system and the strategies they develop. These economic situations influence the fees of the bank products and services developed.

The key stages in the evolution of Romanian banking system

In the year 2014 in Romania there were registered 40 banks from which 38 credit institutions with private majority ownership, 34 credit institutions with foreign majority ownership and 9 branches of foreign banks (Popovici, 2014). On the banking market in Romania, there are two types of banks: commercial banks and credit unions. Romania's banking system knows beginning with 1990, a dynamic evolution that has contributed to maintaining a relatively stable banking market. In this respect, Table 1 presents the evolution of the banking system in Romania in terms of defining stages (Ionescu, 2012)

Table 1 The key stages in the evolution of banking system

Year	Activities and implications
1990	Romanian Commercial Bank (BCR) takes over the commercial activities of the National Bank of Romania (BNR) and price liberalization occurs.
1996	This year, only four banks remain licensed as a dealer in the foreign exchange market and the other are receiving the broker quality. There were a total of 40 active banks in the banking market in Romania.
1997	All banks receive back the foreign exchange dealer license on the market, the exchange rate and the foreign exchange market are liberalized. Indirect instruments are used as levers of monetary policy implementation and the elimination of quasi-fiscal constraints. - BNR goes in debt to the banking system, this amplifying monetary policy management difficulties
1998	Romania undertakes to refrain from placing restrictions on payments and transfers for current international transactions and not partake in currency commitments without IMF approval. BNR follows the operating principles of a modern central bank.
2000	This year, based on National economic development strategy of Romania in the medium term, BNR has developed medium-term development strategy of the banking system. This strategy was aimed at creating a sector with strong banks growing quality banking services and enhancing the competitiveness of the banking sector - The adoption of a regulation of money market operations in accordance with the rules and practices of the European Central Bank - At the end of the year 33 banks functioned as Romanian legal entities and 8 branches of foreign banks.
2002	This year is characterized by the harmonization process with the EU provisions (of rationale for issuance and use of electronic payment instruments) - Also this year is aimed at harmonizing regulations with the principles of the Basel Committee, namely to ensure a framework for policies and procedures for customer due diligence. - Number of banks at the end of the year is 39, compared to 41 banks in the market at the end of 2001.
2004	On the foreign exchange market intervention strategy changed by reducing their frequency.

	- In terms of the origin of the invested capital in existing banks and branches of foreign banks on the Romanian banking market at the end of 2004 the first three places were occupied by Austria (24.6% of aggregate capital), Greece (10 , 1%) and Italy (8.4%). - Currency system is balanced, and direct exposure to shocks resulting from changes in the exchange rate is minimal
2005	Adoption of inflation targeting strategy took place. - Denomination of the national currency (1 RON = 10,000 ROL)
2008	This year in the banking market in Romania worked 43 credit institutions. - Due to the financial crisis, the banking system went from excess liquidity to liquidity shortage, from excessive lending to a lower pace of credit growth - In the fourth quarter started an intensive process of attracting deposits begins
2010	There is capital increase of banks in real terms by + 9.1% compared to 2009 - NPL ratio has increased from 7.9% to 11.9% - Resizing the territorial network, banks have closed a total of 225 units - Of the 42 banks, 20 institutions have had profit at the end, the rest incurred losses. Total loss of the banking system was 305 million RON.
2014	There are 40 banks in Romania, from which 38 credit institutions with private majority ownership.

This evolution of the banking system brings about a sound system, which registered an entity with 40 banks in 2014, which was aligned to the national and international requirements of economic development. The stability of the banking system and its operational capacity contribute to maintaining the national financial stability.

The economic context in the European Union

European Commission (EC)[1], stated that the economic outlook for the European Union (EU) will further experience a period of growth and states that "Europe's economic recovery, which began in the second quarter of 2013, is expected to continue spreading across countries and gaining strength while at the same time becoming more balanced across growth drivers". EU Gross domestic product (GDP), which rose 0.12% in 2013, is now expected to rise 1.5% this year and 2.0% next year, while growth in the euro area, which was -0.4% for 2013 as a whole, is expected to be 1.2% in 2014 and 1.8% in 2015. The tax characteristics have to be followed and measured to increase national competitiveness (Kucerova, 2014). Inflation, unemployment and GDP indicators are analyzed to characterize the economic system in Romania compared to the EU. Thus, in Table 2, these indicators are systematized.

Table 2 Real GDP, Inflation and unemployment rate in the EU

Type	Real GDP			Inflation			Unemployment rate		
	2013	2014	2015 forecast	2013	2014	2015 forecast	2013	2014	2015 forecast
Belgium	0.2	1.4	1.7	1.2	0.9	1.4	8.4	8.5	8.2
Germany	0.4	1.8	2.0	2.1	1.6	1.4	5.3	5.2	5.1
Latvia	4.0	4.2	4.3	2.3	0.0	1.9	11.9	10.5	9.2
Malta	2.0	2.1	2.1	3.2	1.0	1.2	6.5	6.4	6.4
Austria	0.3	1.5	1.8	2.6	2.1	1.8	4.9	4.8	4.7
Portugal	-1.6	0.8	1.5	2.8	0.4	0.8	16.5	16.8	16.5
Slovakia	0.8	2.3	3.2	3.7	1.5	0.7	14.2	13.9	13.4
Finland	-1.5	0.2	1.3	2.2	1.7	1.6	8.2	8.3	8.1
Euro area	**-0.4**	**1.2**	**1.8**	**1.4**	**1.0**	**1.3**	**12.1**	**12.0**	**11.7**
Bulgaria	0.6	1.7	2.0	0.4	0.5	1.8	12.9	12.7	12.1
Hungary	1.1	2.1	2.1	1.7	1.2	2.8	10.2	9.6	9.3

[1] European Economic Forecast - Winter 2014 (2014) , European Economy 2|2014, http://ec.europa.eu/economy_finance/publications/european_economy/2014/pdf/ee2_en.pdf

Poland	1.6	2.9	3.1	0.8	1.4	2.0	10.4	10.3	10.1
Romania	**3.5**	**2.3**	**2.5**	**3.2**	**1.4**	**3.4**	**7.2**	**7.2**	**7.1**
Sweden	0.9	2.5	3.3	0.4	0.9	1.8	8.0	7.7	7.3
United Kingdom	0.1	1.5	2.0	2.6	2.0	2.0	7.6	6.8	6.5
EU	**-1.2**	**1.8**	**2.2**	**1.5**	**1.2**	**1.5**	**10.9**	**10.7**	**10.4**

Source: Eurostatt (2014)

From the data presented in Table 1, it is observed that:
a. In the EU, GDP is expected to record a 2.2% value in 2015, while Romania will register 2.5%. Romania's situation follows EU path, so the situation is acceptable;

b. In regards to inflation, EU records for 2014, 1.2%, while in Romania there is a double value, 2.4%. The lowest rate recorded in the same year by Greece, followed by Latvia. For this indicator the situation in Romania is not good compared to the EU;

c. Regarding unemployment rate at EU level in 2014, registering a value of 10.7%, while in Romania the level recorded is 7.2%. Austria has the lowest unemployment rate, i.e. 4.8%. Romania is below the EU, so this indicator has an acceptable situation.

As a final result, we can accept that Romania is following EU in terms of GDP trajectory. Regarding unemployment, Romania records a favorable situation taking into account the different economic indicators and economic climate instability. For the period 2010-2014, inflation and unemployment are shown in Figure 1. It is noted that the unemployment rate was lowest in 2011, 4.2%, while the maximum was recorded in the years 2013 and 2014. Regarding inflation, the maximum is recorded in 2011, namely 3.9%.

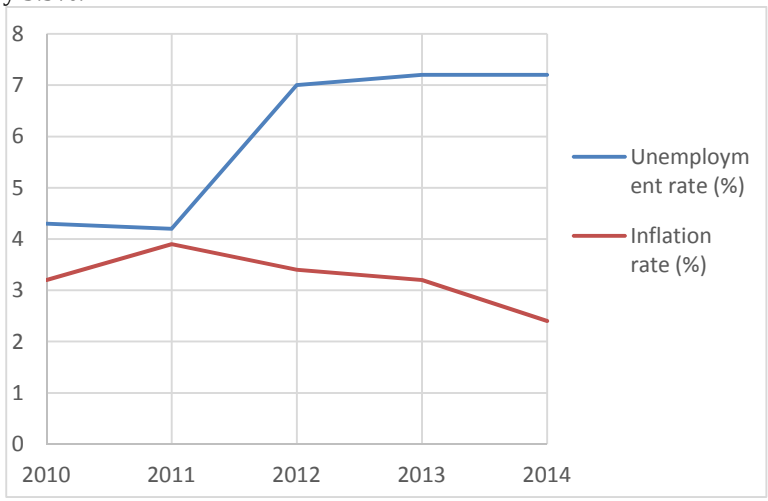

Fig 1. Rate of unemployment and inflation rate in the Romania ***Source: INSS (2015)***

Domestic and international economic situation influences the fees that are established in each country. Analysing the banking system, which is an important component of the financial system, the authors are assessing the influence of GDP and the economy in the banking services and products taxes.

Bank taxes and implications

The banking system in Romania offers a range of innovative products and services adapted to new technologies. In return, the fees and commissions are high. In Romania, the bank taxes exceed the average level of EU member states. A European Commission study (2010-2012) shows that Romania places with the highest costs related to a payment account. Figure 2 indicates the levels of fees in different countries. Note that in Romania, these costs exceed the average for the European Union, a

difference of over €50. These levels started to decline lately, but the relationship with other European countries is maintained.

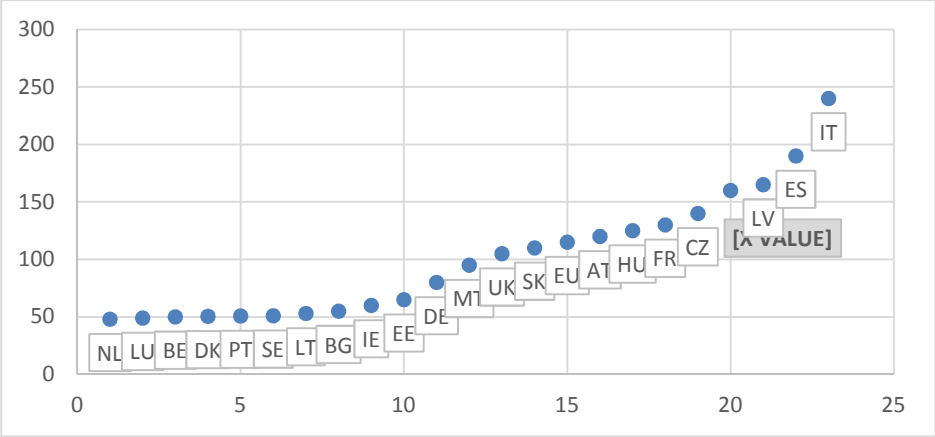

Fig 2. Taxes in the banking system

Bank charges analyzed concern: monthly current account management, issuing account statements, internet banking, debit card management, cash withdrawals (own ATM or other banks) and international transactions, et al.

Romania's banking system had 91.7% (Table 3) private majority ownership in the year 2014. This level is maintained each year. Foreign capital in 2013, is available in 90% of banks. The HHI score was 806 in 2014, which means that the market concentration is low.

Table 3 Herfindahl - Hirschmann Index and indicators for first five banks between 2008 and July 2014

	2008	2009	2010	2011	2012	2013	2014
Share in the total banks assets of private majority ownership (%)	94.6	92.5	92.4	91.6	91.6	91.5	91.4
Share in total banks assets of foreign ownership (%)	88.2	85.3	85	83	89.8	90	81
Share of first five banks in total banks assets (%)	54.3	52.4	52.7	54.6	54.7	54.4	53.9
Herfindahl -Hirschmann Index (HHI)	926	857	971	878	852	821	806

The high fees, low HHI value indicates the low degree of competition and high barriers to consumers for changing banking services provider. A series of regulations and strategies are needed for removing barriers to change banking provider.

Mapping banking system to service quality dimensions and new strategies

The evolution of the banking system, the national and international economic situation (assessed by GDP), banking products and services taxes, contribute to defining an optimum banking framework for overcoming the crisis. This output and the economic crisis lead to national economic stability, more or less. The development of a optimal banking system, balanced and durable, is done also by identifying quality services and developing new strategies. These strategies are developed according to the banking evolution, the fees and other features existing previously presented.

It is noted that the Romanian banking system has the following characteristics: low density in the number of banks (see Table 3 - HHI), high commissions for customers (see Figure 2) medium technological implications (see Mocan et al., 2015; Russian et al. , 2015), increased emphasis on the "bank and society" concept (Mocan et al., 2014), majority foreign capital (see Table 3) and private majority ownership (see Table 3). These characteristics of banks are weighted by national and international economic situation (see Table 2; Figure 1; and Artene et al., 2013). For mapping the banking system towards a sustainable system based on quality service and sustainable strategy, a questionnaire was applied to the banking professionals, and managers. They yielded 35 responses, its purpose being to highlight customer expectations regarding the evolution of the banking system in the medium term and also client characteristics. Data analysis and presentation in detail is the subject of further research, and for this work there were extracted central elements contributing to the theme addressed, i.e. mapping of Romanian banking system towards new sustainable strategies based on quality.

The banking system consists of several elements: computer networks, software, rules and procedures, human resources and databases. There are a number of classifications of the success factors that help the smooth functioning of the banking system (Seddon, 1997; Delon and McLean, 2008; Romi, 2013; Romi, 2015). Nationally these factors can be divided into four categories, Table 4. These have two directions: the quality and performance of infrastructure and the quality of human resources. These are the directions that contribute to the development of a competitive banking system that meets customer requirements.

Table 4 The classifications of the success factors

Success Factor	Definition	Local application
System Quality	All of the operating components.	Easy to learn, ease of use, ease to apply, user preemptive, flexibility, adaptability, compatibility, updating, and integration with another systems.
Information Quality	The quality of information sent to customers and staff	Availability, timeliness, relevancy, accuracy, systemic, completeness, structure, and interpretability.
Service Quality	A set of features that contribute to the delivery of quality services	Services reliability, assurance, security, accessibility, and placement.
Human Resource (HR) Quality	The quality of personnel that meet the needs and desires of customers.	Level of training, satisfaction, communication (verbal, nonverbal, body language).

Source: Adapted from (Delone & Mclean, 2008; and Romi, 2015)

After determining the characteristics of the banking system, Figure 3 shows an updated model for the banking system. Mapping the current system toward one adapted to the dynamic economic environment involves two directions to be continually updated: requirement analysis and technological capabilities analysis. Functional requirements refer to business and related products, on the one hand and accessibility and security from a customer perspective. Non-functional requirements include features obtained through the market research that has been performed. Technological requirements relate to the infrastructure used by banks and customers and the services offered by different providers of banking (Internet, Cloud Computing, Software, Hardware Components, et al.).

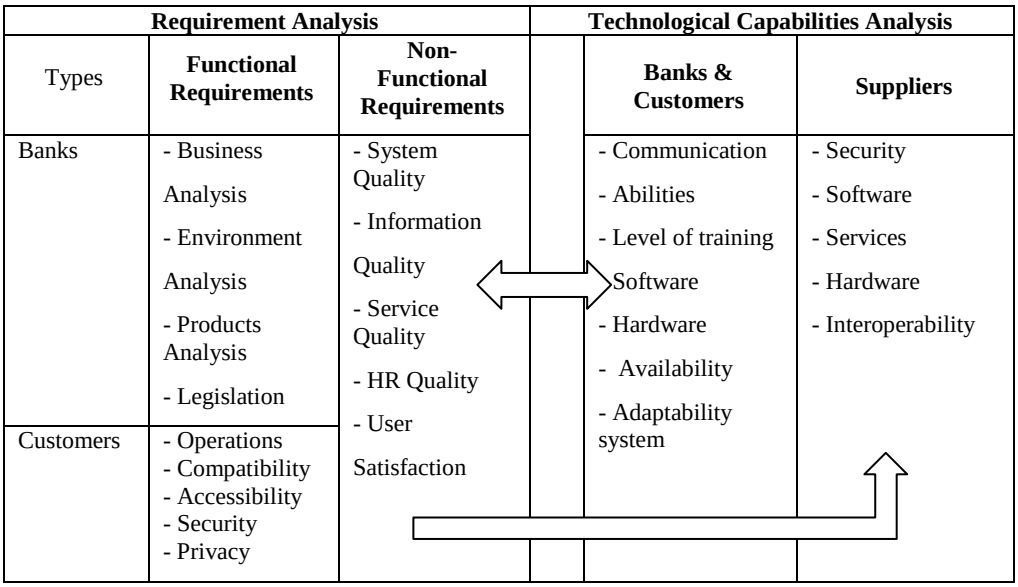

Fig 3. Preliminary model of a banking system

The results show that the overall strategy to be developed is centered on customers and the dynamic of the development environment. A strong influence is given by the situation in Europe and contributes to banks' desire to align internationally.

Results and limitations of the study

According to the Romanian Association of Banks, the banking system has demonstrated structural stability during 2014 by optimizing loan portfolio through an extensive process of cleaning the balance sheets and retains the ability to grant loans at a similar level as before downturn. In June 2015, the solvency ratio was 18.07% that is a high enough level. Romanian banking system did not need during the economic instability to be backed by public funds, being among the few systems from the EU that have experienced this situation.

In the composition of the Romanian banking system there are found 40 credit institutions, distributed by the end of 2014 as follows: two banks owned by state, three institutions with majority domestic private capital, 25 banks with majority foreign capital, nine branches of foreign banks and credit co-operative organization. The share of foreign-owned institutions' assets in total assets of the Romanian banking system increased 7% from December 2011 to December 2014, reaching 90%. From the perspective of the shareholder, the Austrian capital banks hold a market share of 36.7%, followed by banks with French capital with 13.3% and Greece 12.4%. -Hirschmann Herfindahl indicator registers a value of 806 in the year 2014, this is quite low.

As seen in previous research presented, the Romanian banking system registered from 1990 until now, the ability to adapt to economic conditions. So it has the capacity and power to contribute to exiting the economic crisis as banks represent the largest share in the Romanian financial system. National and international economic developments influenced the fees charged by banks for their products and services. These fees have been updated in line with national economic strength, so the banking system positively contributes to financial stability. And finally, the banking system must implement their development strategy based on the industry’s key factors that. These factors have been identified by applying the questionnaire survey to 35 managers of banks. The 35 managers cover 90% of the existing banks (currently 40 institutions in Romania). The development of a bank strategy helps with maintaining on the banking market. The banking system is the most important part of the financial system, so sustainable strategy in this sector leads to economic stability. This

relationship is not necessarily directly proportional, but the stability of the banking system contributes to national economic stability.

The limitations of the study refers to data available at national and international level. The data in Table 2 were taken from Eurostat. In the absence of other data, they cannot be altered by authors without scientific support, only by assumptions.

Conclusion

National Bank develops actions to achieve a safe, modern, competitive banking system that ensures the proper intermediation and receives society's trust, through systematic monitoring of the internal market for banking products and services and trends in the European banking sector. The Romania's banking system, especially in the context of international financial instability, it is recommended to maintain confidence in the investment climate which is optimum for financial intermediation growth benefiting the people, businesses and the Romanian state, so as to participate in the economic development of Romania.

The present research highlights the economic situation in Romania in relation to the situation at EU level. Based on these indicators, a mapping model is built to a competitive banking system that offers quality services adapted to the needs and desires of customers. Previous studies have shown (see Mocan et al., 2015; Russian et al., 2015; Mocan et al., 2014) strategic directions to be followed by banks to develop in a sustainable pace.

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Factors Influencing Customer Satisfaction towards E-shopping in Malaysia

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Abstract

Online shopping or e-shopping has changed the world of business and quite a few people have decided to work with these features. What their primary concerns precisely and the responses from the globalisation are the competency of incorporation while doing their businesses. E-shopping has also increased substantially in Malaysia in recent years. The rapid increase in the e-commerce industry in Malaysia has created the demand to emphasize on how to increase customer satisfaction while operating in the e-retailing environment. It is very important that customers are satisfied with the website, or else, they would not return. Therefore, a crucial fact to look into is that companies must ensure that their customers are satisfied with their purchases that are really essential from the e-commerce's point of view. With is in mind, this study aimed at investigating customer satisfaction towards e-shopping in Malaysia. A total of 400 questionnaires were distributed among students randomly selected from various public and private universities located within Klang valley area. Total 369 questionnaires were returned, out of which 341 questionnaires were found usable for further analysis. Finally, SEM was employed to test the hypotheses. This study found that customer satisfaction towards e-shopping in Malaysia is to a great extent influenced by ease of use, trust, design of the website, online security and e-service quality. Finally, recommendations and future study direction is provided.

Keywords: E-shopping, Customer satisfaction, Trust, Online security, E-service quality, Malaysia.

Introduction

A remarkable change in the business market has been observed as a result of globalisation which has changed the way companies run their businesses. E-commerce has entirely modified how businesses are done. Online shopping or e-shopping has changed the world of business and quite a few people have decided to work with these features. What their primary concerns precisely and the responses from the globalisation are the competency of incorporation while doing their businesses (Hamza & Saidalavi, 2014). Customer satisfaction is very essential for any business (Johnston & Kong, 2011; Kim & Stoel, 2004). With all the proliferation of the web applications, e-shopping is escalating consistently in phases, and it is a portion of the entire retail process. All the gross sales together add to the complete product sales.

While it comes with an established body of literature and an extensive knowledge about the design of physical stores, the revolutionary community of online stores and website properties at the moment are beginning to receive particular attention (Liu, Mengqiao, Fang & Xie, 2008). Researchers have attempted to discover website traits which affect customers' evaluation and satisfaction (Ari, 2015; Zeithaml et al., 2002) in addition to those which affect promoting performance and e-retail results (Momtaz et al., 2011; Weather & Makienko, 2006). The actual technologies of today are vastly progressive and work best for people who know how to shape them. The online world is really unfolding; anybody can now visit their own computer systems and take good care of his or her financial business, or go online to improve their own properties. Companies also tend to be both accommodating and obstinate towards implementations of e-commerce for better profitability.

E-shopping has increased substantially in Malaysia in recent years. The rapid increase in the e-commerce industry in Malaysia has created the demand to emphasize on how to increase customer satisfaction while operating in the e-retailing environment (Mamun & Che Nawi, 2014; Momtaz, Islam, Ku Ariffin & Karim, 2011). It is very important that customers are satisfied with the website, or else, they would not return (Kim & Stoel, 2004; Trong, Vu Khan, & Gim, 2014). This specific aspect may affect their future buying decision. Therefore, a crucial fact to look into is that companies must ensure that their customers are satisfied with their purchases that are really essential from the e-commerce's point of view. With is in mind, this study aimed at investigating customer satisfaction towards e-shopping in Malaysia.

Literature Review

The introduction of e-features supplied opportunities to businesses to sustain their edge against their competitors by providing better, faster and more convenient services to their customers. Buying online is one of the biggest contributors to the speedy growth of browsing (Ari, 2015). Moreover, the internet has removed quite a few obstacles to communication created by landscape, time zones and has managed to help the "frictional" business environment (Zaino, 2002). It can help improve the business processes, and in doing so, it allows for firms to control orders digitally, thus, reducing the dependence on middleman. The waiver or reduction of charges in brokerage and service representation at the end of the day lowers the closing cost settled by customers. What is more, it makes it possible for the organization to enhance its system of feedback and customer services by means of supervising outings for the website on the net (Hamza & Saidalavi, 2014; Yang, 2001). Online programs for e-commerce are now driving firms to improved turnover, strengthened customer services and improved feedback system. The internet is currently incorporated into people's lives for their distinctive use, and is not solely just for companies. The aim of e-commerce is to strengthen customer service, to continue to maintain a very good interaction level with customers and mostly to increase the turnover of organisations (Cranor, 2003).

Customer Satisfaction

Customer satisfaction is specifically reviewed in traditional promotional literature (Mason & Bearden, 1979). Many researchers have looked at the different qualities of this particular element of e-commerce and the way various features affect the outcome of customers' satisfaction (Mamun & Che Nawi, 2014; Schaupp & Belangar, 2005). Working with the various actions indicating satisfaction and loyalty, researchers can get tempted to establish relationships using online capabilities. Sterne (1996) links the effect of high- and low-task relevant qualities on satisfaction mediated by means of reactions such as satisfaction and excitement. Nusair and Kandampully (2008) utilized atmospheric factors (e.g. songs and colour), termed as low-task pertinent attributes by Lee et al. (2011) and uncovered two factors that affect participants emotionally which in turn inspired objectives to purchase. Ballantine (2005) reviewed a good online site promoting video cameras and identified the interactivity and product information to generally be favourably relevant to customer satisfaction. Thus, companies need to provide customer satisfaction in having to create increased human relationships, some of which may not be probable, or having to rely on loyalty of customers.

Nevertheless, if just a tiny percentage of customers would make use of online cost, the possibility could be massive (Ari, 2015; Holland & Westwood, 2001). Using the online cost, a customer can make a lot of financial deals at reduced prices. The world is becoming increasingly open because of the web and the ecommerce industry.

Ease of Use

In accordance with Nielsen (1994), the methods for testing can be: Heuristic review, heuristic appraisal, intellectual walk-through, pluralistic walk-through, persistence evaluation, feature assessment, formal user friendliness check and expectations test. Heuristic review is easily the most laid-back method and requires acquiring user friendliness specialists to ascertain if each dialogue aspect follows the established heuristic rules (Trong et al., 2014). Lee et al. (2011) suggests that good

web designs can be seen in great firms and they must possess an effortless lookup facility. Shopping is assumed to generally be enjoyable and fulfilling and the promoting sites therefore must generally be organized and are easy-to-navigate. Heuristic examination is a functionality review method which will help reveal simplicity or difficulties in software design.

Online businesses can give customers more ways to secure purchases, solutions and services over the net and with lower customer service fees; hence a greater level of customer satisfaction can definitely be attained (Kim & Stoel, 2004). By using e-commerce, this can all be granted. Not only is that, customers capable of doing these particular transactions within the comfort of their own personal space. Zhang et al. (2006) discovered that this trend to offer in online sales is influenced by the affinity with the computer, its ease of use, and users' involvement in the auction. Ease of use has been deemed an essential factor in information technology popularity (Zhang et al., 2006). Hence consumers with more confidence in using technologies are more likely to do online shopping. Consequently, the two perceived factors (ease-of-use and technology stress) and morals and attitudes are estimated to influence online customers' satisfaction. Based on the discussion, this study will test the following hypothesis in the context of Malaysia:

H1: There is a positive relationship between ease of use e-shopping customers' satisfaction.

Trust

Trust on the seller is actually essential for establishing customer loyalty and having continuity in buyer-seller associations (Kim & Kim, 2006). Many researchers have asserted that trust is usually a vital link which allows relations to be built when there is scepticism, information asymmetry, and anxiety of opportunism (Hamza & Saidalavi, 2014; Pavlou et al., 2007) in the case of e-shopping (Lee et al., 2011). Any organisation that possesses a website in any case undoubtedly tries to minimise risks. High-tech techniques using shields and firewalls may help to stop this kind of fraudulent activities. However, it does not matter how much money or how innovative a technology that is being injected into obtaining an online system is, there is not a single sort of factor that has been fully tried and fully trusted upon.

Security concerns is the main opposition to going online as this can drive them to furnish details online (Heiner et al., 2006). Putting attention exclusively to the probable profit earned with the existing purchase is definitely not an option for the e-retailers. Customers need assurance from the e-retailers on their personal data to be protected. Companies that find a way to get over this kind of malicious activity after their purchase could be the companies liked by the customers who could achieve satisfaction (Daffy, 2001). Based on the discussion, this study will test the following hypothesis in the context of Malaysia:

H2: There is a positive relationship between trust and e-shopping customers' satisfaction.

Design of the Website

The contents of websites could include texts, pictures, layout and any other elements that can stimulate consumers' purchase intention (Fazli & Nor, 2010). Website designs can evoke a wide range of emotions as well as attitudes from users. It is generally suggested that website designs should consist of sophisticated media with a more realistic environment in order for users to be positively influenced in their purchase intention (Hausman & Siekpe, 2009). Website design has a direct influence on consumers' purchase intention, and website design features have positive effects on consumers' e-service quality perception.

On-line shops have to deliver acceptable functions to support the shopping demands of their customers throughout their entire decision making process (Liang & Lai, 2002). All of these factors have effect on websites. The positioning ought to always be sliced in a way to ensure less time is involved for customers to find the internet site online, which can have an effect on their response time. Internet sites with a lot of images generally tend to load quite slowly. Those who use animated

graphics may incur delays from time to time. This can put off users' for lengths of time, so this kind of delay can have considerable effect on users' satisfaction (Weinberg, 2000). Website design quality is as essential as product price, and is a bigger factor in comparison with store status. Consumers will probably check out and purchase with well-designed shops that have appealing characteristics. "Consumers' willingness to visit again is more than their own motivation to purchase again" (Liang & Lai, 2002; Trong et al., 2014).

Buyers need to generate unique decisions (using clear information) concerning prices without getting out of present- day work. The system must support undo and remodel (Momtaz et al., 2011). One of the important features that must be considered in order to design and style an excellent website, and which website builders should take into account, is handiness. Navigation selections assist people by providing a visual counsel and overall flexibility in getting around a website (Ari, 2015). Navigation possibilities are required and can simply highlight important pieces of information on the website.

Websites of better quality can attract customers' attention and bring back the users to revisit the website frequently. On the other hand, poor website quality and design de-motivate users from revisiting the website. It should adhere to real-world exhibitions in generating information and display in a normal and realistic order (Mamun & Che Nawi, 2014; Muyllea et al., 2004). It might also want to use more common and comfortable icons to generally complement the website system and other internet websites. Otherwise users might require a visible secretary to guide them through the website and this guide will go between the systems to follow a real- world idea to protect users from unawareness of any online security threats (UKOLN, 2008). However, building a good website is actually a complex task. Lots of factors should be considered. A very good design should present sufficient sensible support in order to meet customers' wants at each and every stage of his or her decision point. Based on the discussion, this study will test the following hypothesis in the context of Malaysia:

H3: There is a positive relationship between design of the website and e-shopping customers' satisfaction.

Online Security

There are malwares and spywares which could be obtained by hitting emoticons or grabbing no-cost software (Zhang et al., 2006). The particular lack of education and protection of information causes financial losses for consumers, vendors, surveillance businesses, along with any institutions connected with e-commerce (Chen & Chang, 2013). Symptoms of fraud for a vendor can be triggered via a fraud management system and screening, while for individuals it is wide-ranging and are frequently only discovered prior to people being defrauded. However, for each of these kinds of distinguishing symptoms, locating the actual hoaxes is usually identified concurrently. Waiting usually results in credit reports being harmed, bank accounts being drained, payments being questioned or perhaps purchases not acquired, although there is no easy way to recognize fraud (Chen & Chang, 2013).

People and merchants must realize the potential success of their actions and learn where they would turn out to be a victim of a counterfeit or a scam, or some other deceiving engagements. Quite a few people know that one can find bogus businesses operating online with fraudulent intents, so they are aware and recognise theft as a concern when offering their information. However, quite a few people do not realize that comfort could be hard to obtain whether it is highly valued, and security may be breached in more ways than expected (Dellaert & Kahn, 1999). The online industry continues to focus on solving the particular waiting time period by using approaches that are specialised, that are currently extremely expensive and cumbersome to hire (e.g., fiber content optic wire). These kinds of approaches are yet to, at this point in time, exhibit the desired outcomes (Weinberg, 2000).

When a consumer does a payment online, often there are risks incurred (Zhang et al., 2006). Online security works to secure privacy of online transactions and consumer's private information. In recent years, customers have become extra susceptible to security challenges on the web (Hamza &

Saidalavi, 2014). All types of information may be tracked when browsing the Web and interchanging e- mails. Information security is becoming a vital business and is a technological task for virtually any company that has an inclusion of online financial activities. For that reason and the delicateness of its routines, financial establishments must look into the overall security of their activities and operations (Grewal et al., 2004; Momtaz et al., 2011). Based on the discussion, this study will test the following hypothesis in the context of Malaysia:

H4: There is a positive relationship between online security and e-shopping customers' satisfaction.

E-Service Quality

Consumers today are more sensitive to services provided by companies to them, and good service gives them a good experience. Once customers obtain good experience from the service provided they will be satisfied and that can switch them to loyal customers. Hsuehen (2006) stated that service can be defined in many ways. Service can be defined as acts, performances and experiences. With increased competition among companies which has taken to e-commerce as well as the online channel in dealing with their customers, the concept of e-service quality has become a more important factor because it can lead to customer satisfaction as well as retention.

Over the last two decades, especially, e- service quality has been measured in different ways (Zeithaml et al., 2000). A number of studies done in the past focused on technical service quality rather than quality of service (Zeithaml et al., 2002). E-service quality can be considered as the entire process of e-service delivered through the online channel by e-service providers. Service as an intangible product gives customers different levels of satisfaction. A certain level of base service has to be given to customers to meet their basic expectations.

A lot of online shopping websites provide continuous individual support for consumers. This is predominantly for after- sales enquiries on administrative issues and provides complex support. In addition, to make it easier to use internet websites give online feed back to visit again. While with improvements should come systems without the need for paperwork, systems may still be required to present supporting documents. Such information should be very easy to seek, focused entirely on tasks, and generally with checklists defining steps to be carried out (Walsh & Godfrey, 2000). Based on the discussion, this study will test the following hypothesis in the context of Malaysia:

H5: There is a positive relationship between e-service quality and e-shopping customers' satisfaction.

Methodology

Marketing research lends itself to the belief that the actual theory can come prior to the research (Gephart, 1999) and this research can be performed to find out the particular abilities of a theory that can be tested or even falsified (Nicholas, 2000). That is why quantitative method offers more added benefits when there is variety and large amounts of customers to evaluate the research (Sekaran & Bougie, 2015). Using this approach, the researcher would be spending a reasonable length of time to collect massive amounts of customer data and produce the correct dimension of quantitative data with a mathematical analysis (Saunders et al, 2007). In this study a survey using a questionnaire has been employed. The use of survey in this study has enabled to gather a huge amount of information from a good-sized people in an extremely inexpensive method. The questionnaire items were adapted from different sources for different constructs (e.g. Mamun & Che Nawi, 2014; Momtaz et al., 2011; Trong et al., 2014). However, only items with Cronbach Alpha ≥ 0.80 were considered.

The population for this study consists of customers who use e-shopping in Malaysia. However, for this study, a total sample of 400 questionnaires was distributed among students randomly selected from various public and private universities located within Klang valley area. Total 369 questionnaires were returned, out of which 341 questionnaires were found usable for further analysis. This study choose students as sample because, students are young who tend to use more e-shopping

than older generation. After the data collection, all the responses were coded and keyed into SPSS worksheet for further data analysis.

Reliability analysis was performed using Cronbach Alpha test. As stated by Nunnally (1978), any value higher than 0.70 is considered reliable. Using the guideline, this study has achieved an alpha value of 0.863 which is above the accepted value.

Results and Discussion

This study has employed Structural Equation Modelling (SEM) for data analysis. Prior to final data analysis, EFA was conducted using SPSS to measure the construct reliability, validity and unidimensionality of the constructs. Furthermore, CFA was conducted to re-confirm the convergent validity, construct validity, discriminant validity as well as internal reliability using AMOS software. The results are presented in table 1 below.

Table 1: CFA Results

	Name of Category	**Required Value**	**Comments**
	Unidimensionality	Factor loading for each item ≥ 0.50	The required level is achieved
Validity	Convergent Validity	Average Variance Extracted (AVE) ≥ 0.50	The required level is achieved
	Construct Validity	All fitness indexes for the models meets the required level	The required level is achieved
	Discriminant Validity	The correlation between exogenous constructs is ≤ 0.85	The required level is achieved
Reliability	Internal Reliability	Cronbach alpha ≥ 0.70	The required level is achieved
	Construct Reliability	CR ≥ 0.60	The required level is achieved
	Average Variance Extracted (AVE)	AVE ≥ 0.50	The required level is achieved

Finally, SEM was employed to test the hypotheses formed in this study. For the overall model as a whole, the statistical result indicates a good fit. The complete model inclusive of the 5 hypothesized paths is illustrated in Figure 1 and Table 2. From the model, it can be seen that all the variables uphold a positive effect on customer satisfaction towards e-shopping in Malaysia.

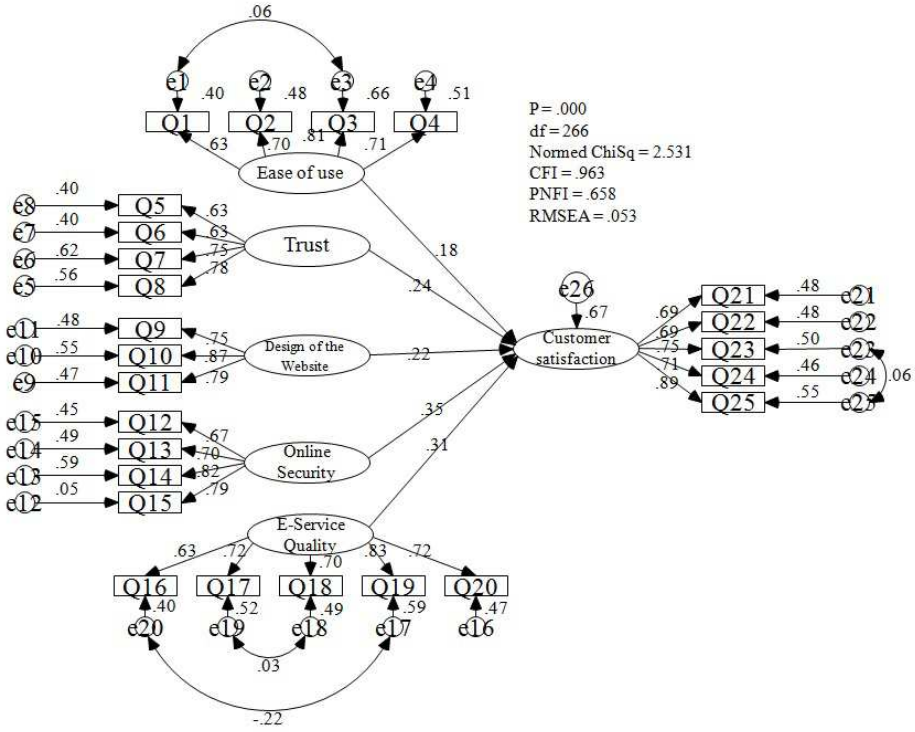

Fig 1. Structural Model of the Study

Table 2: Final Output

Name of Category	Recommended Value	Obtained Value	Comments
Absolute fit	RMSEA ≤ 0.08 (0.10 may be)	0.053	The recommended level is achieved
	ChiSq/df ≤ 3 (3-5 may be)	2.531	The recommended level is achieved
Incremental fit	CFI ≥ 0.90	0.963	Closer to the recommended level
Parsimonious fit	PNFI ≥ 0.50	0.658	The recommended level is achieved

From the above table, it can be seen that the fitness level has been achieved [Absolute fit (RMSEA) = .053, (ChiSq/df) = 2.531; Incremental fit (CFI) = .963; and Parsimonious fit (PNFI) = .658] (Figure 1, Table 2). The respective indices, namely absolute fit (RMSEA and ChiSq/df) and Parsimonious fit (PNFI and PCFI) indicates a good model fit as the values attained in each of the indices amounted to higher than the required level for achieving the model fit. However, for Incremental fit indices (CFI), the required level is well above the required value of 0.90. With the assumption that the default model is appropriate, the model fitness level is accepted as indicated by Byrne (2010) and Hair et al. (2013).

Table 3: Path Coefficient

			Estimate	S.E.	C.R.	P
Customer satisfaction	<---	Ease of use	.178	.055	3.214	.001
Customer satisfaction	<---	Trust	.244	.047	5.109	***
Customer satisfaction	<---	Design of the Website	.216	.067	3.326	***
Customer satisfaction	<---	Online Security	.351	.164	2.141	***
Customer satisfaction	<---	E-Service Quality	.308	.176	1.749	***

SEM is considered as a meaningful statistical approach for its ability to disclose the existence of direct as well as indirect relationship between variables. In accordance to the above discussion (Table 3), it can be perceived that customer satisfaction towards e-shopping in Malaysia is to a great extent influenced by ease of use, trust, design of the website, online security and e-service quality as shown by the best fit model. However, online security and e-service quality seems to be more influential elements that significantly influence customer satisfaction towards e-shopping in Malaysia.

This study suggests that e-retailers need to create some appealing image to buyers through increasing the level of security with the means of attractive marketing campaigns. Subsequently, they will be able to attract the consumers to visit their websites often. Eventually, there is need for a unique mechanism that provides hassle free and safer e-shopping experience all the way to the checkout.

Conclusion

Many researchers have been concentrating on customer satisfaction of e-shopping recently. Nevertheless, there may be a need for finer examination with customer satisfaction in unique countries. Even now, there is a big research gap in places, primarily in establishing nations around the world, which may change substantially. With the outcome of the following study, the finding shows that the higher the amount of time spent in online shopping, the higher the level of customer satisfaction as they interact more with the e-retailers. Customer satisfaction, coupled with consumer's anticipations, will be the ultimate goal of the performance of items. A lot of contented customers normally have the intention to re-purchase products in the event that product performance meets her or his expectations. It would be interesting to study exactly the same factors linking online shopping satisfaction to a different, more ordinary internet individual population.

This study has attempted to address the factors influence customers' satisfaction towards e-shopping in Malaysia and introduced some important indicators from Malaysian perspective. This study has focused on customers' satisfaction towards e-shopping in Malaysia. Thus, this study has significantly contributed to the empirical evidence of the trends in the online purchase literature. This was achieved by empirical testing of the structural relationships among variables that influence customers' satisfaction towards e-shopping in Malaysia.

Its resulting indicators will help both the academics and the people involved in the industry to understand what influence customers' satisfaction towards e-shopping in Malaysia and their revisit intention to the websites. This study finding will help to identify the requirements and solutions for defining the web policies to maximize the productivity and e-development for Malaysia.

In conclusion, this study suggests that some other variables might also be explored and a comparative study between two different countries is also possible which can add more value to the existing literature and the empirical evidence.

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The Rise of Cyber Market for Stock Art: Assets Aggregation And the Wealth of Mass Creativity

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Abstract

Quick development of net businesses allowed to maximally using of mass creativity. Following huge supply of stock art has led to unacceptably low prices. But while the professional authors are hardly satisfied with the pricing on e-markets (especially based on the principles of RF licensing), the Internet's mass audience takes to any opportunity to earn money online with enthusiasm. This is clearly shown by the rapidly growing collections and the annually increasing sales revenues of microstock companies of all types. As we show, during the last years risk management conceptions preferably shifted to aggregation of extra large intellectual asset portfolios. Carefully studying the trends in demand, microstocks continuously adjust their business models, offering new options (extensions) to licenses, and taking into account the numerous technological and genre-based specifics in consumer activities. In this study we concern the stock digital image, audio, and text e-markets.

Keywords: asset aggregation, copyright, microstock, RF license.

1 Introduction

In recent years, an institutional group of cybermediaries has quite clearly been forming in the e-commerce market, operating with copyright assets of stock art. Despite the fact that activity in this area has its own specifics, it is possible to compare it with other type of mediation in the patent market (Millien and Lauri, 2008). The economic features similarity of patents and copyrights was discussed in early theoretical works (Watt, 2000; Landes and Posner, 1989). But we believe this similarity also to be considered in risk management principles of new cybermediaries, as comparable with large patent portfolio aggregators (Myhrvold, 2010).

The concept of product and service aggregators exists usually in connection with obtaining aggregation benefits from the concentration of different products and services (Giaglis, Klein, and O' Keefe, 1999). This concept is not associated exclusively with the products of intellectual activity. Often cited examples of such market intermediaries are travel, hotel, and transportation services, as well as the insurance, information and financial services related to them (Bhargava and Choudhary, 2004). The concept of 'content aggregator' is also well-known in e-commerce in connection with systematic collection of news or other structured information (Charlesworth, 2007). However, we believe this concept does not include the features of specific intellectual assets and essentially does not indicate their presence at all.

New intermediaries today offer consumers a wide range of products and services in the commercial digital markets of stock images (mainly photographs), video, audio, and literary (text) works. These companies provide a substantial amount of creative content and, in fact, have formed new segments in the specialized electronic market. Noted similarity of new cybermediaries with patent aggregators can be identified in their overall approach to the formation of extra-large strategic portfolios of intellectual assets. This analogy allows us to confidently call such intermediaries as *stock art asset aggregators.* The size of the portfolio (collection) of just one of them today can be tens millions of assets. For example, in 2016 the leading photostocks image collections held: *Shutterstock* (http://www.shutterstock.com) - about 80 million; *Dreamstime* (http://www.dreamstime.com) - more

than 40 million; *Fotolia* (http://www.fotolia.com) - more than 52 million and these figures are increasing every month.

On the other hand, the difference between such companies and patent aggregators is associated with the significant differences in copyright enforcement capabilities compared to patent law as a whole (Varian, 2005; Towse, 2006). In particular, copyright assets do not have any documentary title of intellectual property similar to patent registered in the Patent Office public register. Copyrights not recorded in such registers are more indistinct. Finally, the sale of the rights (licenses) to use assets (e.g. electronic image files, audio recordings, texts, etc.) has another market mechanism.

In this paper we analyze the similarities and differences between the business models of new cybermediaries operating with various assets of stock art. Then we discuss the practices of commercial turnover of digital stock images, audio recordings, and texts pertaining mainly to RF licensing copyright models both in international and Russian market. In addition, we discuss the reasons for the rapid spread of the RF model on the stock art markets as well as various improvements (expansions) to this model.

2 Digital images and audio files as base assets and the principles of their commercial sale

Sales (concession) methods have long been established in both Russian and international practices for the rights to stock imagery (unlike to custom imagery) by way of contract with the author or copyright holder. Specifically, RF (Royalty Free) licenses are usually purchased by small advertising agencies to use images in projects with low budgets or as illustrations in corporate booklets, magazines, reports, and websites. Under this model, the buyer makes a single payment and can use the image an unlimited number of times for an unlimited period. In practice, quantitative restrictions are still put in place, but the limits are usually quite large, for example, 250 or 500 thousand times. The buyer does not receive the copyright to the image with this license.

RM (Right Managed) licenses are more expensive and give the buyer limited or exclusive rights to use an image, for example, within a certain time period, for a fixed circulation, or for use with certain types of products. The advantage of an RM license is the possibility to purchase an image exclusively. Traditional agencies and photobanks (see below) selling such licenses retain information about all previous purchases, which allows them to track when, where, and by whom an image was used (ASMP, 2014).

The types of licenses, as well as their contents formed during the long history of market relations in the industry, as well as legal practices, which are the subject of constant attention from professional associations. Well known are the European CEPIC (Centre of Picture Industry), the ASMP (American Society of Media Photographers) and other communities (Carr, 2012). In the stock imagery market currently there are two main types of intermediaries:

- Traditional photostock agencies or ‘classic photobanks’;
- Microphotostock agencies or ‘microphotostocks’.

Stock raster and vector illustrations created by graphic designers, as well as video clips, are often a part of microphotostocks’ collections. In addition, many photostock agencies also aggregate stock audio files into their collections. This explained by the similarities of the basic properties and principles of the commercial turnover of digital stock image and audio files (as opposed to the text files).

We focus this study in the second segment, where buyers have independent access to collections via e-commerce networks, fixed prices, a simple and inexpensive licensing process, and a huge number of suppliers (authors) from around the world (Glückler and Panitz, 2013 a, b, c).

2.1. The role of microphotostocks in the development of RF licensing

Internet considerably forced the activity of all types of photo-agencies, which we consider as imagery aggregators. A host of photography sites, photo-club networks, photo-sharing (file-sharing) services, etc. appeared. Namely one of them has become the standard for modern models of stock imagery aggregators in the second segment – microphotostocks. The online community *Istockphoto*, which was initially formed in 2000 for the free exchange of digital photographs by web designers, is considered the pioneer of the industry. The fact was that its image base grew so quickly that it soon required significant money for site hosting and the organization of a good search function. To compensate these costs B. Livingstone, the founder of the community, first established a nominal fee for the ability to copy (download) images (Decker, 2005).

In the modern sense, namely this was payment for the RF license to use the image. The service was organized in such a way that, after each paid download by a buyer, part of the total sum went to the author, and part to the *Istockphoto* community. The first important feature of this model is that any image may be copied an unlimited number of times.

The second feature is that the price of an RF license was, and remains nowadays very low. In the majority of microphotostocks it is about $1-2. The author of the image receives a very small amount from each sale, usually between $0.25 and $0.40. For this reason that type of aggregator is called a microstock or micropayment company (Charlesworth, 2007). However, in the case of the commercial success of a particular image, the number of licenses sold (paid copies) can reach tens or even hundreds of thousands, and cooperation with aggregators becomes actually profitable for authors (Livingstone, 2007).

The commercial success of the *Istockphoto* project was fast and compelling. One reason for the success was the urgent need of many new Internet users for cheap images. The fact is that websites, presentations and advertising banners do not need photographs (images) with high DPI (Dots per Inch), which can cost hundreds dollars in traditional photo agencies. Therefore, the main clients of microstocks became web designers, mass media, advertising, marketing companies, who often require an image only as a template for their projects. As a rule, the budgets for these projects are low and do not allow for custom on-location or studio photography or RM licenses for expensive, highly artistic images to be bought.

On the other hand, amateur photographers and graphic designers received a good opportunity to earn on the imagery cyber market. In addition, at the end of the 2000s, leading microstocks also started selling ‘footage’ – short videos with a duration starting from just a few seconds. As the demand for video on the Internet and mass media is becoming higher and higher, this process attracted videographers to photostocks.

Finally, a similar business model was formed by *audio aggregators* or *microaudiostocks*, collecting commercialized digital stock audio recordings and sound effects. Moreover, due to the fundamentally similar commercial properties of image and audio files as has already been mentioned, many microphotostocks also aggregate audio collections. Examples of successful audiostocks are: *AudioMicro* (http://www.audiomicro.com); *Pond5* (http://www.pond5.com); *PremiumBeat* (http://www.premiumbeat.com).

A typical standard RF license from an audiostock may provide unlimited (including in terms of time) use of stock audio files for corporate or personal websites, slideshows, non-profit films or theater productions (e.g. film festivals, student projects, etc.), free applications or games. This type of license can allow, for example, the production of thousands of copies of DVDs or applications (games) which turn a profit. The demand for stock audio is also continuously growing. We know this industry is occupied by companies whose business is related to the ‘invention’ and synthesis of sounds and its reproduction, duplication, and sale. But microaudiostocks, as well as microphotostocks, have confidently set themselves up in the intermediary niche of this market.

2.2. Licensing innovations of microstocks

Microphotostocks and microaudiostocks gradually expanded the standard RF licenses to provide a greater variety and more convenience for their clients. New Enhanced Licenses (EL) are developed by each company individually. However, the industry is gradually creating common approaches to their content. In the range of licenses offered by large microphotostocks we can see:
Unlimited Seats license (U-EL) extends the standard RF license to an unlimited number of workers within the same organization counted as a single registered user. The total number of copies is usually fixed at 250-500 thousand.

Increase Maximum Copies license (I-EL) increases the standard RF license to a maximum circulation, usually set in hundreds of thousands of copies.

Web Usage license (W-EL) gives the right to use copies for commercial website templates, screensavers, e-cards and presentations, as well as backgrounds and sounds for mobile devices. The maximum number of copies may be set at 10 thousand (for each type of use).

Print Usage license (P-EL) grants the right to use images for printing on t-shirts, greeting cards, mugs, mouse pads, posters, calendars, and framed artwork up to a maximum number of copies, for example 10 thousand (for each type of use).

Finally, *Sell the Rights license* (SR-EL) gives the buyer full ownership, effective from the moment the image is downloaded. The buyer receives the exclusive rights for the file, but cannot claim the image was created by them and cannot resell it as their own work. The aggregator must deactivate the file in its database immediately after the sale of the license. The author is required to remove the file from other collections, where it can be sold or copied, as soon as possible, usually no more than 72 hours after the sale. The author must acknowledge and agree to provide the buyer with the ownership right to the file purchased under this license. The incentive for the author is usually a very high price compared to a simple RF license. For example, in the photostock company *Dreamstime*, the cost of a license for an indefinite period starts from $250.

The extension of the standard RF license from audio aggregators can be structured in different ways. For example, depending on genre, *PremiumBeat* offers the licenses for:

- Television and radio shows, including TV series and miniseries; television and documentary films; talk shows and reality shows; news programs;
- TV and radio advertising, taking into account the limited broadcast range (e.g. 500 km) or in the national advertising campaigns;
- Cinema and theater productions etc.

In addition, it can also cover the mass copying of files, such as audio tracks with laser discs, audio books, applications, and games that generate income. However, the price of a license for an unlimited or limited number of copies can also be sufficiently high. Standard and extended RF licenses in audiostocks provide so-called *synchronization rights* that are required, for example, to use audio files in professional filmmaking. In Russia, such rights are called as ‘screen rights’.

2.3. Microphotostocks in Russia

In Russia this business may be presented by such companies as *Lori* and *Pressphoto*. A few other companies and photo agencies also combine microstock and traditional photo stock models.

The Moscow-based company *Lori Photobank* (http://www.lori.ru) was established in 2006 and has accumulated a collection of about 18 million images and more than 200 thousand high-resolution videos. Authors collaborate with the company on a direct agency contract basis and receive a commission of between 30% and 50% from each sale. In the same way as foreign microstocks, *Lori* offers customers both standard and extended licenses to use images on the Internet, for printing, outdoor advertising, etc.

Pressphoto (http://www.pressfoto.ru) was established in 2009 in Chelyabinsk, and currently advertises a collection of 10 million photos, 700 thousand vector illustration and 300 thousand videos. Every contributor receives one of six ranks depending on the total revenue from the sales, and a contributor's remuneration is based on their rank. This company is the member of CEPIC (see above).

Russian microphotostocks are lagging behind their foreign counterparts, which can be explained by their substantially later entry into the market compared to analogous foreign companies. One likely reason for this is the lack of sufficient domestic demand for pictures of Russian subject matter, as well as the later development of related network services. Despite this, Russian photographers, graphic designers, and videographers successfully tapped into work in foreign microphotostocks in the early days of their existence.

3 Text aggregators

Text aggregators were less known in economic literature. The legal framework and financial models of the traditional publishing business did not meet the requirements of web designers, advertising, marketing companies, and other web content manufacturers. The fact is that concise texts, which are limited to the dimensions of one electronic page comparable to a conventional computer monitor, are often needed in order to fill websites. Such texts are usually made up of only a few thousand characters or hundreds of words, and never cost several hundred or thousand dollars.

As demand in the low-budget literary content market was huge and was continuing to increase in the mid-2000s, so-called electronic *article writing services*, *copywriting exchanges* and *copywriting agencies* began to appear almost simultaneously in various countries including Russia. As with microphotostocks, the idea was based on micropayment, i.e. the generation specifically of inexpensive texts. Each literary electronic platform, from the early days started forming its own database of authors and original texts, i.e. they began to fulfill the role of aggregators of intellectual assets.

3.1. Specifics of text aggregator models

However, despite the overall similarities with photostocks and audiostocks, original text aggregators (see Fig. 1) are significantly different due to the characteristics of this type of assets and the traditional business practices of the industry. In particular:

1. Most authors' revenues come from specially ordered or commissioned works. Extensive electronic catalogs of stock texts are also available from almost all aggregators, but they play a secondary role, and bring the authors less income.
2. In most cases the customers require the exclusive rights to the text. Even in those cases where the contract does not include royalty payments (RF license) it means the complete transfer of copyright to the customer.
3. Services for writing specially optimized texts for increasing the position of websites in internet search results are in high demand. This activity has the separate title of SEO-copywriting (Charlesworth, 2007).
4. As electronic texts are extremely easy to copy and edit, almost every platform has its own or ready-to-use programs to test contributors' texts for originality (anti-plagiarism).

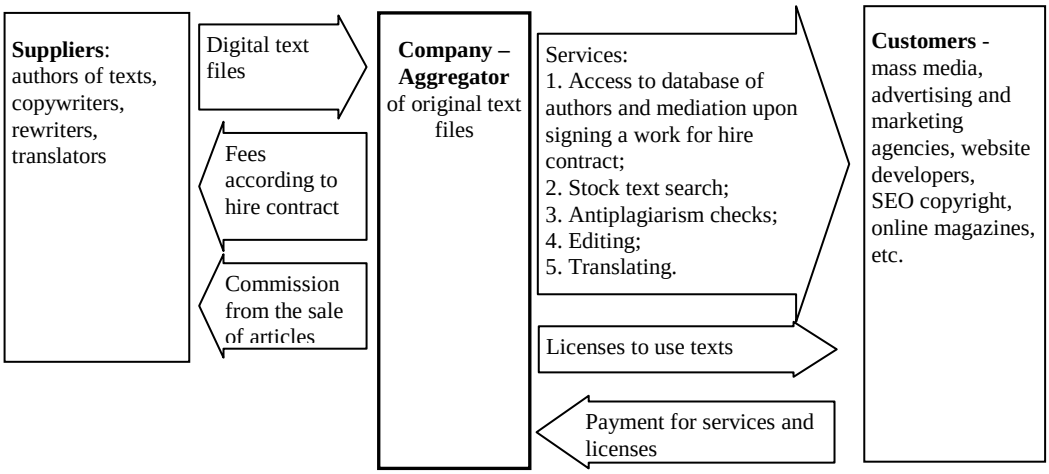

Fig. 1. Schematic diagram of text aggregator activity.

The industry pioneers and the largest text aggregators are *Textbroker International LLC* (http://www.textbroker.com), and *Constant Content* (https://new.constant-content.com). The financial and legal models of these companies have been used as a basis by dozens of literary aggregators worldwide.

The *Textbroke*r (USA) was founded in 2007 as the network service for creating unique texts. Structurally, its separate independent platforms are responsible for the texts in ten major languages, of which the authors are native speakers. All authors are continuously rated from two to five stars, which, firstly gives a clear idea of the expected level of text quality. Secondly, it determines the rate of payment, which is traditionally calculated by the word count. Using the automated service, a customer is able to select the quality level of the author, as well as the order type:

- *Open Order*s are of the simplest and most inexpensive kind. Thousands of registered contributors with relevant ratings can see and have the opportunity to fulfill them;
- *Direct Orders* go directly to the contributor who was selected by the customer. In this case, the price per word is agreed upon by the customer and the contributor, regardless of the contributor's rating. The system only sets the minimum level of payment;
- *Team Orders* can be received by a group of authors, organized on a voluntary principle. Typically, these groups are created for a specific project. The fee per word is assigned by the customer, and the system determines only its minimum level.

3.2. Licensing practices of text aggregators

The method of transferring the copyright to the customer is extremely important. On the one hand, in the 'Terms and Conditions' (customers Section 6.1), available on website (https://www.textbroker.com/terms-condition), *Textbroker* grants and licenses the customer the sole and exclusive rights to publish, perform, reproduce, transfer, distribute, create derivative works, and sell texts, which have been delivered to them, in any mass media, in whole or in part, throughout the world. However, the customer does not have the right to call herself the author of the received text, and can only place her name on the text with the express written consent on the original author (customers Section 6.2).

On the other hand, the section for authors (authors Section 6.1) states that for each text, the author gives the company the exclusive license to its use through all current and future methods, and edit and use it in its edited form. This license is not limited by time, place, or content of the text, and is comprehensive, irrevocable, transferable, and can be sublicensed.

Thus, *Textbroker* has given serious attention to the transferring copyrights. But we believe this approach is fairly simplified, as does not take into account some other possibilities for managing rights, which leads to their underutilization. In particular, the other above-mentioned company, *Constant Content*, uses a very flexible system of licenses, which allows for multiple additional sales of stock original texts. As we shown above, this practice is typical for selling copyright images in microphotostocks.

So, on the one hand, the 'Terms and Conditions' for authors (Section D, 'License to Constant-Content') states the author gives *Constant Content* the nonexclusive right to store, sell, and distribute texts on the author's behalf, as well as to use and reproduce trademarks of the author as the company considers necessary for the sale or licensing of texts on behalf of the author (https://new.constant-content.com/about/terms_conditions.htm).

On the other hand, the section for customers states (Section D, 'Consumer License'), that the texts offered by the company, are available for customers according to one of the following licenses:

- A *Use License* entitles customers to acquire, for a fee fixed by the author, a revocable, royalty-free (RF license), non-transferable and non-assignable, non-exclusive license to publish (but not to edit) a text on a single site or in a printed publication owned by the customer;
- A *Unique License* entitles customers, for a price set by the author, to acquire an irrevocable, royalty-free, exclusive, non-transferable, and assignable license to use (but not to edit) a text ;
- A *Full Rights License* entitles customers, for a price set by the author, to acquire an irrevocable, royalty-free, exclusive, non-transferable and assignable license to use and edit a text. Texts previously published elsewhere, may only be offered in accordance with a Free License or a Use License. Texts containing multimedia or other non-written digital content may only be offered in accordance with a Use License, Unique License or a Full Rights License.

Thus, using the first type of license, the author can sell a text multiple times, while the customer is entitled only to its one-time publication with reference to the author. According to the second type of license, the customer gets exclusive rights to use the text, but cannot sell it, or change the original form. Finally, the third type of license provides the customer with the full right to publish, edit, sell, or otherwise use the acquired text. In order to allow customers to make informed decisions before purchasing texts, *Constant Content* allows them to preview 50% of the text's content. It remains to be added, that the full-time staff at *Constant Content* is about 50 people, and the contingent of registered authors in 2015 exceeded 73 thousand.

Like other suppliers of stock art, original text aggregators are in the early stages of forming their business models. Many companies are just entering the market. However, the text content has found no less an extensive demand on modern electronic low-budget markets.

3.3. Russian text aggregators

The first Russian exchanges and copywriting agencies were created in 2007-2008. Today, in addition to the leaders, *Advego* (http://www.advego.ru) and *TextSale* (http://www.textsale.ru), about ten steadily developing aggregators can be found in the market and new companies appear annually.

Advego, founded in 2007, positions itself as an exchange, i.e. it considers its main function to be intermediary information and technical support for customers and authors. As the oldest, *Advego* has the most complete and thoroughly developed User Agreement (http://advego.ru/info/rules/), also including all basic terms and definitions. The model used by *Advego* for transferring copyrights is very similar to a Full Rights License, used by the aforementioned company, *Constant Content*. However, that limits the turnover of intellectual assets to a single use. *Advego* rightfully occupies the leading position in the Russian market. In particular, in 2015 company reported about 1.3 million registered users and around 30 thousand operations every day.

TextSale, also founded in 2007, positions itself as a 'service for the purchase and sale of content from independent copywriters'. Its activity is focused towards the sale of unique stock articles on an

extremely diverse range of subjects. In 2015 the company reported on more than 320 thousand original articles with a maximum of 20 thousand characters. Every daily digest provides a brief description of 300 new articles. Company has several tens of thousands of registered authors, each having a constantly updated rating (1-5 stars), depending on the number of articles sold, the level of quality (i.e. passing the antiplagiarism test), and customer feedback. In turn, since it is a work for hire contract, the rating affects the price of the article, starting at $2 per thousand characters.

In contrast to images and audio microstocks, Russian literary aggregators are developing more confidently, as competition from foreign companies is virtually nonexistent. This can be easily explained by the complexity of the Russian language as a whole, rich Russian literary tradition, and the presence of a large number of professionally trained editors, linguists, journalists, and translators. In addition, work in literary stocks is good practice for university students.

4 Conclusions and discussion

The paper shows that primary stage of accumulating microstock collections was accompanied by extremely simplified, in many cases even the primitive RF licensing models. To this end, dumping prices for stock art were used. On the one hand, this was met with sharp opposition from communities of professional authors; on the other hand, it opened the market up to a mass unprofessional, but creative audience. Now, expanding businesses, microstocks gradually increased their requirements for the quality of content and offered customers a variety of improvements and extensions to standard licenses, which actually allowed the conditions for the transfer of rights, similar to those of an exclusive license, and the complete assignment of rights. In addition, the modern RF license also takes into account many technological and genre-based characteristics of specific cyber market segments.

We believe the low-budget segments of the e-commerce market have become a breeding ground for the emergence of a new financial cybermediation institution on the intellectual property market. Several new types of companies we can confidently combine under the general title of ‘intellectual asset aggregators’. At first, having built a successful business model for the multiple sales of stock art, microstocks provided material interest for the ongoing participation of various categories of authors, from students and advanced amateurs to professional photographers, programmers, writers, linguists, journalists, translators, etc.

Secondly, the low prices for stock works, simplicity and ease of licensing and the large variety of related services have attracted growing attention to microstocks from return individual and corporate customers. For example, according to the findings of *LEK Consulting, LLC* (http://www.lek.com), the total volume of the commercial digital images market alone stood at $11 billion in 2011, and can reach $13 billion by 2016. At this volume the sales of microphotostocks and other types of stock images are growing annually by 15-20%, and this increase can reach $3.5 billion by 2016. This research was commissioned in 2012 by the *Shutterstock, Inc*. (Shutterstock, 2013).

An informal but highly reliable confirmation of this we found in the annual readers’ polls carried out by professional designers’ magazine *GDUSA*. Its readership consists of professional buyers of digital images, so it provides a good representation of consumers’ perceptions of the market. In particular, surveys in recent years have consistently confirmed that designers prefer to buy stock images from microphotostock agencies (more than 90% of respondents), with over 30% of them purchase 100 or more images per year (Kaye, 2012 and 2014).

Our further research is based on the real copyright asset portfolio sales statistics. For empirical study we try to adaptation of financial engineering risk evaluation metrics to the classes of assets meant above. In particular, there is known methodology of Value at Risk (Earnings at Risk) models adjusted for copyright asset sales specifics. We hope our findings will be useful both for the intellectual asset portfolio theory development and for the risk management theory at all.

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Breakthrough Innovation Development within Established Enterprises: Entrepreneurial Behavior and Agile Approach

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Abstract

Breakthrough innovation product development within established enterprises is a big challenge. Internal procedures and business processes of established enterprises, as opposed to startup companies, are more standardized and formalized. Consequently, the speed and flexibility of decision making and implementation of employee's ideas is greatly reduced. But explorative type of works at the initial stage of breakthrough innovation product development process is full of uncertainties and requires flexible approach in management. To resolve the contradiction the entrepreneurial and agile management style are required. In this paper we propose the management model "lean startup within the enterprise" that helps to achieve success in breakthrough innovation product development within established enterprises. The model was verified during our acceleration programs for technology entrepreneurs and consulting activities for established enterprises.

Keywords: breakthrough development, established enterprises, entrepreneurial and agile approaches

Introduction

One of the main reasons of a high failure rate of innovation products and too low lifetime value is that created products do not meet customer needs and their desires. Development of a breakthrough within established enterprises is a difficult task and most executives admit that innovation engine in their companies doesn't hum the way they would like it to. In most cases the efforts to jump-start innovation through cash awards for a useful idea and improvement suggestion forces frequently prove fruitless. Bright ideas and great intentions remain in the heads of employees. The reason why this happens is the following. Internal procedures and business processes of established enterprises, as opposed to startups, are more standardized and formalized. The speed and flexibility of employee's decision making and implementation of their ideas is greatly reduced for this reason. This is typical also for the process of new product development. On the other hand, explorative type of works at the initial stage ("fuzzy front end") of innovation product development (IPD) process is full of uncertainties, poorly formalized and requires flexible approach in management. This is especially relevant to breakthrough (disruptive) innovation product development that could generate new growth for the business by reaching new customer segments or new markets and often through new business models. Thus, there is a need to find managerial models and tools to resolve the contradiction. Transformation of sundry innovation efforts into a function that operates consistently requires new organizational structures, tools, and new management style (entrepreneurial and agile).

Lean product management and MVP within established enterprises

In this paper we propose the management model "lean startup within the enterprise" to achieve success in breakthrough innovation product development within established enterprises. The main idea is to build quickly and validate product concepts in a form of minimum viable products (MVPs) through iterating and pivoting based on market feedback. Then the MVP, selected based on market/customers acceptance, proceeds to the further development in more structured stages of IPD process (see Fig 1). We adapt the MVP approach, initially developed for startups by E.Ries (2011) and S.Blank (2013), for the case of established enterprises. In the model proposed here the agile/interactive approach, in contrast to the traditional "waterfall" approach developed previously by R.Cooper (2001), allows us to overcome uncertainty of the initial stage of the IPD process more successfully.

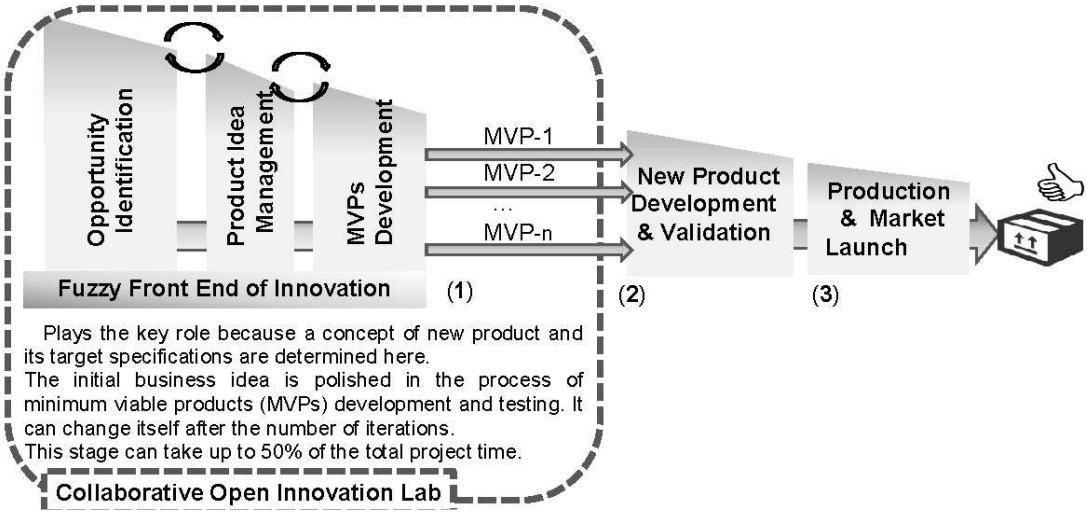

Fig 1. Process of innovative product development (IPD) within established enterprises

In the PDMA Toolbook by P.Koen et al (2002) the initial stage of the IPD process called “Fuzzy Front End of Innovation” (FFEoI). The FFEoI is an area of search and zone of uncertainty, tacit knowledge and conflicting organizational pressures. Activities in the FFEoI are unstructured and often difficult to anticipate and perform. Yet they are crucial to successful outcomes of the process IPD, because a concept of a new product and its target specifications are determined here. This is the stage where product developers/innovation managers suffer from a deficit of information and meaningful customer insights, which they require to help them to make design decisions.

Against of such uncertainty and ambiguity, it is easy to understand why the FFEoI is first and foremost about learning in order to identify and recognize an opportunity. This is because the focus in FFEoI is on acquisition, synthesis, creation and sharing of relevant knowledge and insights that help in opportunity identification, mapping, ideation, prototyping and MVP development and validation.

We divide FFEoI into the following phases: opportunity identification, product idea management and MVP (product concept) development and use effective tools and techniques for managing the critically important FFEoI in each of these phases.

The second stage of the IPD process is called “New Product Development and Validation (NPD&V)”. The third stage is called “Production & Market Launch (P&ML)” and consists of production, marketing and sale of the developed product (see Fig 1). NPD&V and P&ML stages are more formal, structured and focused on execution of the IPD project.

Our practice shows, that the FFEoI stage of the IPD process remains one of the weakest from the managerial point of view for both startups and established enterprises. To achieve the success in the IPD within product driven enterprises we propose to organize a Collaborative Open Innovation Lab (COI Lab) that will work as an independent unit (subdivision) with direct subordination to the head/first deputy head of the enterprise and is intended to bring customers deeper into the FFEoI stage of the IPD. The knowledge and insights captured from collaboration with a potential customer is fed directly back into the early stages of MVP design and development, allowing the COI Lab team to further clarify directions and make critical improvements.

The COI Lab plans, designs, and runs activities in the FFEoI stage using tools, methods and all the resources of a multi-disciplinary team which includes an anthropologist/ethnographer, industrial designers, a human factor specialist, rapid prototyping and usability professionals. For a particular IPD project, the permanent COI Lab team (3-7 people) is enlarged with invited experts in the specific areas corresponding to the project. This inter-disciplinary approach guarantees that many unique perspectives and personalities assure connection with, observation, and extraction of feedback from customers. Tabale 1 shows the COI Lab team activities in the FFEoI and examples of tools and techniques.

Table 1: COI Lab activities

FFEoI phases	Activities	Examples of Tools & Techniques
Opportunity Identification	-Collecting customer insights -Sense making and opportunity mapping	Ethnographic (design) research Customer & technology trend analysis Road mapping
Product Idea Management	-Idea generation -Idea selection	TRIZ Design thinking Lead user Rapid foresight
MVP (product concept) development	-MVPs creation -MVPs testing -MVPs selection	Rapid prototyping Testing Selection

The COI Lab multi-disciplinary team is fully involved in opportunity identification, idea generation and testing, MVPs creation, testing and selection based on market/customers acceptance. Successful product must meet three different conditions: (1) desirability (usability) by people – it should meet latent needs, behaviors and desires; (2) feasibility in terms of technical consideration and mass production; and (3) viability in terms of business aims and economic conditions. The first two conditions are satisfied by the COI Lab team by means of the created and market/customers accepted

MVP. The third condition is assured by enterprise top management and COI Lab team. In the management model that we propose, once the created and successfully tested MVP meets all conditions, it is passed to the NPD&V as a next stage of the IPD process (see Fig 1).

Entrepreneurial behavior and key competences in entrepreneurial management are important factors for the COI Lab team success. In a research study by G.Laptev (2014) et al formulates the competencies, that are critically important for innovative entrepreneurs, and form two clusters: cogitative (creativity, intuition, analyticity, flexibility of thinking, risk tolerance and decision-making) and personal (pro-activity, ambition, motivation of achievements, competitiveness, perseverance, self-confidence, focus on the result, optimism, perfectionism).

We conclude that the sustained development of successful innovation products in complex and uncertain environments can occur only when the conditions for FFEoI activities are provided via the enterprise organizational capabilities and innovation management. Differences in the content of each of the FFEoI activities challenge management of the FFEoI stage of breakthrough innovation development within established enterprises and require acquisition of additional competencies in entrepreneurial and product management. Leadership, culture, and business strategy define the environment for successful breakthrough innovation product. Culture that encourages freedom of creativity is a key enabler. The proposed in this paper management model "lean startup within the enterprise" helps to achieve success in breakthrough innovation product development within established enterprises. The model was verified during our acceleration programs for technology entrepreneurs and consulting activities for established enterprises.

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Generation Y – Trends and Challenges for the Retail Market

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Abstract

In this article we want to analyze the behaviours of Generation Y analyzed by specialized studies and to emphasize some aspects that can influence their buying behaviour and thus the retail market. Additionally, this article contains an analysis of the research literature and an empirical study on the activity of generation Y in relation to consumption.

Keywords: Generation Y, segmentation, retail marketing

Introduction

Segmentation is the key to efficiency and effectiveness in marketing. In this respect, it is very important to group some collectivities of society after certain socio-demographic aspects and analyze their behaviour with respect to a given situation. In this article, we intend to group generations in terms of the period in which they were born and grew up and analyze to what extent the behaviour of generation Y influences marketing strategies and tactics in retail.

Literature review

By analyzing research literature, we see that it was necessary for customer segmentation to be made, beyond age, on longer periods of time (generations), because it was found in time that the buying behaviour of consumers differs greatly from the historical period in which they were born and grew up. Research literature uses the following division in terms of generations: those born between 1946-1964 ("baby boomers"), those born between 1965-1980 (Generation X), those born between 1981-2000 (Generation Y) and those born after 2000 are considered as part of Generation Z or Zoomers. Scientific studies and materials drawn up so far reveal that there is a difference between the behaviour of those born after the 80s compared to their predecessors' behaviour. In this regard, we share Parment's idea (2012) who points out that when we want to accomplish certain strategies and tactics in retail, it is important to ask ourselves "why customers buy?". By analyzing this aspect, customer segmentation is a good marketing tool in order to find out to what extent the similar experiences lives are the source of the motivation for which a consumer prefers certain products. However, besides segmentation from a socio-demographic point of view, it is important to divide the categories of people in generations that similar historical events, that were partakers of the same technological innovations and lived generally in a similar socio-economic system. In this regard, we wish to point out that retail is directly influenced by socio-demographic characteristics of those who acquire products and services.

Research question

In this article we want to analyze research literature and to emphasize the consumption behaviour of those who belong to Generation Y and investigate to what extent the historical period in which they were born and have lived their childhood affects consumption and hence the retail market. In addition, we want to make a presentation of the consumer typology specific of the people born after 1980.

Generational profiles

The Baby Boomers

Generation Baby Boomers the largest generation working at this moment, being perhaps the greatest power at the moment in view of the fact that, overall, the top management positions in companies are occupied at this time by representatives of this generation. These people are recognized as working very hard and have a high degree of loyalty to the companies where they work. Due to financial issues, most representatives of this generation decide work even after retirement age, working as experts in their fields. Also, many Boomers have experienced many social changes in their childhood and thus they easily adapt to changes in society.

Generation X

Generation X natives are those who understand very well the principles of modern capitalism and are well suited for multinational companies that have different cultures. In general, these people tend to be quite independent, self-reliant. They appreciate flexibility and individualism. In addition, they find it natural to have access to career training, in order to develop properly. Compared to Boomers generation, these people are less loyal, this conclusion being sustained by divorce statistics, and by the fact that these people tend to change their job in a number of years.

Generation Y

Generation Y is the generation of people who were born after those from Generation X, being the children of the baby-boomers period and it is a generation that differs radically from their predecessors, and from those who are born after 2000 (Zoomers). Those of generation Y is the first generation of families in which both parents worked, being mostly the only children of their parents. Also, talking about the features of this generation, these people are educated, with a global and entrepreneurial thinking, people who had access to information much easier than those of previous generations, as the technological explosion took place in the early 90s. From the perspective of the values that Generation Y has, these young people want to be noticed, not lost in the crowd and develop harmoniously. They are attracted to novelty, being less interested in long-term planning, trusting their own strength. In this regard, Generation Y is distinguished by the ease of accepting opportunities and challenges, but also by the tendency to procrastinate certain commitments which seemed impossible to postpone for earlier generations: marriage, birth of a child, career or financial savings. Continuing this analysis in terms of the relationship with technology and digital environment, we can highlight the fact that these people need the mobility offered by new technology and digital discovery. The mobility that is provided by the access to technology and digital environment, coupled with the ease of accessing everything that pertains to the online environment, enables them to take their "office" with them wherever they are, being permanently connected to the problems that arise at work. In this respect, there are studies showing that members of Generation Y believe that it is not necessary to go to work every day to accomplish their tasks and that they can achieve it remotely. Besides what we have described above, we should also mention the fact that, in general, the natives of this generation are those who are best described by the expression "make a living" compared to the phrase frequently used for baby boomers "make a life" because, after they saw their parents working overtime, they choose to work less but more efficiently in favour of the activities that they enjoy. Also being considered digital natives, they are not reluctant to express their views on the online products and services and do this especially through social networks.

Generation Z

Generation Z is represented by young people who were born after 2000 and who have not yet entered the labour market. These people are living in the time of technology development and thus they can be considered as being the "mobile generation". Also regarding this social group, we

have to say that they have high standard of consumer and lifestyle, with appetite for mobility and for a rapid pace of life. From the perspective of the workplace, these natives prefer to work based on projects being ready to change jobs frequently. Zommers are less focused on themselves than Generation Y because they went through several global issues such as: economic and financial crisis, the fight against terrorism and environmental issues.

They believe more in ideals and are less willing to compromise when it comes to respect social values. There are studies reflecting that over 65% of this generation natives will have jobs that currently do not exist. Since an early age, they train their quick decision-making skills, adapting to the new environment, and frequent use of mobile applications. From the perspective of social networks, they are regarded as an important source of information, and dissemination of opinions.

How is the retail market influenced by Generation Y characteristics

From an economic perspective, the comparison between Generation Y and Generation Baby Boomers may be primarily highlighting that Generation Y is a generation interested in saving or investment plans over the medium and long term, being the generation that can be characterized as "spend now, save later". If we talk about those born between1946-1964 (Generation Baby Boomers), they are part of a more conservative generation, which prioritizes the issues related to tradition and customs. In this sense, the natives of this generation do not put so much emphasis on the use of modern technology when they decide to purchase a product, being attracted primarily by issues related to brand awareness. This type of behaviour directly influences overall retail activity and consumption. In what follows we will briefly present some of the behavioural differences between baby boomers and generation Y in terms of consumption, as they emerge from research literature:

Table 1: Behavioural differences in terms of consumption

Criterion	Generation Baby Boomers	Generation Y
The main role of the brand	Quality	Image
Types of attractive products	Late adoption	Early adoption
Purchase criteria emphasis	Rational	Emotional
Choice of retailer	Emotional	Rational
Choice of product	Rational	Emotional
Retailer loyalty	High	Low
Social influence on purchase decisions	Limited	High
Source of social influence	Experts and close friends	Well-known and influential people, friends

Conclusions and future directions of research

In conclusion, we can say that for people who work in marketing it is very important to be able to segment consumers in generations, in groups of people who lived similar experiences and have similar buying behaviour. Also, dividing people in generations is very useful for sustaining communication with clients, both when planning marketing campaigns, and in case of effective, interpersonal communication. Besides these aspects, determination of music stars, movie stars or legends with whom people of a certain generation identify can be an efficient means of dialogue with the representatives of these generations.

Discussing future directions for research, we think that topics such as the influence of buying behaviour of Generation Z on consumption in the 2020s, as well as the highlight of the significant differences between the natives of Generation Y and those belonging to Generation Zoomers in terms of marketing strategies in retail can be addressed.

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The Building of a Single Information Space and the Elimination of Administrative Barriers under the Enlargement of the Eurasian Economic Union

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Abstract

One of the most currently important objectives of the Eurasian Economic Union integration is to develop the scientifically founded procedures for harmonization of national legal frameworks in point of the potential alliance partners. The building of a single information space and legal base concordance in the sphere of post-clearance customs control will provide the elimination of the barriers appeared as the consequences of economic insulation affected by the collapse of the Soviet Union. The harmonization of the post-clearance regulations based on unified information space will contribute an effective collaboration aimed at the enhancement of economic relations in the Post-Soviet space. The article presents the method of comparative analysis of national and the Eurasian Economic Union's legal and administrative law corpus related to the post-clearance regulations from the perspective of a single information space. The proposed method is based on the following grounds: international sources of legal framework, scope of the legal acts, usage patterns of the risk management, control terms, forms and conditions, inspection results, performers and subjects of post-clearance control. The method approval and evaluation was realized for recent participants (such as Armenia and Kyrgyzstan) and prospective allied members (such as the Republic of Tajikistan) of the Eurasian Economic Union. The research results are premised on the generalization and arrangement of changes in post-clearance customs control, which were in process upon the entering of the Russian Federation, the Republic of Kazakhstan and the Republic of Belarus into the Customs Union.

Keywords: single information space; customs regulations; administrative barriers; the Eurasian Economic Union.

Introduction

In the current conditions of globalization and international integration the world is more unified than ever else. Economic, political and cultural interaction between the different states enhances. Statistics show sustained expansion of international exchange of goods, services, production factors. Accordingly, the development of the cooperation rules as a process of administrative and legal groundwork for economic integration emerges full blown. It is commonly known that since September 1993 the Russian Federation, the Republic of Kazakhstan, the Republic of Belarus, the Kyrgyz Republic and the Republic of Tajikistan had been planning the establishment of the Customs Union before the Customs Code of the Customs Union became operational in the territory of three member-states (Russia, Kazakhstan, Belarus) on July 6, 2011 (Borodin, Strokov, 2015). Since the ratification of the customs relationship between three partners, the efficiency of the collaboration was confirmed by the received benefits for the economies of the Customs Union members and the intentions of former Soviet states to join this community (Bleikher, Trubnikova, 2014). The Eurasian Economic Union was enlarged via including Armenia and Kyrgyzstan January 1, 2015. Tajikistan claims to be a member of the Eurasian Economic Union over the next while.

However, there are difficulties in the harmonization of the integration regulations in the consequence of isolation of national legal and administrative frameworks for customs activities (Popa, Belu, Paraschiv, Marinoiu, 2015; Ageev, Ageeva, 2015). To solve this problem it is necessary to find "the pinch points" in the national legislation and to harmonize them in the accordance with the legal provisions of the Eurasian Economic Union. At the present stage, this approach is a common practice for many geopolitical and economic international alliances. A remarkable example of the barriers eliminating in administrative and regulatory framework harmonization is the European Union. Despite the challenges that are addressed to the European Union in the conditions of the development of regulatory functioning model for countries with different economies, politics and culture, at least eight states are on the way to joining the European Union (Ogrokhina, 2015). These processes indicate that at the present stage of the economic relations developing economies tend to integrate into large profitable cooperation than compete with each other alone. Therefore, it is relevant to search for the methods of legal frameworks harmonization taking into account economic, political and cultural distinguishing features of the partners.

Each branch of customs activities is complicated and specific. Consequently, to solve the problem of administrative and legal frameworks harmonization it is reasonable to apply the sectoral integration of techniques focused on the barriers identification according to the different branches of customs regulations (customs clearance, post-clearance control, tariff regulation, logistics, classification of good, statistics etc.) can be applied. The set of the techniques integrated by the customs branches will form the unified methodological administrative and legal framework based on the Kyoto Convention that provides the general principles of the harmonization process.

The purpose of the study is to develop the determination techniques for national administrative and regulatory barriers that hindered the Eurasian Economic Union's integration in the sphere of post-clearance control. The authors attempt to combine the analysis of both European and Eurasian integration experience within the framework of the Kyoto Convention.

Method and Research Design

In order to achieve the research objective it is necessary to complete consistently the following tasks. Primarily, it is required to evaluate the relevance of the post-clearance control system that is operated in the Eurasian Economic Union to the main provisions of the Kyoto Convention. Subsequently the authors attempt to consider and classify Belarusian and Kazakhstani experience of the national legal renovation in the sphere of post-clearance control on the basis of academic and research sources related to the accession these republics to the Eurasian Economic Union. The following research stage is the development of a method for the identifying the administrative and legal specifics of national post-clearance regulation which prevent the integration into the Eurasian Economic Union. The final research stage suggests testing the method on the ground of the regulatory framework of Kyrgyzstan as the recent participant and Tajikistan as the main potential member of the Eurasian Economic Union.

Teoretical framewoks and legal sources

The international exchange of goods and services increases. Expanding goods traffic imposes additional obligations connected with the homeland security observation on national customs authorities. In that context customs control becomes increasingly important in the field of customs legislation enforcement and state budget replenishment by means of customs payments (Awad, Gore, Hou, Thomson, Weidlich, 2012; Butorina, 2014). One of the prospective directions of customs compliance modernization is the development of post-clearance control that provides simplification and expedition of customs procedures due to the risk-management, the selectivity and the building of a single information space (Bukhsh, Weigand, 2013; Urciuoli, Hintsa, Ahokas, 2013).

A separate chapter of the Revised Kyoto Convention as the main international act of the simplification and harmonization of customs procedures is devoted to customs control based on audit

and system of risk-management (Revised Kyoto Convention, 1999). Customs post-clearance control provides a means of the efficient use of customs services resources, customs compliance, the establishment of favorable conditions for international economic activities.

Currently the post-clearance control system of the Eurasian Economic Union is in transitive state. On the one hand, renouncing the customs inspections and all-inclusive customs control places it in close quarters with Kyoto principles. On the other hand, the substandard interdepartmental interaction hinders the implementation of risk-management and audit methods. International source of the regulatory framework and methodology of administrative regulation in the sphere of post-clearance control in the Eurasian Economic Union is the Kyoto Convention.

Customs post-clearance control is carried out in the Member States on the basis of the Customs Code of the Customs Union and national legislation. Since the entry into force of the Customs Code of the Customs Union, the Member States use the above-mentioned document to the post-clearance control. However, in addition to the Customs Code of the Customs Union, a Member State has the right to use national regulations that governed before joining the Customs Union and which do not contradict the Customs Code of the Customs Union. Therefore, the compositions of regulatory legal acts for each Member State are unique and not unified.

In the Russian Federation, customs authorities realize post-clearance control guided by the following legal acts:

- The Federal Customs Regulation Act of the Russian Federation, Section 3, Chapter 19, which is dedicated to customs control as a whole, and post-clearance control.

- Order of the Russian Federal Customs Service “About the confirmation of the Development Concept of post-clearance customs control”. This concept defines the goals, objectives, as well as the direction of the effective mechanism of customs post-clearance control in the present conditions until 2016.

- Order of the Russian Federal Customs Service “About the confirmation of the model regulations in the area of post-clearance customs control” which directly regulates the activities of customs authorities in the field of customs post-clearance control as well as allocates responsibilities of departments.

- The Constitution of the Russian Federation. Realization of the customs post-clearance control should be based on the principles of the Constitution.

- The Federal Accounting Act.

Regulatory support of customs post-clearance control in the Republic of Kazakhstan includes the following regulations:

- The Customs Regulation Code of the Republic of Kazakhstan. Section 3, Chapter 20 is devoted to the customs control. The Customs Regulation Code does not become invalid due to the entry into force of the Customs Code of the Customs Union. It is constantly updated and regulates relations in the field of customs at the national level, without contradicting the Customs Code of the Customs Union. The Customs Regulation Code contains complete information on the customs post-clearance control: the goals, objectives, methods and tools for implementation.

- The Conception of the reducing the stress from the customs clearance stage to the post-clearance stage of compliance in the Republic of Kazakhstan for 2013-2015. The Concept establishes the goals, objectives, as well as the direction of the effective operation of the customs post-clearance control until 2015. The concept also explains a mechanism of emphasis shift on the post-clearance control.

- The Accounting and financial statements Act of the Republic of Kazakhstan.

- As for the Republic of Belarus, the legal support of customs post-clearance control, in addition to the Customs Code of the Customs Union, is complemented by two acts:

- The Customs Regulation Act of the Republic of Belarus. Section 3, Chapter 17 of the Act includes statements about customs control in general. Enactment 120 includes objects, principles of customs control. Enactment №136 regulates the conduct of cameral customs inspection. It is important that the Customs Regulation Act does not regulate the realization of the on-site customs inspection.

- The Accounting and financial statements Act of the Republic of Belarus.

Guided by the results of the study of the above legal acts, we can conclude that methods, principles, forms and content of the customs post-clearance control in the member states of the Customs Union are uniform, while holding accounting and reporting is unique for each state.

In the member states of the Customs Union the structure of the customs authorities, which are responsible for the post-clearance control, is specific for each country. Consequently, subjects of customs post-clearance control are different.

Thus, in the Russian Federation, at the level of the Federal Customs Service, the subject of customs post-clearance control is the Head Department of the post-clearance control. In the Republic of Kazakhstan, at the level of the Customs Control Committee of the Finance Ministry, it is the Department of the post-clearance control. In the Republic of Belarus, at the level of the State Customs Committee, it is the Department of the realization of the post-clearance control. Activities of all these Departments are aimed at similar purposes (detection, prevention, suppression of administrative offenses by means of customs post-clearance control). The main challenges facing these offices have the same strategic functions. These functions include coordinating and monitoring the activities of departments of customs post-clearance control involved in the development of normative legal acts in the direction of activity, assess the effectiveness of the customs control (Volpe Martincus, Carballo, Graziano, 2015).

Subjects of post-clearance control (downward in the hierarchy of customs authorities of each of the member states of the Customs Union) are departments and special organizations performing tactical and operational tasks. Responsibilities of these departments are very similar. Among them we can mention customs post-clearance control, the identification of non-compliance with customs legislation, the use of risk management system.

Despite the difference in the structure of the customs authorities of the member states of the Customs Union, in terms of the functional approach, the subjects of customs post-clearance control in the three countries have common goals, objectives and functions. The risk management system, used in the three countries to the post-clearance control, is presented in the form of a model to comprehensively assess the possible risks through risk profiles, which are available in a single information field.

Checking residents in the member states of the Customs Union are persons connected with transporting goods, including carrying out foreign economic activity, as well as persons belonging to the customs infrastructure (customs representatives, owners of temporary storage warehouses). The two forms of customs post-clearance control are customs inspections - cameral inspection and on-site inspection (Borodin, Strokov, 2015; Ma, Ding, Lin, Hou, 2014). The results of the customs post-clearance control are presented in the form of acts of cameral or on-site inspection. Terms of the post-clearance customs control are common for the member states of the Customs Union. The cameral customs inspection is perpetual; the duration of the on-site inspection shall not exceed two months, but may be extended by one month.

The analysis of legal sources leads to the conclusion that in the member states of the Customs Union the national legal framework of the post-clearance control is preserved besides the Customs Code of the Customs Union. In the Republic of Kazakhstan the National Customs Code is valid and is constantly updated. Laws related to financial statements, on fundamental points (objectives, scope, the scope of the law, the objects of accounting and its organization) are similar; however, there are provisions specific to the state. For instance, monetary value account of the objects and the clearance of primary accounting documents, the form and content of accounting registers are individual in each state of the Customs Union. Among the specific points in the Accounting Act, we should also mention the national accounting standards, which are developed on the basis of international standards (IFRS -International Financial Reporting Standard, IAS - International Accounting Standards). Member states of the Customs Union provides almost unified legal framework for effective post-clearance customs control.

In the early stages of the Customs Union integration, there were some difficulties in carrying out post-clearance customs control. First, there was no uniform approach to its implementation. Secondly, there were different forms, methods and tools of control. However, the situation could not be called critical due to the fact that the basis of legislation to hold post-clearance control was the principles of Kyoto Convention. Nowadays, the legal gaps in the implementation of customs post-clearance control in the member states of the Customs Union are overcome. Clear evidence of this is the latest version of national legal acts regulating the relations in this area. Today post-clearance control in the three countries held uniformly in terms of forms, methods and tools for its implementation.

Technique to overcome legal and regulatory gaps in customs administration

Technique to overcome legal and regulatory gaps in customs administration at the introduction of the integration in the Eurasian Economic Union suggests the following stages:

1) To study the regulatory legal sources governing the specific area of customs administration in the community integration;

2) To consider regulatory legal framework regulating the issues in the state, join the community;

3) Identify the fundamental aspects and principles for the implementation of specific activities within the community integration, and in the state, which will join the community;

4) Investigate tools, mechanisms, methods of implementation of the activity of the two actors;

5) Expand the legal sources of international character, which is based on the normative legal framework governing the integration issue in the Customs Union, on the one hand, in the state, to join it, on the other hand. If the legal framework of each actor is based on uniform international sources, degree of commonality legislation could be considered acceptable;

6) Carry out a general comparative analysis of normative legal sources, tools, methods and mechanisms for the implementation of the activity;

7) Identify the differences in the implementation of activities and their impact on the degree of unification;

8) Develop recommendations for overcoming regulatory legal gaps.

Testing of methods on the regulatory framework in Kyrgyzstan and Tajikistan

The recent member state of the Eurasian Economic Union is the Republic of Kyrgyzstan (Umurzakov, Tyulyundieva, 2013). The date of accession was 1 January 2015. The Republic of Tajikistan is the strongest challenger to join the Eurasian Economic Union (Aslamov, 2015). Let try the recommended method of overcoming regulatory legal gaps on the example of countries joining the Customs Union. Since the legal framework governing the activities of this trend has already been given, let us consider a similar base in Kyrgyzstan and Tajikistan.

Regulatory support activities in the field of post-clearance control in the Kyrgyz Republic include:

- Customs Code of the Kyrgyz Republic.
- Post-clearance customs control instruction.
- Customs inspectors' responsibility regulation in the area of customs formalities and control.
- The International Convention on the Simplification and Harmonization of Customs procedures (Kyoto Convention).

Regulatory support activities in the field of post-clearance control in the Republic of Tajikistan include:

- Customs Code of the Republic of Tajikistan.
- Customs audit as a form of customs control Regulation Act of the Republic of Tajikistan.
- The Republic of Tajikistan Ratification of an accession to the International Convention on the Simplification and Harmonization of Customs procedures (Kyoto Convention).
- Act of the Republic of Tajikistan "About the administrative inspection of business entities".
- Operational-Investigative Activity Act of the Republic of Tajikistan.

Following the designed algorithm we will make a comparison for several reasons to develop a better comparison of the customs authorities in the field of customs post-clearance control and organize the data obtained in the course of analysis.

The legislative framework governing the activities of customs authorities in carrying out post-clearance control was the first comparison base. The criterion was chosen as the basis for comparison of the legal framework with the Customs Union is the legal framework of the Republic of Kyrgyzstan and Tajikistan, since the presence of specific regulations (regulations, which indicates the existence of specific areas of administration, firstly, and, secondly, on the basis of these acts performed all subsequent analysis).

Using the Risk Management System in the post-clearance control was the second comparison base (see point 1 in Table 1). This criterion was chosen as the basis for establishing the fact of the Risk Management System action proposed by the Kyoto Convention, as evidence of a uniform international framework for the implementation of such activities. Implementation of the Risk management under the post-clearance customs control is in full extent in Kyrgyzstan and Tajikistan.

Forms of customs post-clearance control (point 2 in Table 1) was the third aspect. The criterion was chosen as the basis for comparing the degree of unification of methods and tools for implementation of customs post-clearance control. Customs control with the use of audit methods was used in the

Kyrgyz Republic before joining the Eurasian Customs Union. In the Republic of Tajikistan forms of the post-clearance customs control are the same as in Customs Union members: customs cameral and on-site inspections.

Table 1: Comparative analysis of the particular characteristics of customs post-clearance control in the Customs Union members, the Kyrgyz Republic and the Republic of Tajikistan

	Customs post-clearance control in states of Eurasian region		
	Customs Union members	***Customs Union members***	***Customs Union members***
Implementation of the risk management	To the full extent	To the full extent	To the full extent
Forms of the post-clearance customs control	Customs cameral and on-site inspections	The use of audit methods	Customs cameral and on-site inspections
Terms of the post-clearance customs control	Cameral inspection is not limited in time. On-site inspection term should not exceed two monthes but it may be prolongated for one month	Post-clearance control term should not exceed 30 working days	Cameral inspection is not limited in time. On-site inspection term should not exceed 30 consecutive days but this term may be prolonged for 30 consecutive days

The base performance of customs post-clearance control and the result of the forms of customs post-clearance control were considered for comparison purposes directly into the documentation of the implementation of post-clearance control. In the Customs Union member-states cameral customs inspection may be provided without special Act and the inspection decision is necessary for the on-site customs inspection. In the Kyrgyz Republic document to follow customs control is necessary. In the Republic of Tajikistan documents to follow cameral and on-site customs inspections are necessary.

In the Kyrgyz Republic the statement of post-clearance control is based on the document which follows customs control. In the Republic of Tajikistan results are documented in the forms of Cameral inspection Act and On-site inspection Act.

Terms of the post-clearance control (point 3 in Table 1) and the audited entity were chosen for comparison of formalities to be followed in the countries under consideration. In the Kyrgyz Republic post-clearance control term should not exceed 30 working days. In the Republic of Tajikistan cameral inspection is not limited in time. On-site inspection term should not exceed 30 consecutive days but this term may be prolonged for 30 consecutive days.

In the Kyrgyz Republic post-clearance control subject is anyone who has obtained the right to use the special simplify customs formalities or anyone who is concerned with the customs infrastructure. In the Republic of Tajikistan post-clearance control subject is anyone who provides international trade activities or who is connected with the goods transported across the customs border or anyone who is concerned with the customs infrastructure (customs brokers, owners of temporary storage warehouses etc.). In the Kyrgyz Republic post-clearance control performer is Post-clearance customs control and

Risk management Department. In the Republic of Tajikistan post-clearance control performer is Customs control and inspection department.

Conclusion

According to the research results presented via the comparative Table, the main principles, forms and methods of the post-clearance customs control in the Eurasian Economic Union and in the potential members of the Union are corresponded. However, the legal and theoretical frameworks of the post-clearance control are largely unified with the Customs Union standards in the Republic of Tajikistan than in the Kyrgyz Republic. Pointed changes in the Kyrgyz national customs legal framework will enhance the degree of commonality of the Customs Union members the in the field of post-clearance control. Russian Customs Service actively assists to Kyrgyz customs agencies with the movement into the Customs Union operation. Thus, the suggested analytical technique allows to inquire into a particular direction of the customs management from different points of view and to develop the recommendations for the building of a single information space and for eliminating the administrative barriers and legal dissimilarities in the sphere of the economic and customs Eurasian integration.

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The Consolidated Groups of Taxpayers in the Context of Social Responsibility in Russia

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Abstract:

This article analyzes the problem of taxation as a tool for social responsibility, the extent to which taxes can be an instrument of economic policy as a form of social interaction between the state, legal entities and individuals, on the example of a consolidated group of taxpayers. The article gives the concept and discusses the features of the consolidated tax regime in Russia and the main requirements for group of taxpayers. This article discusses the concept of socially responsible taxes, their role in the functioning of the state. This article also seeks to develop mechanisms of social responsibility of the consolidated groups of taxpayers, based on foreign experience.
Keywords: Consolidated group of taxpayers, tax, social responsibility, ethics

1. Introduction

One of the oldest financial categories is a tax. The emergence of the taxes associated with the division of society into social groups and the emergence of the state. Social and economic entity, as well as the functions and role of the taxes are determined by economic and political features of the society, the nature of the state and its tasks. Mandatory payments to the state had different names, and they often changed title depending on the changing economic and social conditions. For example in Germany, taxes were seen as assistance to the state in France as forced payment, and in the UK in the context of debt. In Russia a long time state taxes called prostitution, i.e. forced payment.

When the state imposes taxes, it may have not only fiscal objectives, but may prosecute any other tasks. The state cannot change core properties of tax, nevertheless it can construct elements tax in the way that can solve a particular economic or social problem. For example, using progressive income taxation, the state can try to narrow economic disparities. Or establishing equal income taxation, the state can save differentiation in incomes of the population.

1.1. The concept of consolidatedgroup of taxpayers

Funding is a major factor in the quality and degree of various public institutions such as the economy, housing, education, health, social support, protection of the environment etc. In Russia, these institutions are formed mainly due to the federal budget. One of the main sources of the federal budget is the value-added tax (VAT). The conditions when economic agents and population do the tax payments timely is solved more effectively in government. This factor explains the responsibility and tax culture of the population in developed countries while paying taxes. They see real results of state activity and state budget expenditures. At the same time in these countries there are also some tax-related issues that need to be addressed. For example, experience of states with different tax preferences. One form of such preferences is consolidated group of taxpayers (CGT).

In modern taxation there are multiple types of interaction between groups of organizations and tax system:

- tax law recognizes the relationship (legal, organizational and economic) between members of the consolidated group. There are negative and positive aspects of this recognition. A negative aspect is expressed in developing of transfer pricing as well as other forms of taxes avoiding that are undertaken within the framework of the group. The positive aspect is a total or partial exemption from taxation of business transactions between interdependent companies and more transparent administration.
- mechanism of consolidated taxation.

It should be noted that now the first type of interaction is almost non-existent. The most common is the second type (Bannova, 2014). World trends isdevelopment of institutes in taxation that gaining the third type, i.e. the introduction of consolidated taxation. Currently, the mechanism of consolidated taxation introduced in 18 of the 30 member countries of the organization for economic cooperation and development (Austria, Australia, Germany, United Kingdom, Spain, Netherlands, Portugal, United States, etc.).The international trend shows an increasing number of countries adopting consolidation in recent years (table 1).

Table 1. Years of introduction of consolidation regimes

Year of introduction	Country
1917	United States
1940	Netherlands
1971	France
1977	Spain
1992	New Zealand
2002	Japan
2002	Australia
2004	Italy
2010	South Korea

Source: (Ting, 2012)

Introduction to Russian tax practice a possibility to create a consolidated group of taxpayers (CGT) is one of the most important changes in the tax laws in recent years. The important role of the new institute for the tax system is determined by the proportion in corporate profit tax's proceeds paid by the participants of the CGTs to total tax proceeds of the federal and regional budgets in Russian Federation (Bannova, 2015).

Consolidated group of taxpayers is an association of corporate profit tax (CPT) payers on the basis of a contract for the purpose of calculation and payment of CPT tax in accordance with the total financial result of their economic activities. Such association is voluntary. Members of this group elect a responsible party who performs the calculation and payment of tax (advance payments). CGT is created only by Russian organizations provided that one organization is involved (directly or indirectly) in the capital of other organizations and share in the capital is not less than 90% (Aktaev, 2015). Tax consolidation involves the synthesis of commercial and financial performance of the group as a single economic entity.

To the participants of the CGT have to meet the following requirements:

- the organization should not be in the process of reorganization or liquidation;
- at least RUB 10 billion in total profits tax, VAT, excise tax, and MRET paid during the year preceding the year of registration of a group taxpayer;
- at least RUB 100 billion in sales proceeds and other income;
- total cost of assets of at least RUB 300 billion;
- the amount of net assets should exceed the amount of the authorized capital;
- the entity is not in the process of reorganisation/liquidation and is not subject to bankruptcy proceedings.

Advantages of introducing the consolidated groups of taxpayers:
1) CGT make possible to use of consolidated financial statements for profit tax. Payment of corporate profit taxis based on the financial results on a consolidated group of taxpayers,which decrease the possibility of using schemes on tax avoiding(Dyrina, 2015).
For the state disappears the need to implement control of transfer prices between interdependent organizations;
2) CGT make possible to reducethe negative consequences associated with the transferring of the tax base between the regions in Russian Federation.
Distribution of CPT payments by taxpayers in consolidated group is made on the rules used for distribution of tax proceeds of separate companies units, which are not legal persons. Namely, the corporate profit tax is paid in different regions according to the arithmetic mean of the consolidated group's participants shares in the total cost of fixed assets;
3) In CGT is possible to combinethe various procedures of tax administration in relation to the participants of the consolidated group of taxpayers. Costs on tax administration are reducedby transcribing the main responsibilities for the calculation and payment of CPT for one person-responsible party in CGT. This responsible partypays as well penalties and fines, as well as submits to the tax authority the relevant tax return;
4) CGT creates preferences for interdependent organizations-participants of the consolidated group of taxpayers, in terms of ability to summarize the gains and losses of the various actors in this group when calculating corporate profit tax;
5) Tax liabilities consolidation of integrated structures will contribute to the harmonization of the tax system;
6) Consolidated taxation in a federal state will reduce tax competition of regions through preferential rates for corporate profit tax;
7) CGT will stimulate the development of integrated structures, which contributes to the competitiveness of interrelated producers on the domestic and international markets.
According to expert's opinion, many countries recently have reached a kind of limit for taxation, not only in economic, but also in social-practice sense. In this situation, a further increase in taxation is fraught with qualitative changes in the economic structure of society. This circumstance explains why the number of states considering the introduction of a fiscal consolidation, is growing steadily (table 1). Therefore, in the long term, a wide dissemination of group taxation, as well as harmonization of group taxation conditions in different states at the international level is expected (Agundez-Garcia, 2006; Ting, 2013).

2. Tax as a social and economic tool

Question to what extent taxes may be an instrument of economic policy as a form of social interaction between the state, legal entities and natural persons, as well as the effectiveness of their use has attracted the attention of scientists from different countries and different areas of science(Khaperskaya, 2015; Chistyakova, 2015; Rumina, 2015). List of services provided by the state, for both personal and collective consumption quite diverse and distributed it to different spheres of society.

The relevance of research about tax's social function of taxes because of need to study the impact of taxation on the processes alignment of social and economic differences in income as business entities and the general public. The need for studies of taxes and their effect on the processes in modern society because of a limited number of taxpayers and taxable base of existing tax rates do not provide significant revenues. The economic instruments for companies build relationships with society.For example, the phenomenon of socially responsible investing in most western countries. A number of investment funds choosing an investment pays great attention to responsible behavior, apart from it to socially responsible investing. Also for socially responsible market participants easier access to credit and placement of securities. In Russia the spread policy of corporate responsibility is discouraged in any way (Cherepanova, 2013; Fedenkova, 2015, Kibanov,2010).

Nevertheless, the manifestation of social responsibility, which the constantly do is definitely perceived as a government by society, the business community and power. Although the absence of

such kind of policy is not a disadvantage yet. And it does not lead to negative consequences for the reputation and performance of the company. Consolidated group of taxpayers have favorable terms in the taxation system. Accordingly it is necessary to develop incentive mechanisms to enterprises of CGT to send a portion of the proceeds, to the needs of society.

In this moment, the efficiency of the stimulating functions of the state (the state in this context should be considered as the basis of business social responsibility) clearly does not match to the current phase of social sphere and economy development. There is a definite separation of the legislative and executive powers activities from the real needs of society in the current conditions. To correct the situation, including the development of ethics and social responsibility of business, many regulations require changing and additions. In particular, the tax code of the Russian Federation should be changed. In developed countries in order to improve the competitiveness of businesses, as well as his participation in various social projects the state applies tax incentives (Chistyakova, 2015; Dolgih, 2015).

In Canada, for example, is provided incentives to stimulate R&D sphere. Special benefits exist for the encouragement of agriculture and fisheries development. One of them is to attract children of farmers to work in agriculture. After the death of his parents in the form of farm property or a share in a family farm partnership goes to children without needing a lifetime of paying tax on the increase in the market value of the assets. Its payment delayed until heirs will themselves have any property, except over inherited (Bannova, 2015). Another benefit is the granting of rights to average income over a five-year period in order to protect farmers and fishermen from sharp fluctuations in incomes, which are inherent for these branches of activity. The third benefits is related to the method of calculating income for the year, decrease or increase the amount remaining after paying taxes.

3. Conclusions

To summarize, we can say that the social responsibility of business may have different manifestations: creating jobs, improving working conditions, occupational safety and health, special measures for the protection of the environment, active participation in the local community, charity, etc. But all of these manifestations are possible only in the presence of competitive business in the country. Therefore, the main task of all parties of social partnership business, society and the state is to establish conditions and direct improvement of the competitiveness for domestic enterprise. Despite the increasing role of global development strategy, priorities in relations between corporations and society still depend on political, cultural and institutional environment in which the company operates.

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An Interdisciplinary Project in the Engineering Education: Obstacles in Practice and Evaluation Criteria

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Abstract

The development of curricular and organizational features of master's programs and especially the choice of educational technologies, learning methods are among the university's responsibilities. The paper considers an interdisciplinary project as a necessary element of the engineering education and a condition of obtaining professional competencies. The paper reports on the investigation of obstacles that an interdisciplinary project meets in practice and suggests the principles and evaluation criteria that might help to overcame the obstacles. The Master's program "Information technologies in advertising and public relations" that is provided by National Research Tomsk Polytechnic University (Russia) was chosen as a base for a design experiment. Further research should validate these criteria for evaluation an interdisciplinary project and create the detailed procedure of assessment with measurable indicators.

Keywords: interdisciplinarity; engineering education; interdisciplinary project; evaluation criteria; design experiment.

Introduction

The prediction of the development perspectives of engineering education is guided by the complementary principle of the natural-scientific, social-scientific methodological tradition and humanitarian methods of cognition.

The modern approach to engineering education assumes that a prospective specialist forms not only knowledge and skills, but also special competencies directed at the capability to apply them in practice when creating a new competitive product. As a result, a new quality of engineering education is attained via providing a group of competencies, including fundamental and technical knowledge, analytical skills and problem solving abilities using an interdisciplinary approach, mastery in the methods of project management.

Introduction of the interdisciplinary approach allows embracing a greater scope of the cognitive field, provides multidimensional vision of professional tasks, which comprises the peculiarity of the modern criterion of the engineering culture (Augsburg & Henry, 2009; Frodeman, Klein, & Mitcham, 2010; Collin, 2009). Interdisciplinary projects involve different disciplines within engineering educational program. In other words, interdisciplinary project needs "faculty from different areas of campus work together toward the development of project" and students' team with different majors (Reid, Montenery, & Hetrick, 2011; Yelamarthi, 2012). Although an interdisciplinary approach in engineering education accompanied by a growing body of publications, single papers have been devoted to the curricular design and to a special issue on the assessment of interdisciplinary research (Gouvea, Sawtelle, Geller, & Turpen, 2013; Spelt, Luning, van Boekel, & Mulder, 2015; Knight, Lattuca, Kimball, & Reason, 2013; Lélé & Norgaard, 2005; Scholz1 & Steiner, 2015). This paper contributes to research on principles of interdisciplinary research and evaluation criteria of an interdisciplinary project.
The purpose of the research is to reveal the principles of theme formulation of interdisciplinary projects and criteria of their subsequent assessment. The Master's program "Information technologies

in advertising and public relations" that is provided by National Research Tomsk Polytechnic University (Russia) has become the empirical basis of the research.

Methods

The principle of interdisciplinarity in the scientific cognition and in the pedagogical process has become a theoretical-methodological basis of the paper (Augsburg & Henry, 2009; Frodeman, Klein, & Mitcham, 2010; Collin, 2009; Kasavin, 2010).
Design experiment has been chosen as a research method (Collins, Joseph, & Bielaczyc, 2004).
The object of the research is a professional training of IT engineers (basing on the example of the Master's program "Information technologies in advertising and public relations").
The subject of the research is an interdisciplinary project as a structural element of the educational technologies of the higher technical educational institution.
The purpose of the experiment is to reveal the principles of theme formulation for interdisciplinary projects and criteria of their subsequent evaluation.
The collected data on the diagnostic stage of the experiment have shown that master students of years of study, the first and the second, require greater attention in formation of professional competencies, the developed methodology was approved in the experimental groups containing master's students: the first year of study – 17 people, the second year of study – 15 people.
The arrangement of the educational experiment has required setting the following tasks:

- To identify the possible ways of inculcation interdisciplinary projects in the educational process; to evaluate the attitude of the university staff and students towards the application of the interdisciplinary projects in the educational practice.
- To reveal the opportunities which are provided by the interdisciplinary project to enhance the quality of engineers' training.
- To highlight the basic problems of this technology application from the standpoint of the project participants.
- To reveal the possible disagreements among the participants of the project.

Throughout the experiment the following skills and abilities of students have been fixed:

- Information search skills.
- Need to search for the necessary information.
- Acquisition of the conceptually multidirectional information on the project problems, ability to interpret it.
- Ability to operationally report on the processed information to all participants of the project.
- Ability to comment the problem and suggest different solutions.

Results and Discussion

The design experiment is an implemental type of research activity, the main purpose of which is to check experimentally the methods of formation of professional competencies (basing on the example of the interdisciplinary project) of the future engineers in the field of information technologies in advertising and public relations.
The conducted experiment allowed to reveal the following challenges that participants have faced in the course of interdisciplinary project implementation:

- In the context of interdisciplinary projects there is a complexity of notions. Different disciplines use proper scientific languages which require substantial efforts to establish a dialogue and develop a mutual understanding.
- As participants have met only for the interdisciplinary project, they often have a limited understanding of the specific character of each other's disciplines. Particular difficulties arise for the representatives of social sciences, which methods and subjects are quite similar.
- In the context of the implemented project it is possible to note a definite "inequality" between natural science and social-humanitarian disciplines. At the initial stage of the experiment this fact impeded the determination of the main logic of the project and resources allocation.

The conducted experiment as well as the analysis of the literature (Knight, Lattuca, Kimball, & Reason, 2013; Lélé & Norgaard, 2005; Scholz1 & Steiner, 2015; Kasavin, 2010) allowed to define

the principles which are desirable to be adhered when formulating the themes of interdisciplinary projects:

- The proposed themes should have practical importance and should be focused on solving urgent problems that allows maintaining the interest of the project participants.
- The interdisciplinary project assumes students' right to choose the purpose, methods of conducting the research and ways of problem solving. Therefore, it is desirable not to mention the means of problem solution in formulation of the theme.
- The project problem formulated by the participants should correspond to the potential of disciplines included in the curriculum.
- In order to avoid the problem of reduction of the notion content to the language of the observer of another level, the project theme should be formulated so that the initial notion context retains. This is connected with the fact that notions can distort their own meaning when they are included into the context of the irrelevant for them field, where can be other notions that are similar in their meaning. In this case the interdisciplinary project transforms into an "innerdisciplinary" one, and the probability of obtaining a new cognitive product decreases.

D. The following evaluation criteria for implementing the interdisciplinary project have been formulated:

- Completeness of the project realization and a new knowledge creation (the degree of attainment of set goals and tasks);
- A level of mastering the designing procedures (the ability to find and formulate a problem, the capability to conduct a research, to formulate a goal, to reveal the problem solutions, etc.);
- Appeal to the personal experience, to the cases from professional practice, which illustrate the interdisciplinary problem;
- Identification of the factor (factors) in the different subject area, which enable to solve the set problem;
- Self-evaluation of the project participants (presence of the positive effects on an individual level);
- Presence of the participants' need in further development of their own project experience.

Conclusions

Interdisciplinary projects allow creating the conditions, which are practically correspond to the real engineering activity. As a result, students acquire the experience of complex problem solving in engineering designing along with the distribution of functions and responsibilities between the members of the team. However, the efficiency of the project-based methods is in many ways determined by the established themes and criteria of the subsequent assessment.

As long as the evaluation criteria of the results of academic activity of the students engaged in the interdisciplinary project remain insufficiently developed, they are supposed to be studied further for the purpose of systematization, based on different grounding and determination of the corresponding assessment procedures.

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Methods of the Economy Competitiveness Ensuring (the Experience of Russia)

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Abstract

The competitiveness of the national economy is determined by many factors. One is the availability and quality of electrical power. Therefore, the electric power industry in the world paid much attention. Reforms in the power sector are the tool for improving the competitiveness of the economy. The authors analyze the Russian experience of reforms in this sector. They give a comparison of Russia and other countries of the world on this issue. The article substantiates the conclusion about the necessity of development of a mixed (public-market) regulation in the electric power industry. This approach to regulation will ensure the improvement of national competitiveness.

Keywords: national economy; state economic policy; competitiveness of the economy; partnership between business and government.

1. Introduction

High competitiveness is one of the main objectives of management and public policy. The level, at which to set and achieve this goal, may be different. Business, as a rule, tends to the competitiveness of a particular product or brand. The government has more ambitious goals. It provides the country's competitiveness as a whole or its individual territories (such as the free economic zones).

The subject of the analysis of the authors is the economy's at the country level competitiveness. It is achieved through the use of instruments of state policy. The choice of these instruments and their combination significantly influenced by many factors. Therefore, methods to ensure the competitiveness of the economy must be flexible to use. Effective methods take into account the specificity of control object: country, region, sector. Therefore, its application is diverse and differentiated.

To give a concrete analysis, in the article we consider issue of governance the competitiveness of the economy by the example of the Russian power industry development. This industry is one of the backbone in the modern economy. Therefore, its reform and the efficiency has received considerable attention. Its success largely depends on the competitiveness of the economy.

2. Factors affecting the competitiveness of the economy

At the end of October 2015 the World Bank published the rating of "Doing Business". In this rating Russia has made quite an impressive leap up. It has improved its ranking by 11 positions. As a result, it now occupies the 51 place in the world. This result is slightly lower than planned (the President of the Russian Federation was set the task of the public authorities to enter the world top 50 in 2015). At the same time, this result indicates the success of the authorities' efforts to create favorable conditions for business.

One reason for the strengthening of Russia's position in the ranking of "Doing Business" is that the productive reforms have been implemented in Russia. Among these we highlight in the area of energy reform. Their importance is determined by the fact, that in the ranking "Doing Business" takes into account 10 indicators, among which, in addition to the time and money to create a new business, dealing with construction permits, registering property, getting credit, protecting investors' rights, tax regime of

international trade, enforcement contracts, bankruptcy procedures, is allocated access to the electricity infrastructure.

Consider the various reforms undertaken in the countries of the world, in terms of their impact on the country's position in this ranking. From 2006 to 2016 many (2499) different reforms have been carried out in the world. In some countries, reforms were carried out more intensively, and some – less. Russia is in the top 10 countries by number of reforms. Total 29 reforms have been carried out (see Table 1). By number of reforms in the power sector (Table 2) Russia leads the world. She shares the 1-2 places with the United Arab Emirates.

We believe that the attention of the drafters of the rating Doing Business in the power industry is a natural. The difficulties with the connection to electricity greatly affect the launch of new business projects. Currently, energy has a major impact on economic development and international competitiveness of countries. Government began to pay greater attention to these issues. This changes the conceptual framework for reform. Instead of instruments of regulation or direct state control of the government are increasingly guided by the principles of a competitive market. They believe that the market price signals and consumer preferences make it possible more effectively to balance supply and demand and to influence investment decisions in the energy sector.

Table 1: Number of reforms in the countries of the world from 2006 to 2016

Country	Total	Rank
Rwanda	43	1
Georgia	38	2
Macedonia	36	3
Belarus	32	4
Kazakhstan	31	5
Colombia	30	6
Russian Federation	29	7
Vietnam	28	8-9
Ukraine	28	8-9
Armenia	27	10

Source: World Bank, 2015

Table 2: Number of reforms in the power sector from 2006 to 2016

Country	Connecting to the power supply system	Rank
United Arab Emirates	3	1-2
Russian Federation	3	1-2
Hong Kong	2	3-10
India	2	3-10
Indonesia	2	3-10
Costa Rica	2	3-10
Mexico	2	3-10
Poland	2	3-10
Rwanda	2	3-10
Taiwan	2	3-10

Source: World Bank, 2015

The energy industry has traditionally been regarded as a natural monopoly. The high cost of its development and technical obstacles speak in favor of the provision of electricity services are not competing firms, and the only economic entity. This view began to change only recently. It is connected

with the study of the technological features of the electric power and the mechanisms of their display in a market economy.

The reforms carried out in the US, the UK, Chile and other countries have shown that natural monopolies can be stored in the electric power transmission and distribution links. At the same time the development of competition in the production and distribution of electricity is possible. For example, the American experts, analyzing a sample of 50 countries, concluded that competition in the electricity could lead to lower prices by an average of 13%, and in some countries – more than 30% (Mastepanov, 2010). For the Russian economy, this experience is very important. In Russia, high (in comparison with the developed countries of the world), inflation is one of the limiting factors of national competitiveness. Therefore, containment of electricity tariffs is an important task.

3. Effect of electric power to the competitiveness of the economy: the experience of Russia and other countries

The impact on energy prices (in particular – for electricity) is one of the most important factors of competitiveness. As noted in the report "World Energy Outlook 2013", the uneven starting conditions for competition in the world is largely determined by two factors (IEA, 2013). Firstly, it is large differences in regional energy prices. Second, regional differences in energy prices in the medium term will determine the level of competitiveness of industry and will be a decisive influence on the development strategy of company and investment decisions.

We note one more, specifically Russian, channel influence of electricity on national competitiveness. Russia differs sufficiently high level of energy intensity of GDP. It has been estimated (Mel'nik and Sadriyev A.R., 2010), the energy intensity of the Russian GDP higher than in developed countries is 2-3 times. In our view, such an assessment rather debatable. For example, it expressed the view that no more informative indicator of energy intensity of GDP, but the energy intensity of the Gross Added Value (Klimova and Litvak, 2012). Centre for Energy Efficiency Experts point to the need for separation of energy intensity to a number of technical and economic groups and assess their dynamics (Bashmakov and Myshak, 2012). There are also other opinions on the matter.

Despite the variety of estimates, the majority of experts in Russia agrees with the need to reduce specific energy consumption. High power consumption has a negative impact on the competitiveness of the national economy. In this regard, urgent is the task set by the decree of the President of the Russian Federation dated July 8, 2008 № 889 "On some measures to improve the energy and environmental efficiency of the Russian economy", to reduce by 2020 the GDP energy intensity by at least 40% 2007 base year.

In many ways, energy efficiency and increase the competitiveness of economic entities will be associated with an increase in the availability of electricity, increased competition in the electricity markets. World experience shows that the competitive sale of energy allows consumers to choose suppliers on the basis of price and quality. Such a choice among consumers appears gradually, as at first it is a competition only in the sphere of mass wholesale or large industrial consumers and distribution network. Over time, this process gradually involved and smaller customers. Ultimately, the choice of electricity provider appears each client.

Gradualism should be followed in the implementation of energy reforms. For example, in the UK competition in electricity sales was introduced in three steps: large customers a choice was given in 1990, the average – in 1994, and household customers – in 1998. As a result, by 2000 almost 81% of large customers and 38% of households at least once changed their energy supplier (Mastepanov, 2010). We do not expect that the activities of electricity market deregulation must inevitably lead to lower prices. The belief that the lack of free competition (or rather – not enough free competition) always leads to high prices do not correspond to reality. It is determined by the vulgar understanding of microeconomic theory partition, which deals with the behavior of monopolies. This opinion does not take account of the fact that today's markets are under strong state control.

Due to the state regulation of energy monopolies, the level of energy prices may differ from the equilibrium (inherent in a hypothetical model of free market competition). For example, in Argentina (Ostrovsky, 2010), the abolition of regulated prices for natural gas, and measures to promote competition in 1993-1995 led to an increase in sales prices by 15%. Despite this, the natural gas consumption in the country from 1992 to 1997 increased by 50%, which was due to non-price factors, the inflow of capital into the industry significant, increase its attractiveness, increasing physical availability of natural gas for consumers.

Reform of the legal bases of functioning of the electricity sector in order to reduce costs and improve the quality of infrastructure services is becoming a global trend. It is observed in Russia, too. Comparative analysis shows that the program of reforms in different countries as a whole are conducted on the same areas of privatization, structural reforms and the opening of access to the network infrastructure.

Consider the experience of reforms in the Russian power industry (see: http://www.ra-national.ru/sites/default/files/other/55.pdf). In the post-Soviet period it is a natural monopoly has been created in Russia (vertically integrated) "UES of Russia". But by July 1, 2008, it ceased to exist due to the separation of a number of legally independent organizations in the field of generation. Electricity infrastructure remained under a single management. Branch was divided into natural monopolies (transmission, distribution of electricity) and competitive (production and marketing) activities. The market has been formed on two levels: the wholesale and retail market.

The legal framework of the transformation of the Russian electric power industry has created a Government Resolution dated July 11, 2001 № 526 "On the reform of the Russian power." The need for reform has been caused by a deficiency of investment, decline in reliability of electricity supply, increase of imbalances of market regulation, and others. As a result of the reform of the sector only for 2005-2012 in the electricity had attracted about 4.6 trillion rubles of investments. More competitive electricity market has been established. Despite the problems in modern Russian power, some Russian experts believe that the whole reform to be successful (Knyaginin and Lipetskaya, 2014).

There is an opposite point of view. According to Barinov (2013), "the years of reform there was a deterioration of economic indicators of the industry. Since 1991, more than 1.5 times increased relative power losses in networks of its vehicles in more than 1.5 times increased the specific number of staff in the industry. Significantly increased the tariffs for electric energy, the share of obsolete power equipment in power plants and power grids".

Such estimates require explanation polarization. Otherwise it is difficult to choose a vector of further development of the power industry and the economy as a whole. There may be an error committed in the implementation of modernization policies in the future. What accounts for such a controversial? In our opinion, they are caused by different base suitable for comparative analysis.

Russia's economy, considered as a part of the economy of the USSR during the period of liberal market reform seriously degraded (Åslund, 1995; EBRD, 1998; Malykh et al., 2015; OECD, 1997 and other). This process also affected the electricity industry. The negative impact is felt on both sides. First, like other sectors of the economy, energy, experienced investment contraction, lack of liquidity, reducing the rate of renewal of fixed assets, the lack of qualified personnel, and others. Secondly, as the infrastructure sector, power industry has focused on itself, many problems of other sectors of the real sector of the economy (late payments, technological constraints, inflationary pressures, and others). In this context, the choice as a "starting point" of various periods of development of electric power industry will inevitably lead to different estimates of its current state, as well as to differences in the assessment of the impact of reforms.

4. Prospects for improving the competitiveness of the economy through reforms in the power sector

According to experts of the St. Petersburg Polytechnic University, the development of the Russian energy sector will be associated with the transition to energy systems of the new generation (Knyaginin and

Lipetskaya, 2014). This transition will be carried out in four main areas: the establishment of power grid management systems ("smart" network or Smart Grid); development of long-range electric vehicle technology (which is especially important for Russia, taking into account the geographical factor and resource plans of Siberia, the Far North and the Far East); development of power storage technologies in the energy system; the development of distributed generation.

There is need for an intensification of technological development (Barinov, 2013). Electric power modernization program requires an expansion of the use of innovative technologies in the generation and transmission systems and distribution of electricity; multi-level harmonization and development of components of the unified electric grid; creating a holistic management system development and operation of electric power.

It is clear that, despite some differences, the vision areas of industry transformation is largely common. To solve these major problems due to a public resource is impossible. (Not coincidentally, in this regard, we believe the institutionalization of the federal legislation in 2016 of public-private partnership, which is in many respects, as shown by previous studies (Babkin et al., 2015; Plotnikov and Vertakova, 2015), due to the implementation of energy infrastructure projects.) Therefore, further necessary development of the sector within the framework of liberalized model. That allows it to combine the rational government regulation of the power industry, including the maintenance of a fair price, with a private initiative aimed at cost-effective solution of organizational, technical, legal and other industries functioning problems.

Of course, in the power industry, the choice of policy purely liberal reforms, conflict can arise between the principles of economic efficiency and social justice, which is the free market forces are unable to resolve. This requires the creation of non-market mechanisms coordinating the interests of producers and consumers of energy. This mechanism should be based on the activities of the public administration. And it is important to comply with the restriction: created a mechanism should not weaken incentives to economic activity. Only in this way we are able to provide a high level of competitiveness of the Russian economy.

To achieve these goals and tasks arising from them, in the immediate disposal of the authorities is the legitimate right of coercion that distinguishes them from other actors of the market economy. However, any form of government intervention, and creating the risk of adverse negative effects. In this regard, in the power formation of the specific mechanism of the Russian state-market regulation, which is a general trend in the construction of the Russian model of a mixed economy.

5. Conclusions

According to experts of the St. Petersburg Polytechnic University, the development of the Russian energy sector will be associated with the transition to energy systems of the new generation (Knyaginin and Lipetskaya, 2014). This transition will be carried out in four main areas: the establishment of power grid management systems ("smart" network or Smart Grid); development of long-range electric vehicle technology (which is especially important for Russia, taking into account the geographical factor and resource plans of Siberia, the Far North and the Far East); development of power storage technologies in the energy system; the development of distributed generation.

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Effective Management of Recreation Resources for Human Capital Increase

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Abstract

The region's level of social and economic development depends mostly on the quality of human capital, which in its turn is determined by the quality of life. Recreation is essential for people to restore their work capacity and plays an important social and economic role as it contributes to the labour productivity increase. Currently in Russia, and in Siberian Federal District in particular, tourism and recreation areas are being intensively developed through budget and non-budget financing. However, the majority of projects lack ecosystem services assessment, which might cause financial risks for project implementation, as well as conflicts with the inhabitants. The paper establishes that it is necessary to use a complex approach to the project development, which implies ecosystem services assessment via socioeconomic methods.

Key words: human capital, recreation, ecosystem services, economic assessment

Introduction

Economic productivity and efficiency primarily depend on the quality of human capital, most significantly, that of population in urban areas since it provides the basis for economic growth.

Quality of life in terms of sustainable development is determined by a number of indices, including that of economic development, which in its turn boosts growth of cities and industrial areas, where different services are provided, financial flows and taxes are generated, and household and local authority incomes are accumulated. As C.S. Antognelli and M. Vizzari (2016) noted, urban environment and social and communal infrastructure stipulate the quality of life in the area. The environmental parameters include the quality of dwelling, efficiency of house holding, and the anthropogenic load on the local environment.

The level of local economic and social development, as well as the quality of life, is stipulated by the municipal entities and their industrial, cultural, agricultural, financial, human, and recreation potential.

Intense urbanization causes the demand for high quality nature rest and comfortable recreation. Recreation industry is concerned with landscape conservation and is inconsistent with natural resources production. Intensively developing urban environment is becoming more and more aggressive and has negative impact on human physical and psychological health because of stress it causes. According to World Health Organization data (2014), the human health depends on a healthy environment (20%), while some experts believe that about 95% of impairments are caused by the environmental conditions.

Recreation is essential for people to restore their work capacity and plays an important social and economic role. Thus, nature rest increases labour productivity and efficient labour time. According to the research data, Sunday rest in the forests around the city accounts for a 3% increase in annual average labour productivity.

As M. Kh. Akhmatova and E. Kh. Khaniev showed, in terms of social significance of natural resources recreation, forest is more valuable than wood. The forests in Germany are estimated at 53 billion euros, while the cost of wood products is 17 billion euros, and forest water protecting capability per one ha is 2.8 times higher than the cost of wood. According to K. Kupert and H. Pabst (2013), who provided estimates of forest resources with the regard to their social functions (including water regulation, environmental recovery, and recreation), the cost of forest is 280 times higher than that of wood.

As David M. Edwards et al (2012) noted, intense urbanization stipulates natural resources recreation management based on interdisciplinary scientific approaches which imply the concept and principles of sustainable development and economic assessment of ecosystem services. M. Giergiczny et al (2015) supposed that development and implementation of natural resources recreation management system will allow reaching the compromise between social and economic development of recreation areas and landscape and biodiversity conservation. Natural resources recreation includes forest green zones around the cities, conservation areas, wild life reserves, and national parks.

Soldatov S. A. (2001) supposed that natural resources recreation accounts for social healthcare affect (increased labour capacity, decreased incidence of diseases and death rate), which in its turn becomes economic effect in other spheres since increased labour capacity leads to labour productivity growth, decreased incidence of diseases reduces healthcare costs, etc.

Kuskov A. S. (2005) pointed at important economic functions of recreation: boosting local economic development; expanding labour market as people are involved in recreation services, as well as in other industries which are connected with recreation; the impact on distribution of income and costs across the country, for the benefit of recreation areas.

As Kruzhalin V. I. et al (2011) pointed out, in terms of recreation management and local recreation resources, there are three major types of countries attractive for tourists:

1) countries with abundant and valuable recreation resources and well-developed recreation service and infrastructure (for example, Switzerland , Italy, Greece, Turkey, etc.);

2) countries with high recreation potential but poorly-developed service (for example, Russia, countries of South Caucuses, etc.);

3) countries with limited recreation potential but well-developed recreation service (for example, the majority of countries in North West Europe).

Results and discussion

According to World Economic Forum data (2014), in the global competitiveness rating, Russia in 2013 ranked 64th out of 130 countries. As for Sustainable Development index, Russia was at the bottom of the list (the index includes such parameters as efficiency of environmental law, environmental regulation, amount of carbon dioxide emissions, number of endangered species, etc.). However, Russia was ranked 37 in 2013 and 27 in 2011 in terms of valuable natural resources.

According to United Nations World Tourism Organization (UNWTO), Russia possesses a great tourism and recreation potential. In some regions of the country tourism and recreation industry is at the initial stage of its development. The RF can become attractive for tourists if there are special economic zones for tourism and recreation (SEZTR).

Since 2006, 14 tourism and recreation zones have been established in the territory of the RF. The aim of SEZTR is to boost economic development of leading regions and create the multiplier effect, which covers all connected industries, as well as human healthcare and quality of life. This can be reached through making tourism and health resort services available for Russian people, environment conservation, and preservation of natural and cultural values.

Today, the greatest intact ecosystem is located in Siberian Federal District (SFD). Siberia is famous for its nature recreation resources, cultural and historical sights, which are of local, regional, federal and even global value. For example, in the territory, there are objects of UNESCO world natural heritage (Golden Mountains of Altai, Lake Baikal, Ubsunur Hollow, etc.), which is particularly important because of growing interest in global ecotourism. The high recreation potential of SFDt is currently considered an economic development perspective.

SFD is located between Ural Federal District and Far Eastern Federal District. It is a land area of 5144953 km^2, which makes up 30% of total national area. The population at the beginning of 2014 was 19292740 people, with population density being 4.0 people per square kilometer. The highest population density is in big industrial cities such as Novosibirsk, Omsk, Krasnoyarsk. Over the period of 2003–2013, there has been natural population growth and life expectancy increase, with a 12% rise of disease incidence and 3% reduction of costs for healthcare.

In the course of our research, we have considered several tourist and recreation zones in operation located within SFD: the Gate of Baikal (Ikrutsk oblast), Baikal Harbour (the Republic of Buryatia), Altai Valley (the Republic of Altai), the Turquoise Katun (Altai Krai), as well as SEZTRs in Tashtagolsk area and Kemerovo oblast.

These zones were established due to the regional particularities. They are currently large-scale projects with intensive investment aimed at development of two recreation areas of global value – Altai and Baikal (this explains why these SFD units possess the status of SEZTR). Within these zones, there are particular regulations for economic activities, specially developed infrastructure, preferential treatment and incentives for management companies and other residents including those involved in recreation service (100% remission of property tax, 13.5 decrease in the income tax rate paid by companies and applied towards the local budget, etc.). There are also non-financial support (management, information, and consultation) and financial one provided within the long-term projects on local tourism development.

However, in the investment project calculations there is no information on local ecosystem services assessment and inhabitants' opinion on natural resources management. Without considering this aspect, there are significant risks of project implementation to be faced by the investors and the national government, which provides financial support for the projects. Moreover, there might be conflicts between the investors and local inhabitants. To implement the concept of sustainability into SEZTR development, it is necessary to make economic assessment of ecosystem services and then compile it with the investment assessment.

However, the economic mechanism of integrating economic interests and efficient natural resources management has been beyond the scope of attention and none of the following documents has considered this issue: the strategies for local and national development, the concepts of SEZTR and business plans of SEZTR development, national tourism regulations, preferential treatment regulations, regulations on mountain ski tourism development, etc.

Therefore, natural resources assessment needs well-developed methodology for ecosystem services assessment, as well as an efficient jurisdiction basis. We suppose that recreation potential and ecosystem capacity assessment make the first stage of land development in recreation purposes.

Recreation resources in demand stipulate recreation load on the environment. Resting people and their vehicles have a negative environmental impact. Intense anthropogenic load reduces the quality of recreation resources, leads to ecosystem degradation, loss of biodiversity and deterioration of living conditions for the inhabitants.

A. Montis et al (2016) noted that under the conditions described above it is necessary to develop recreation resources management based on the economic mechanisms. In the opinion of M. E. Mastrangelo and the coauthors (2016), natural resources and eco services assessment is necessary to develop an adequate economic policy and to make appropriate economic decisions. As M. De Salvo and G. Signorello (2015) suggested, integrated economic assessment of environment including non-market value of recreation services, will make the environment competitive in its struggle for existence and conservation. As A. Filyushkina et al noted, the economic assessment presents the value of ecosystem and biodiversity, as well as their inestimable contribution to public welfare, in terms of economy and politics. To ensure sustainable management, it is necessary to distribute natural resource rent and reinvest in natural resources conservation and further development. Rental income distribution is a key factor, which may help to solve many social problems and overcome environmental challenges. Natural resources assessment can contribute to efficient decision-making by the government and private sector, as well as to enhancement of jurisdiction.

The results of Tomsk recreation zones economic assessment (2011, 2015) made in the course of our research show that it is rather important to take into account environmental and social aspects when developing methodology for natural resources economic management. The total recreation area of Tomsk agglomeration includes 145 natural monuments, 217 monuments of architecture, 165 nature conservation areas, 163 historical monuments, 190 tourism companies. About 800 thousand people annually visit Tomsk oblast and the amount of tourism services increases. As an example, we made economic assessment of Timiryazevo pine forest ecosystem services. The forest performs recreation

and healthcare functions for Tomsk population (more than 600 thousand people). The forest microclimate and landscape are favorable for all season recreation.

We made economic assessment for the following ecosystem services:

- food potential;
- recreation and culture services;
- regulatory services.

The comparison of research data obtained in 2000 and 2012 shows that the quality of ecosystem services deteriorates upon improperly managed recreation activities, which leads to the decline in the area recreation potential, makes the area less attractive, and causes the decrease in the self-regeneration capacity of the environment (table 1).

Table 1. Data on social, environmental and economic assessment of recreation resources (Timiryazevo pine forest, Tomsk)

	2000	2012
Provisioning ecosystem services: real cost of wild berries and mushrooms, million dollars per year	2.8	2.7
Regulatory services (absorbing carbon dioxide), million dollars per year	3.4	3.4
Culture services (recreation services, aesthetic pleasure) in terms of willingness to pay, million dollars per year	3.8	16.9
Visiting forest for picking wild crop, %	54	19
Visiting forest for recreation purpose, %	8	51
Visiting forest for both picking wild crop and recreation, %	32	16
Percentage of people willing to pay for the area conservation	63	80
Willingness to pay (WTP) per capita per year, dollars	0.7	42

As it can be seen from the table, the amount of inhabitants visiting forest for the recreation purpose has increased by 6.4 times since 2000, while the amount of people visiting forest for picking wild crop has reduced by 3 times. One of the reasons for the wild crop failure is the increased anthropogenic load. It is noteworthy that the percentage of people willing to pay for the pine forest conservation has risen (from 63% in 2000 to 80% in 2012).

The economic assessment of Timiryazevo pine forest ecosystem services indicates that the forest is most valuable as an ecosystem, which is proved by the total cost of ecosystem services (23 million dollars), with recreation and culture services making up the major share.

It is important to note that the integrated economic assessment combines market and non-market based approaches. This socio-economic assessment of recreation services in terms of WTP does not only present the value in financial equivalent, but also provides information on the causes for changes and the impact on the population. Also, the information obtained contributes to recreation resources management planning.

When asked the question, “Do you think that Timiryazevo pine forest has changed over the past 10 years?”, 55% responded “Yes, the forest environment has degraded”, 12% answered “Yes, the pine forest environment has improved”, 4% said “No, the forest environment has not changed”, and 29% neither agreed nor disagreed.

When asked the question, “Does Timiryazevo pine forest satisfy your recreation needs?”, 16% responded “Yes, completely satisfies”, 63% answered “Yes, but the forest management could see some improvements”, and 21% said “No, I prefer visiting town parks”.

The survey results indicate that Timiryazevo pine forest is important for inhabitants, who are aware of current challenges and are interested in the forest conservation. Therefore, when developing management mechanism, it is necessary to focus on Timiryazevo pine forest ecosystem conservation.

The example analyzed proves the importance of non-market approach to economic assessment in terms of WTP and demonstrates its integration in decision-making process.

This research contributes to clear understanding of challenges and objectives of recreation resources management, which should ensure both biodiversity conservation and efficient operation of ecosystem services. We suppose that when designing a recreation area development project, it is important to use the interdisciplinary approach. It is also necessary to make a biophysical assessment of the area (ecological capacity and environmental carrying capacity), as well as socio-ecological economic one, which provides information for management decision making. Both approaches being integrated, it is possible to make a complex assessment of social and economic aspects.

In our opinion, it is necessary to provide a legal and regulatory framework for design and implementation of recreation area development projects; the companies should make ecosystem services assessment before the project design and on the basis of the appropriate methodological approach, which implies:

- choice of ecosystem services to be assessed;
- choice of assessment methods in compliance with international assessment standards, including market and non-market methods;
- social survey to determine the value of recreational, cultural and aesthetic services for recreation purposes with the assessment of willingness to pay for area conservation and development.

The methodological approach described above will reduce the risk of government and private financial losses while implementing recreation area development projects, as well as mitigate the damage to the social and economic interests of inhabitants.

Conclusion

Recreation resources perform a number of functions in sustainable development of urban areas: social (reclamation of human resources), economic (the income from tourism and recreation industry), and ecological (biodiversity conservation and environmental monitoring).

At the stage of recreation area design, environmental and social aspects of the area development remain beyond the scope of attention, which causes risks for implementation of recreation resources development projects and leads to land degradation.

To ensure sustainable development of the recreation area and steady income from tourism business, it is necessary to make ecological-economic assessment of all ecosystem services of a particular recreation area.

To make an economic assessment of the recreation area, one should use the methodological approach based on integration of market and non-market methods, since the latter allows finding out the population preferences and estimating the ecosystem value.

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Incorporating Knowledge Management Activities and Phases of the Decision Making Process as a Conceptual Model

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Abstract

Decision making can be a problem for businesses and decision makers these days; therefore, knowledge management (KM) activities play a significant role in any organization. The value of knowledge depends on its application and use. The success of an organization largely depends on the quality of the knowledge that it generates. An extensive literature review has enabled the authors to observe that incorporating KM activities (knowledge discovery, knowledge capture, knowledge sharing, and knowledge application) and phases of the decision making process (intelligence, design, choice, and implementation) has not been clearly highlighted. The aim of this paper is to create a conceptual model highlighting KM activities as a tool for making better decisions in an organizational setting, to make activities more effective and efficient when large amounts of knowledge are involved.

Keywords: Knowledge Management, Knowledge Management Activities, Decision Making Process.

1. Introduction

In the last decade, several decision makers in organizations have started the development of their own knowledge management (KM) systems in order to encourage better decision making. Additionally, decision making requires the use of KM activities. Therefore, knowledge is vital in decision making situations involving uncertainty and complexity. To date, the companies' interest in a correct KM system has grown more than interest in mere knowledge itself. From this point, Elsayed et al (2013) noted that Decision Support Systems (DSS) are witnessing continued growth. Therefore, numerous organizations have improved their data warehouses and use KM for decision support activities.

Additionally, Silwattananusarn and Tuamsuk (2012) noted that understanding the knowledge is becoming important for organizational source that offers a competitive advantage and gives rise to KM initiatives. Moreover, KM is one of the most important topics of the day. This is because KM is a conscious strategy for transferring the correct knowledge to all employees in an organization at the precise time to support sharing and allow the information to be converted into action to develop organizational performance (Al-Dujaili, 2011). In another study by Noman and Aziz (2011) explained that most employees can realize that KM is designed and structured perfectly to backing the process of decision making by apply of knowledge.

While several studies relating to KM activities and decision making phases have been accomplished, there has been a lack of literature addressing the issue of observing the activities as integrated model. Out of those, a few studies deal with why and how KM activities and decision making phases can be successful and what techniques employees utilize to improve decision making. Thus, this paper attempts to add value to this field by applying one of the concerns related to KM activities and decision making

phases, and by providing the tools and a consistent technique for engaging the employees in an organization as an active model.
The paper is organized as follows: In section 2 is a Literature Review, and some research works reported in the literature are briefly described. The proposed model for KM activities and decision making phases is discussed in section 3. The last section concludes the paper.

2. Literature Review

2.1 Knowledge Management Concept

KM is the basis of organizing resources to achieve scientific and effective goals. A study by Alavi and Leidner (2001) explains knowledge in five perspectives: state of mind, object, process, access to information, and capability. Additionally, Robinson (2005) states that KM relates to unlocking and leveraging the different types of knowledge so that it becomes accessible as an organizational asset; applying KM allows an organization to study from its corporate memory, share knowledge, and identifies competencies in order to become a forward thinking and learning organization.

In another study, by Herschel and Jones (2005) defined that KM as collaboration, content management, organizational behavioral science, and technologies to create, store, retrieve, distribute, and analyze of knowledge. Additionally, Ribino et al (2009) explains that KM contains a technique that utilizes information technology tools for the management of information, and its aim is to enhance the efficiency of work teams; it studies methods for making knowledge explicit and sharing a firm's professional expertise and informative resources.

2.2 Knowledge Management Activities

KM activities are becoming an increasingly essential component of organizations' operations. Additionally, in order to develop robust KM activities, a number of models must be taken into account. From the KM activities aspect, the following research has been carried out in different branches. Murphy and Jennex (2006) explain that KM is a system established to assist workers in identifying, sharing, retrieving, and utilizing the knowledge they want.

Additionally, Al-Dujaili (2011) expound that a KM system is the structure required for an organization to apply its KM processes. This development can be seen as a 'knowledge platform', where the goal of the KM system is to support the construction, sharing, and application of knowledge in organizations. In this aspect, Dalkir (2005) suggested that KM process emphasized on knowledge flows and the process of creation, sharing, and distributing knowledge.

In general, KM activities involve four processes, namely discovery of knowledge, knowledge capture, knowledge sharing, and application of knowledge. For each process, there are different techniques and practices used. Recently, Alhawari and Al-Jarrah (2012) developed a conceptual model of a KM process on organizational performance based on these four processes.

2.3 Decision Support System Concept

There are several motives that drive decision makers to make decisions, as mentioned by Borissova and Mustakerov (2012). They compare DSS to a computer-based information system that supports business and organizational decision making activities.

Additionally, DSS is constructed around the ideas of any decision maker within the organization. A recent study by Ben Yahia et al (2012) explains that decision making, wherever and whenever it occurs, is main to an organization's success. In order to create the right decision, teams, individuals, and organizations need both KM and collaboration to create that more effective and efficient decision. In another study by Wimmer et al (2012), it was noted that it is knowledge that directly communicates to the decision making process of the exact decision. Merging the many sources of data into a unified knowledge warehouse delivers many advantages to the decision makers in organizations.

The importance of having technology as a defense mechanism for decision makers has been mentioned by Shim et al (2001), who define that DSS are like computer technology solutions that can be used in organizations to support difficult decision making and used for problem solving techniques.

2.4 Decision Making Phases

Today, almost all business data is stored in data stores, whereas decision making still relies upon an element of this data. Additionally, new business model trends for management of the extended organization to consider include more appropriate and suitable decision making phases to enhance motivation.

Moreover, these decision making phases can be used by decision makers. In a study by Borissova and Mustakerov (2012), it is explained that an essential step in the DSS design process is to describe how the system transforms data. For that goal, data flow diagrams are utilized to describe how data is processed and stored. They also show the points of data entry and exit, and are an important tool in supporting and building a logical model of the designed system. Additionally, Al-Zhrani (2010) explains that the process of decision making in any business is an inherently critical aspect not just for organizations but also for individuals who really trust in these decisions for their survival in the highly competitive arena of entrepreneurship.

In a newly proposed decision making process model by Simon (1977), four stages were involved: Intelligence, Design, Choice, and Implementation. Each stage might go through a reiterative process until the ultimate result occurs.

The stages are described as: (1) Intelligence: the stage consisting of scanning the environment, identifying problem situations or opportunities, and monitoring the outcomes of implementation; (2) Design: finding/developing and analyzing possible courses of actions, wherein a model of the decision making problem is constructed, tested, and validated; (3) Choice: this stage includes the search, evaluation, and recommendation of an appropriate solution to the model; and (4) Implementation: The final phase applies a suggested solution to work.

Several stages of the decision making process presented a lack of clarity of knowledge and detail when performed by the decision maker. Moreover, scholars found that some decision makers do not utilize technical resources in the phases of decision making. Nevertheless, decision making should go through several phases by using KM activities before being finalized by the decision makers. These issues motivated the authors to present a new conceptual decision making process model, describing the phases in detail by using KM activities.

2.5 The Relationship between Knowledge Management and Decision Making

In the earlier sections of this paper, there have been discussions on the KM concept, KM activities, DSS concept, decision making phases, and the motivation for conducting and integrating KM activities and decision making phases to assist decision makers in making their decisions more appropriate by using

knowledge-based DSS. Knowledge becomes the basis for rational decision making. In a study by Arnott and Pervan (2005), it was presented that the most important types of DSS are Knowledge Management-Based DSS: systems that support decision making by aiding knowledge storage, retrieval, transfer, and application.

Recently, García-Manotas et al (2010) explained that knowledge-based DSS holds up organizational decision making activities on the basis of the knowledge accessible concerning the domain in question. A study conducted by Al-Dujaili (2011) describes KM as a the most important area of research. And despite its theoretical development, large scale real life applications of decision making systems are lacking. From this point, several organizations observe knowledge as a strategic resource and the capability to bring that knowledge to bear on decision making as a strategic competence (Zack, 1999).

Additionally, Molina (2005) explains that knowledge representation techniques from the field of artificial intelligence have been commonly used in the development of DSS. Moreover, Mohammed and Jalal (2011) explain that the business has become a knowledge base that is used for decision makers' as intellectual capacity.

Furthermore, Hassan et al (2011) noted that enhancing KM efficiency can not only support decision makers in doing their task faster, better, and cheaper, but also allow several groups to share and reuse various sources. It is the solution for success in real-time decision making. Additionally, Ben Yahia et al (2012) stated that decision making is one of the significant processes where we require both KM that emphasizes on the creation, storage, sharing, and application of knowledge and collaboration to make more effective and efficient decisions in the organization.

Recently, Chike (2010) confirmed that it is required to present an effective KM strategy both for the advantage of an organization's employees and customers in order to support the decision making process and thereby stay sustainable. Additionally, Noman and Aziz (2011) explain that many employees in organizations use the connection between KM and decision making because KM is a very good factor of an environment to support decision making.

3. Research Model

Fastened in with previous studies, this paper is introducing a new conceptual decision making model to describe how decisions succeed, which defines the activities applied by the decision makers by including the KM activities (Knowledge Discovery, Knowledge Capture, Knowledge Sharing, and Knowledge Application).

A set of causes, such as technological advancement, globalization, information technology, communications, and heavy use of internet drives to change the shape of competition in the business place, leading to the development of new models of decision making within the KM activities model.

Based on the literature review, the authors have developed and incorporated KM activities and phases of the decision making process (intelligence, design, choice, and implementation) as a Conceptual Model, as displayed in Figure 1.

Moreover, in order to set the conceptual model into shape, the systemic support leverages and every part of the KM activities and phases of the decision making process are fully discussed in this section.

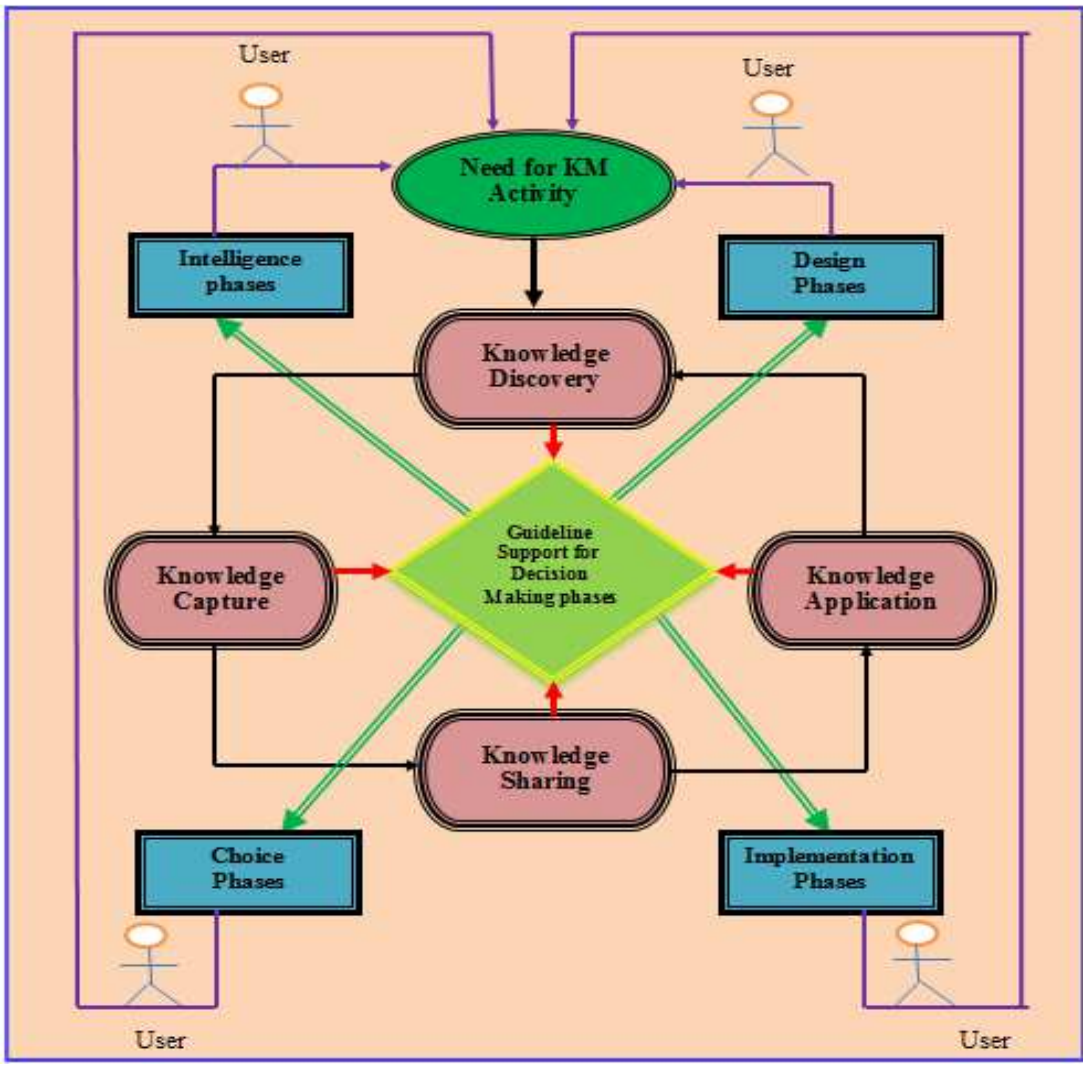

Fig 1: Conceptual Model for KM Activities and DSS Phases

3.1 Knowledge Management Activities

Defined as strategies, these include the effective use of knowledge that reflects positively on decision making and allows business organizations to have a competitive advantage. KM processes are also based on the latest knowledge systems, which provide the latest equipment and tools, methods and techniques that help employees and enable them to capture, share, and deal with knowledge in making decisions effectively.

Nowadays, business and/or government organizations are motivated to quickly improve and enhance their decision making abilities; accordingly, it has become a significant theme at several large business organizations to have a KM system in place to ensure that its decisions effectively employed in organization in any time. So, we should have an economic vision to reply successfully to difficulties and keep up with worldwide changes to resolve any imbalances; this could not happen without the organizational expertise KM systems offer that can impact a board's decision making efficiency and effectiveness.

3.2 Decision Making Phases

We will see in practice how far the concept of KM activities will affect decision making phases. This model is proposed as a conceptual frame work to utilize various KM activities that are associated with management experience in the decision making phases and enhance the impact of those activities.

In general, identifying problems requires the collection of all information relevant to the decision, which should come from the external environment and what is associated with it, including the risks, challenges and prerequisites. In addition to that, the internal environment and its segments of financial, material, and human resources to empower it to decide the needs and the utilization of information, knowledge acquisition is a tool that enables the knowledge to be applicable in more effectively, and how we can promote the acquisition of knowledge which, using the most recent innovation, gives precise information which can be processed to extract knowledge from different resources.

In order to create, develop, and analyze alternative courses of action we need to generate knowledge, which is a critical step in the knowledge management process. It is based on creative capabilities and innovative ideas, as the generation of knowledge relies on new ideas and adds backing to internal and external performance, not the generation of a custom that raises the business sector estimation of the organization. The knowledge generation process deals fundamentally with human resources and human capital, which is the most essential hotspot for the creation of innovative thoughts, so organizations are keen to attract and recruit talent and support, and provide the prerequisites to achieve career satisfaction and develop their abilities which, in turn, reflects positively on their performance (Bergendahl and Magnusson, 2015).

Generating, evaluating, and selecting a course of action from those available choices relies on how well the knowledge has been described for future application and how effectively it can be utilized to impact the choice. Knowledge sharing has an added value, so knowledge and intellectual resource sharing is an important phase which supports an active task of decision choices based on the state, it might take different forms depending on the area of the business, so that organizations and business managers remain keen to encourage their staffs to share knowledge internally among its representatives, experienced and new workers, and abroad with different organizations, and come up with novel innovative concepts that support the organization to reach its best gains. Nevertheless, organizational workers should have some basic skills, technical knowledge, which would enhance their performance and help them achieve the right decision successfully.

To enhance the implementation phase of decision making, the organization should understand the dimensions of the KM application factors, which are human resource, internal operation, the information technology infrastructure, and the culture of the organization. These can assist in the implementation phase of decision making; knowledge application is the most essential phase of the knowledge management process, as it moves from hypothetical to reality and determines the validity and ability to add positive acts of corporate changes.

The knowledge management process cannot achieve any goal unless applied in the frame and a plan set for it and, in doing so, companies can make their goals, take advantage of the resources available to them, and improve their management, performance, productivity, and marketing operations, as the application of knowledge is a prerequisite to reaching the highest competitive position, much like a strategic asset requires special software capable of directing knowledge and draws interest.

4. Conclusion

In the current paper, a framework of decision making phases for the decision maker is proposed. It integrates KM activities with the phases of the decision making process as a Conceptual Model. To the best of the authors' knowledge, there are few decision making phase models in the literature, which includes a more detailed description of activities of KM such as Knowledge Discovery, Knowledge Capture, Knowledge Sharing, and Knowledge Application. Based on the topic of this research, this paper concludes that KM activities would present the broadest analysis of the decision making phases (intelligence, design, choice, and implementation) as a conceptual model. The benefits of the proposed model of decision making for the decision maker, is efficient for the decision making process and choice optimization of the solution for any problem , and to make a decision in a specific problem setting.

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Framework for Strategic Change Management – Theory and Praxis

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Abstract

This paper introduces the authors' original framework for strategic change management as a result of their research. It includes the definition and description of the framework, as well as its formation process based on Peffer's design science research methodology. The framework supports the planning and execution of strategic change. The framework follows Kotter's view of a change process, and is enriched by enterprise architecture principles and the social and human aspects of change. The framework was validated in a real case where it was implemented in an innovation management process of a firm.

Keywords: change management, strategic change, framework, design science research.

1 Introduction

The current business environment is characterized by accelerating change (e. g., Daft, 2007). To survive, firms have to respond to changes in their business environment through the improvement of their product or services, processes, technology, or more often by adapting their whole business model. However, change within a firm is complicated and very often does not meet the initial expectation. According to a number of sources (e. g., Kotter, 1996; IBM, 2008), 60 – 70 per cent of changes were either not delivered on time, budget or of the required quality.

Therefore the authors studied various theories and methods, such as organizational theory, system theory, human resources management, change management and enterprise architecture, to find the right approach to firm change. Based on the research gap they identified, they formulated their own original framework for strategic change management entitled 'Enterprise Architecture-based Change Process' (EABCP). The framework follows Kotter's view of a change process (Kotter, 1996), and is enriched by enterprise architecture principles and the social and human aspects of change. The framework details, including previous research, are presented in Sections 3 through 5.

The framework should support the strategic change of a firm. Various resources focused on change management (e. g., Kotter, 1996; Luecke, 2003; Bevan, 2011) often use the term 'change', but they lack of its definition. To correct this, the authors use Hofer's definition of strategic change (Hofer, 1978). He defined strategic change as a change that relates to a firm's strategy content (e. g., a change in the business model, resource allocation, competitive advantage or synergies). It this paper 'change' is synonymous with 'strategic change'.

The authors' approach to the framework formation is based on Peffer's design science research methodology (Peffer et al., 2012; for details see Section 2). A part of the authors' research was the validation of their framework usability. The framework was used in a real situation of innovation management process implementation (see Sections 6 and 7), and has been presented and discussed several times at academic conferences (see Section 8).

2 Research model

In this paper, the authors present their original framework for strategic change management. Its formation is based on the design science research methodology (Peffers et al., 2012). This methodology provides a quite comprehensive framework for conducting design science research in information systems. It includes a process model for doing design science research, and it provides a mental model for presenting and evaluating design science research.

The authors' work follows the six steps of the design science research process model:

- Problem identification and motivation;
- Definition of the objectives for a solution;
- Design and development;
- Demonstration;
- Evaluation;
- Communication.

The specific details of the authors' original framework formation are briefly introduced in Table 1 below, and they are described in the following sections of this paper in more detail.

Table 1 Formation of the authors' original framework for strategic change management based on the design science research methodology (source: Authors)

Step No	Design science research step	Activity of the authors' original framework formation
I	Problem identification and motivation	• The authors' survey on firm change success in the Czech Republic • Analysis of various change management resources incl. surveys on firm change success
II	Definition of the objectives for a solution	• The main goals are: formation of a framework for strategic change management, and evaluation of the framework usability and contribution in change management (incl. definition of specific objectives for the framework evaluation)
III	Design and development	• Analysis of various relevant resources to identify the research gap (change management, organizational theory, system theory, project management, enterprise architecture) • Construction of a framework for strategic change management
IV	Demonstration	• Demonstration of the framework usage in the case of an innovation management process implementation
V	Evaluation	• Evaluation on the basis of the specific objectives defined in step 2
VI	Communication	• Presentation of the framework at a few conferences

3 Problem identification and motivation

Changing a firm is complicated, as a number of resources have documented (e.g., Kotter, 1996; IBM, 2008). The authors analyzed the reasons for change failure identified by these resources with the following results:

- Drucker (2006) indicated the main reason for change failure is disregarding the human factor (e.g., ability to accept a risk; focus on long-term goals rather than short-term);
- Kotter (1996) named eight common errors that lead to change failure, the majority of them are related to the human factor as well as firm culture;
- IBM conducted a large worldwide survey (2008) and confirmed the previous research results on change failure; it identified the following, human factor related, main challenges of change: changing mindsets and attitudes (58 per cent), firm culture (49 per cent), complexity is underestimated (35 per cent), lack of management commitment (32 per cent), lack of motivation of involved employees (16 per cent).

The authors conducted their own survey on firm change success as well. They surveyed 245 respondents from different industries in the Czech Republic and obtained 62 responses that make up the following results:

- The change failure rate was 58 per cent, but information technology (IT) changes failed more often (67 per cent);
- Key failure factors were: misunderstanding change benefits, insufficient competence of management and an inadequate understanding of the change sense (see details on Fig. 1);
- Key failure factors related to IT change were: a lack of firm readiness for change, underestimation of change costs, misunderstanding of change scope and impacts;
- In small firms (up to 100 employees) there were different failure factors: an inexperienced change team (people responsible for the change execution).

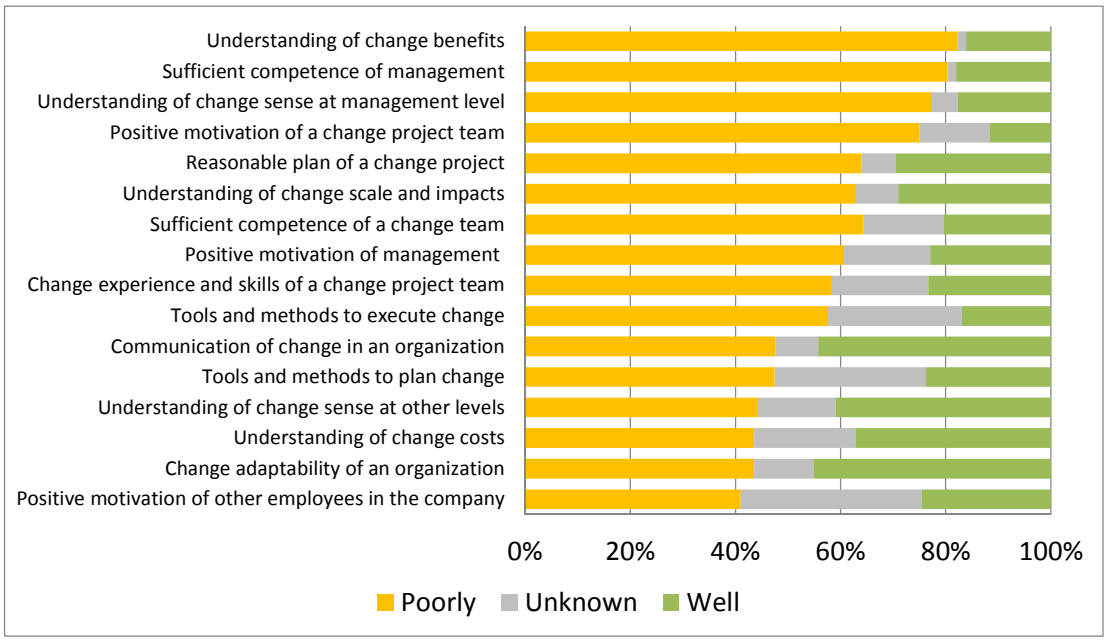

Fig. 1 Well or poorly managed aspects of change according to the authors' survey

Both the resources and the authors' survey confirmed that successful management of firm change is really needed in today's business. The authors, through their extensive resource analysis, did not find a well-structured approach for how to successfully manage change. This research gap supported their intention to formulate their original framework for strategic change management.

A research gap analysis was performed in two steps. The first step, researching several bibliographic databases, did not identify any similar framework, but provided relevant resources for further research (see Table 2). They identified four areas (that are reflected in their framework as well) as critical aspects of successful change. In the second step, they studied various resources on change management, organizational theory, human resource management & system theory, and enterprise architecture to check their coverage of the four areas. It also expanded their knowledge, which helped the authors to construct their framework (the framework itself is introduced in Section 5).

Table 2 Research gap analysis: it expresses individual resource coverage of the four aspects selected by the authors as critical for change success (source: Authors)

	Change process	**Enterprise architecture**	**Social aspects**	**Framework**
Change management				
Kotter	Yes	No	Yes	Partially
Luecke	Yes	No	Yes	Partially
Daft	Partially	Partially	Yes	No
Veber	No	Partially	Yes	No
Organizational theory, human resource management & system theory				
Daft	Partially	Partially	Yes	No
Veber	Partially	Partially	Yes	No
Armstrong	No	Partially	Yes	No
Doucek	No	No	No	No
Warren	No	No	No	No
Enterprise architecture				
Lankhorst	Partially	Yes	Partially	Partially
Van den Berg	Partially	Yes	Partially	Partially
TOGAF	Partially	Yes	Partially	Partially
FEA	Partially	Yes	Partially	Partially
PEA	Partially	Yes	Partially	Partially
The authors' original framework				
Hladik, Jandos	Yes	Yes	Yes	Yes

4 Definition of the objectives for a solution

In their research, the authors formulated their original framework for strategic change management. At the beginning of their work, they defined the following objectives:

- **Objective 1**: Construction of the framework

- **Objective 2**: Evaluation of the framework (the sub-objectives below presents how the evaluation of the framework would be performed):
    - **Sub-objective 2.1**: Explanation of the framework and its usage in a specific case to a change sponsor and a change manager. It would be passed if a sponsor accepted usage of the framework in change.
    - **Sub-objective 2.2**: Usage of the framework for change planning. It would be passed if the outputs listed below were created, met quality criteria (see Table 3) and were accepted for change execution by a sponsor.
    - **Sub-objective 2.3**: Evaluation of the framework contribution after change. It would be considered successful if the defined criteria were met (see Table 3).

Table 3 The framework's evaluation criteria (source: Authors)

Criteria	Metric	Weight (per cent)	Evaluator
1. Which parts of the framework have been considered successful?			
1.1. Is it possible to create a change plan according to the framework (change process)?	Yes / No / Partially	15	Change sponsor
1.2. Is it possible to perform a change impact analysis according to the framework (5+1 model)?	Yes / No / Partially	15	Change sponsor
1.3. Is the framework supportive enough from a social and human perspective?	Yes / No / Partially	15	Change sponsor
2. Is it possible to use the framework in a real case?	Yes / No / Partially	55	Change sponsor
Interpretation of results: • The framework would be proved effective if it scores at least 1.3 points; • The framework would be partially proved effective if it scores at least 0.7; • Otherwise the framework would not be proved effective.			

5 Design and development

The authors' original framework (EABCP) supports the change of a firm. According to system theory (e.g., Mildeova, 2008), firms, as complex social systems, are difficult to analyze, understand and change because of their size, interdependency, dynamics and human nature. Therefore, the authors studied various theories and methods such as organizational theory, human resources management, change management, enterprise architecture and system theory to understand the context of firms better. Part of their studies focused on the change of a firm and the analysis of change failure factors. They addressed these factors by forming the framework.

The purpose of the framework is to support the strategic change of a firm. The framework is mainly focused on two areas of change activities: change scope and impact analysis and change process planning. The analysis of change scope and impacts is supported by the 5+1 model of the framework. The change process planning follows the change process component of the framework (see Fig. 2).

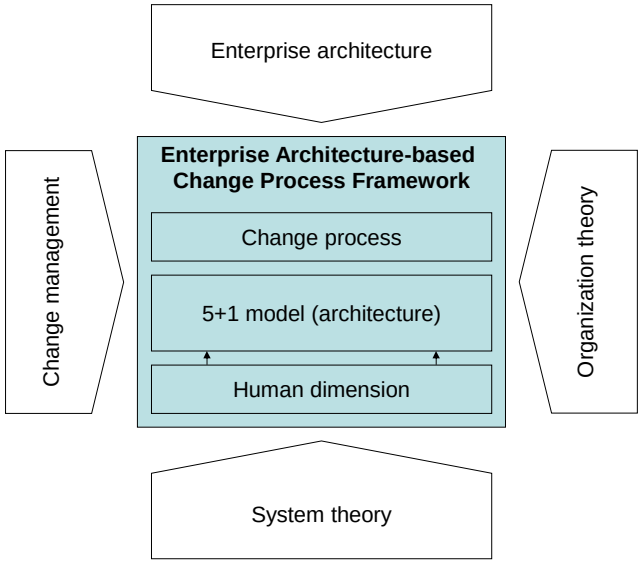

Fig. 2 The concept and main components of the EABCP framework: Change process,

The authors present the following key principles for better understanding the framework and its usage. The principles are founded on the basis of change management and other recommendation. From these, the authors selected the following five principles that they consider the most important:

1. Large change projects usually need wide and long-term support across the whole firm. Therefore first, before the change process is being planned, you should start by establishing a sense of urgency and creating a guiding coalition (Kotter's first two steps of his 'Eight Step Process for Leading Change').
2. A good change plan is developed on the basis of the logic of the project management planning approach. It starts with understanding the scope of the change, going on to identify change activities, resources and risks, and finishing with time and cost planning.
3. The scope of a change is usually part of a real firm that is impacted by the change. As the firm is a complex social system, it is important to understand its interdependencies, dynamics, and the human dimension. This knowledge of a firm should influence both the analytical and planning activities of the change.
4. In any change, it is important to define objectives, both from long- and short-term perspectives.
5. Firm change impacts people in a firm and therefore it is often the most difficult part of change activities. Thus, communicating with and engaging the people involved are crucial for a successful change. Both communication and engagement should be key parts of a change plan.

The 'Enterprise Architecture-based Change Process' framework is defined by the authors as:

- A change planning tool as it defines a change project lifecycle, its milestones and objectives (see below for details). It should be used together with project management practice (e.g., the planning process explained above), and it can be combined with similar enterprise architecture approaches (e.g., Architecture Development Method in TOGAF; The Open Group, 2009);
- An analytical tool for better understanding the part of a firm impacted by a change. It is focused on understanding the business context of a firm from a strategic point of view, and knowing the firm's human dimension (for details see below). It should be used together with other analytical

tools that are useful for analyzing and modelling specific views of a firm's architecture (e.g., Business Process Modelling Notation for design of business processes).

One of the key aspects of a successful change is the right managerial approach. Based on Veber (2011) and Kotter (1996), the authors suggest handling change as a project and therefore using the appropriate project management practice. All projects should follow the 'purpose-based' steps (phases) that are together understood as a lifecycle. The authors' proposal on a change project lifecycle is based on Kotter's 'Eight Step Process for Leading Change' to include his change theory and experience in the framework (see Fig. 3). Some other resources (i.e., Luecke, 2003, or Daft, 2007) propose similar several step approaches as well.

First, the preparation phase starts with understanding the catalyst for change (e.g., Veber, 2011), or more precisely, why the change is needed. As explained before, a large change needs to be supported by many people (stakeholders), therefore it is advisable to create a collation of stakeholders that together create a draft of the change vision. The vision, in this phase, should provide clear options for possible change scenarios. It should also provide the objectives that will be achieved when the change is finished.

Next, the planning phase is responsible for the development of a change project plan. The change project plan includes all the perspectives according to project management practice: i.e., the scope, project activities, resources, risks, time and costs. To be able to make a plan, you have to analyze the scope first. As mentioned in the previous text, the subject of analysis is a firm and it requires a specific analytical approach as it is explained in the following section. This phase is finished when the plan has been created, is understood by the stakeholders and they commit their full support during the whole change project.

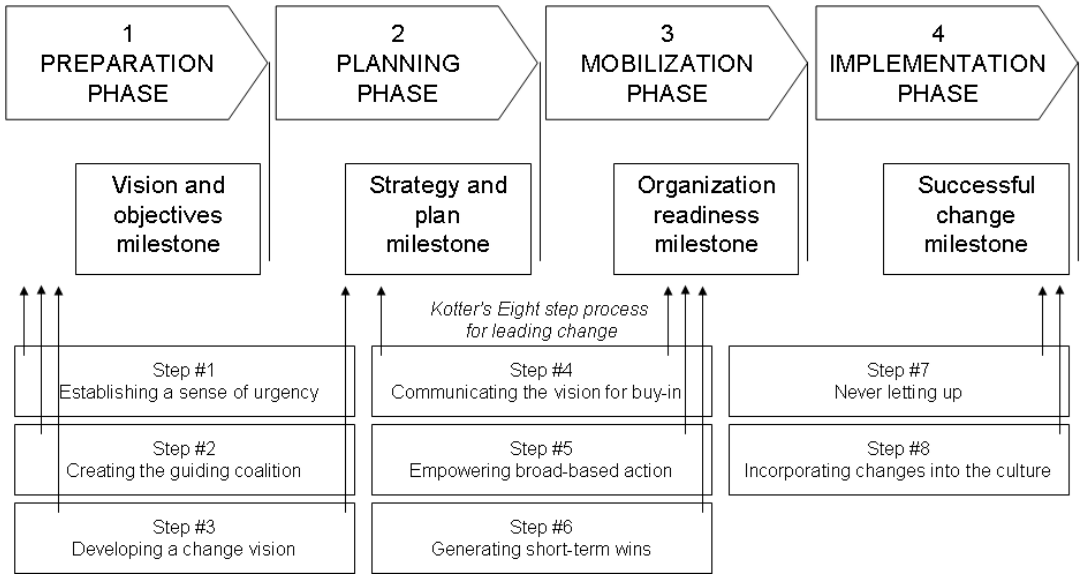

Fig. 3 Change process definition in the EABCP framework and its relation with Kotter's 'Eight Step Process for Leading Change' (source: Authors)

The main reason for the authors' improvement on the enterprise architecture analytical approach is driven by a need to understand the business of a firm (e.g., the business model, the organization of a business, etc.) in order to define the change project scope. It includes an understanding of the social and human aspects of both a change and the firm impacted by a change. These aspects are addressed by the human dimension of the framework (see Fig. 4).

The authors suggest imagining a firm in architectural 'layers', similar to both enterprise architecture and service oriented architecture (e.g., Lankhorst, 2009) practices. These are two of the authors' significant improvements represented by the alignment between the 'layers' and the business model (driven by a need to understand the business), and by the human dimension.

The scheme described in Figure 4 represents the authors' suggestion of a layered view of organization (firm) architecture known as the 5+1 model (five architectural layers plus the human dimension layer). Here it is compared with the ArchiMate model (Lankhorst, 2009) to provide a better overview of the 5+1 model's logic. There are three important differences:

- The human dimension (vertical layer) is included as explained above.
- Both the Customers and Customer Services layers are understood more from conceptual business or strategic point of views (see explanation below).
- The Services and Components layers are recognized as business parts on a detailed level of an organization. Possible information technology (IT) related layers (e.g., Application and Infrastructure layers according to ArchiMate) are understood as subsets of them. TOGAF offers a similar concept in its explanation of the relationship between the Business and IT-related architectures.

The authors explain the concept of the layers in the 5+1 model as follows:

- The Customers layer represents specific groups of customers that are served by tailored products and services.
- The Customer Services layer represents the sales and delivery of a product or service, as well as overall communication with clients.
- Business Processes ensure that customer services work as well as other internal organization functions.
- Services are a more detailed view of business processes according to Service Oriented Architecture and Business Process Modelling Notation principles.
- Components physically provide the services. They can be represented by people, technology, or a combination of the two.

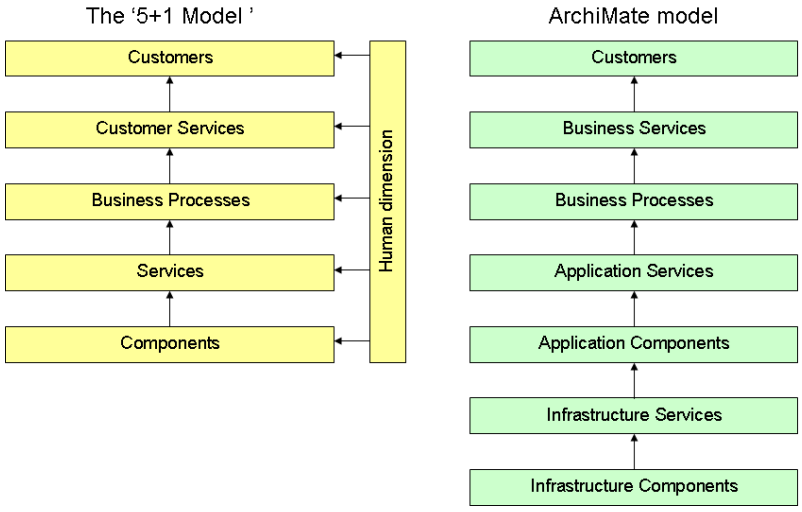

Fig. 4 Comparison of the 5+1 model and ArchiMate model (source: the authors)

6 Demonstration

The authors evaluated their original framework in case of the implementation of the innovation management process in a real firm. The implementation was carried out in a Czech IT- firm (450 employees) from June to December 2013. The innovation management process was designed for (pilot) the management of two innovation projects. Seven employees from various departments took part in the planning process. The innovation management process was specified according to the Innovation Pentathlon Framework (Goffin and Mitchell, 2010).

The Innovation Pentathlon Framework consists of five parts, as Fig. 5 shows. According to this framework, the innovating is directed by the 'Innovation strategy'. Then specific innovations are born in the 'Ideas' part and the best are selected (Prioritization) to be supported in their development (Implementation). These three parts together are called the Development Funnel. Of course, the innovation management process has to be supported by the firm's environment, which is expressed by the 'People and organization' part. It includes the human and social aspects, which are similar to the view of change theory.

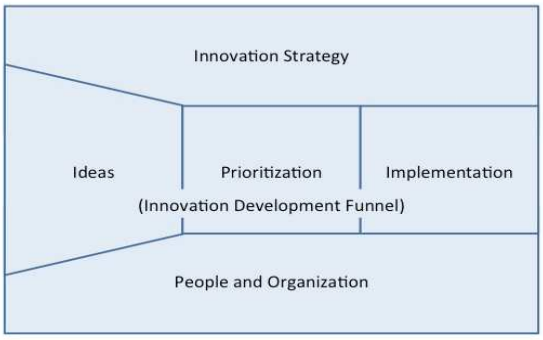

Fig. 5 The Innovation Pentathlon Framework (Goffin and Mitchell, 2010)

In the following text, the authors suggest how to utilize specific parts of the Innovation Pentathlon Framework in their change process framework, namely in its change process, 5+1 model and human dimension.

The purpose of the change process is to reduce the risks of change planning and execution by understanding the change flow logic. The authors propose specific activities related to the innovation management process implementation that should be handled during the change (implementation). These activities come from the generic recommendation of the change process framework (incl. human dimension specifics) and are enriched by the innovation management specifics (see Table 4).

Table 4 Recommended process of innovation management implementation (source: the authors)

The change process phase	Activities according to the Innovation Pentathlon Framework
1. Preparation	• Visioning • Alignment with a firm's business strategy • Gaining management support • Creation of a supportive team
2. Planning	• Selection of the innovation management framework (e. g., the Innovation Pentathlon Framework) • Design of the innovation management process (incl. impacts on the

The change process phase	Activities according to the Innovation Pentathlon Framework
	firm, assumptions, etc.) • Planning (incl. business case) • Review of the management support • Communication
3. Mobilization	• Pilot project and first quick wins • Review of the plan • Review of the management support • Communication
4. Implementation	• Execution of the change • Evaluation of the change • Innovation management process kick-off • Review of the management support • Communication

The innovation management impacts on a firm should be analyzed and designed on the basis of the 5+1 model. The authors suggest using the 5+1 model as demonstrated in Table 4. In their opinion, a firm can only start using certain processes of the Pentathlon Framework, or the usage specifics can be defined differently according to the type of innovation. The right focus of the usage should be defined in the innovation strategy (it is a mandatory process only). Therefore, the usage demonstrated below can only be defined as a subset. The human dimension is represented by the last item in the Table 5.

Table 5 Change scope definition according to the 5+1 model (source: the authors)

Architectural layer according to the 5+1 model	Innovation management process impacts on a firm
Customers	• Customer engagement in an innovation process (e. g., customer research, testing, cooperation in the innovation development, etc.)
Customer services	• Requests for customer engagement • Specific processes to engage customers
Business processes	• Innovation strategy definition process • Idea generation process • Idea selection process • Innovation development process • Innovation transition process • Innovation management process • Support processes (resource management)
Services	(not discussed in this paper)
Components	(not discussed in this paper)
Human dimension	• Identification of the customer impact (engagement) • Identification of the innovation process sponsors • Identification of the impacts on employees • Identification of the impacts on vendors (in case their participation is necessary in the innovations) • Communication plan • Identification of change agents and resisters • Motivation plan • Responsibility plan

The authors' proposal on the usage of their change process framework in innovation management process implementation is currently under-tested in a real firm environment. Therefore, the proposal should only be taken as theoretical, despite the fact that it was created on the basis of their comprehensive research on both change management and innovation management.

7 Evaluation

The framework was proved effective, as introduced in Section 4 and demonstrated in Section 6, in the change of a real firm. This change brought a new innovation management process into the firm. The method of evaluation is specified in Section 4 as well. The authors' original framework was successfully proven (for details see Tables 6 and 7).

Table 6 Overall results of the evaluation of the framework (source: the authors)

Objective	Result
Objective 1: Construction of the framework	The framework was constructed (for details see Section 5)
Objective 2: Evaluation of the framework	Results achieved in sub-objectives below
Sub-objective 2.1: Explanation of the framework and its usage in a specific case	The framework was accepted as a method for change management in a specific case (implementation of innovation management process, for details see Section 6)
Sub-objective 2.2: Usage of the framework for change planning	Expected outputs (for change planning purposes) were created and accepted for change execution
Sub-objective 2.3: Evaluation of the framework contribution after change	Evaluation of the framework use was positive (see details results in Table 7)

In sub-objective 2.3, where the framework was evaluated by a change sponsor, it got 1.45 points (according to the evaluation method defined in Section 4), which means it is possible to use the whole framework without troubles.

Table 7 Results of sub-objective 2.3: contribution of the framework (source: the authors)

Criteria	Metric	Evaluator
1. Which parts of the framework are proven?		
1.1. Is it possible to create a change plan according to the framework (change process)?	Yes	Change sponsor
1.2. Is it possible to perform a change impact analysis according to the framework (5+1 model)?	Yes	Change sponsor
1.3. Is the framework supportive enough from the social and human perspective?	Yes	Change sponsor
2. Is it possible to use the framework in a real case?	Partially (5+1 model use is limited to people knowing ArchiMate)	Change sponsor

The authors summarize their framework contribution on both the theoretical and practical levels. On the theoretical level, they emphasize:

- Existence of the framework – it provides a comprehensive method for the support of strategic change management;
- Connection between change management theory and enterprise architecture;

- Architecture view supporting alignment between business and information technology;
- Focus on social and human aspects in strategic change and enterprise architecture.

From a practical point of view, they point out the following contributions of their framework:

- Better understanding of strategic change scope and impacts;
- Recognition of social and human aspects of change and its reasonable management;
- Well prepared plan of strategic change;
- Increase in strategic change success.

8 Communication

The authors presented and communicated their partial research results as well as the whole framework at several academic conferences (Gala and Jandos, 2010; Hladik, 2013; Hladik and Jandos, 2014). The detailed process of the framework construction, including the research of the related knowledge disciplines (e. g., change management, organizational theory, human resource management, system theory, enterprise architecture) is documented in their doctoral thesis.

9 Conclusion and further research

The authors focused their research on change management and as a result they constructed their original framework for strategic change management. A key part of their research as well as the framework description are presented in this paper.

Their research method is based on the design science research methodology (see Section 2). This method includes the step of evaluation of their research output – the framework. The evaluation was executed in a case of an innovation management process implementation in a real firm. They achieved good results and the framework was finally proved effective. Therefore, they expect to use the framework in other situations and work on its further improvement.

In their further research they will focus on the following topics:

- Continued development of the framework, specifically information technology related change;
- Formation of a ‘health-check’ method for strategic change projects;
- Recommendation for better enterprise architecture use.

Acknowledgment: The authors thank Professor Jaroslav Jandos for his help and advice in the development of this paper.

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Effective Selection of Multidisciplinary Working Teams in Manufacturing Companies

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Abstract

Selection of working teams to realise the dedicated tasks is not easy for the company management staff. They must know their staff professional skills but equally important is to know their personal character traits. The procedure of particular employees' evaluation and their selection to multidisciplinary working teams with the use of the Myers – Briggs type indicator (MBTI) has been presented in this paper. The practical use of the MBTI instrument for evaluation and selection of effective working teams in manufacturing companies has been presented on a real-life example.

Keywords: staff management, MBTI instrument, multidisciplinary working teams.

1. Introduction

Quickly progressing globalisation and competition force the companies to apply methods and techniques assuring strong position on the market. The use of the methodology of concurrent engineering allows the improvement of the efficiency and what is more, it helps to lower the total costs and shorten the time of the designing works. Concurrent engineering has become an effective method of realisation of many tasks regarding developing and introducing of the new product to the market (or modernising of the existing one). Its main assumption is to benefit from the possibility of concurrent realisation of tasks (designing, manufacturing, implementation, etc.) allowing for all the influencing factors in the possibly early stage of their realisation which is described by Myers, I. B. (1980), Ohno T. (1988), Chen Shi-Jie , Mazur Ł., Sąsiadek M. (2013), Trebuňa, P., Kliment, M., Edl, M., Petrik, M. (2014). In concurrent engineering, most designing tasks require the establishment of a multidisciplinary working team. The members of such a working team come from various functional departments of a company and communicate with each other simultaneously at every stage of the task development. The designing team is created for each task and it consists of experts and representatives of various areas of the product life cycle. The task of the team is to identify the potential problems at an early stage and take the preventive measures. A multidisciplinary team consists of the employees representing such areas as: marketing, sales, research and development, designing, manufacturing, purchase, testing, quality control and services. The traits of the team members that increase the team efficiency are among others: functional specialised knowledge, team work experience, communication skills, flexibility in the allocation of work as well as proper personality traits. The understanding of the three major traits which are: functional specialised knowledge, team work experience and communication skills gradually influence the creation of the successful and effective multidisciplinary team.

2. Team Member Model

Differences in personality may influence the individual behaviour as well as the group achievements in an organisation. Cleese J. (1998) pointed out that the team success is formed more by personality than the technical skills of its members. The understanding of personality types may support the selection of proper persons to the team - Zemke R. (1992). The use of a proper personality representation style may eliminate conflicts as well as increase the communication efficiency between the team members and their productivity, more widely is desribed by Chen, S. J. G. (2005), Tomal D. R. (1992), Woźniak W., Jakubowski J. (2015). As a result, many companies apply personality tests in order to evaluate the adaptation of potential employees to the specific character of a particular company.

A very popular personality test for evaluation of interpersonal relations and selection of the team members is the Myers – Briggs type indicator (MBTI). The MBTI instrument was created in order to measure personality preferences and types. It is used in scientific research as well as in the industry. The MBTI instrument constituents are four groups of two contrary preferences -Myers, I. B. (1980):

Favourite world: Extravert (E): the interest and energy are directed at the people's outer world as well as actions. Such a person works in groups. Introvert (I): the interest and energy are directed at the inner world, ideas and internal experience. Such a person works alone.

Information: Sensible (S): the information is processed in a concrete, objective way. Such a person relies on facts, reality, focuses on details. Intuitive (N): the information is processed in an intuitive, subjective way.

Decisions: Thinking (T): the decisions are made on the basis of logic and intellect. Such a person is analytical, logical and objective. Feeling (F): the decisions are made on the basis of feelings and emotions. Such a person has a strong desire to maintain the harmony in the group.

Structure: Judging (J): the approach to the outside world is carefully planned and structured. Such a person makes decisions very quickly. Perceiving (P): the approach to the outside world is elastic and spontaneous. Such a person makes decisions slowly.

Every person has one of the preferences specified above in each of the four groups which constitute 16 versions of personality types, for example a person may be identified as INTP, ENTJ, ESFP, INFJ or one of 12 other possible combinations. Fig.1 presents four tables of the dimensions 2x2 showing positive, neutral and contrary relations for various combinations of personality types. For each of the tables the following grade scale is provided: +9, +3 and -3 for positive (+), neutral (○) and contrary (-) relations.

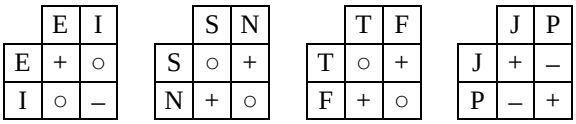

Fig.1 Relation of the personality types: Extravert (E), Introvert (I); Sensible (S), Intuitive (N); Thinking (T), Emotional (F); Judging (J), Perceiving (P) - after Myers, I. B. (1980)].

All the possible variants of the relations between the team members are presented in Table 1. For example, working relation scale of an ESTJ member opposed to an ENTJ member equals 30. It was calculated in the following way: E to E gives positive +9 relation, S to N means positive +9 relation as well, T to T is a neutral relation, which equals +3 and J to J creates positive +9 relation again, altogether its sum is 30. Similarly, working relation scale of an ISTJ member opposed to an ISTP member is (-3 + 3 +3 – 3) = 0 and analogically for the rest. For each of the two types, the higher value in the table presents better working relation between these two types and the other way round. After the MBTI assessment is established, every team member will know which of the 16 types of his or her personality is attributed to him/her and characterises the ease (or the difficulty) of cooperation with others.

Table 1. Table of the variants of the relations between the team members

	ESTJ	ESTP	ESFJ	ESFP	ENTJ	ENTP	ENFJ	ENFP	ISTJ	ISTP	ISFJ	ISFP	INTJ	INTP	INFJ	INFP
ESTJ	24															
ESTP	12	24														
ESFJ	30	18	24													
ESFP	18	30	12	24												
ENTJ	30	18	36	24	24											
ENTP	18	30	24	36	12	24										
ENFJ	36	24	30	18	30	18	24									
ENFP	24	36	18	30	18	30	12	24								

ISTJ	18	6	24	12	24	12	30	18	12							
ISTP	6	18	12	24	12	24	18	30	0	12						
ISFJ	24	12	18	6	30	1	24	12	18	6	12					
ISFP	12	24	6	18	18	30	12	24	6	18	0	12				
INTJ	24	12	30	18	18	6	24	12	18	6	24	12	12			
INTP	12	24	18	30	6	18	12	24	6	18	12	24	0	12		
INFJ	30	18	24	12	24	12	18	6	24	12	18	6	18	6	12	
INFP	18	30	12	24	12	24	6	18	12	24	6	18	6	18	0	12

3. Practical Application

A survey in which 18 employees took part, has been carried out in the company "x". Every surveyed person was provided with the identifier from A to S and then, on the basis of the survey results, the type of personality was defined according to the Myers – Briggs indicator (MBTI). The table of the working relations between the 18 employees has been established on the basis of individual evaluation (Table 2).

3.1 Selection of Working Teams

Out of 18 employees, three working teams of six people in each team have been selected on the basis of the relations presented in Table 2. Five variants have been created in order to compare the obtained results. The higher the value of the relations between the team members, the better the cooperation between them. Particular variants of the selected working teams are specified below.

Variant I – Team 1 consists of the members: A, C, D, E, I, K

The working relation between the team members: A and C, A and D, C and E, D and E, C and K, D and K equals 30. It is a high relation which proves that the members may create an effective and successful team. The relation between the members A and E, A and K, C and D, C and I, D and I, E and K is 24. The relations of the member I are the highest with the members C and D, therefore, team 1 is the most suitable for him. What is more, the relations of this member with some members from the other teams are 0 which means there is no understanding between them. The total relation sum of the team 1 is 378. Table 3 presents the values of the working relations of the considered team.

Table 2. Table of the working relations between particular employees

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R	S
		ESTP	ISTJ	ESFP	ESFP	ESTP	ESTJ	ISTJ	ESTJ	ISTP	ISTJ	ESTP	ISTJ	ISTJ	ESTP	ESTP	ESTJ	ESTJ	ESTP
A	ESTP		6	30	3	24	12	6	12	18	6	24	6	6	24	24	12	12	24
B	ISTJ			12	12	6	18	12	18	0	12	6	12	12	6	6	18	18	6
C	ESFP				24	30	18	12	18	24	12	30	12	12	30	30	18	18	30
D	ESFP					30	18	12	18	24	12	30	12	12	30	30	18	18	30
E	ESTP						12	6	12	18	6	24	6	6	24	24	12	12	24
F	ESTJ							18	24	6	18	12	18	18	12	12	24	24	12
G	ISTJ								18	0	12	6	12	12	6	6	18	18	6
H	ESTJ									6	18	12	18	18	12	12	24	24	12
I	ISTP										0	18	0	0	18	18	6	6	18
J	ISTJ											6	12	12	6	6	18	18	6
K	ESTP												6	6	24	24	12	12	24
L	ISTJ													12	6	6	18	18	6

M	ISTJ													6	6	18	18	6
N	ESTP														24	12	12	24
O	ESTP															12	12	24
P	ESTJ																24	12
R	ESTJ																	12
S	ESTP																	

Table 3. Working relations - variant I (team 1)

		A	C	D	E	I	K
		ESTP	ESFP	ESFP	ESTP	ISTP	ESTP
A	ESTP		30	30	24	18	24
C	ESFP			24	30	24	30
D	ESFP				30	24	30
E	ESTP					18	24
I	ISTP						18
K	ESTP						

$\sum = 378$

Table 4 presents teams and their members in variant 1 as well as in the other four variants. Furthermore, each team was evaluated according to the MBTI assessment by calculating the sum of all the relation values between particular team members.

The selection of team members resulted in five different variants with three six-person teams in each. Generating of multidisciplinary working teams was carried out according to the criterion of cooperation effectiveness of particular team members. Analysing the obtained results, it is observed that the highest working relations value exists between the pairs of the persons denoted by the letters: A and C, A and D, C and E, C and K, C and N, C and O, C and S, D and E, D and K, D and N, D and O, D and S. It equals 30 which means that there are high mutual connections and good mutual communication between the team members. Such people should create very effective and successful teams.

Table 4.Evaluation of the team working relations in particular variants

	VARIANT I		VARIANT II		VARIANT III		VARIANT IV		VARIANT V	
Team no.	Team members	Relation sum	Team members	Relation sum	Team members	Relation sum	Team members	Relation sum	Team member	Relation sum
1	A, C, D, E, I, K	378	A, C, I, N, O, S	360	A, D, E, N, O, P	330	A, C, D, N, O, S	408	C, D, I, N, O, S	378
2	F, H, J, L, M, P	270	D, E, F, H, P, R	294	C, F, H, I, K, S	264	E, F, H, I, K, R	222	A, E, H, K, P, R	252
3	B, G, N, O, R, S	192	B, G, J, K, L, M	150	B, G, J, L, M, R	210	B, G, J, L, M, P.	210	B, F, G, J, L, M	210
sum		**840**		**804**		**804**		**840**		**840**

On the other hand, the lowest relations value which is 0 exists between the pairs of persons: I and G, I and J, I and L, I and M. This means that there is no understanding between the members. Such people cannot be in the same working team because they will not be able to cooperate. On the basis of the overall matching indicator of the generated five variants it may be concluded that the most efficiently selected are the variants I, IV and V because their matching indicator is 840. Furthermore, out of the comparison of the three variants (I, IV and V), variant V is the most balanced (in terms of the assessment of particular working teams). The selected personal configuration in particular working teams has been sent to the company of interest in order to verify these teams. The verification process is in progress and when it is finished the variants presented in this article will be compared to the actual traits of the particular employees and their ability to cooperation in terms of effective working teams.

4. Conclusion

Human resources (employees) undoubtedly belong to the most important group of resources at a company. Their knowledge and experience in connection with commitment and engagement constitute a decisive factor gradually influencing internal organisation of the company as well as its competitiveness and innovation of the offered products and services. Selection of the employees, proper use of their qualifications and skills and provision of the proper motivation level are very important for the company's strategy.

An approach for three important traits of a team member (multifunctional knowledge, team work ability and relations at work between the members) has been presented in this paper. The way of generating and selecting of a multidisciplinary team has been described. Three specified personal traits may support the project manager in creation of successful and effective multidisciplinary teams. As a result it is possible to organise working teams with members who, apart from having specialised knowledge in their functional areas, are also capable of teamwork and have good working relations. The development of knowledge quantitative evaluation for the three team-oriented traits of the team members will help to find the best team compositions for successful and effective multidisciplinary teams in concurrent engineering. Nevertheless, it has to be stressed that the approach to team-building is based not only on the team members' personal traits, but also on the product features or the design structure of the tasks aiming at the product development which are equally important and cannot be ignored.

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Value Stream Mapping of a Mechanical Assembly Process

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Abstract

This paper presents the analysis of a gear motor assembly process based on the value stream mapping. It describes the steps of creating the so-called present state map, which represents the actual course and parameters of the investigated process. Basing on the analysis of this map the future state map was developed; it suggests changes in its particular areas. Also, benefits of these changes were estimated; the benefits contribute to the improvement of the investigated process realisation.

Keywords: value stream mapping, production process, assembly, increase efficiency

1. Introduction

An essential element of a company activity is creation of a competitive product of high quality as fast as possible and at the lowest cost. These criteria are contradictory in many cases so the companies are forced to take certain give-and-take actions ("quid pro quo"). The tools useful in ensuring that requirements of contemporary market are widely used Lean Production techniques which is described by Czerska J. (2009), Sąsiadek M., Basl J. (2015), Straka, M., Trebuna, P., Rosova, A., Malindzakova, M., Makysova, H. (2016), Womack J., Jones D. (2001) and other. Their practical application has increased recently described by Basl J., Sąsiadek M. (2014), Jakubowski, J., Peterka, J. (2014), Womack J., Jones D. (2001). The mentioned Lean Production techniques (Manufacturing, Management) belong to a group of methods included in the process of continuous improvement. These methods contribute to ensuring high quality of the manufacturing process and affect its efficiency, mostly through elimination of the broadly defined waste.

Continuous production improvement was introduced into Toyota Production System – TPS and became a base for efficient, competitive, and modern management of both internal and external organisation of a company [Womack J., Jones D. (2007)]. Indispensable techniques of continuous improvement are a.o.: Value Stream Mapping - VSM, 5S (Sort, Set in order, Shine, Standardise, Sustain), SMED (Single-Minute Exchange of Die), Total Productive Maintenance - TPM that improve the efficiency of using the machinery stock, Kaizen, and others method described by Klčová, H., Šulová, D. & Sodomka, P. (2009), Metelski A., Krile S., Maruda R., Legutko S., Królczyk G.M. (2016), Sąsiadek M., Basl J. (2015), Woźniak W., Jakubowski J. (2015).

Value Stream Mapping is a technique used for mapping the process course with particular emphasis on the value of the product or service realised in this process. The product and service value is related to the needs and requirements of the client. The aim of processes mapping is to adjust their organisation so that the steps of their implementation could maximise the added-value of the product or service, and minimise the broadly defined waste as discussed by Czerska J. (2009), Sąsiadek M., Grzesik K. (2013).

This paper presents the analysis of a gear motor assembly process carried out in a real company. In the first stage of the examination the map of the present state for the analysed process was developed. It was based on the following stages: choice of a representative, stream components identification, completing of all the components of the present state map (areas: client, components completing, installation, painting and packaging, information flow). On the basis of the present state map an analysis was conducted, aiming at identification of all the potential waste elements in this map. In order to eliminate detected losses the map of the future state was developed and benefits of the proposed changes were estimated.

2. Development of the Present State Map for the Current Process

2.1. Choice of the season and representative

The season for examination was chosen basing on the analysis of shipments from 12 months' time on the most profitable post – figure 1. Three thresholds (seasons) were marked on the chart (fig.1). In an average season the weekly sale of gear motors is 68 pieces (red markers on the chart). High sale is marked green on the chart and it amounts to more than 77 pieces. The last threshold is low sale (blue markers on the chart), less than 61 pieces. The analysis of the value stream mapping of the process was conducted during the 10-week period in the late 2011/early 2012.

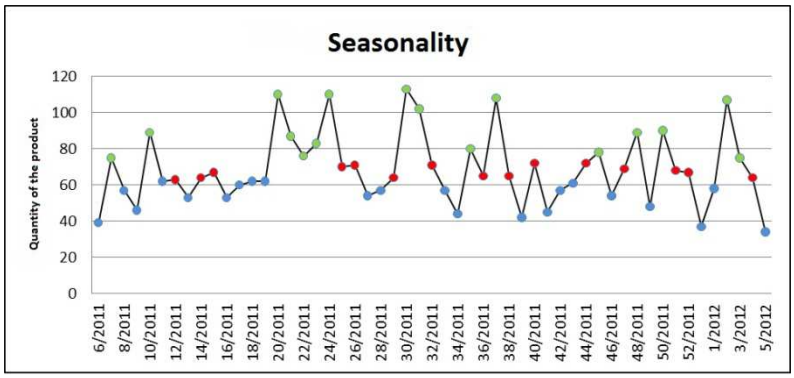

Fig. 1. Gear motors production [after Sąsiadek M., Grzesik K. (2013)]

Another element is the choice of a representative based on the number of sold gear motors assembled on the analysed post. Figure 2 presents the percentage of gear motors assembly on the selected post.

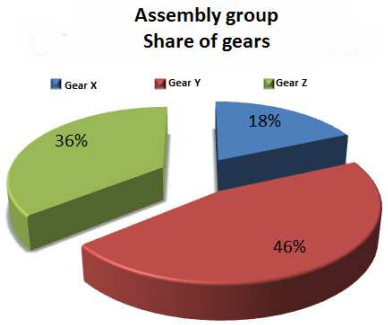

Fig. 2. Percentage of gear motors assembled on the post [after Sąsiadek M., Grzesik K. (2013)]

To map the value stream the unit Y was chosen. It constitutes about 46% (1661 pieces) of gear motors assembled on the analysed post.

2.2. Area development - Client

The first significant measure characterising relations between the Client and Company is the Average Daily Demand for the product (gear motor) – ADD. It was calculated on the basis of the analysed weeks. Apart from ADD also AWD was calculated (Average Weekly Demand), as well as the average deviation from ADD. The data is presented in table 1. All the information was obtained

from SAP program used in the company. Due to production of a few drives in one stream (on one post), the calculation was prepared for all the types.

Table 1Calculation of ADD and average deviation from ADD

Product name	*T 47*	*T 48*	*T 49*	*T 50*	*T 51*	*T 52*	*T 1*	*T 2*	*T 3*	*T 4*	*T 5*	*AWD*	*ADD*	*Average deviation from ADD*	
														[pcs]	*[%]*
unit Y	*33*	*33*	*19*	*61*	*24*	*40*	*49*	*29*	*37*	*25*	*11*	*32,82*	*6,56*	*10,20*	*32%*
unit X	*26*	*29*	*18*	*21*	*41*	*16*	*6*	*69*	*31*	*23*	*8*	*26,18*	*5,24*	*11,87*	*22%*
unit Z	*10*	*27*	*11*	*8*	*3*	*11*	*3*	*9*	*7*	*16*	*15*	*10,91*	*2,18*	*4,63*	*24%*
Weekly amount	*69*	*89*	*48*	*90*	*68*	*67*	*58*	*107*	*75*	*64*	*34*	*69,91*	*13,98*	*14,79*	*47%*

In table 1 calculations for the representative from the analysed stream were shaded. The information above indicates that the analysed demand for the gear motor Y type may fluctuate up to 32% per week.

Another crucial measure is the client's indicator. This is the desired production rhythm, which is the basis for determining standard production capacity. The client's indicator can be calculated by dividing time available per day by ADD for all the products of value stream:

Client's indicator = 55800s/13,98 piece = 3991s/piece

Therefore, the client expects that within 3991 seconds (1 hour and 6 minutes) one piece of the product leaves the manufacturing process.

Shipping, because of two markets, is carried out by several transport companies and take place every day. Shipping on the Polish market is realised by two companies. The first carrier delivers parcels below 30kg of unit weight, whereas forwarder 2 delivers larger packages put together on pallets. The Western European supply is served by forwarder 3.

Additional information necessary for the analysis is the size of the batch ordered by the client. It has been observed that even 81% of the clients orders only one piece from the whole stream. The batch size was determined on the basis of majority stake in the process of the representative's gear motors implementation, by the use of the ABC method. Therefore, the groups A and B were summed up giving the batch size of 1 - 3 pieces.

Figure 3 shows the indicators characteristic for the Client area described above. The elements of transport were marked and the size of the batches delivered to clients was defined. Time delay was described too, i.e. the time from creating one shipment to the beginning of another shipment's realisation.

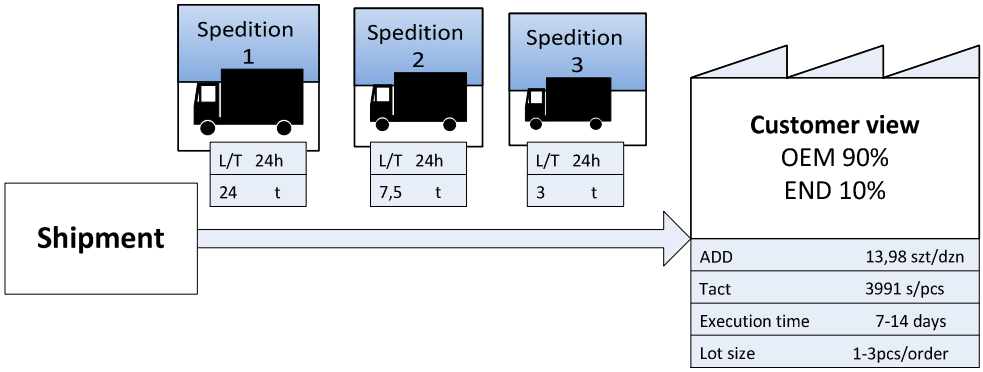

Fig. 3. Value stream map - Client area [after Sąsiadek M., Grzesik K. (2013)]

2.3. Process of completing the components

It was observed during the completing process that the most frequent batch in the process of preparing the components for the examined post is the batch made of 3 pieces. Such an amount fills the transport cart surface leaving safe space between the components. In the analysed stream the number of completed orders per year amounts to 4279 pieces, the number of completed batches amounts to 1426, product cycle time - C/T is 2400s.

C/T representative share in the whole completing C/T was calculated according to the relation: Share = (analysed stream ADD * analysed stream C/T) / (∑ streams ADD * ∑ streams C/T) and it is equal to 3,8%.

Another important indicator for the stability of completing the components process is the number of days for which the supply will cover the client's demand (DOH - Day of hands). To conduct such an analysis the type of supply was examined. The examination was based on the Bill of Materials (BOM), which was taken from the SAP system. All the parts indices used in the process of completing the analysed stream were classified into three groups: A, B, and C, by the use of Pareto-Lorenz method. It was noted that the components from group A are characterised by a frequent rotation, they go in large quantities. Group B contains indices which rotate at a constant rate in average quantities. Group C consists of materials with a rare rotation and little participation in the process. DOH was set for groups A and B basing on the ratio of the component supply with respect to the average representative ADD for the analysed stream multiplied by the number of the used component in one representative's piece. To gain estimated level for analysed groups (A and B) DOH was averaged out. DOH for group A is 11,3, whereas for group B it is 5,2.

On the basis of the calculations above and additional information obtained mostly from the SAP system the process of completing the components was characterised. The area of the process, along with its basic measures, is presented in figure 4. Transport operations from the warehouse of finished products are carried out by pushcarts and fork-lift trucks. Distance covered during one batch completing cycle is about 450m.

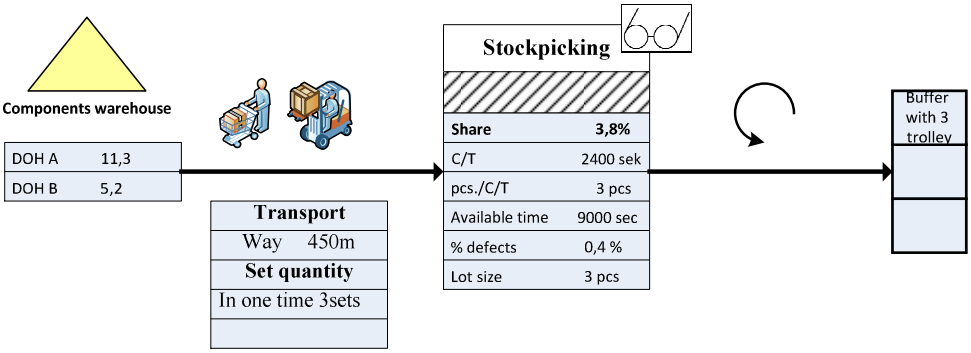

Fig. 4. Manufacturing process element - completing the components [after Sąsiadek M., Grzesik K. (2013)]

In addition, a symbol of inspection (glasses) was marked on the measures statement related to the process of completing. The inspection in the mapped process relates to comparison of the components with the material register. In the further course a buffer was marked before the assembly process in the form of intermediate storage areas (capacity is two carts filled with components).

2.4. Gear motor assembly

The map area relating to the assembly process is presented in figure 5. Additionally, information about Value Added (VA) and Not Value Added (NVA) were marked. During the gear motor assembly process the operator receiving consecutive orders applies the FIFO rule (first in first out), always having one completed cart. All the remaining parameters of this process, as shown in figure 5, were determined basing on the actual data and observations of the analysed stream.

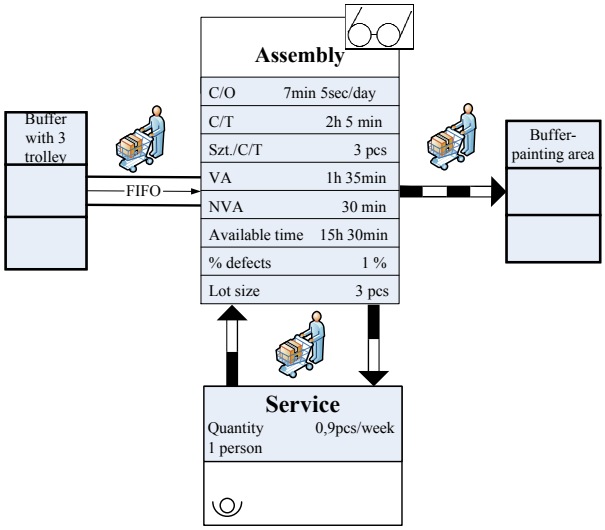

Fig.5. Manufacturing process area – Assembly [after Sąsiadek M., Grzesik K. (2013)]

Work on the analysed post is held in two shifts, five days a week. One operator works on each shift. Planned stoppages take about 30 minutes a day. As a result, available time is 15,5h. Furthermore, the following parameters were defined in the analysed process stream of the gear motor assembly: product cycle time C/T – 2h 05min, number of changeovers – 7 min. 05 s./1 day, defects percentage – 1%, batch size – 3 pieces, defects number – 0.9 piece/week. Another mark on the

following figure is the repair department, where one service engineer repairs on average 0.9 of a damaged (faulty) gear motor a week.

After assembling all the gear motors go to the buffer before another process, which is painting and packaging.

2.5. Process of painting and packaging

Paint shop/packaging area was reproduced the same way as the previous areas described above. Necessary measures characterising this subprocess and its diagram are gathered and presented in figure 6. Additional information, as in the assembly process description, is the time of Value Added (VA) and Not Value Added (NVA).

The following process parameters are depicted in the figure: analysed process participation in the analysed stream, changeover time – C/O, time of one piece flow (OPF), available time, defects percentage, posts number.

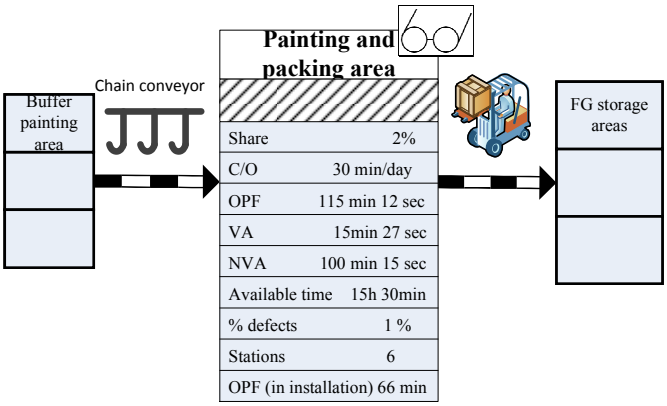

Fig. 5. Area - Paint shop and packaging [after Sąsiadek M., Grzesik K. (2013)]

The area of painting and packaging process is the last examined area of the analysed gear motor value stream.

3. Present State Map

A complete inside map of the current process state of the gear motor assembly is presented in figure 6.

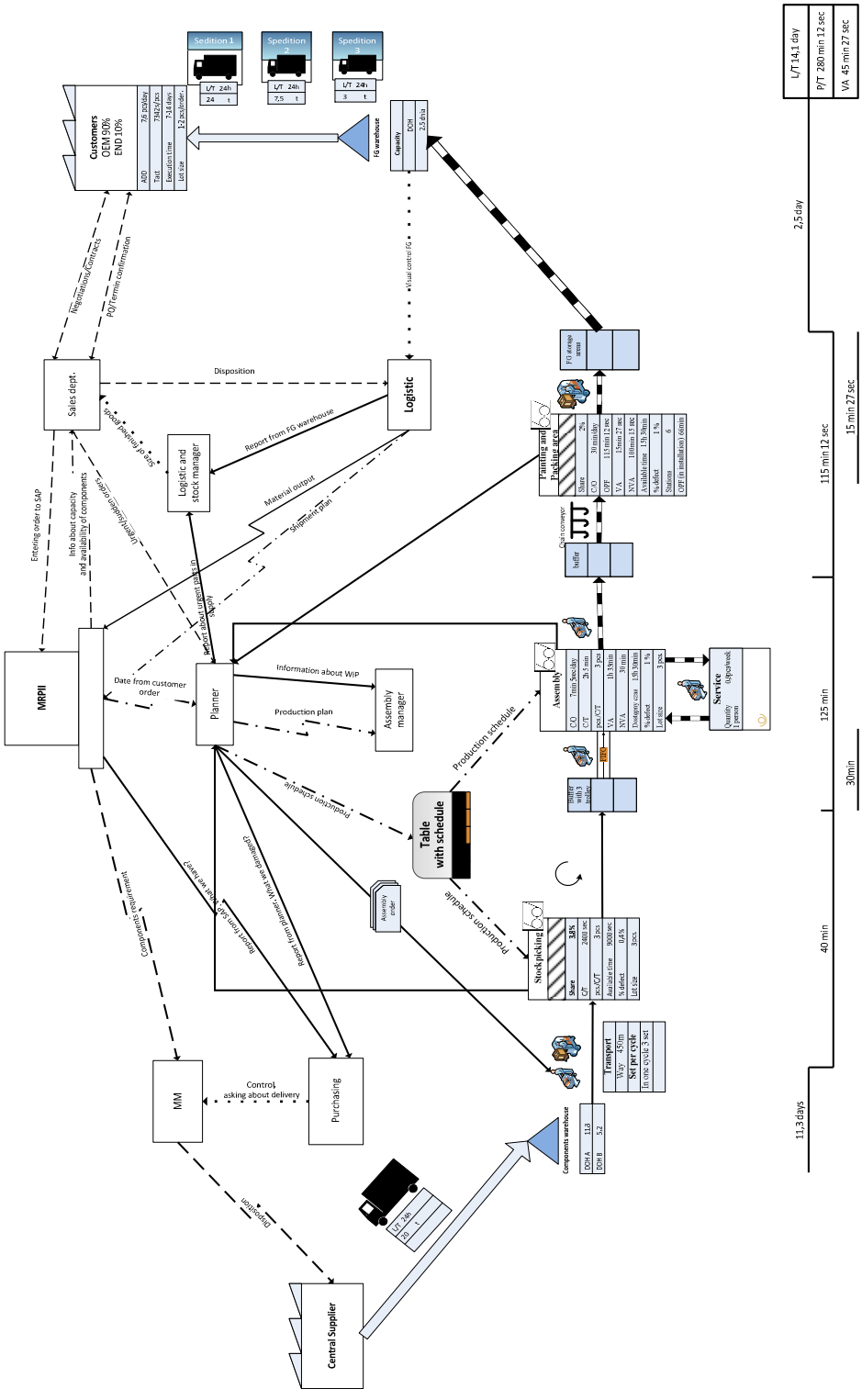

Fig. 6. Complete map of present state value stream of the gear motor assembly

After all the areas described in previous points were marked on the map, it was additionally supplemented by the flow of information between the areas and by a time line. The time line consists of three levels. The first one, marked as L/T, is the time during which the client's money is blocked

for the time of his order realisation. It is the period from the inquiry to delivery. In the discussed process it means about 13 days. The line below, marked as P/T, is the time when the product is in the manufacturing process. It has been calculated that it is about 280 minutes. The last line, characteristic of the value added, is the time devoted to the order handling, for which the client is likely (willing) to pay.

4. Proposal for the Future State Map

A proposal for the future state map is described in this section. Using the present state map of the analysed stream some of its elements were remodelled in order to improve the effectiveness of the mapped process realisation. The future state map is presented in figure 7. It was marked with changes which should improve the analysed process realisation. The elements subject to changes are marked with a red cloud with an assigned number. The proposed changes relate to the following process elements:

- Reducing the time of completing the components and shortening the covered roads by the organisation change. The forklift truck was replaced by a crane. The parts number was reduced – about 50% of the components from the Bill of Materials should be put in containers at the post (changes marked 1 and 2),
- Use of the 'kanban' system to replenish parts stored at the post (change no. 3),
- Reorganisation of the repair department consisting in equipping the department with one press (drives repaired or used in services do not return on the assembly table, at the same time blocking assembling of new gear motors) – change 4,
- Change in the method of delivering finished drives to buffer before the paint shop. So far every fitter had to deliver a finished drive to buffer – the proposal is to assign one person to all the fitters, this person would be responsible for delivering finished gear motors to the paint shop (change 5),
- Introduction of the indicator visualisation on the input and output of the painting and packaging process to smooth the whole process realisation (change 6),
- Moving the gear motors inspection operation to the buffer post before painting, as opposed to current inspection during gear motors transport in the paint shop installation. This way, if flaws are found, stoppage in the gear motors flow is eliminated (change 7),
- Improving efficiency of the process of painting and drying gear motors – one piece flow (change 8),
- Reorganisation of packaging and approving gear motors to shipment by introducing roller conveyors adjusted to easy gear motors packaging (change 9),
- Change of the method of order realisation to 'kanban' signal, that is in the 'push&pull' system. It has been noted that such a solution would facilitate control over the assembly process (change 10),
- Change in assembly planning from 8 to 3 hours forward (change 11), which can contribute to improvement in the order realisation,
- Assembly planning considering reports from the shopping department dealing with deviations from delivery time limits (change 12),
- Improvement in internal communication between the company departments (planning department vs. customer service) in terms of the order realisation status (change 13),
- Continuous monitoring of the warehouse, as well as the finished product shipping in order to minimise the stock (change 14).

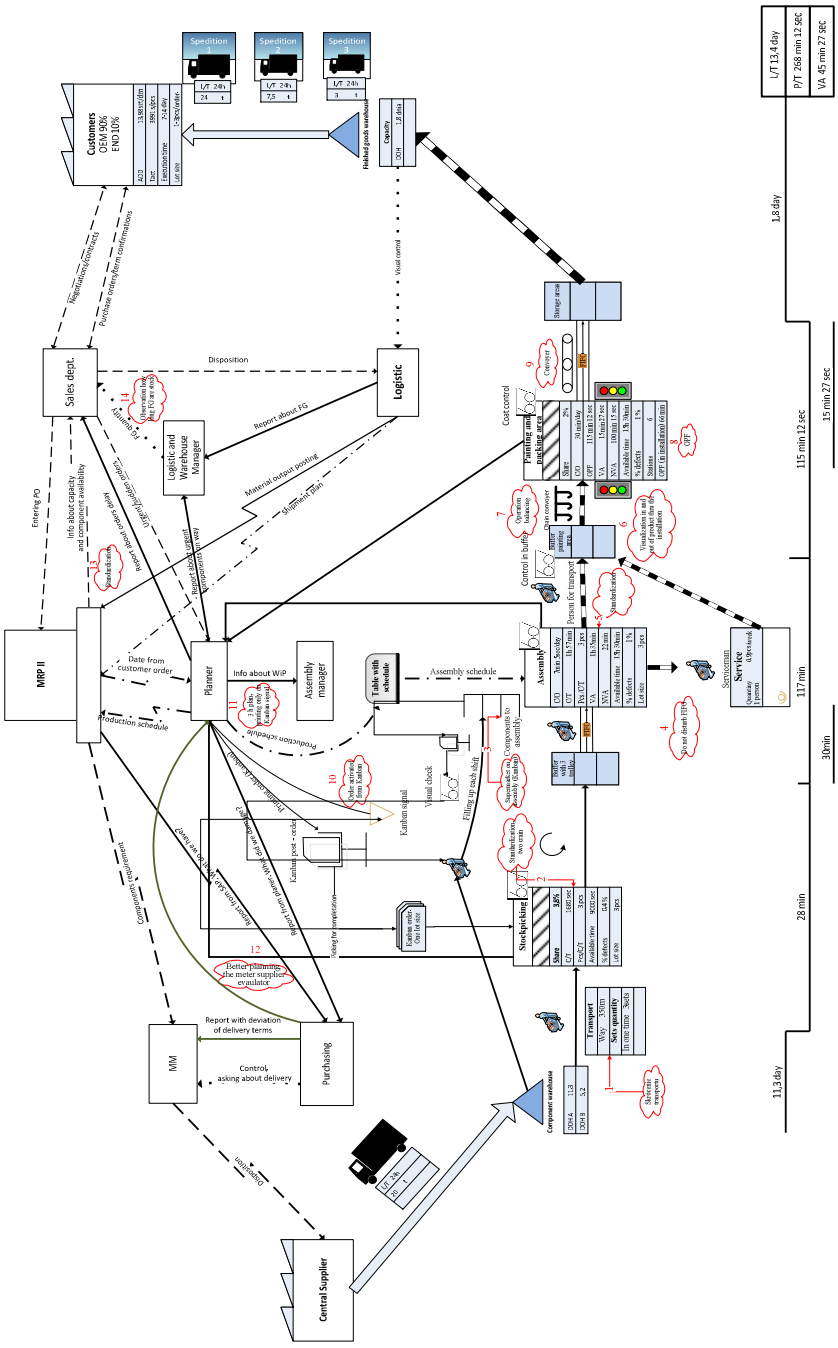

Fig. 7. Map of value stream of gear motors assembly process - future state

5. Conclusion

The paper presents particular elements of the value stream map development on the basis of the gear motor assembly process. The final effect, described in this paper, is the future state map. The issue of analysis of different kinds of processes basing on the value stream mapping is a technique applied in the whole world and giving much profit in terms of improvement in broadly defined effectiveness of the investigated processes.

The analysis of the gear motor assembly process presented in the article was directed at identification of possible changes in the materials and information flow, and in the whole process organisation. The proposed changes are being introduced in the described company. Due to long time of the changes introduction process the fact it necessitates quite significant reorganisation of the company, it was decided to improve the analysed process gradually. To do this the future process state map was developed. It should make a contribution to those changes. The analysed enterprise approved the map and preapproved it for implementation.

According to the rules of introducing this kind of processes it is a process of continuous improvement, which should cyclically aim at systematised development of the analysed process effectiveness.

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Concept of Flexible Components Selection in Project Management Methodology

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Abstract

The paper presents a concept of flexible components selection in large projects modular project management methodology. The methodology presented has been developed on the basis of critical chain project management (CCPM) and research conducted in production-service enterprises, which perform complex and unique large projects. Literature presents many various standards which support projects management, they however do not present a methodology with a step by step proceeding throughout planning and execution stages of a project. The elaborated module methodology consolidates a whole range of activities performed during large projects execution, at various management levels and provides new solutions in: (1) estimating the duration time of tasks, (2) time buffers size estimating, and (3) supervision of programme execution progress.

Keywords: methodology of project management, critical chain project management, projects management processes, process mapping, IDEF3.

Introduction

Enterprises which deal with large projects, very frequently have problems in maintaining projects time framework, lack of sufficient resources, deficiently structured budget, unclear goal specification, and conflicts within project team. The latest research in projects execution conducted by The Standish Group reveals that only 10% of large projects are completed successfully, 38% of them have significant difficulties, and 52% bring losses exclusively (The Standish Group, 2013). Execution of large projects within time set and maintaining the project costs at an assumed limit constitutes therefore a big challenge for contemporary enterprises in a time of transformation of any business forms.

Dynamic globalization of economy, which incited development of management sciences, and revolutionary changes in information technology causes, that enterprises management must nowadays be oriented on the market in which their business units work. This results from a necessity of defining the enterprises goals in context of market and customer demand. The global economic, political and social processes impose a necessity to rearrange (adjust) internal structures of enterprises.

Development of new information – communication technologies, reduction of mass manufacturing, development of services market, development of information technology society contributed to third, after rural and industrial, technological revolution (acc. to Toffler – the so called third wave). Third wave is a stage of knowledge and information development. It is facilitated by tremendous technological development with globalization and engagement of almost all countries in global economy. It is related with reduction of mass production and movement towards production adjusted to the requirements of individual customers. A future human being – a mansumer – links features of a manufacturer and a consumer (Dziedzic, Szymańska, 2011; Krawiec, 2009; Toffler, 2006). The overall transformations involve necessity to implement new solutions within enterprise management. One of the solutions for implementing such approach involves project management introduction in an enterprise. One of the methods of such approach execution is to conduct business activities of such enterprise as a project.

Due to increasing importance of projects in business units, the issues of their proper organization and planning become more and more important in project management. Dynamic changes in market situation cause, that commonly applied methods of planning require improvement, in view of challenges of knowledge based economy. Planning constitutes an indispensable stage of every large project. Generally, it is a creative process, which aims at specification of purpose and methods of reaching it. The process is sequential, and includes: forecasting, estimating, programming and planning. Main part of project planning constitutes programming, i.e. preparation of a programme of works, with execution deadlines of tasks, and including acceptable resources allocation (capital, staff, equipment etc.) (Trocki, 2013). Programme development constitutes an outcome of assumptions related to strategic and operative plan of a contractor, with anticipated execution constraints. Doubtlessly, risk and any uncertainty of a venture should be also taken into consideration, as well as budget and directive deadlines constraints. Programming of tasks within a venture, constitutes a complex process (PMI, 2013; Davidson, 2001; Kisielnicki, 2011; Wysocki, McGary, 2005), for which many support methods and techniques have been developed. Due to application of computer programmes, the programming process is significantly facilitated and accelerated. Research is currently still conducted on creating and improving of such programming methods, which would best reflect the actual ventures, and would fully take into consideration the assumptions made.

Due to the above fact, extensive research into planning and execution of large projects in production and services enterprises has been conducted, in view of their management. The research facilitated elaboration of module methodology of large projects, based on critical chain concept. Module structure of the methodology allows flexible selection of components during planning and execution of large projects. The paper presents construction of module methodology, its assumptions, possibilities of application of selected elements in practice.

Success as a measurable effect of large projects management

Efficient management of a large project is determined by execution of a project under certain defined parameters. This means, that requirements must be met, for project product quality, therefore it is important, at a large project planning stage, that the customer requirements are accurately specified as far as the final product (service) is concerned. A project will be efficiently executed, if the planned project budget is not overspent. A cost parameter is usually determined as the limit of expenses and cost of project execution, and the limit of main parts of a project. Time is another project execution parameter, which determines when a project is to be completed (Trocki, Grucza, Ogonek, 2003). Another parameter, decisive for project purpose reaching, is a scope, which determines what is necessary to be completed under execution of a given project. There are close links between parameters of a project, related with levelling of balance, a so called “iron triangle” (also called “magic” or “golden”). They should be considered with regard to mutual constraints and impact. Hence, assumption of a scope of project and the time of its execution requires a higher budget, whereas a shorter execution time in most cases increases the cost.

The last parameter in a project, constitute resources, which provide basis to establish programmes of activities in a project, and determine its correct execution (Wysocki, McGary, 2005). Increase of the scope of works may cause increase of the project execution cost, necessity to increase the number of resources or extension of project execution time with lack of possibility of additional resources allocation.

Enterprise which starts execution of a large project wants to reach expected result, which is to bring actual financial or non-material advantages, e.g. improvement of work organization, by implementing a new management system. A large project should therefore be planned so as to execute its main aim within a specified time, at planned cost and with required project product quality (Walczak, 2010). Literature on the subject includes consideration regarding critical success factors in projects management (Spałek, 2004), called critical success factors – CSFs. These include conditions which influence success in execution of a large project. Extent of success constitutes a relative concept. It may be perceived from the point of view of time expiry, which was noticed by J. Pinto and S. Mantel

(1990). Later the concept was developed by A. Shenhar, O. Levy, D. Dvir and A.C Maltz (2001), who proposed four measures of project success (see Fig. 1):

- project efficiency – measured by project triangle,
- project impact on a customer – with an assumption that defined project purpose could differ from intended purpose of project – this measure would measure their conformity,
- business success – this measure would measure actual impact of a result of a project on an organization,
- preparation for the future – this measure would measure conformity of project result with strategic goals of a company.

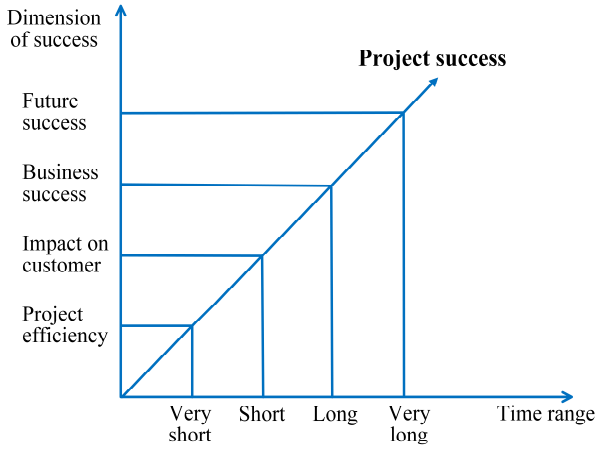

Fig. 1. The dimensions of project success

Source: own elaboration based on (Shenhar et al., 2001)

According to T. Young, the following elements influence success of a project (Young, 2007): (1) proper project goal, resources, parameters definition, (2) support and engagement on the part of the project sponsor, (3) maintaining of relations with project parties, project progress reporting, (4) properly selected project team, staff, with adequate know how and skills, (5) well prepared plan and programme of a project, proper share of tasks and duties (6) regular monitoring and control of project risk, (7) reliable and timely works progress reporting, (8) correct communication within project, (9) solving of the most important problems at the highest management level.

The most recent research of The Standish Group (The Standish Group, 2013) success of large projects depends on the following factors:

1) support of management staff – 20%,
2) competencies of project manager – 15%,
3) optimization – 15%,
4) competencies of project team – 13%,
5) specialization of project management – 12%,
6) process approach – 10%,
7) clear business goal – 6%,
8) emotional maturity – 5 %,
9) execution – 3%,
10) tools and infrastructure – 1%.

Project success, is considered to be reached in 75% by good management. According to research of The Standish Group large projects should be optimized, which may be reached by splitting a project into smaller sub projects and their management through portfolio. Concurrently, the report *The Chaos Manifesto: Think Big, Act Small* focuses on the fact, that an active participation of management of a company in projects is crucial for a success of a project, as this type of project requires engagement of significant financial expenses, and are mostly strategic projects, which are crucial for keeping the businesses work. It is at the same time important to form an efficient project team, with adequate technical, context and behavioural skills (Marek-Kolodziej, Lapunka, 2015).

It is commonly assumed, that in management of a large project it is necessary to apply appropriate methodology, in view of accepted management standard. Two different approaches are mentioned by practitioners of project management. "Traditional" (classical) approach, based on project life, identifies a sequence of steps to be taken in project management process. "Modern" (innovative) approach in turn, identifies project as a set of small tasks or knowledge domains (Wirkus et al., 2014; Pisz, Lapunka, 2015). Classical methodologies of project management include the universal standards such as PMI (PMBOK), PRINCE2, TenStep, IPMA and specialist methods, which are divided into industry and company methods. Innovative approaches to project management constitute a large group among the alternative methodological IT projects management solutions established during the last two decades. They are transferred recently most frequently to management of other types of projects. The approaches refers mainly to adaptive, agile and lean management types, towards a synthesis of project strategic framework of AgiLean PM (Demir, 2013).

Methodologies presented in literature, must be most frequently implemented as a whole, so as to bring the intended result in planning and execution of a project, which causes that they are implemented rather rarely. This may potentially have an impact on weak efficiency and effectiveness of large projects execution. It was assumed in research, that there is a need for methodological support in large projects execution and indicating deep changes in the their management methods. The most common methodologies of projects management in literature nowadays, usually constitute a collection of general guidelines, which do not provide detailed description of what should be performed at individual stages of large projects execution. They also do not include information on methodologies, techniques or tools to be applied to support a given type of a project.

Concept of modular methodology in large project management

Maturity of project management methodologies

Project maturity has recently been much focused on, being also reflected in methodologies. The higher is the level of project maturity in an enterprise, the more important are methods and methodologies of project management used in project execution. We may currently also talk about maturity of project management methodologies. The level of maturity of methodology depends on the requirements of a given enterprise, knowledge, experience and skills of project team members. We may list four levels of project management maturity (Fig. 2).

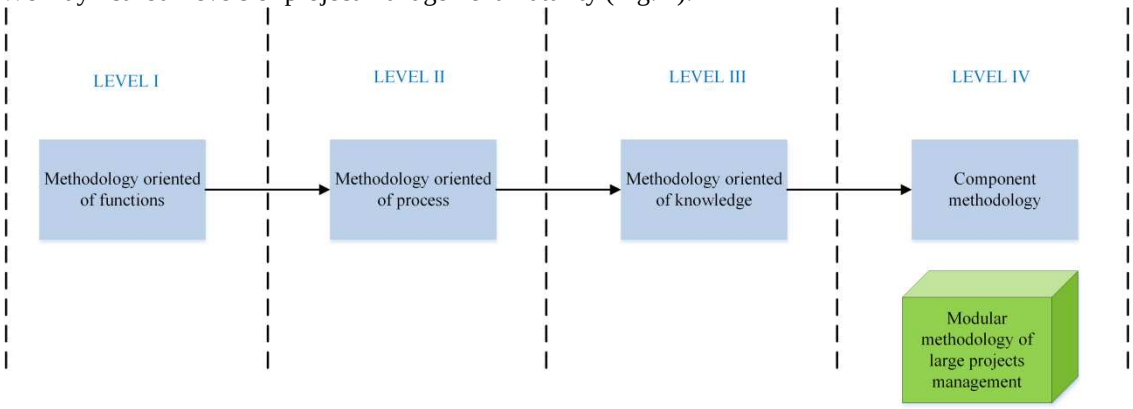

Fig. 2. Levels of project management methodology maturity
Source: own elaboration based on (http://www.sybena.pl/dojrzaloscszp.htm)

The first level of methodology maturity includes methodologies which are directed towards functions. This type of methodologies have been elaborated for project programming, and they are currently extended to time management and linked with project risk and scope management. A lot of techniques and methods have been developed within this range supporting project programming. The most popular ones are PERT and critical path method (CPM). Methodologies oriented on functions are applied in very small projects, which usually are of narrow range and short execution time.

The second level of maturity includes process oriented methods. Such methodologies describe project management domains more than function oriented ones. They support a project manager, presenting processes to be performed during project planning and execution. The most popular process oriented methodologies are the above mentioned PRINCE2 and PMBOK methodologies. These are applied in all types of projects.

Knowledge oriented methodologies are the third level of maturity. Information on individual domains of project management is crucial apart from functions and projects in project management. This type of method is developed locally (for a given enterprise or an industry), as it includes important information on the method of project management processes execution for a given enterprise (industry), for which it has been developed. Knowledge oriented methods are applied in specialized enterprises, which lead their activities on the basis of projects execution.

The last level of maturity includes component methodologies, constructed so that the project manager may select elements (components) necessary for him, e.g. scope and time management procedure, and reject the rest of procedures. This type of methods should provide project manager with a set of components, e.g. time and works management procedure, and reject remaining procedures. A well-constructed component methodology must include all elements included in methodologies presented above (i.e. function, process and knowledge oriented).

The authors' research and analysis resulted in elaborating a module methodology of large projects management, based on critical chain concept, reflecting the above mentioned character of component methodologies. The methodology includes elements of function oriented method, as it uses the critical chain concept idea, presents a method of time of activities estimating, based on a normal rate and proposes a general approach to calculation of the time buffers size, with application of fuzzy sets (Marek-Kolodziej, Lapunka, 2014). The method developed includes at the same time elements of process oriented methodologies, as individual modules include all project management processes. Apart from that fact, the methodology has been developed on the basis of research among enterprises which perform large projects in a widely understood production engineering industry, which provides it with features of knowledge oriented methodologies. Moreover, the project management process was extended by the stage of use, which frequently appears in large projects.

Construction of modular methodology of large projects management

Modular methodology of large projects management based on critical chain concept has been developed for the needs of complex, unique, strategic production and service projects. Figure 3 presents graphic presentation of module methodology, which consists of three main groups of modules: strategic, tactical and operational.

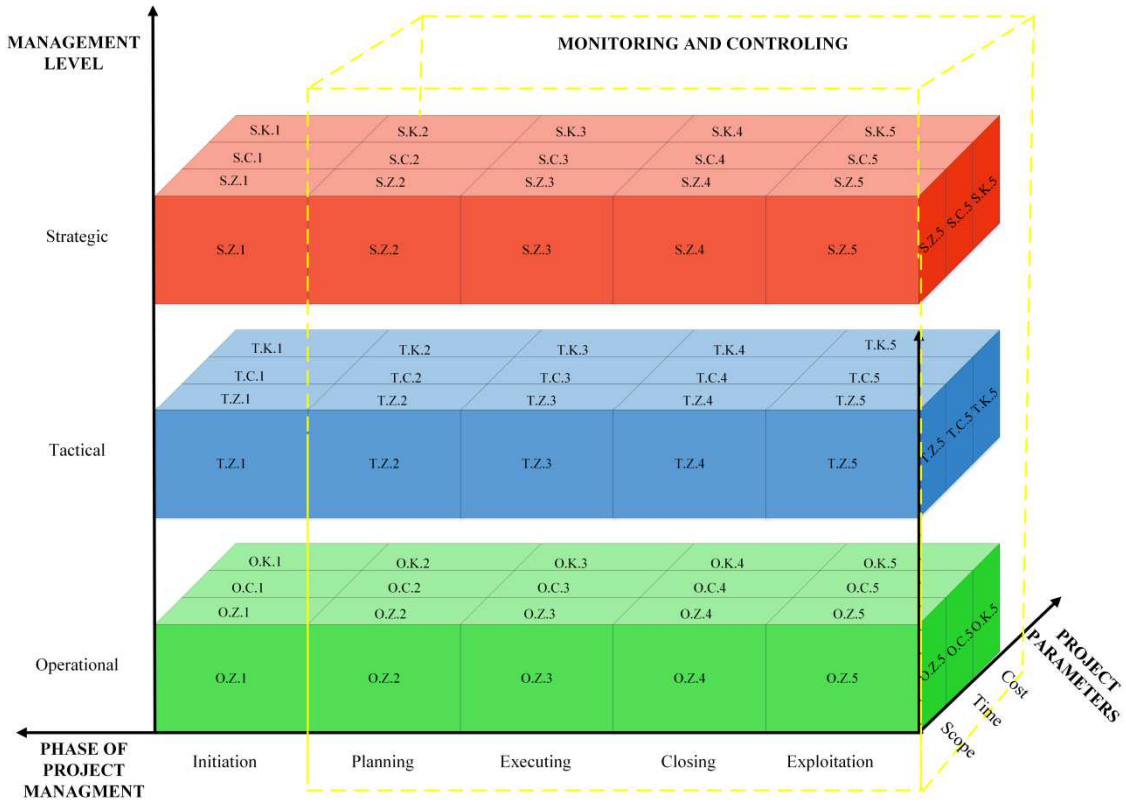

Fig. 3. Modular methodology of large projects management based on critical chain concept
Source: own elaboration

Every of the modules groups describes execution of large project management, starting from pre-project stage through planning, execution, completion to use stage. Additionally, to include all aspects of project management, three project process control modules have been established. Individual symbols marking methodology modules are as follows:

1. Management level:
   S – strategic,
   T – tactical,
   O – operational.
2. Project parameter:
   Z – scope,
   C – time,
   K – cost.
3. Phase of project management:
   1 – initiation,
   2 – planning,
   3 – executing,
   4 – closing,
   5 – exploitation.
4. Module: Management level. Project parameter. Phase of project management e.g. S.Z.1, i.e. strategic management of project scope in initiation phase.

The methodology consists jointly of 48 modules, as presented in table 1. Seven spread sheets have been developed, to support large projects management modular methodology, in order to: (1) develop project chart and determine project risk (2) estimate the NPV index value NPV, (3) estimate tasks duration times, (4) establish project budget, (5) determine time buffers value, (6) monitor buffers and (7) calculate the project work value.

Table 1: List of large projects management methodology modules

Group of module	Module
STRATEGIC	• S.Z.1 • S.C.1 • S.K.1 • S.Z.2 • S.C.2 • S.K.2 • S.Z.3 • S.C.3 • S.K.3 • S.Z.4 • S.C.4 • S.K.4 • S.Z.5 • S.C.5 • S.K.5 • Strategic management of the project control
TACTICAL	• T.Z.1 • T.C.1 • T.K.1 • T.Z.2 • T.C.2 • T.K.2 • T.Z.3 • T.C.3 • T.K.3 • T.Z.4 • T.C.4 • T.K.4 • T.Z.5 • T.C.5 • T.K.5 • Tactical management of project control
OPERATIONAL	• O.Z.1 • O.C.1 • O.K.1 • O.Z.2 • O.C.2 • O.K.2 • O.Z.3 • O.C.3 • O.K.3 • O.Z.4 • O.C.4 • O.K.4 • O.Z.5 • O.C.5 • O.K.5 • Operating management of project control

Source: own elaboration

The methodology may be applied both as a complex tool supporting project management process, using all of the modules or using only selected modules of large projects management.

Modular methodology processes mapping

Project management processes mapping is necessary for efficient project execution and planning. It is a graphic presentation of a process or a group of processes with their mutual links. It facilitates presenting in a graphic form all activities performed in a company, in order to reach certain results.

Mapping of processes is performed in two main stages. First, it should be determined what processes appear during planning and execution of projects. This involves determining (Skrzypek, Hofman, 2010):

- process goal,
- process commencement,
- process end,
- process input,
- process output,
- process suppliers,
- process recipients,
- processes measures (meters),
- process structure (processes maps, process charts, process description).

The next step is to group the processes identified. The modular methodology of large project management based on critical chain concept involves three identified groups of modules: strategic, tactical and operational.

The literature of the subject refers to many various process mapping methods. The most popular and oldest one is block diagram. Block diagram constitutes a tool used for presentation of subsequent activities in an algorithm. In form of a diagram, which presents a proceeding, system or a computer software, in form of geometrical figures linked by arrows, according to sequence of activities performer (Krok, Stempnakowski, 2008). Further method of processes mapping BPMN (*Business Process Modeling Notation*) presents graphically processes in an enterprise. The advantage of the method is possibility of mapping of all business processes, regardless of industry or organization. It is also necessary to mention BPMS (*Business Process Management System*), i.e. a group of universal modelling techniques for the needs of mapping and specification of processes (Gawin,

Marcinkowski, 2013). Apart from the methods mentioned so far, there is a family of techniques, IDEF, used for mapping of various processes in an enterprise. In the 70s, the US Defense Department developed a standard for IDEF (*Integration DEFinition Language*) process. The IDEF standard has been used as a tool for computer software development supporting production processes. Then it became a tool facilitating establishing of a map of processes in service and production enterprises. IDEF standards are used also in the so called "business engineering" including reengineering and business process reengineering.

Mapping of modular methodology processes has used the IDEF3 technique, which, due to its structure, especially use of nods, is suitable for project management processes mapping (Patalas-Maliszewska, Jakubowska, Kłos, 2015). Structure of IDEF3 facilitates understanding the method of description by persons who do not deal with processes modeling. The basic element of process diagram by IDEF3 is UOB block (*Unit of Behavior Box*), presenting a single activity (function) and „GO TO", block and „Go to". The UOB blocks are connected by means of different types of arrows. There are links as follows: (1) priority (normal arrow), (2) relation (dashed arrow) and (3) objects flow (two sided arrow). Five nods i.e. forking of a process may be distinguished in the method, such as (Stamirowski, 2005; Mayer et al., 1995): (1) all processes must commence or finish, (2) all processes must commence or complete simultaneously, (3) one or more processes must commence or finish, (4) one or more processes must commence or finish at the same time, (5) one process exactly must commence or finish.

Decomposition of UOB blocks in the IDEF3 method has been presented in figure 4. Similarly as in IDEF0 method, processes (activities) may be recorded as higher rank processes into more detailed ones, with the difference, that in case of IDEF3, there may be several mapping variants of a given UOB block. Numbers of subsequent blocks are as follows: the first number refers to mapped process, i.e. when mapping the main process, whose block has number 1, then activities for its execution or sub processes will have numbers according to UOB block, starting from 1, the second number refers to the variant of process description, the third refers to the number of UOB block.

Apart from graphic description, the IDEF3 method provides a detailed process description, according to a specific form including all necessary information about a process. The form includes the following information: (1) UOB block number, (2) process/ activity/ task name, (3) structure description, (4) constraints, and (5) process/ activity/ task description. Due to the fact, that the IDEF3 method has been used for mapping of large projects management methodology mapping based on a critical chain concept, a modified form of process description has been presented, named „Process/ activity/ task chart".

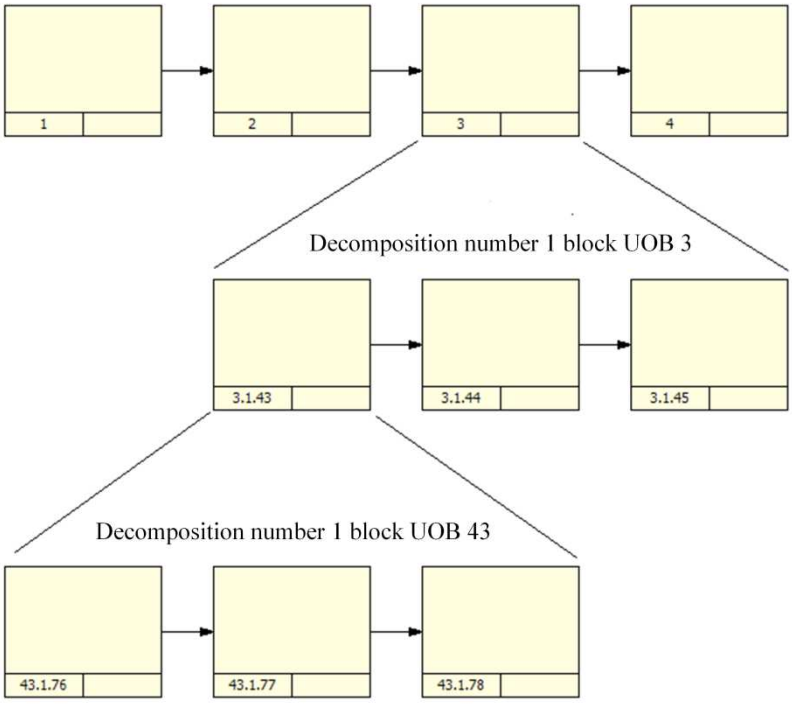

Fig. 4. IDEF3 structure decomposition

Source: own elaboration based on (Mayer et al., 1995)

The practical possibility of using the modular methodology in managing large projects

Modular methodology of large projects management based on critical chain concept, is applied in all types of projects which may be executed in classical cascade flow of a project such as (1) investment projects, (2) production – service projects, (3) innovative projects, (4) construction projects.

The modular structure of large projects management methodology based on critical chain concept offers a possibility of its application as a whole or only of its selected elements. Project manager may select methodology modules, depending on the project type. There are several possible types of modules selection, as has been presented in table 2.

Table 2: Application of large projects management methodology modules

No.	Project type	Name of modules/ group of modules
1.	A project as a whole is executed by one enterprise. At the same time the product of the project will be used by a given enterprise.	Application of all modules of the methodology.
2.	Project is executed as a whole by one enterprise, but its product will be used by another organization.	Application of all modules of the methodology except for part of modules which refer to the project use.
3.	Project is partly executed by a company and partly subcontracted.	Depending on the part ordered to the contractor: 1. If the enterprise supervises the project – a group of strategic modules is to be applied. 2. If the enterprise supervises and manages the project tactically, i.e. supervises and manages execution of project stages or subprojects, and the rest is subcontracted – groups of strategic and tactical modules are applied.
4.	Organization is a subcontractor and executes a group of works or specific tasks.	Application of operational modules group.
5.	Organization is a subcontractor and performs a specified stage of a project or sub project.	Application of tactical and operational modules.

No.	Project type	Name of modules/ group of modules
6.	Organization has its own project management system and needs support in a specific part.	Any module may be applied separately, without implementing the whole methodology.

Source: own elaboration

Conclusion

Large projects management modular methodology based on critical chain concept includes all stages of project management. It includes pre project, planning, execution, completion and use stages. The project management levels have been extended by tactical level, which in case of large projects management appears mostly if a project is executed on an insular basis and tasks are at individual stages of a project subcontracted. Moreover, it includes a process of inspection management at each management level.

The modular methodology described, has been elaborated on the basis of critical chain concept assumptions, therefore the process of project planning execution and supervision includes the most important elements of CCPM method (Goldratt, 2009). Large projects managed according to modular methodology may due to this fact increase their efficiency as compared with today's standards of projects management. The structure of modular methodology facilitates flexible selection of elements to project manager at individual stages of large project management, which improves its implementing. Moreover, the spread sheets which have been elaborated allow an easy setting of: (1) aggressive estimates of tasks duration times, (2) projects buffers size according to triangular fuzzy numbers, (3) NPV index value, (4) project work value, (5) time buffers use during project execution.

Modular method of large products management based on the concept of critical chain concept may significantly influence efficiency of large projects management, as according to first research conducted on the application of methodology, efficiency of a given project under research has increased by 37% and effectiveness by 10%.

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Microfinance a New Approach for Social and Financial Inclusion

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Abstract

Each of us have had or go through the situation of being unable to access the credit necessary to meet unexpected expenses or trying to develop small businesses. The impossibility of accessing microfinance pushes people into poverty, increasing the number of social assistance. What makes the situation can be different, how do we prevent increasing poverty? The answer is found in the current microfinance policy directed especially to those who are financially excluded. But the access to credit as they are too expensive could also contribute to indebtedness and impoverishment of individual levels. They have serious macroeconomic consequences, as the crisis in 2007 proves. Therefore, poverty and social exclusion can be fueled by the inability to access credit and access to inappropriate forms of financing. Such difficulties are undermining economic growth and social cohesion. Instead, poverty and financial difficulties are supporting social exclusion.

Keywords: microfinance, rural credit, social inclusion, financial inclusion.

Introduction

Micro financing impact evaluation

Low-income households are most likely to be unable to access appropriate financial services. Along with poverty, age, place of residence (rural or urban) and sexual gender are direct causes of financial exclusion. Combating it is a difficult task, being both a cause and a consequence of poverty and social exclusion (Gloukoviezoff, 2010). In June 2010, the G20 summit in Toronto launched the Global Partnership for Financial Inclusion. United Nations, World Bank, International Monetary Fund and the International Labour Office have oriented their programs to issues of financial inclusion as an essential condition for creating jobs and generating revenue. Also, the European Commission, in cooperation with the European Investment Bank, have established numerous programs such as "Jasmine" and "Progress" to support microfinance institutions and for employment and social inclusion. More recently, in the Europe 2020 strategy for smart, sustainable and inclusive growth adopted in 2010, the European Commission asked Member States, among other recommendations, the need to "develop concrete strategies for social innovation, such as public-private partnerships ensuring adequate and predictable financial support, including microfinance "(European Commission, 2013, p. 12). It would thus achieve the goal of raising at least 20 million people out of poverty and social exclusion, and improve employment of the population aged 20-64 years to 75%. Therefore, microfinance is facing real challenges in order to contribute to the realization of the 2020 Strategy. Will it be able to provide

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the expected impact in terms of financial and social inclusion? Impact evaluation of microfinance requires awareness that "microfinance" is a generic term for a wide variety of products and services. It covers areas such as micro-credit, micro-economics, micro-guarantee and micro-insurance while in each of these subcategories services provided differ in their characteristics, cost, target audience and the institutional context in which they occur. The impact of microfinance service provider is only one aspect of its social performance. The concept of social performance involves consideration of factors such as:

- purpose and goals of an organization;
- its inputs (resources and procedures);
- results;
- its impact.

The social performance analysis of microfinance service providers involves understanding and assessment of inputs from suppliers and their efficiency in order to achieve the purpose and objectives initially set (Lapenu and Reboul, 2006).

The social performance evaluations have two complementary objectives: providing an understanding of the processes implemented to promote their improvement where necessary and to demonstrate the effectiveness of action by measuring the change impacts of main supplier to customers (Lapenu and Reboul, 2006). In this regard, the impact evaluation of microfinance service providers is not only a way to ensure ongoing funding, but a tool to help the organization to learn and perform better by designing products and processes that proves more suitable for both,customers and suppliers (Copestake and Williams, 2011; Karlan and Goldberg, 2011; Copestake, 2014; GECES 2014).

Improving the impact of organizations can be done by collecting data internally on a regular and reliable, but not necessarily, in a "scientific manner". What matters is that the results are meaningful and credible assessment in order to take the relevant decisions. To prove the impact of an organization requires a methodology that not only meets domestic needs, but also have an external standard of credibility.

This "change" in the methodology of implementation was also supported by two factors. The first is that foreign donors were often more interested in evidence of the impact of their financial support for microfinance organizations rather than to contribute to the learning process and improve it (Bédécarrat et al, 2012 ;. Naudet et al ,. 2012; Copestake, 2014). The second factor is that most of the information needed to assess the social performance of an organization are easily accessible internally while impact assessment requires the collection of information by engaging discussions with potential customers and non-customers (ie, counterfactual). Data collection is a particularly difficult task for staff is not ready for such research tasks.

Research Methods and Techniques

Regarding the methodology of research on microfinance, cthe omplexity and diversity of the issues addressed have required the use of methods, techniques, tools and procedures of scientific investigation and interpretation, in which we placed particular importance to:
- documentation, namely accessing and studying general and specialized bibliography, domestic and foreign, state approach to knowledge issues investigated rural microfinance and scientific substantiation of the research;
- Rational method, used as an instrument of knowledge, reflection, analysis, organization and ongoing scientific research approach;

- The integration method of forms, methods and logic operations research carried out through the use of analysis and synthesis, abstraction and concretization, comparison, generalization and systematization;
- The statistical method through the use of descriptive statistics and statistical analysis;
- Method of observation, conducted systematically and analytically;
- Discussions with experts from within national and international institutions, but also the beneficiaries of microfinance products and services;
- Data analysis and interpretation, using graphs, charts and figures to highlight various developments in microfinance.

Using the classic instruments of scientific research, based on analysis and synthesis, induction and deduction, general and particular and adding modern methods, we achieved substantial and pertinent analyzes and studies on rural microfinance main ways both, internationally and especially national. Personal contributions are highlighted, within each chapter, and the significance of theoretical and applicative value resulting from the conclusions and proposals we have formulated and promoted.Also, results of research were disseminated during 2015 onnational and international scientific conferences and through publication in scientific journals, as author. The research results are presented using tables, figures and graphs. The theoretical information needed for the research were taken from literature and specialized works (books, studies, papers, articles etc) in the field of microfinance from home and abroad. Statistical information and concrete data on microfinance opportunities were taken from reports and statistics of institutes involved in microfinance in the country and abroad,as well as to public bodies and private specialist. Rural microfinance opportunities is a research topic of great interest worldwide in the present economic environment generated by the global economic crisis. The construction of microfinance theories aims to establish correlations between the values of the entities funded (firm, etc.), financial structure and the cost of capital procurement. Although some argue that theories developed microfinance optimal structure has a positive effect on the market value of the financed entity, there are theories that claim the elaborate financial structure has a neutral effect on it. In this regard, in this paper, is highlighted the relevance of theories on evolution and structure of the microfinance optimal legal entity (eg farm), respectively:

- Classical or traditional theory; the theory of compromise; agent theory; signal theory; hierarchical theory of microfinance; modern theory on capital structure.

If, theoretically it is possible to achieve an optimal structure of microfinance, in practice we consider that this objective is difficult to achieve, due to problems of quantifying the different variables which the decision of microfinance on medium and long term face it. However, the theories presented on the optimal structure of micro entrepreneurs in rural areas offers some important lessons.

First **-** these theories argue the opportunity to identify the factors that influence the capital structure and, on this basis, the developing decision-target structure. Capital structure target may be a range of borrowing rates that change over time while generating conditions change.

Secondly **-** Entrepreneurs should have as an objective a specific capital structure compatible with the overall strategy of the financed entity (eg farm) on earnings growth, market position etc, and decisions of microfinance should be developed based on this structure.

In the third line **-** Establish a microfinance optimal structure is a complex process involving a combination of quantitative analysis with value judgments characteristic of each enterprise management areas.

The issue of microfinance company cannot be investigated scientifically without an adequate approach to the concept of cost of capital as the main variable information integration market microfinance among those who make capital available (investors) and those who need them (

entrepreneurs and companies). Nowhere there are, in fact, free microfinance resources, which is why a good knowledge by contractors, the cost of capital is a necessity (Levasseur, M., Quintart, A., 1992).For example, the package of financial services available to small farmers in developing countries is severely limited, especially for those who are living in remote areas without access to basic infrastructure market.When poor people have limited options for saving or lending,their investment plans are stifled and so it is harder for them to get out of poverty. If households do not have access to insurance and are unable to accumulate small savings, enabling them to pay household expenses and business, especially during seasons of poor harvest, they are forced to limit their exposure to risk, even if they expect big profits. Again, this makes the path out of poverty more difficult than necessary. Inadequate access to financial services is therefore a part of what is often called by economists "poverty trap".

The microfinance system, nationally or internationally, offers to the companies in rural areas a limited range of solutions for microfinance, which is why my approach is linked to choices made between resources of microfinance accessible internationally and the ways of combining them. These are two aspects of microfinance fundamental policy. In the taking decisions micro financing, rural entrepreneurs must have rigorous criteria allowing choosing and combining these resources. Undoubtedly, the cost of microfinance is the main criterion in choosing microfinance resources.

Without knowing this cost cannot be obtained the company's market value maximization in rural areas. Also, a correct estimation of cost of capital is important in the process of adopting investment decisions by legal entity in rural areas (eg farm).

Microcredit, as defined by by the EC, is under € 25,000 loan given to support the development of microenterprises and self-employability. It has a double impact: the economic one, as a means of creating income generating activities and social one, as a means of social inlcuziune and therefore financial inclusion.

91.8% of businesses in the EU are micro level, comprising over 2/3 of the workforce. Micro and small enterprises are the engine of the European economy. However, creation and development of micro businesses in Europe is a cumbersome process. People from disadvantaged groups such as long-term unemployed, economically inactive young people, single parents (usually women), immigrants, the elderly (seniors) or disabled face difficulties for starting a small business or become self-employed (self-employed). In addition to administrative barriers, another major problem for them is access to finance. Commercial banks are reluctant to grant small loans because the administration costs are large while the profit margins are small. This discourages banks to provide loans under € 25,000. Also, the self-employed and micro-entrepreneurs are considered too risky by banks, using the scoring method based on credit history and provide safeguards for securing the loan. Most times people from disadvantaged groups have no collateral and no business track record. Moreover, the financial crisis and economic downturn became more expensive for financing debts and the wave of regulations (especially Basel II reform) have made more difficult the access to financing. Banks are gradually retiring from local and mutual economy as a result of increasingly stringent banking regulations. Therefore, the EU has made a priority of small and micro enterprises, through its internal policies, regional and employment. Europe 2020 Strtaegy with***2008 Small Business Act***aims to improve regulation and access to finance for small firms by Single Market Act and the new Structural Funds programs. Microcrediting is operational by 2007 JASMINE technical assistance program followed the European Progress Microfinance Facility 2009, providing 200 million euro to European microfinance institutions in the form of loans, guarantees and equity. A global definition presents the microfinance as providing basic financial services to low-income peoplewho traditionally have lack access to banking services definition (CGAP), including: credit, micro-savings, micro-insurance and microleasing. In EU the focus is on microcrediting, defined as loans under € 25,000 which addressed to two groups:

- Microentrprise, defined as companies with fewer than 10 employees;
- Disadvantaged persons (unemployed and other inactive persons, social assistance, immigrants, etc.) who wish to become self- employed but don'thave access to traditional banking services.

Thus, a distinction is made between micro lending and inclusive lending. The crediting of microenterprises is targeting the clients almost bankables (start-ups or existing companies) by amounts close to the maximum limit of 25,000 euros.On the contrast, the inclusive crediting is targeting the non-bankable clients, people who most likely will remain excluded from the banking system in the medium and long term. In fact, the unemployed and economically inactive people who want to take the first step in winning an independent income often seek loans under 5,000. So, there are those people who want to make the transition with small financial steps from the informal economy or jobs with small income to self-employment. Since the cost of administering of small loans is high and target groups often need additional counseling and support services for their businesses, the european microfinance programs are hardly sustainable, requiring government support. Even itself the microcredit operations that could be financially sustainable requires pre- and post-counseling subsidizing lending.

Entrepreneurship and self-employment are activation instruments of the labor market. Many people, especially the ESF target groups (unemployed, immigrants, women, people over 50 years, youth) are hard to find a job, but could be very good entrepreneurs. Helping them to start a business or conversion into self-employed, in addition to reducing unemployment period is a way to develop creativity and innovative potential of a person who generates a sense of trust and usefulness. Well-designed, the entrepreneurship policies improves the economic and social inclusion.

Lending of micro-enterprise versusthe social inclusive crediting

Definition of European Commission Recommendation 2003/361 / EC of 6 May 2003: "A micro-enterprise is any enterprise with fewer than 10 employees and a turnover under 2 million euro." Lending the micro-enterprise target the top level of the microfinancing market, by providing loans for bankable or nearly bankable microenterprises. The inclusive social lending are turning to self-employed individuals without access to banking services because of their economic and social status. These accesses loans in significantly lower. These two types of Micro financing are not mutually exclusive.

About 63% of European organizations can be classified as "social inclusion lenders". Their work includes promoting business start-ups, job creation, social support for persons excluded,reduce poverty.

The SROI indicator

Social Return on Investment (SROI), the indicator for entrepreneurship and microfinance programs shows that the amount of public funds granted for the scheme is part of the amounts saved in terms of social benefits which have not been granted those persons, as they became self - angajate or have found employment through microfinance program in question. Such assessments show the economic and social usefulness of microfinance schemes. SROI analysis is a process of understanding, measuring and reporting the value of social, economic and environmental created in an organization. SROI shows how is translated the social and environmental results in tangible monetary value, supporting organizations and investors to see the full picture of the benefits of spending their time, money and other resources. This investment can be further seen in terms of value created for individuals, communities, society and the environment.

SROIindicator allows a comparison of the value generated by intervention and investment required to achieve that impact.

SROI = *net present value of benefits / net present value of the investment*

Microfinance in Europe

At european level there are different models of microcrediting,sector which began to develop in 2000 in the western part and in the 1990s in the central and eastern. In the western part of Europe because of strict regulatory framework that allows banks to grant credit only prevail the linkage model:support organizations accompany clients and cooperate with banks for pulling credit. Although the linkage model often generateslonger procedures for granting and firing longer, has some clear advantages: while banks obtain specific information oncustomer segment and may outsource part of certain operating costs, the nonprofit organisations support the target group with a broad of products alongside with learning the techniques of scoring and evaluation of bank customers. In the countries from Central and Eastern Europe, the microfinance operations began in the 90s as a private initiative supported by international donors. In Romania and Bulgaria the microfinance organizations have a specific status of non-bank financial intermediaries and have the right to lend. Credit unions provide microfinance, savings and insurance. In the UK, the community development financial institutions (CDFIs) credits small businesses and individuals from disadvantaged areas. Types of microcrediting organizations in Europe:

- Non-governmental organizations specialized in microfinance (integrated non-financial services);
- Microcredit banks (converted from non-governmental organizations and foundations);
- Non-governmental organizations focused on specific groups (acts at small scale);
- Credit cooperatives (with special legal status);
- Non-banking financial institutions (microfinance institutions);
- Institutional support programs (part of the existing programs of development banks);
- Community development financial institution (CDFI - UK only).

The European Microfinance market is heterogeneous, immature and fragmented. There is not a common business model. The microloans value ranges between 220 - 30.000 euro, the largest being granted by banks, non-banking institutions and government organizations. The most pressing problem of such institutions is the lacklong-term funding sources. It is however noted a trend of professionalization, efficient and self-sustaining. A growing number of unemployed people represents a source of demand for microcredits. Anyway, without access to stable funding, the growth perspectives are limited. It is expected that during the next period,european commercial banks to further reduce lending for financially excluded people, small and micro start-up entreprise. Microfinance is an important tool to combat the financial crisis and to sustain an inclusive growth. The legal framework for microfinance in Romania exists since 1993, currently being over-legalized. The romanian microfinance sector is competitive, being the 5th largest in the European Union with experience in accessing decentralized programs. On the other hand, in Romania there is no coordination between training programs in entrepreneurship and access to microfinance programs.

beneficiaries They are micro-businesses, including freelancers, sole proprietorships, family associations, small, new companies (start-up) companies, innovative entreprises,farmers.

institutions involved are: donors (EU, European Investment Fund), the fund manager, non-bank financial institutions, experts, consulting firms, microfinance institutions, guarantee funds.

The benefits of the activity of microfinance for Romania mainly consist of: improving access to finance for all recipients listed above, improving the quality of financial services and support for business development offered by participating institutions, SME development and the creation / maintenance of jobs, revenue growth business of the beneficiary companies, while increasing the value of micro-credits granted. Thus, microcredit can be a breeding ground for the interbank market to creditworthy customers.

The financing deficit of viable agricultural holdings in Romania (127.107) and viable enterprises in processing and marketing (4293 companies) come, under MARD estimates, the value of RON 9.343 million, respectively EUR 2.088 million for agricultural businesses. Financing gap in terms of viable non-agricultural SMEs in rural areas amounts to a total of 1.235 million RON equivalent of EUR 276 million.

***Table* Estimate the funding gap in Romania**

Indicator section	Number of viable companies concerned	The average loan amount (EUR)	Deficit financing (% companies)	Deficit financing (nr.companies)	Deficit financing (EUR)
Agriculture	131 400	67.429	23.6%	30.966	2,088,021,922
Nonagricultural sectors from rural area	20.742	113 980	11.7%	2.422	276 020 842
	152 142				2,364,042,764

Source: NBR, NTC, Eurostat, own calculations

Total cumulated deficit financing is about 10.578 million RON equivalent of EUR 2.364 million.

In the context of my personal desire to create economic models for financial and social inclusion of romanian rural area and in sync with the current funding program for agriculture and rural development (NRDP) in conjunction with other funding programs (such as COSME, Progress, European Social Fund - Operational Programme Human Capital, etc.), I believe that through a careful thinking and in accordance with the realities of Romanian rural space can be created microfinance business models to ensure sustainable development of SMEs. I confess that personal concerns related on issues of financial and social inclusion of SMEs in rural areas, especially small farmers, dating from the time when I started to develop some investments and support services in rural areas.

In most cases, potential investors and farmers were connected to the system of market economyonly by small European and/or nationalsubsidies granted per areaor per animal. The demand for loans were and still are today for more than 93% of the rural population. Faced with this situation, we concluded that the only way to connect villages to the circuit of market economy is the creation and generalization of specialized micro patterns or to provide to the rural households access to financial resources, especially through microfinance institutions. The impetus came mainly from rural microcredit models from developed countries, especially in emerging concerns at the highest governmental and international institutions. Encouraging is the factthat Romania currently has already taken clear and concrete action to support the approximately 830,000 smallholders. But there is always more to be done:

- Support and revive of small-scale farming requires a comprehensive platform of political and developmental initiatives that are tailored to the unique needs of farmers and family farms;
- To keep long tradition of family farming there are necessary friendly policies and regulations for the environment;
- Improving access to land, water, markets and credit - as well as legislation on the ownership and use of standardized land - creates a solid foundation for productivity, solid ground on which farmers can and will invest in the future of their farms;
- Public investment in rural infrastructure, public services, training and education can give to small farmers the support they need to be competitive in a market increasingly globalized;
- Encourage women and youth to participate in agriculture will guarantee a long-term viability of family farming.

Starting from the "main priorities and measures for development of the regions selected from the respective Regional Development strategies, integrated with priority objectives and appropriate measures contained in the National Development Plan" and linking with the microfinance measures in the context of the current European economy, I believe that the theme proposed by the research conducted within its frameworkto help the development ofa model to support the microfinance in rural Romanian. Global measures taken by world leaders at the Summit in Seoul, November 11 to 12, 2010, namely those on balanced growth with direct impact and corporate social responsibility, makes us to say that increasingly more world leaders are concerned with creating models on financial and social inclusion of the poor. Also in this summit were discussed issues related to the reform of international financial institutions, strengthening global financial safety mechanisms and, in a separate session the new G20 agenda on development. Starting from the European model of nonprofit organizations (in our case the Business Development Association - BDA) involved in supporting directly and indirectly of microfinance in countryside and through the Romanian Group for Investments and Consultancy (RGIC) IFN SA - a non-bank financial institutions authorized by the National Bank of Romania as microcredit provider, I believe that we can achieve functional economic models of microfinance for the actors involved in the sustainable development of Romanian rural area. One model was the one proposed in this article. The realization and establishment of this project are based on studies and scientific works of the most awarded personalities in Romania, whose work examines with great probity fundamental issues of sustainable development in rural Romanian. I will announce some of these studies and themes: Romania's national agricultural project, after two and a half decades of “reform, restructuring and adjustments"; The main challenges of the countryside; Performance restrictive factors of Romanian agri-food economy: the disintegration of the agro-food failures between agricultural production and food processing, agro-food chains improprieties in the operation, subsistence and semi-subsistence farms domination, promoting forms of financial support that stimulate productive performance; Developments in post-revolutionary agrarian structure; Design error in placing agriculture on the market economy principles; The characteristics and the current structure of rural areas; Government policies for agricultural financing;

Sooner or later, Romanian financial system will be required to align the practices of microfinance in countries with developed agriculture. First, to those used in European Community countries, but also in those areas of the world where agriculture has experienced a spectacular development, especially from the implementation of funding schemes and accessible credit to all farmers, such as in our case the National Plan for Rural Development. It should make the mention that microfinance is not a new for nowadays, this is present on Romanian market since the interwar period. Groups and microfinance institutions have a historical past, being established at the beginning to provide services to people who did not have access to commercial banks. The reconstruction of this system of microfinance in Romania today, a first inspiration could come

from microfinance models practiced over the years in the Romanian countryside. After a period of searching and calling some improvisations, I believe that we are at the stage where we are obliged to approach the decisions leading to the reestablishment of new principles of institutions to provide lending to local actors and sectors vital to the economic consolidation of settlements and welfare. It is the establishment of banking institutions to finance economic entities with legal personality: banks, in rural areas, where crediting legal entities and individuals active: banks to finance exclusively educational or health institutions in rural areas. Capital required to set up such institutions should be ensured through government financial contributions for which payment to be repaid in time. In this action may be involved and the 25 commercial banks operating in Romania and also the food companies that are involved in lending. To achieve this goal the establishment of a national rural microfinance should be started from what was good in the rural credit system in Romania in the interwar period, especially from existing models today in some countries of the European Union.

CGAP estimates that the world is over 500 million family farms, farms that provide food to more than 2.5 billion people, people who live daily with less than 2 $. I consider it is our duty, as economists, to identify the most efficient models of microfinance and to support those people who are in an absolute or relative degree of poverty. The constraints of those who are working in microfinance for rural areas are numerous,risks and limitations are as collateral, especially if we consider that vulnerable segment in bankable terms. However, we are witnessing now a tren in many debates that make us say that increasingly many factors turn their attention to financial and social inclusion of rural areas.

The specialized micro finance development in rural is thepillar of support for small businesses, improving their sustainability and rural real life. A major percentage of rural households shows that they lack access to sustainable and affordable financing for agriculture and other livelihood activities. Many small farmers living in remote areas, where the retail banking is limited or not aavailable and production risks are high. The recent financial crisis has made the granting of loans to become even stricter and the need to explore innovative approaches to rural finance and agriculture has become even more urgent. The progress of financial inclusion is the result of digitization trend of the financial sector, with a major impact on financial institutions. Creating new distribution models (networks of external agents, banks with branch network), the emergence of new opportunities for customer access and management of back-office are just some of the challenges microfinance sector has passed through innovation and adaptation continue.

The phenomenon of "microfinance" has created new opportunities for customers: easy management of household savings, revenue collection, payment of bills and taxes. Using it still must become more concrete and consistent in Romania, and customers should be educated to master these new digital tools. It is undeniable that a revolution is taking place! In the context of the financial crisis, microfinance continues to grow, offering new opportunities digital form be it access to new customers or help and services provided to beneficiaries.

Rural areas, as reported by the EU Rural Review, are estimated to generate 48% of the gross value of the EU economy and 56% of total employment in the Member States. A typical characteristic of the rural economy is the presence of small and medium enterprises (SMEs), many of which are micro-enterprises with a high percentage of self-employment jobs. Innovations in rural and agricultural microfinance have significant potential to improve the livelihoods and food security of the poor. Although microfinance has been studied extensively, there is a big gap of knowledge, especially regarding the possibility of expanding access to rural and agricultural microfinance.

The 2020 Vision 2020 initiative of International Food Research Institute (IFPRI) from World Bank was to conceptualize and assemble the concept of microfinance rural and agricultural to bridge the gap of knowledge by promoting innovation in the provision of financial services for

rural households and creating innovative tools to effectively manage the risks facing the rural poor. The importance of the realities of rural areas facing small farmers, including low education levels (according to statistics provided by the National Institute of Statistics) and the lack of access to modern financial instruments according to size and their requirements, lead us to claim that currently dominant subsistence agriculture (in Romania, currently, there are about 2.5 million farms semisubzitenţa according to statistics). These conditions mean that we, those involved in developing new models for microfinance institutions must create new and innovative badly needed to be closer to the funding needs for small farmers. Existing communication technologies offer us new opportunities for rural microfinance by reducing business costs. The new microfinance facilities have great potential to address the risks faced by small farmers. In addition, the combination of financial services with non-financial services such as technical support services, marketing and financial consulting offers new opportunities for small farmers to increase their productivity and income, and the integration of its production in the complete value chains. Finally, from the micro level at the macro level, it is necessary to create an enabling environment for the development of policies and a legal framework for the implementation of rules and regulations, European and international also, rural infrastructure and support contributes greatly to sustainable access to rural microfinance reality. Mead office in which we live and in which things move fast, do so innovations in microfinance Rural contribute to policy changes that improve access of poor people to financial services and, consequently, in îmbunătăţierea living conditions in household areas (family farms).

International Food Policy Research Institute (IFPRI) supported by the Consultative Group on International Agricultural Research (CGIAR) is one of the most dynamic international research innovation. "2020 Vision for Food, Agriculture and Environment" is an initiative of IFPRI to develop a common vision and a consensus for action on how to meet the needs of future food, poverty reduction and environmental protection.

Around the world, farmers are also small entrepreneurs, traders, investors and consumers. In all these roles, small farms are constantly looking to use the financial instruments available to improve productivity and ensure the best choices on consumption and investment needs for their families. But the package of financial services available to small farmers in developing countries is severely limited, especially for those living in remote areas without access to basic infrastructure market. When poor people have limited options for saving or lending their investment plans are stifled and so it is harder for them to get out of poverty. If households do not have access to insurance and are unable to accumulate small savings, enabling them to pay household expenses and business, especially during seasons of poor harvest, they are forced to limit their exposure to risk, even if they expect big profits. Again, this makes the path out of poverty more difficult than necessary. Inadequate access to financial services is therefore a part of what is often called by economists "poverty trap".

We are currently witnessing in the increasingly concerns UN member states on sustainable development goals (Sustainable Development Goals) targets that are a series of targets that states will use to realize policy the next 14 years. Given that currently the global witnessing increasing poverty, unlike the objectives set out in Agenda 2015 (in which I included the development goals of the millennium) the wealthiest involved for those in need (disadvantaged) under Agenda 2030 is major involvement of the state, each state is hazel rings collectivity present generation and the generations following. Based on research published by Global Goals, the concept of sustainable economic development with environmental protection and social inclusion. Agreed after an extensive public consultation process that lasted three years, the 17 sustainable development goals include six areas: dignity, people, prosperity, planet, justice, partnership and principle: to "not let anyone ago ", all combined under study will give us the answer to how we want to show the world 2030?

1. ***eradicating poverty***: Global target of "0" persons living with an income lower than $ 1.25 / day in Romania 18.2% of people living in persistent poverty in 2012, and according to data from the National Statistics Institute, in 2015 the number the poor rose to 5.6 million people.
2. ***hunger***: The global target is to reduce hunger threshold to 0%; Romania has made progress in the 1990s, the percentage of the population undernourished 2% to 0% in 2007.
3. ***Health & Welfare***: The global target is to reduce neonatal and infant mortality (less than 12 cases per 1,000 live births respectively less than 25 cases per 1,000 live births). Romania in 2012 - every 1,000 children under 5 years there have been 12 deaths.
4. ***Education and quality***: Global target - reduced to 0% dropout rate and combat all forms of differentiation that impede access to education. In Romania in 2014, 18.1% of students left school (26th of 28 EU countries).
5. ***Gender equality***: Global target of eradicating all forms of gender discrimination; Romania ranks 70 out of 136 countries in gender gap index, with a score of 0.691 (1 = tie).
6. ***Drinking water and sanitation***: Overall goal: universal access and reasonable facility systems drinking water and sanitation. In Romania only 62.4% of the Romanian had access in 2014 to the public water supply, while in rural areas the figure drops to 25%.
7. ***Renewable energy accessible***: Global target - substantially increasing the share of renewable energy in total energy consumption. Romania: 41% of energy produced in 2013 was from renewable sources.
8. ***Growth & Decent Work***: Overall goal: achieving full productivity in work for everyone, with special attention to young people and people with disabilities, based on valuation and revenues equal.
9. ***Industry, Innovation and infrastructure***: -the Development of infrastructure through global target prices affordable and equitable services for all. Romania: 20% of all enterprises have introduced innovative policies in their work.
10. ***reducing inequalities***: Overall goal - promoting social inclusion, economic and political of all, regardless of age, sex, disability, race, religion or economic status. In Romania • the level of the average EU income inequality index was exceeded in 11 states, including Romania since 2009.
11. ***Communities and sustainable cities***: Global target - access for all too decent housing and basic services, affordable. In Romania - 7% municipal waste recycling rate in 2011 (compared to 0.29% in 2003).
12. ***Sustainable Production and Consumption***: Global target - a framework for a minimum of 10 years for sustainable development (production vs. consumption). Romania: take the trash annually 2.2 million tons of food, ie 10% of the food we buy.
13. ***Combating climate change***: Global target - strengthening resilience and ability of countries to cope with climate change risks. In Romania - the fine particles is 14.85% mg / cubic meter (value similar to that of the region) in 2012.
14. ***Protection of aquatic life***: The global target is to reduce and prevent water pollution. Romania: there were 56 water pollution accidents in 2014, including 27 petroleum products.
15. ***Protection of terrestrial life***: Sustainable forest -management global target, combating land degradation and biodiversity loss. Romania: 27 counties are classified as risk areas, including the area code red 21 illegal deforestation.
16. ***Peace, justice and strong institutions***: Global target - to ensure coverage of 100% of people with identity documents, including birth certificates.
17. ***Partnerships goals***: Global target - cooperation at macro and micro level to achieve objectives.

All these sustainable development goals are identified by the team "Global Goals". They bring us, to each individual, the guidance from a strategic perspective on what we do in life every day and lead us to the awareness of what we need to do so that development at micro and macro be sustainable. If we each would respect the concept of sustainable development, it would lead to the fact that the needs of the present generation should be met without compromising the ability of future generations to meet their own needs. It is a general objective of the European Union that governs all Union policies and activities. It is about safeguarding the earth's capacity to support life in all its diversity. It is based on principles of democracy, gender equality, solidarity, rule of law and respect for fundamental rights, including freedom and equal opportunities for all. It aims to continuously improve the quality of life and well-being on Earth for present and future generations. To this end, it promotes a dynamic economy with full employment and a high level of education, health protection, social and territorial cohesion and environmental protection in a peaceful and secure world, respecting cultural diversity.

Conclusion:

The European Council in Göteborg (2001) adopted the first EU Sustainable Development Strategy (SDS). This was complemented by an external dimension in 2002 by the European Council in Barcelona and regarding to the World Summit on Sustainable Development in Johannesburg (2002). However, unsustainable trends in climate change and energy use, threats to public health, poverty and social exclusion, demographic pressure and aging, management of natural resources, biodiversity loss, land use and transport still persist and new challenges. Since these negative trends have a sense of urgency, action is needed in the short term, while maintaining a longer term perspective. The main challenge is to gradually change trends and unsustainable patterns of our consumption and production. We are currently witnessing several key challenges, among which are mentioned the following:

1. social inclusion, demography and migration - as an overall goal related to social inclusion we can mention that to create a socially inclusive society must take into account intergenerational solidarity, to ensure and enhance the quality of life of citizens as a precondition for development at the individual level social included and with sustainable welfare. I mention some specific objectives here:
- meeting the EU objective, namely that measures must be taken to have a decisive impact on reducing the number of people at risk of poverty and social exclusion by 2020, with particular emphasis on the need to reduce child poverty;
- Ensuring a high level of social and territorial cohesion at EU level and in Member States, and respect for cultural diversity;
- supporting Member States in their efforts to modernize social protection in view of demographic change;
The significant increase labor market participation of women and older workers according to set targets, as well as increasing employment of migrants by 2020;
- Further development of an EU migration policy, accompanied by policies to strengthen the integration of migrants and their families, taking into account also the economic dimension of migration;
- Reducing the negative effects of globalization on workers and their families;
- Promoting youth employment, intensifying efforts to reduce early school leaving to 10% and to ensure that at least 85% of those aged 22 have completed upper secondary education. By the end of 2016 every young person who has left school and is unemployed should have offered a job, apprenticeship, a form of additional training or other employability measure within six months. The Human Capital OP is a support program for active measures for poverty reduction and

integration of disadvantaged people and orientation active "generation invisible" (in Romania at the end of 2015, the number of people aged 14 to 24 years, according to statistics, was approximately 420,000 youth);
- Increasing labor market participation of persons with disabilities.

The actions should realize in the process of social inclusion, demography and migration, I mention the following: based on new objectives and working methods for social protection and social inclusion, Member States and the Commission continue their cooperation using the open method of coordination (OMC).In this context, the EU and the Member States shall also take necessary steps to rapidly and significantly reduce child poverty and working to provide all children equal opportunities, regardless of their social background, gender or disability; "Social services of general interest", the Commission and Member States continue efforts to ensure that social services contribute actively to social inclusion and cohesion and supports the objectives of growth and employment. Commission and Member States also continues theirs work on further clarification of the impact of Community legislation on social services of general interest; Member States continue implementing the European Youth Pact.

The EU will continue to support the efforts of Member States to modernize the social protection systems and ensure their sustainability. Member States should reduce public debt at a satisfactory pace, raising employment rates and productivity and reforming health care and long-term; Communication on the demographic future of Europe examining how the EU can help Member States address the demographic challenges they face, notably by promoting active strategies aging, reconciling work and family life, better conditions for families taking into account the contribution of immigration; Member States should assess the possible implications of demographic change for land use and resource and energy consumption as well as mobility and take them into account in planning at all levels; EU and Member States continue to develop EU migration policy, accompanied by policies to strengthen the integration of immigrants and their families, particularly through the action plan on migration, including admission procedures. They will intensify cooperation with third countries and joint responses to control migration flows.

2. global poverty and sustainable development challenges - has general objective to actively promote sustainable development worldwide and ensure that internal and external policies of the EU are consistent with global sustainable development and international commitments. Among the objectives and operational targets we can mention the following:
- Significant progress to meet EU commitments to the purposes and objectives agreed at international level, in particular those contained in the Millennium Declaration and those deriving from The World Summit on Sustainable Development in Johannesburg in 2002 and related processes such as Monterrey financing for development, the Doha development Agenda and the Paris Declaration on aid Harmonization;
- Contribute to improving international environmental governance (IEG), in particular in the context of monitoring the 2005 World Summit and to strengthening multilateral environmental agreements (MEAs);
- Increase the volume of aid to 0.7% of gross national income (GNI) by the end of 2016;
- Promoting sustainable development in the context of the WTO negotiations in accordance with the preamble to the Marrakesh Agreement establishing the World Trade Organization which sets sustainable development as one of its main objectives;
- Increase the effectiveness, coherence and quality of aid policies between EU Member States in 2016-2020;
- Supporting sustainable development concerns in all EU external policies, including the Common Security and Defense Policy, making it an objective of multilateral and bilateral development cooperation.

The actions should realize the process on global poverty and sustainable development challenges we mention the following: implementation of the EU "Water for Life", EU Initiative for Energy, for poverty eradication and sustainable development; development of a common EU programming framework, using more joint actions and co- financing of projects, increasing coherence between development and other policies. The quality and effectiveness of aid could be increased through effective budget support, debt reduction and untying of aid; Member States and the Commission should implement the EU strategies on Africa, partnership with the US, Latin America and Pacific.

In this context, the EU should be a partner, working together with its trading partners to improve environmental and social standards and should use the full potential of trade or cooperation agreements at regional or bilateral level to this end; investment by the European Investment Bank and EU - Africa Partnership for Infrastructure should support sustainable development objectives. European Investment Bank should assess its lending to contributing to the achievement of the Millennium Development Goals and sustainable development. Member States and the Commission should cooperate to promote the EU position on transforming the UN Environment Program (UNEP) into a UN specialized agency or UNEO, based in Nairobi with a strengthened mandate and stable funding, adequate and predictable; secure access to financial services is a component of financial inclusion, which proved to be of vital importance for economic and social development and of critical importance in reducing extreme poverty, boosting common prosperity and development support including.

3. Financing and economic instruments - The EU will seek to use the full range of fiscal policy instruments in implementing its policies. The most appropriate economic instruments should be used to promote market transparency and prices that reflect the real economic, social and environmental actual products and services (getting prices right). Their potential to reconcile environmental protection and smart economic growth and exploit win-win opportunities should be recognized. In addition, suitability should be evaluated against a set of criteria, including their impact on competitiveness and productivity. Member States should consider further steps to shift taxation from labor to resource and energy consumption and / or pollution, to contribute to the EU goals of increasing employment and reducing environmental impact in a cost-effective manner. The Commission should present a roadmap for reform, sector by sector, of subsidies that have considerable negative effects on the environment and are incompatible with sustainable development, with a view to gradually eliminating them. To ensure that EU funding should be used in an optimum way to promote sustainable development, Member States and the Commission should coordinate to enhance complementarities and synergies between various strands of Community and other mechanisms for co-financing, as such as cohesion policy, rural development, Life + program for research and technological development (RTD), the competitiveness and innovation Program (CIP) and the European fisheries Fund (EFF).

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The Main Statistical Indicators Analysis of Cereal Production in Romania and In Development Regions for the Period 1990-2014

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Abstract

This paper aims at analyzing the evolution over time of the cereal crops, crops which are representative for overall Romania and for each Development Region. The indicators analysis that characterize the cereals production was split across two time periods: 1990-2006 and 2007-2014. It is considered that the period 1990-2006 marked a historic transition for Romania, with deep economic repercussions, following that, immediately with the start of the second period 2007-2014, with the integration into the European Union, to be assessed this change by the overall impact on the economy and default on the agriculture. The analysis by comparison of the two periods was carried out with the help of statistical indicators relating to: the cultivated surfaces evolutions, the total productions and average productions evolutions, as well as their trends for the period 2015-2020.
Cereals production fluctuated greatly. Thus, in the first period 1990-2006 has a coefficient of variation of 21%, while in the second period from 2007 to 2014, has an oscillation of 38%, which is considered by other studies as "a chaotic tendency" as it shows a FTAP project from 2012.
The conclusions resulting from this work suggests that cereals sector development is an essential element for strengthening the economy and ensuring the food security, being responsible for the stability and the availability of internal food products supply.

Keywords : cereal production, statistical indicators, the grain production trend

Introduction

Cereals have been throughout history and are unquestionably the most important sources of plant food for humans and livestock. All of the original ancestors of cereals have been lost over the millennia that they have been cultivated. The development of all the major cereals occurred long before recorded history for all the oldest civilizations were already familiar with several kinds of barley, wheat and other grains(Hill 1952).

The annual growth rate of world demand for cereals fell from 2.5% a year in 1970 and 1.9% per year in the 1980s to only 1% per year in the 1990s. In the 1990s, the decline was accentuated by a number of temporary factors, including serious recessions in the transition countries and some countries in Southeast Asia and East.

The growth rate of demand for cereals is expected to stagnate at 1.2% per year after 2015. In developing countries overall, cereals production is not expected to keep pace with demand. The net cereal deficits of these countries, which amounted 103 million tonnes, or 9% of consumption in 1997-1999 could amount up to 265 million tons by 2030, when they will be 14% of consumption. These gaps can be covered by increasing the traditional grain exporters surplus and new exports from developing countries, which are expected to become from being net importers to net exporters (FAO report, 2002).

Nationally, agriculture is one of the most important branches of the Romanian economy. The share of this sector in GDP was 4.8% in 2015, knowing a slight increase compared to 2014, when it recorded a share of 4.7%, but relating to the start of the period, decreased by about 15 percentage points. Regarding the vegetable sector of agriculture, the crop structure in Romania and crop production is dominated by cereals, areas under these crops representing about 66% of the area cultivated annually. In this context, due to its agricultural favorable resources (fertile arable land), agriculture could return to a much higher GDP and Romania could play an important role in ensuring food security in the European Union by increasing production and cereal sector productivity (Paun I,2012).

Materials and methods

The main indicator of total cereal production is total production in tonnes. In the cereal production analysis it is also used the acreage and average production per hectare. In Romania the main cereals are: wheat, barley and two row barley, maize and sorghum.

The data used in this paper are from the Statistical Yearbook of Romania, published by the National Institute of Statistics and cover the period 1990 to 2014. From the methodological point of view for the two time periods analysis taken into study were used statistical indicators of evolution, extrapolation and correlation: the average and the average main indicators (standard deviation, mean square deviation, coefficient of variation, the average significance , the confidence limits for a given probability), trend line equations of order two and three, the equation significance and the trend extrapolation, the calculation of the Pearson correlation coefficient.

Average $X = \Sigma N_k / k$

The significance of the average and of the equation (Snedecor, 1968), was conducted by comparing t calculated with t theoretical $t_{calc}=(x1-x2)/(S_{(x1-x2)})$, where : the numerator - the samples averages difference and the denominator - the standard error of the difference between averages, a measure of variability within samples.

The Tcal is compared to t theoretical (Ex. GL=23; $+t_{teor}$ (0.001: 3.76; 0.01 : 2.81; 0.05: 2.07); N: not significant)
As statistical indicators were calculated : the average for some periods of time , comparison indicators with fixed base and chained base and the annual growth rhythm = $r_{2000-2012} = \sqrt[12]{\prod (p1/p0)} - 1$; where :
$\prod$p1/po = the chain indicators product for the analyzed period.
For the mean square deviation and standard deviation (σ) it is calculated as a square average form the deviation of all series elements form their arithmetic mean.

$$\sigma = \sqrt{\frac{\sum (x_i - \overline{x})^2}{n}}$$

The mean square deviation is a basis indicator , that is used in the variation analysis and the errors selection estimation in the correlation calculation.
The variation coefficient (ν) is calculated as a report between the mean square deviation and the arithmetic mean.. It is expressed as a percentage:

$$\nu = \frac{\sigma}{\overline{x}} \cdot 100$$

The variation coefficient significance. As its value is close to zero the variation is weaker so the community is homogeneous, the average having a high degree of representativeness. If the he value of coefficient is bigger, the variation is more intense, more heterogeneous the community is and the average has a low level significance. It is estimated that at a rate of more than 35-40%, the average is no longer representative and the data must be separated into a series of components, groups, depending on the variation of other grouping characteristics.

The calculation equation and the trend extrapolation. One of the most used methods in finding the trend is adjusting the data series. By adjusting operation are obtained calculated time series, highlighting the trends and replacing empirical series.

A widely used method is adjusting using equations according to time: linear , $Y = a + bt$; second degree , $Y = a + bt + ct^2$; third degree, $Y = a + bt + ct^2+dt^3$ etc. As in the case of correlation, for finding the regression function parameters necessary to series adjustment is applied the least squares method: $\Sigma(yi - Yti)^2 = \min$ (Anghelache, 2012).

Confidence limits for a giver probability = X+/- σ* tp (transgression probability calculated based on the degrees of freedom and risk).
In determining the significance of the equations trend it was used the **Pearson correlation coefficient**:

$$r = \frac{N\sum xy - \left(\sum x\right)\left(\sum y\right)}{\sqrt{N\sum x^2 - \left(\sum x\right)^2} * \sqrt{N\sum y^2 - \left(\sum y\right)^2}}$$

Results and discussions

The statistical indicators interpretation of cereal production for the analyzed periods were gradually realized, thus:

- Statistical indicators of total cereals production at country level and by Development Regions
- Statistical indicators of cereals cultivated surfaces at country level and by Development Regions
- Statistical indicators of cereals average productions at country level and by Development Regions
- Statistical trend indicators of cereals production at country level and by Development Regions
    - Statistical trend indicators of total cereals production
    - Statistical trend indicators of cereals cultivated surfaces
    - Statistical trend indicators of cereals average productions
- The annual growth rate and the correlation between total productions, average productions and cultivated surfaces.

Based on the analysis by comparison of the two time periods, they were made plausible scenarios on the evolution of the cultivated surfaces, total and average productions for the period 2015-2020.

The statistical indicators interpretation of cereal production

1. *Statistical indicators of total cereals production at country level and by Development Regions*
The total cereals production analysis at the country level and by development region was achieved in two periods, the first covering the years 1990-2006 respectively, and the second since joining the European Union by 2014 (Tables 1 and 2 respectively).

In the first period, total cereals production at the country level recorded a minimum of 10,477 million tons and a maximum of 24,403 million tons, with an increasing annual rate 0.8% and a coefficient of variation of 21%, which means a large data oscillation.

Table 1. The total cereals production evolution at the country level and by Development Regions, period 1990-2006

No.	Country, Region	1990	1995	2000	2005	2006	Average	Compared to 1990 (%)	Min.	Max.
		Th. To	Th. to	Th. to	Th. to	Th. to	Th. to		Th. to	Th. to
1	TOTAL	17,173	19,882	10,477	19,345	15,759	*16,899.6*	91.8	10,477	24,403
2	NORTH-WEST	1,604	1,994	1,047	2,013	1,538	*1,665.7*	95.9	1,047	2,494
3	CENTER	1,198	1,391	844	1,19	972	*1,134.3*	81,1	844	1,57
4	NORTH-EAST	2,129	2,351	1,43	2,518	2,139	*2,212.2*	100.5	1,43	2,731
5	SOUTH-EAST	2,808	3,064	2,127	3,653	2,856	*3,088.7*	101.7	2,127	4,937
6	SOUTH-MUNTENIA	4,5	4,901	2,318	4,114	3,489	*3,829.8*	77.5	2,051	5,588
7	BUCHAREST - ILFOV	244	265	90	216	177	*203,9*	72.5	90	309
8	SOUTH-WEST OLTENIA	2,789	3,34	1,246	3,228	2,449	*2,562.5*	87.8	1,117	3,721
9	WEST	1,898	2,572	1,371	2,409	2,135	*2,198.9*	112.5	1,068	3,39

Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time

During this period, from the 8 regions of the country, only three registered increases in total production in 2006 compared to 1990, ie by 12.5% the West Region, South East with 1.7% and North-East by 0.5%. Of the eight regions of Romania, we observe the South-Muntenia Region with a largest area with fertile land and favorable climate for the grain crops. The South-Muntenia Region had the highest total production with an average of 3.8298 million tonnes in 2006, but registering a production 22.5% lower compared to 2006. The region with the lowest production is as we expect, Bucharest-Ilfov Region, agricultural land is a at a smaller share in this area, and this decrease from 244 thousand tons to 177 thousand tons, is of course due to lower acreage.

Table 2. The total cereals production evolution at the country level and by Development Regions, period 2007-2014

No.	Country, Region	2007	2010	2013	2014	Average	Compared to 2007(%)	Min	Max
		Th. To	Th. To	Th. To	Th. To	Th. To		Th. To	Th. To
1	TOTAL	7,814	16,712	20,897	22,07	16,607.1	282.4	7,814	22,07
2	NORTH-WEST	1,34	1,606	1,779	1,955	1,540.9	145.9	1,161	1,955
3	CENTER	834	994	1,096	1,293	1,023.8	155	732	1,293
4	NORTH-EAST	1,087	2,229	2,705	2,973	2,188.5	273.5	1,087	2,973
5	SOUTH-EAST	1,095	3,506	4,267	4,51	3,266.9	411.9	1,095	4,571
6	SOUTH-MUNTENIA	1,308	3,878	5,426	5,386	4,047.1	411.8	1,308	5,426
7	BUCHAREST - ILFOV	47	116	160	153	106.3	325.5	47	160
8	SOUTH-WEST OLTENIA	668	2,347	2,777	2,907	2,246.9	435.2	668	2,907
9	WEST	1,432	2,034	2,683	2,891	2,183.6	201.9	1,432	2,891

Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time

In the second period, 2007-2014, total grain production at the country level increases until the period final, with an annual growth rhythm of 0.8%. During this period all developing regions recorded increases in total grain production, the most significant being in South-West Oltenia, South-East and North-East, as evidenced by statistical data analysis in Table 2. It is noteworthy the year 2007 compared to other years, as it was a year with very low yields, this being due to environmental conditions, the drought in that year disfavored crop field productions.

Table 3 The total cereals production evolution at the country level and by Development Regions , for the period 1990-2006 and 2007-2014

Country, Region	1990-2006				2007-2014				Deviations (2007-2014)-(1990-2006)				
	Average	Annual Rhythm	Standard Deviation	C%	Average	Annual Rhythm	Standard Deviation	C%	Average		Annual Rhythm	Standard Deviation	C%
	Th. ha	%	Th. ha	%	Th. ha	%	Th. ha	%	Th. ha	*tcal**	%	Th. ha	%
TOTAL	16,9	0.80	3,618	21	16,607	1.48	4,749	28.6	-292,5	0.15 N	0.68	1131,2	7.19
NORTH-WEST	1,666	1.53	343	21	1,541	-0.32	254	16.5	-124,8	1.01 N	-1.85	-88.6	-4.08
CENTER	1,134	-0.04	195	17	1,024	0.93	183	17.9	-110,5	1.38 N	0.97	-11.5	0.73
NORTH-EAST	2,212	1.13	376	17	2,189	1.86	621	28.4	-23,7	0.11 N	0.74	245.5	11.4
SOUTH-EAST	3,089	-0.60	811	26	3,267	2.37	1,195	36.6	178,2	0.38 N	0.60	384.4	10.34
SOUTH-MUNTENIA	3,83	-0.81	1,022	27	4,047	3.04	1,354	33.5	217,3	0.40 N	3.63	331.8	6.77
BUCHAREST - ILFOV	204	0.98	64	31	106	-3.76	37	34.6	-97,7	4.83***	-2.95	-26.9	3.42
SOUTH-WEST OLTENIA	2,562	-0.76	961	38	2,247	-1.16	772	34.4	-315,6	0.88 N	-2.14	-188.8	-3.13
WEST	2,199	1.60	511	23	2,184	2.05	486	22.3	-15,3	0.07 N	0.45	-25	-0.98

Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time
*t_{teor} (0.001: 3.76; 0.01: 2.81; 0.05: 2.07); N: not significant; GL=23 (liberty degree)

Comparing the two analyzed periods (Table 3), we see that both for the country and for the regions have large reductions in the period 2007-2014 average compared to the average of 1990-2006. At the country level is a decrease of 292.5 thousand tons, but the highest decrease is observed in the South-West Oltenia, 315.6 thousand tons. There are also increases in two of the regions, South-East and South-Muntenia, where the average of the second period is higher by 178.2 thousand tons and 217.3 thousand tons respectively, from the first period analyzed. Moreover in the two regions it is most part of arable land known for the fertility and natural conditions that help achieve significant productions.

The standard deviation and varation coeffiecients have higher oscillations in the first period compared with the second one, and regarding the average significance, it was noticed that for Bucharest-Ilfov region $t_{cal} = 4,83 > t_{teor} = 3.76$ its value is very significant , proving the productions homogeneity in the second period. The reason for this homogeneity is not so joyful, because the small constant productions from the las years tot are due to small acreage, a big part of the arable land transformed its destionation into industrial or for constructions land.

2. Statistical indicators of cereals cultivated surfaces at country level and by Development Regions

Regarding the statistical indicators of the cultivated surface with cereals, were analyzed the same two periods, as for total productions 1990-2006 and 2007-2014.

In the first analyzed period (table 4) the surfaces cultivated with cereals at the country level decreased by 10.3% in 2006 compared to 1990.

Table 4 The total cereals surface evolution at the country level and by Development for the period 1990-2006

No.	Country, Region	**1990**	**1995**	**2000**	**2005**	**2006**	Average	Compared to 1990 (%)	Min.	Max.
		Th. Ha	**Th. Ha**	**Th. Ha**	**Th. Ha**	**Th. Ha**	**Th. Ha**		**Th. Ha**	**Th. Ha**
1	TOTAL	5,704	6,444	5,655	5,865	5,114	*5,949.6*	89.7	5,114	6,557
2	NORTH-WEST	622	660	553	592	490	*603.2*	78.8	490	665
3	CENTER	423	451	362	381	337	*409*	79.7	337	468
4	NORTH-EAST	807	926	827	827	721	*851.6*	89.3	721	926
5	SOUTH-EAST	1,048	1,212	1,107	1,043	906	*1,121.2*	86.5	906	1,254
6	SOUTH-MUNTENIA	1228	1356	1237	1312	1135	*1,279.7*	92.4	1,135	1,412
7	BUCHAREST - ILFOV	66	71	60	63	46	*65.7*	69.7	46	81
8	SOUTH-WEST OLTENIA	831	962	866	966	863	*905.2*	103.9	774	1
9	WEST	675	803	639	677	614	*710.5*	91	606	805

Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time
On Development Regions it is observed a decrease of the surface , the most significant decreases are for Bucharest-Ilfov Region with 30.3% , North-East Region with 21.2% and Central Region with 20.3%.
An increase of the surfaces cultivated with cereals we can see in the South-West Oltenia Region with 3.9% in year 2006 compared with year 1990.

Tabel 5 The total cereals surface evolution at the country level and by Development for the period 2007-2014

No.	Country, Region	2007	2010	2013	2014	Media	Compared to 2007(%)	Min.	Max.
		Th. Ha	Th. Ha	Th. Ha	Th. Ha	Th. Ha		Th. Ha	Th. Ha
1	TOTAL	5,129	5,04	5,421	5,443	5,273.6	106.1	5,04	5,443
2	NORTH-WEST	540	459	464	476	463.5	88.1	430	540
3	CENTER	317	294	301	306	308.8	96.5	294	329
4	NORTH-EAST	733	659	679	689	695.1	94	659	750
5	SOUTH-EAST	977	1,105	1,203	1,179	1,118.8	120.7	977	1,203
6	SOUTH-MUNTENIA	1,156	1,183	1,268	1,263	1,242	109.3	1,156	1,348
7	BUCHAREST - ILFOV	51	35	38	35	35.3	68.6	29	51
8	SOUTH-WEST OLTENIA	801	747	819	817	800	102	747	824
9	WEST	550	555	646	675	606.6	122.7	550	675

Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time

In the second analyzed period (table 5), can be observed increases of the surfaces , in year 2014 compared to 2007, at country level with 6.1%, and by Development Regions, West with 22.7%. South-east with 20.7%, South-Muntenia with 9.3% and South-West Oltenia with 2%. In the other regions it is maintained the decrease tendency from the first period.
Comparing the two analyzed periods,1990-2006 and 2007-2014 respectively, we observe that deviations averages for the two periods are very significant in the most of the regions, and also at the country level, t_{cal} having a higher value then $t_{teor.}$
Also, it is observed a smaller variation coefficient in the second period that demonstrates a lower oscillation of data, in the most of regions and at country level, excepting Bucharest-Ilfov region where the variation coefficient has increased in the second period with 7.69%. Besides, this region has suffered an important reduction of surfaces, many land changing their land use.

Table 6. The cereal cultivated surface evolution at the country level and by Development Regions for the period 1990-2006 si 2007-2014

Country, Region	1990-2006				2007-2014				Deviations (2007-2014)-(1990-2006)				
	Average	Annual Rhythm	Standard Deviation	C%	Average	Annual Rhythm	Standard Deviation	C%	Average		Annual Rhythm	Standard Deviation	C%
	Th. Ha.	%	Th. Ha.	%	Th. Ha.	%	Th. Ha.	%	Th. Ha.	%	Th. Ha.	%	Th. Ha.
TOTAL	5950	0.19	393	7	5274	-0.83	175	3.3	-676	5.94***	-1.01	-217.9	-3.28
NORTH-WEST	603	-0.33	58	10	464	-2.39	32	7	-139.7	7.71***	-2.07	-25.6	-2.62
CENTER	409	-0.69	41	10	309	-2.41	10	3.4	-100.3	9.44***	-1.71	-30.6	-6.65
NORTH-EAST	852	0.16	52	6	695	-2.01	33	4.8	-156.5	9.09***	-2.17	-18.2	-1.26
SOUTH-EAST	1121	-0.03	95	8	1119	1.37	69	6.2	-2.5	0.07N	1.40	-25.7	-2.28
SOUTH-MUNTENIA	1280	0.44	87	7	1242	-0.42	63	5	-37.7	1.23 N	-0.86	-24.1	-1.73
BUCHAREST - ILFOV	66	-0.31	8	12	35	-6.32	7	19.3	-30.5	10.04***	-6.01	-0.8	7.69
SOUTH-WEST OLTENIA	905	1.01	59	6	800	-1.84	31	3.8	-105.2	5.87***	-2.85	-28	-2.64
WEST	711	0.02	66	9	607	-0.03	49	8.1	-103.9	4.42***	-0.05	-16.6	-1.16

Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time
*t_{teor} (0.001: 3.76; 0.01 : 2.81; 0.05: 2.07); N: not significant; GL=23 (liberty degree)

3. Statistical indicators of cereals average productions at country level and by Development Regions
Our analysis is continued by determining the average production evolution for period 1990-2006 also for years 2007-2014.
In the period 1990-2006,(table 7) were noticed increases of productions at the country level with 2.4% in 2006 compared with the first year, and on development regions , significant increases we can observe in West with 23.7%, North-West with 21.7% and South-East with 17.7%. The regions that had a decrease of average productions is South-Muntenia Region and South-Oltenia Region, with approx. -16% in 2006 compared to 1990.

Table 7. The cereals average productions evolution at the country level and by Development Regions for the period 1990-2006

No.	Country, Region	1990	1995	2000	2005	2006	Average	Compared to 1990(%)	Min	Max
		to/ha	to/ha	to/ha	to/ha	to/ha	to/ha		to/ha	to/ha
1	TOTAL	3.01	3 09	1.85	3.3	3.08	2.83	102.4	1.85	3 9
2	NORTH-WEST	2.58	3 02	1.89	3.4	3.14	2.76	121.7	1.82	3.95
3	CENTER	2.83	3 08	2.33	3.12	2.88	2.78	101.8	2 2	3.73
4	NORTH-EAST	2.64	2 54	1.73	3.04	2.97	2.6	112.5	1.73	3.04
5	SOUTH-EAST	2.68	2 53	1.92	3.5	3.15	2.77	117.7	1.88	4.27
6	SOUTH-MUNTENIA	3.66	3 61	1.87	3.14	3.07	2.98	83 9	1.78	4.15
7	BUCHAREST - ILFOV	3.7	3 73	1.5	3.43	3.85	3.09	104.1	1 5	4.41
8	SOUTH-WEST OLTENIA	3.36	3 47	1.44	3.34	2.84	2.81	84 6	1.22	3.76
9	WEST	2.81	3.2	2.15	3.56	3.48	3.07	123.7	1.76	4.26

Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time
An explanation for the decrease of the average productions in this region , is the unpredictable character of the climate conditions, and for increasing the productions the specialists recommend that in order of the exploitation size to be cultivated at least 3-5 variety of wheat or other cereal. With different reaction to the environment. Also, they highlight that it must be taken into account that between the grains productions and the grains content in protein it's a negative correlation (Racz,2013). For example, at the wheat culture, the plants productivity is dependent of the hereditary factor, on which in the phenotypic express a major role have the environment conditions, as the interaction genotype – environment (Knežević, 2008).

Table 8. The cereals average productions evolution at the country level and by Development Rgions for the period 2007-2014

No	Country, Region	2007	2010	2013	2014	Average	Compared to 2007(%)	Min	Max
		to/ha	to/ha	to/ha	to/ha	to/ha		to/ha	to/ha
1	TOTAL	1.52	3.32	3.85	4 05	3.14	266.1	1.52	4 05
2	NORTH-WEST	2.48	3.50	3.83	4 11	3.33	165.5	2.48	4 11
3	CENTER	2.63	3.38	3.64	4 23	3.32	160.6	2.46	4 23
4	NORTH-EAST	1.48	3.38	3.98	4 31	3.18	291.0	1.48	4 31
5	SOUTH-EAST	1.12	3.17	3.55	3 83	2.89	341.3	1.12	4 10
6	SOUTH-MUNTENIA	1.13	3.28	4.28	4 26	3.24	376.9	1.13	4 28
7	BUCHAREST - ILFOV	0.92	3.31	4.21	4 37	3.13	474.3	0.92	4 37
8	SOUTH-WEST OLTENIA	0.83	3.14	3.39	3 56	2.81	426.7	0.83	3 59
9	WEST	2.60	3.66	4.15	4 28	3.57	164.5	2.60	4 28

Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time
In the second period under analyze, the average productions are increasing, thus, at the country level form 1.52 to/ha in 2007 reaches at 4.05 to/ha in year 2014, and on Development Regions the most important increases are in Bucharest-Ilfov Region from 0.92 to/ha in 2007 at 1.37 to/ha and South-West Oltenia from 0.83 to/ha at 3.56 to/ha.
Comparing the two periods analyzed , as we can see in table 9, the second period has annual growth rhythms significant bigger that the first period.

Table 9. The cereals average productions evolution at the country level and by Development Regions for the periods 1990-2006 and 2007-2014

Country, Region	1990-2006				2007-2014				Deviations (2007-2014)-(1990-2006)				
	Average	Annual Rhythm	Standard Deviation	C%	Average	Annual Rhythm	Standard Deviation	C%	Average		Annual Rhythm	Standard Deviation	C%
	To/ha	%	To/ha	%	To/ha	%	To/ha	%	To/ha	t*cal**	%	To/ha	%
TOTAL	2.83	0.61	0.54	19.1	3.14	2.32	0.88	27.9	0.31	0.91N	1.71	0.33	8.75
NORTH-WEST	2.76	1.86	0.52	18.7	3.33	2.12	0.58	17.5	0.57	2.36*	0.26	0.06	-1.27
CENTER	2.78	0.65	0.4	14.3	3.32	3.42	0.59	17.9	0.54	2.35*	2.76	0.2	3.62
NORTH-EAST	2.6	0.96	0.42	16	3.18	3.95	0.97	30.6	0.58	1.61 N	2.99	0.56	14.64
SOUTH-EAST	2.77	1.80	0.72	25.8	2.89	0.98	0.99	34.4	0.12	0.29 N	-0.82	0.28	8.55
SOUTH-MUNTENIA	2.98	-1.03	0.73	24.6	3.24	3.48	1.07	32.8	0.27	0.63 N	4.51	0.33	8.2
BUCHAREST - ILFOV	3.09	-0.50	0.87	28.2	3.13	2.74	1.11	35.5	0.04	0.08 N	3.24	0.24	7.29
SOUTH-WEST OLTENIA	2.81	-0.03	0.98	35	2.81	0.70	0.96	34.3	-0.01	0.01 N	0.73	-0.02	-0.65
WEST	3.07	1.58	0.56	18.2	3.57	2.08	0.58	16.2	0.5	2.08*	0.50	0.02	-1.94

Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time *t_{teor} (0.001: 3.76; 0.01 : 2.81; 0.05: 2.07); ≤ N: not significant; GL=23 (liberty degree)

The deviations of the two period's averages turned to be significant for the regions North-west, Center and West. The variations on years between productions are big, the calculated coefficients demonstrate that have increased in the second period the oscillations between productions on years, due to the lack of an organized agriculture, lack of irrigation in the most part of arable land. If at the 1990's level there were around 3 million hectares that had irrigations, the surfaces have decreased dramatically, gathering at the period's end a surface around 10% from the initial surface to beneficiate of irrigation. There are rehabilitations projects for the irrigations system and as the representatives of Ministry of Agriculture sustain, the infrastructure for irrigation has a chance to be rehabilitated until 2020.

4. Statistical trend indicators of cereals production at country level and by Development Regions

Next were calculated the trend line equations on total productions, cultivated surfaces and average productions, equations that helped to extrapolate the productions until year 2020. The calculated equations were second and third degree polynomial equations, the tendency being illustrated in the figures that complete the tables.

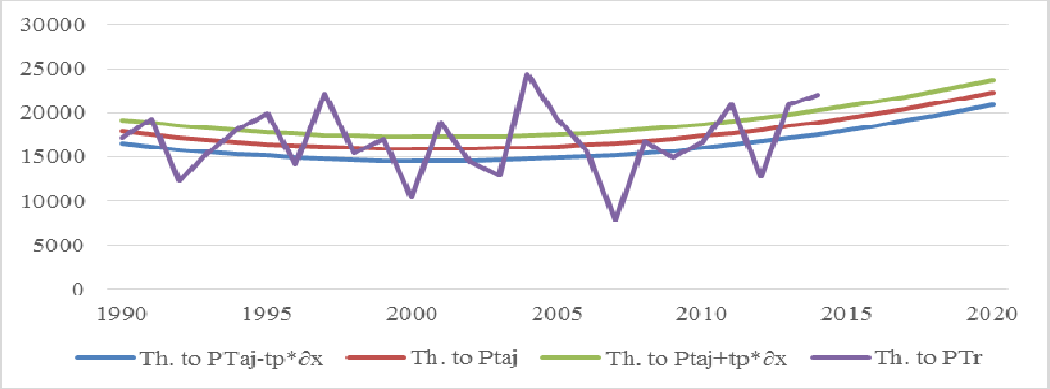
4.1. Statistical trend indicators of total cereals production

Table 10. The trend line equation coefficients for total productions at the country level and for Development Regions.

No.	Country, Region	Average 1990-2014	Mean square deviation	Variation coefficient			Equation coef., period 1990-2014			R2	r	
		Th. to	Th. to	%	significance	d	c	b	a	value	value	significance
1	TOTAL	16,806	783.4	4.7	small		17.12	-401	18.236	0.05	0.461	*
2	NORTH-WEST	1,625.8	66.1	4.1	small		-0.69	20.1	1.517	0.012	0.73	***
3	CENTER	1,098.9	39.6	3.6	small		0.02	-4.7	1.155	0.023	0.803	***
4	NORTH-EAST	2,204.6	90.7	4.1	small		1.42	-29.3	2.271	0.038	0.713	***
5	SOUTH-EAST	3,145.7	188.3	6	small		4.99	-105.9	3.419	0.098	0.11	N
6	SOUTH-MUNTENIA	3,899.4	222.5	5.7	small		9.23	-223.6	4.768	0.166	0.042	N
7	BUCHAREST - ILFOV	172.7	14.7	8.5	small	0.0327	-1.2	5.8	224	0.361	0.816	***
8	SOUTH-WEST OLTENIA	2,461.5	173.5	7	small		2.17	-69.3	2.883	0.026	0.359	*
9	WEST	2,194	101.7	4.6	small		-0.11	19.6	1.964	0.059	0.287	N

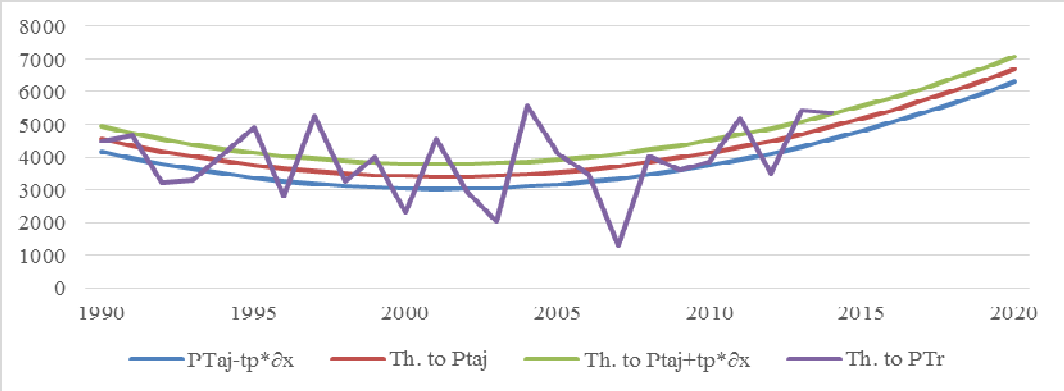
Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time K*r_{teor} (0.005 : >0.505***; 0.01 :> 0.462**; 0,05:>0.337*; <0.337 : N= not significant); GL=23 (freedom degrees)

At the country level for the period 1990-2014 it is registered an average of total production of 16,806 thousand tonnes, with a standard deviation of productions for the entire period of 783.3 thousand tonnes, the variation coefficient demonstrating a small variation , 4.7%(table 10). The equation coefficients for the production at the country level are $Y= 18.236-401x+17.12x^2$, the next table (table11) is illustrating the adjusted productions for the whole period for the country level and also for the regions. There were calculated equations coefficients for all Development Regions, the equation turning to be very significant for the Regions North-West, Centre, North-East and Bucharest-Ilfov.



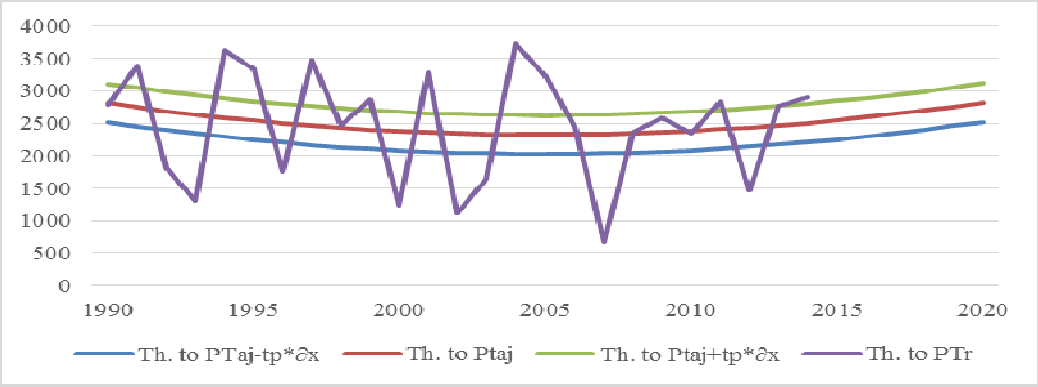
* Ptaj= total adjusted production; tp= transgression probability; Th. To= Thousand tonnes

Figure 1. Graphical representation of the total cereal production, productions equation calculated for the period 1990-2014 and production equation extrapolation by 2015-2020 at the country level.



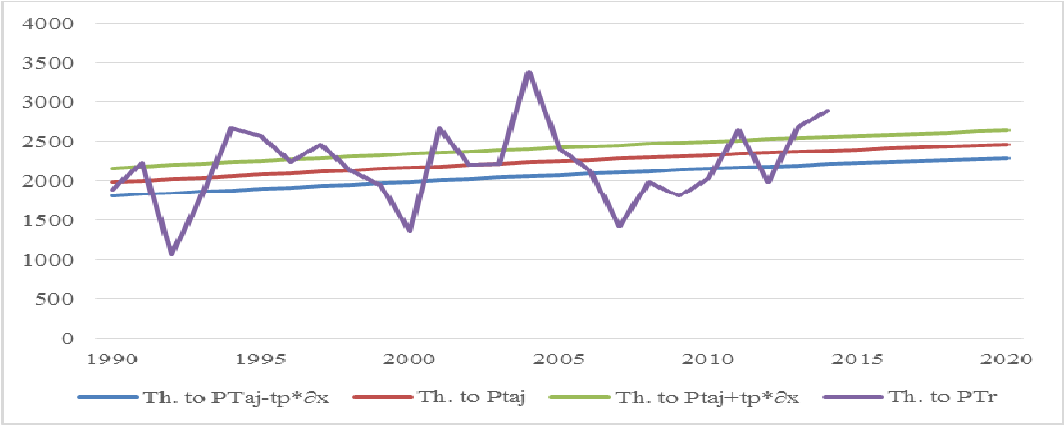
* Ptaj= total adjusted production; tp= transgression probability; Th. To= Thousand tonnes

Figure 2 Graphical representation of the total cereal production, productions equation calculated for the period 1990-2014 and production equation extrapolation by 2015-2020 for the South-Muntenia Region



* Ptaj= total adjusted production; tp= transgression probability; Th. To= Thousand tonnes

Figure 3. Graphical representation of the total cereal production, productions equation calculated for the period 1990-2014 and production equation extrapolation by 2015-2020 for the South- West Oltenia Region



* Ptaj= total adjusted production; tp= transgression probability; Th. To= Thousand tonnes

Figure 4. Graphical representation of the total cereal production, productions equation calculated for the period 1990-2014 and production equation extrapolation by 2015-2020 for the West Region

Table 11. The total cereal production tendency, for the period 2015-2020, at the country level and by Development Regions.

COUNTRY, REGION	UM		The total production 1990-2014						Total production by 2015-2020, trendline equations					
			1990	1995	2000	2005	2010	2014	2015	2016	2017	2018	2019	2020
TOTAL	Th. to	PTaj-tp*∂x	16512	15106	14556	14862	16024	17570	18042	18548	19089	19663	20272	20916
	Th. to	Ptaj	17852	16446	15896	16202	17364	18910	19382	19888	20429	21004	21613	22256
	Th. to	Ptaj+tp*∂x	19192	17787	17237	17543	18705	20250	20723	21229	21769	22344	22953	23596
	Th. to	PTr	17173	19882	10477	19345	16712	22070						
NORTHWEST REGION	Th. to	PTaj-tp*∂x	1423	1500	1541	1549	1522	1475	1460	1443	1426	1406	1386	1364
	Th. to	Ptaj	1536	1613	1655	1662	1635	1588	1573	1556	1539	1519	1499	1477
	Th. to	Ptaj+tp*∂x	1650	1726	1768	1775	1748	1701	1686	1670	1652	1632	1612	1590
	Th. to	PTr	1604	1994	1047	2013	1606	1955						
CENTRAL REGION	Th. to	PTaj-tp*∂x	1082	1059	1037	1017	997	982	979	975	972	968	965	961
	Th. to	Ptaj	1150	1127	1105	1084	1065	1050	1047	1043	1039	1036	1033	1029
	Th. to	Ptaj+tp*∂x	1218	1195	1173	1152	1133	1118	1114	1111	1107	1104	1100	1097
	Th. to	PTr	1198	1391	844	1190	994	1293						
NORTHEAST REGION	Th. to	PTaj-tp*∂x	2088	1991	1966	2011	2128	2273	2316	2362	2411	2463	2517	2575
	Th. to	Ptaj	2243	2147	2121	2166	2283	2428	2471	2517	2566	2618	2673	2730
	Th. to	Ptaj+tp*∂x	2399	2302	2276	2322	2438	2583	2626	2672	2721	2773	2828	2885
	Th. to	PTr	2129	2351	1430	2518	2229	2973						
SOUTHEAST REGION	Th. to	PTaj-tp*∂x	2996	2641	2536	2681	3075	3570	3719	3877	4046	4225	4414	4612
	Th. to	Ptaj	3318	2963	2858	3003	3397	3892	4041	4200	4368	4547	4736	4934
	Th. to	Ptaj+tp*∂x	3640	3285	3180	3325	3719	4214	4363	4522	4690	4869	5058	5256
	Th. to	PTr	2808	3064	2127	3653	3506	4510						
SOUTH-MUNTENIA REGION	Th. to	PTaj-tp*∂x	4173	3377	3043	3171	3759	4562	4809	5074	5358	5661	5981	6320
	Th. to	Ptaj	4553	3758	3424	3551	4140	4943	5190	5455	5739	6041	6362	6701
	Th. to	Ptaj+tp*∂x	4173	3377	3043	3171	3759	4562	4809	5074	5358	5661	5981	6320
	Th. to	PTr	4500	4901	2318	4114	3878	5386						
BUCHAREST-ILFOV REGION	Th. to	PTaj-tp*∂x	203	197	161	119	95	106	115	126	140	158	178	202
	Th. to	Ptaj	228	222	186	144	120	132	140	151	166	183	203	227
	Th. to	Ptaj+tp*∂x	253	248	211	169	146	157	165	177	191	208	229	253
	Th. to	PTr	244	265	90	216	116	153						
SOUTH-WEST OLTENIA REGION	Th. to	PTaj-tp*∂x	2519	2248	2086	2033	2088	2211	2252	2298	2348	2403	2461	2525
	Th. to	Ptaj	2815	2545	2383	2330	2385	2507	2549	2595	2645	2699	2758	2822
	Th. to	Ptaj+tp*∂x	3112	2842	2680	2626	2682	2804	2846	2892	2942	2996	3055	3118
	Th. to	PTr	2789	3340	1246	3228	2347	2907						
WEST REGION	Th. to	PTaj-tp*∂x	1810	1904	1992	2075	2152	2210	2224	2237	2251	2264	2277	2290
	Th. to	Ptaj	1984	2078	2166	2249	2326	2384	2398	2411	2425	2438	2451	2464
	Th. to	Ptaj+tp*∂x	2158	2252	2340	2423	2500	2558	2572	2585	2599	2612	2625	2638
	Th. to	PTr	1898	2572	1371	2409	2034	2891						

Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time
* Ptaj= total adjusted production; tp= transgression probability; Th. To= Thousand tonnes

In the table no. 11 were calculated the total adjusted productions for the period 1990-2014 and also the tendency extrapolation until 2020. To these calculations were added the confidence limits for a given probability (95%), with a transgression probability of 2.711 (23 freedom degrees) and a significance threshold of 0.05%. As it can be observed from the table and figure 1 , the productions tendency at the national level is to increase , the year 2020 could bring a total cereal production of 22,256 thousand tonnes, production ranging between 20,916 thousand tonnes lower limit and 23596 thousand tonnes upper limit, as it resulted from the confidence interval calculation.
Regarding the Development Regions , the trend is to increase in the North-East Regions 2,730 thousand tonnes respectively in the year 2020, 4,934 thousand tonnes in the South-East Region, Sout-Muntenia with an important increase, ie 6,701 thousand tonnes in 2020 and West Region with a slight increase up to 2,464 thousand tonnes in the same year(Figures 2-4).

According the extrapolations we can see decreases until the period final for the Regions North-West and Centre and small fluctuations for Bucharest-Ilfov and South-West Oltenia Regions.

4.2.Statistical trend indicators of cereals cultivated surfaces

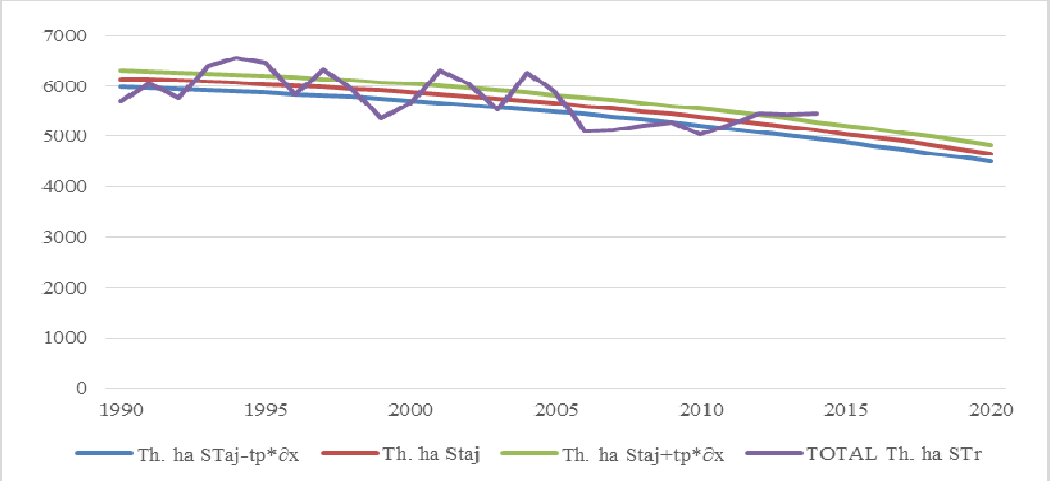
Tables 12 and 13 and also figures 5-8 present the analysis on the calculated equation for the cultivated surfaces with cereals and their tendency for the period 2015-2020.

Table 12. The trend line equation coefficients for the total cereals surface at the country level and for Development Regions

No.	Country, Region	Average 1990-2014	Mean square deviation	Variation coefficient			Equation coef., period 1990-2014			R2	r	
		Th. Ha	Th. Ha	%	significance	d	c	b	a	value	value	significance
1	TOTAL	5,733.3	95.8	1.7	small		-1.1141	-13.474	6154.7	0.4607	0.68	***
2	NORTH-WEST	558.5	17.1	3.1	small		-0.2296	-3.5743	655.73	0.7295	0.85	***
3	CENTER	376.9	12	3.2	small		-0.0908	-5.0061	459.88	0.803	0.9	***
4	NORTH-EAST	801.5	18.1	2.3	small		-0.5665	5.3698	856.91	0.7134	0.84	***
5	SOUTH-EAST	1,120.4	17.5	1.6	small		0.5112	-15.47	1208.6	0.1103	0.33	N
6	SOUTH-MUNTENIA	1,267.6	16.6	1.3	small		0.0736	-4.1546	1305.4	0.0419	0.2	N
7	BUCHAREST - ILFOV	56	3.4	6.1	small	0.0084	-0.4141	3.8374	62.08	0.8156	0.9	***
8	SOUTH-WEST OLTENIA	871.5	14.5	1.7	small		-0.5435	9.4794	868.4	0.3586	0.6	***
9	WEST	677.3	15.9	2.4	small		-0.1921	-0.4784	725.95	0.2868	0.54	***

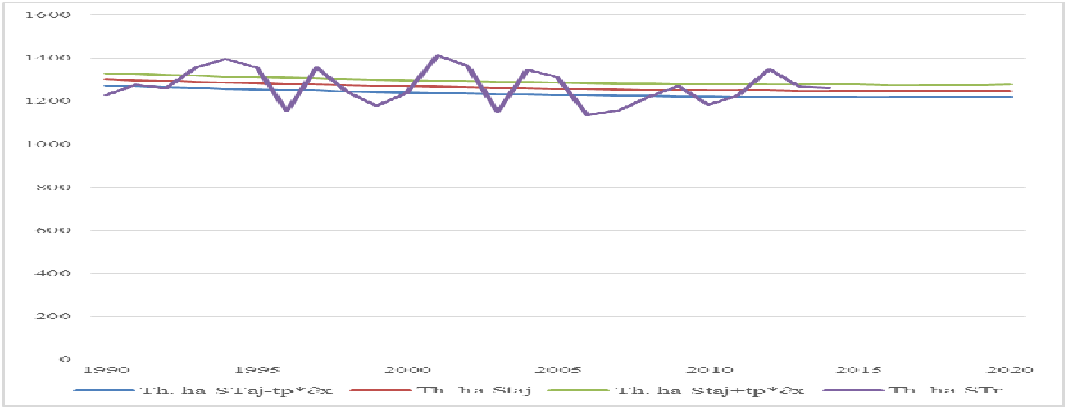
Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time *r_{teor} (0.005 : >0.505***; 0.01:>0.462**; 0,05:>0.337*; <0.337 : N, not significant); GL=23

According to data from table 12, the equations are significant for total country and many regions , with exception the South-Est and South-Muntenia Regions.



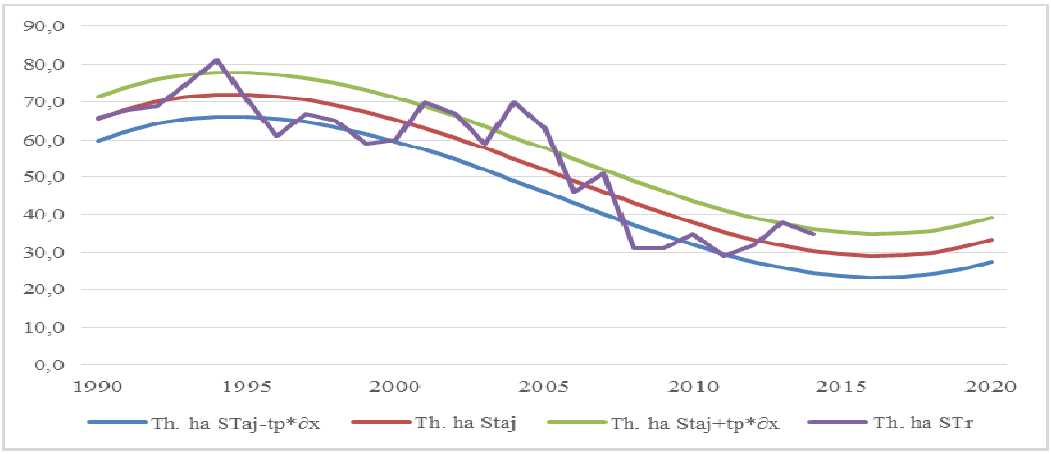
*Staj= adjusted surface, th. Ha= thousand hectares, tp= transgression probability

Figure 5. Graphical representation of the total cereal surface, surfaces equation calculated for the period 1990-2014 and surfaces extrapolation by 2015-2020 at the country level



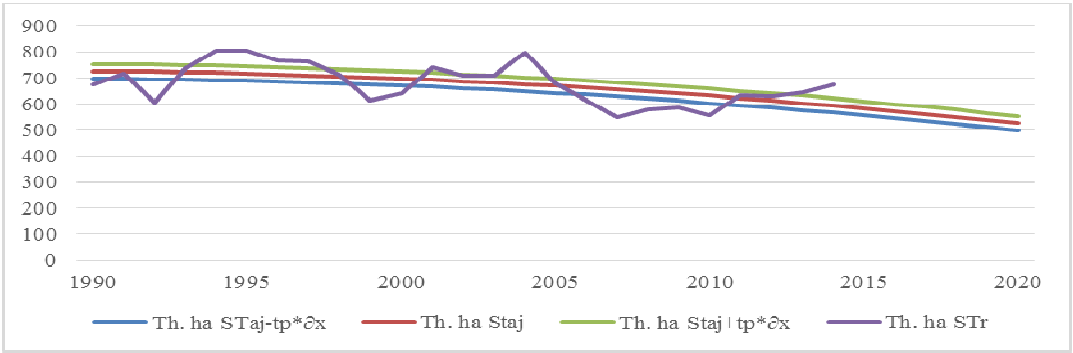
*Staj= adjusted surface, th. Ha= thousand hectares, tp= transgression probability

Figure 6. Graphical representation of the total cereal surface, surfaces equation calculated for the period 1990-2014 and surfaces extrapolation by 2015-2020 for the South-Muntenia Region



*Staj= adjusted surface, th. Ha= thousand hectares, tp= transgression probability

Figure 7 Graphical representation of the total cereal surface, surfaces equation calculated for the period 1990-2014 and surfaces extrapolation by 2015-2020 for the Bucharest –Ilfov Region



*Staj= adjusted surface, th. Ha= thousand hectares, tp= transgression probability

Figure 8. Graphical representation of the total cereal surface, surfaces equation calculated for the period 1990-2014 and surfaces extrapolation by 2015-2020 for the West Region

Data from table 13 aren't presenting a very happy situation for the surfaces cultivated with cereals , on the contrary, also nationally as on regions we have decrease tendency.

Thus, the surface at national level, has a continuous drop until 2020, at 4,666 Th. Ha, dramatic decreases also in the other regions, excepting the South-East Region that has a small increase and South-Muntenia with almost the same surface.

The confidence intervals were calculated for a tp =1.711, and a significance threshold of 0.05% The results showed very close limits with the extrapolation.

Table 13. The cereals surfaces tendency, for the period 2015-2020, nationwide and by regions

COUNTRY, REGION	MU		Cultivated Areas 1990-2014						Cultivated Areas by 2015-2020, trendline equations					
			1990	1995	2000	2005	2010	2014	2015	2016	2017	2018	2019	2020
TOTAL	mii ha	STaj-tp*∂x	5976	5870	5708	5490	5217	4958	4887	4815	4740	4663	4584	4503
	mii ha	Staj	6140	6034	5872	5654	5380	5122	5051	4979	4904	4827	4748	4666
	mii ha	Staj+tp*∂x	6304	6198	6036	5818	5544	5285	5215	5143	5068	4991	4912	4830
	mii ha	STr	5704	6444	5655	5865	5040	5443						
NORTHWEST REGION	mii ha	STaj-tp*∂x	652	626	589	540	479	423	408	392	376	359	342	324
	mii ha	Staj	652	626	589	540	479	423	407,6	391,8	375,6	359	341,9	324,3
	mii ha	Staj+tp*∂x	652	626	589	540	479	423	408	392	376	359	342	324
	mii ha	STr	622	660	553	592	459	476						
CENTRAL REGION	mii ha	STaj-tp*∂x	434	406	373	336	294	257	248	238	228	218	207	197
	mii ha	Staj	455	427	394	357	315	278	268,3	258,5	248,5	238,3	228	217,4
	mii ha	Staj+tp*∂x	475	447	414	377	335	298	289	279	269	259	248	238
	mii ha	STr	423	451	362	381	294	306						
NORTHEAST REGION	mii ha	STaj-tp*∂x	831	838	817	767	689	606	583	558	532	505	477	448
	mii ha	Staj	862	869	847	798	720	637	613,6	588,9	563,1	536,2	508,2	479
	mii ha	Staj+tp*∂x	893	900	878	829	751	668	644	620	594	567	539	510
	mii ha	STr	807	926	827	827	659	689						
SOUTHEAST REGION	mii ha	STaj-tp*∂x	1164	1104	1070	1062	1079	1111	1122	1134	1146	1160	1175	1190
	mii ha	Staj	1194	1134	1100	1092	1109	1141	1152	1163,6	1176,2	1189,9	1204,6	1220,3
	mii ha	Staj+tp*∂x	1224	1164	1130	1122	1139	1171	1182	1194	1206	1220	1235	1250
	mii ha	STr	1048	1212	1107	1043	1105	1179						
SOUTH-MUNTENIA REGION	mii ha	STaj-tp*∂x	1273	1255	1240	1229	1222	1219	1219	1219	1218	1218	1219	1219
	mii ha	Staj	1301	1283	1269	1258	1251	1248	1247,1	1246,9	1246,8	1246,8	1247	1247,3
	mii ha	Staj+tp*∂x	1330	1311	1297	1286	1279	1276	1276	1275	1275	1275	1275	1276
	mii ha	STr	1228	1356	1237	1312	1183	1263						
BUCHAREST-ILFOV REGION	mii ha	STaj-tp*∂x	59,7	66,2	59,5	46	32	24,6	23,7	23,3	23,4	24,1	25,5	27,5
	mii ha	Staj	65,5	72	65,4	51,9	37,8	30,5	29,6	29,1	29,3	30	31,3	33,3
	mii ha	Staj+tp*∂x	71,3	77,8	71,2	57,7	43,7	36,3	35,4	35	35,1	35,8	37,1	39,2
	mii ha	STr	66	71	60	63	35	35						
SOUTH-WEST OLTENIA REGION	mii ha	STaj-tp*∂x	853	881	882	856	803	741	723	703	683	661	639	615
	mii ha	Staj	877	906	907	881	828	766	747,5	728,1	707,7	686,2	663,6	640
	mii ha	Staj+tp*∂x	902	931	932	906	853	791	772	753	733	711	688	665
	mii ha	STr	831	962	866	966	747	817						
WEST REGION	mii ha	STaj-tp*∂x	698	689	670	642	604	567	556	546	535	523	511	499
	mii ha	Staj	725	716	697	669	631	594	583,7	573	561,9	550,5	538,7	526,5
	mii ha	Staj+tp*∂x	753	743	725	696	658	621	611	600	589	578	566	554
	mii ha	STr	675	803	639	677	555	675						

Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time
*Staj= adjusted surface, th. Ha= thousand hectares, tp= transgression probability

4.3. Statistical trend indicators of cereals average productions

The trend line indicators calculation finalizes with the average production for the same periods as the past indicators.

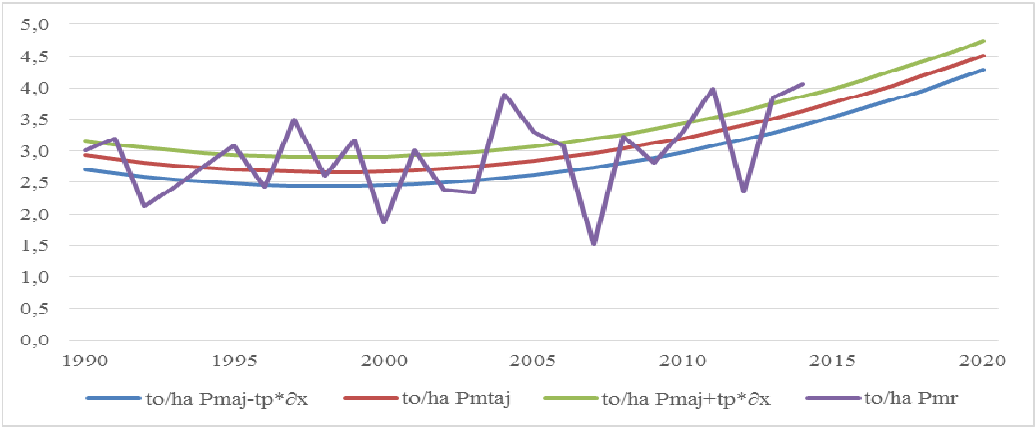
In table 14 we see the calculation coefficients of the second degree equation, equation that resulted to be very significant for the North-West, Centre, North-East and West Regions.

Table 14. The trend line equation coefficients for the average cereals production at the country level and on Development Regions.

No.	Region	Average 1990-2014	Mean square deviation	Variation coefficient		Equation coef., period 1990-2014			R1	r	
		To/ha	To/ha	%	significance	c	b	a	value	value	significance
1	NORTH-WEST	2.945	0.124	4.2	mică	0.0009	0.0317	23.307	0.4545	0.67	***
2	CENTER	2.949	0.108	3.7	mică	0.0018	0.0007	25.531	0.4246	0.65	***
3	NORTH-EAST	2.784	0.138	5	mică	0.0045	-0.0697	27.065	0.3442	0.59	***
4	SOUTH-EAST	2.806	0.162	5.8	mică	0.0031	-0.0546	28.382	0.0847	0.29	N
5	SOUTH-MUNTENIA	3.064	0.166	5.4	mică	0.0075	-0.176	3.701	0.2087	0.46	*
6	BUCHAREST - ILFOV	3.105	0.184	5.9	mică	0.0073	-0.1783	38.084	0.1503	0.39	*
7	SOUTH-WEST OLTENIA	2.810	0.182	6.5	mică	0.0046	-0.1193	33.369	0.0583	0.24	N
8	WEST	3.231	0.124	3.8	mică	0.001	0.0256	26.736	0.3877	0.62	***

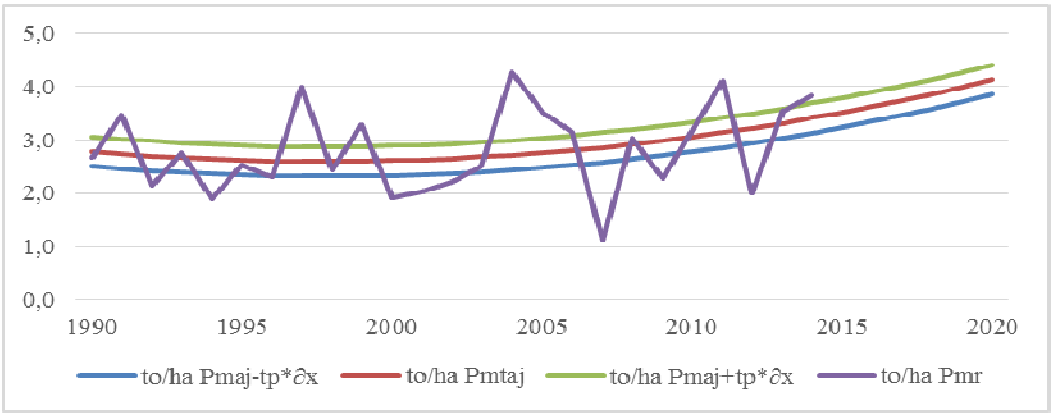
Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time
*r_{teor} (0.005 : >0.505***; 0.01:>0.462**; 0,05:>0.337*; <0.337 : N, not significant); GL=23

As it can be observed from table 15 and figures 9-12, the tendency for all regions is of increase, the figure exemplifying the higher increase.



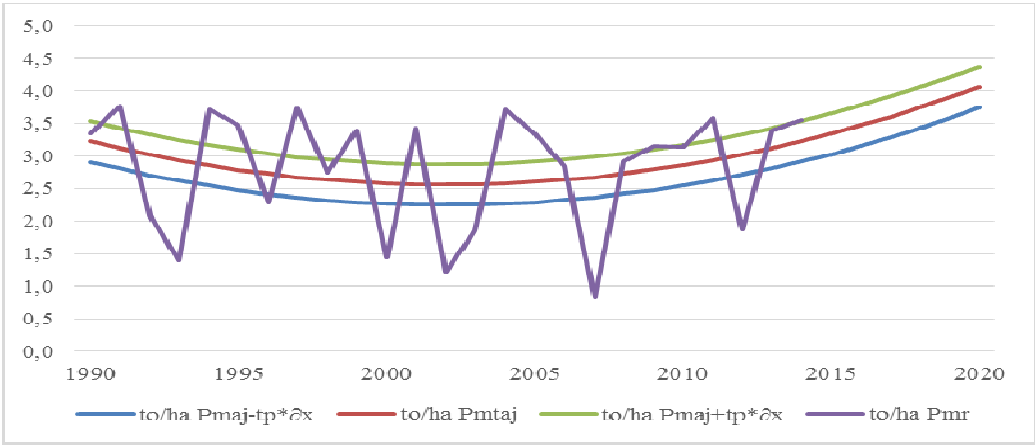
* Pmaj= Average adjusted production, tp= transgression probability

Figure 9. Graphical representation of the total cereal average production, equation calculated for the period 1990-2014 and production extrapolation by 2015-2020 at the country level



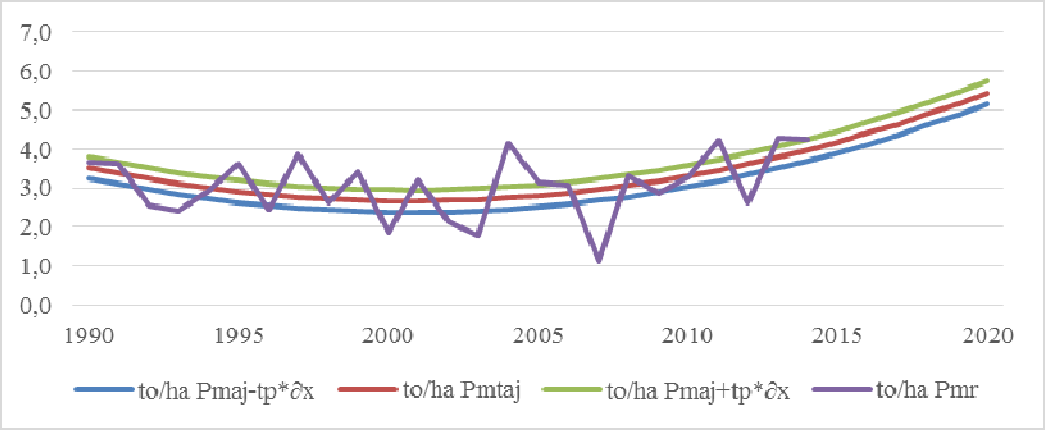
* Pmaj= Average adjusted production, tp= transgression probability

Figure 10. Graphical representation of the total cereal average production, equation calculated for the period 1990-2014 and production extrapolation by 2015-2020 for South-East Region



* Pmaj= Average adjusted production, tp= transgression probability

Figure 11. Graphical representation of the total cereal average production, equation calculated for the period 1990-2014 and production extrapolation by 2015-2020 for South- West Oltenia Region



* Pmaj= Average adjusted production, tp= transgression probability

Figure 12. Graphical representation of the total cereal average production, equation calculated for the period 1990-2014 and production extrapolation by 2015-2020 for South-Muntenia Region.

From the regions with an important increase we observe South-Muntenia and Bucharest-Ilfov; plausible scenarios considering the natural conditions and also that a part of surfaces have irrigations in this areas.

Table 15. The average cereals production tendency, for the period 2015-2020, nationwide and on development regions

COUNTRY, REGION	MU		Average productions 1990-2014						Average productions by 2015 2020, trendline equations					
			1990	1995	2000	2005	2010	2014	2015	2016	2017	2018	2019	2020
TOTAL	to ha	Pmaj-tp*∂x	2.7	2.5	2.5	2.6	3	3.4	3.5	3.67	3.8	4	4.1	4.3
	to ha	Pmtaj	2.9	2.7	2.7	2.8	3.2	3.6	3.76	3.9	4.04	4.19	4.25	4.51
	to ha	Pmaj-tp*∂x	3.2	2.9	2.9	3.1	3.4	3.9	4	4.12	4.3	4.4	4.5	4.7
	to ha	Pmr	3.011	3.085	1.853	3.298	3.316	4.055						
NORTHWEST REGION	to ha	Pmaj-tp*∂x	2.2	2.3	2.6	2.9	3.2	3.5	3.6	3.63	3.7	3.8	3.9	4
	to ha	Pmtaj	2.4	2.6	2.8	3.1	3.4	3.7	3.76	3.84	3.92	4.01	4.09	4.18
	to ha	Pmaj-tp*∂x	2.6	2.8	3	3.3	3.6	3.9	1	1.05	1.1	1.2	1.3	1.1
	to ha	Pmr	2.579	3.021	1.893	3.4	3.499	4.107						
CENTRAL REGION	to ha	Pmaj-tp*∂x	2.4	2.4	2.6	2.8	3.2	3.5	3.6	3.7	3.8	3.9	4	4.1
	to ha	Pmtaj	2.6	2.6	2.8	3	3.4	3.7	3.79	3.88	3.98	4.09	4.19	4.3
	to ha	Pmaj-tp*∂x	2.7	2.8	3	3.2	3.5	3.9	4	3.7	4.2	4.3	4.4	4.5
	to ha	Pmr	2.852	3.084	2.351	3.123	3.381	4.225						
NORTHEAST REGION	to ha	Pmaj-tp*∂x	2.4	2.2	2.2	2.5	3	3.5	3.7	3.87	4	4.2	4.4	4.6
	to ha	Pmtaj	2.6	2.5	2.5	2.7	3.2	3.8	3.94	4.11	4.28	4.47	4.67	4.87
	to ha	Pmaj-tp*∂x	2.9	2.7	2.7	3	3.5	4	4.2	4.34	4.5	4.7	4.9	5.1
	to ha	Pmr	2.638	2.539	1.729	3.045	3.382	4.315						
SOUTHEAST REGION	to ha	Pmaj-tp*∂x	2.5	2.3	2.3	2.5	2.8	3.1	3.2	3.3	3.5	3.6	3.7	3.8
	to ha	Pmtaj	2.8	2.6	2.6	2.8	3.1	3.4	3.51	3.62	3.74	3.86	3.99	4.12
	to ha	Pmaj tp*∂x	3.1	2.9	2.9	3	3.3	3.7	3.8	3.9	4	4.1	4.3	4.4
	to ha	Pmr	2.679	2.528	1.921	3.502	3.173	3.825						
SOUTH-MUNTENIA REGION	to ha	Pmaj tp*∂x	3.2	2.6	2.1	2.5	3	3.7	3.9	4.1	4.1	4.6	4.9	5.2
	to ha	Pmtaj	3.5	2.9	2.7	2.8	3.3	4	4.2	4.42	4.65	4.9	5.17	5.45
	to ha	Pmaj-tp*∂x	3.8	3.2	3	3.1	3.5	4.3	4.5	4.7	4.9	5.2	5.5	5.7
	to ha	Pmr	3.661	3.614	1.871	3.136	3.278	4.261						
BUCHAREST ILFOV REGION	to ha	Pmaj-tp*∂x	3.3	2.7	2.4	2.5	3	3.6	3.8	4	4.2	4.5	4.7	5
	to ha	Pmtaj	3.6	3	2.7	2.8	3.3	3.9	4.11	4.32	4.54	4.78	5.03	5.3
	to ha	Pmaj-tp*∂x	4	3.3	3	3.1	3.5	4.2	4.4	4.63	4.9	5.1	5.3	5.6
	to ha	Pmr	3.697	3.732	1.5	3.429	3.314	4.371						
SOUTH-WEST OLTENIA REGION	to ha	Pmaj-tp*∂x	2.9	2.5	2.3	2.3	2.5	2.9	3	3.16	3.3	3.4	3.5	3.7
	to ha	Pmtaj	3.2	2.8	2.6	2.6	2.9	3.2	3.34	3.47	3.6	3.75	3.9	4.06
	to ha	Pmaj-tp*∂x	3.5	3.1	2.9	2.9	3.2	3.5	3.7	3.78	3.9	4.1	4.2	4.4
	to ha	Pmr	3.356	3.472	1.439	3.342	3.142	3.558						
WEST REGION	to ha	Pmaj-tp*∂x	2.5	2.7	2.9	3.1	3.4	3.7	3.8	3.88	4	4	4.1	4.2
	to ha	Pmtaj	2.7	2.9	3.1	3.3	3.7	3.9	4.02	4.09	4.17	4.26	4.34	4.43
	to ha	Pmaj-tp*∂x	2.9	3.1	3.3	3.6	3.9	1.2	1.2	1.3	1.1	1.5	1.6	1.6
	to ha	Pmr	2.812	3.203	2.146	3.558	3.665	4.283						

Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time
* Pmaj= Average adjusted production, tp= transgression probability

4.4. The annual growth rate and the correlation between total productions, average productions and cultivated surfaces.

Our analysis is finalized through the annual growth rhythm calculation and the correlation between the surfaces and average productions for the period 1990-2014, where we can observe annual decrease rhythms for the surfaces and annual increase rhythms for the average and total productions. The highest increases are at average productions, influencing of course the increases for total productions, The correlation made with Pearson coefficient shows a distinct significant correlation between the 2 indicators for North-East Region and significant for North West and Centre Regions.

Table 16. The annual growth rhythms and correlation between surfaces and average productions for the period 1990-2014.

Country, Region	Annual growth rhythm (%)(1990-2014)			Surface-Average production correlation (1990-2014)	
	Surface	Average production	Total production	r (Pearson)	Significance*
TOTAL	*-0.19*	*1.25*	*1.05*	-0.020	
NORTH-WEST	*-1.11*	*1.96*	*0.83*	-0.389	*
CENTER	*-1.34*	*1.68*	*0.32*	-0.422	*
NORTH-EAST	*-0.66*	*2.07*	*1.40*	-0.467	**
SOUTH-EAST	*0.49*	*1.49*	*1.99*	0.027	
SOUTH-MUNTENIA	*0.12*	*0.63*	*0.75*	0.240	
BUCHAREST - ILFOV	*-2.61*	*0.70*	*-1.93*	-0.074	
SOUTH-WEST OLTENIA	*-0.07*	*0.24*	*0.17*	0.204	
WEST	*0.00*	*1.77*	*1.77*	0.124	

Source: Own calculation based on data from INSSE and Romania Statistical Yearbook, series of time
*GL=23; p=0.05, r_t=0.337; p=0.01, r_t=0.462

Conclusions

The cereals grain are the most important vegetable source of food for both humans and animals. An indispensable part of human food consumption is provided by cereals, it is therefore very important to know the evolution of grain production indicators.

The total cereal production analysis has highlighted major differences between the two periods both in the country and in the regions. Total production fell 0.5% on average over the period 1990-2006 and had a slight increase in the period 2007-2014, 1.48% per year. Comparing total production averages, for those two periods, in regions and at country level, we see that they are not significantly different.

In order to capture the trend equations for the period 1990-2014, which to have a significant correlation report, were used equations of the second degree for eight situations and third degree for one situation. Country-wide trend is that total cereal production to increase to 22,256 million tons, with limits for a 95% probability between 20,916 million tonnes and 23,595 million tonnes.

Analyzing the cultivated areas these were of 5, 95 thousand hectares in 1990-2006 and 5,274 thousand ha during 2007-2014. Differences between surfaces were large, that statistically are very significant.

From extrapolation using trend equations, grain acreage will fall to 5,122 thousand ha in 2014 to 4,666 thousand ha in 2020, with limits between 4,503 thousand ha and 4,830 thousand ha.

Analyzing the average productions compared to both periods, we find that they had a growth rate of 0.61% over 1990-2006 and 2.32% for the period 2007-2014.

Average production extrapolation with equations trend for the period 2015-2020, presents an upward trend, the average cereal production to be 4.51 t / ha, with limits between 4.3 t / ha and 4.7 to /Ha. The highest yields to be obtained in South Muntenia 5.45 tons / ha. This is possible to achieve if the improve technologies trend will maintain and continue in the next period.

Through the presented study it can be considered that the developed scenarios for the period 2015-2020 may constitute useful tools in the development of some measures to promote the development methods of strategic marketing initiatives. In addition, the knowledge of the current position and development trends of the cereal sector can provide scientific bases for the elaboration and adoption of the best policies and development strategies of which we have or can have comparative advantages. The objectives and results of this study are of topical interest and can be used by the cereals markets analysts in order to elaborate, strengthen and implement the agricultural public policies regarding the agriculture development.

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Calculation System used in Technical and Economic Substantiation of Production Costs and Estimation of Capitalization Prices for Crops. Case Studies: Vegetables Crops in Field and in Protected Spaces from Romania

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Abstract

This paper presents a practical approach of the use of a methodological system for estimating the production costs and indicative prices from the manufacturer, as well as the yield degree for the main vegetables products from Romania.. For this purpose it will be used an informational system for production technologies analysis and calculation, of the revenues and expenditures budget, as well as for specific technique and economic indicators of vegetables production. Through its complexity, the calculation system constitutes an informational guide that allows users the access to data and information on the estimates relating to the assessments of the vegetables products demand and target price from the manufacturer, in order to increase the inputs allocation and achieving high and efficient productions. Also, the content and methods of making the informational guide is based on achieving results in developing and strengthening public policies on integrated support management support schemes for farmers, promoting and forecasting the trends on the vegetable market sector in terms of absorbing potential volume of demand and supply, developing consultancy solutions and fostering knowledge transfer and innovation in agriculture.

Keywords: production costs, prices, profitability, calculation system

Introduction

The vegetable products market in Romania is characterized by joint action of producers and consumers, and the lack of any offer can create difficulties in stabilizing the market creating periodic and annual price fluctuations.

Each vegetable product is obtained under an appropriate production technology. From a technical point of view the production technology records a series of timely operations sequenced in a logical order, and from an economical point, the technology is the sum of costs for each technical operation. The implementation of the production technology results are obtaining vegetable products which, economically, are characterized by a certain value recorded in the price of the product. We can deduce that profit maximization can be achieved by minimizing production costs per unit, by maximizing the selling price of the product, or both.

Production costs and prices of vegetable products are fully interdependent, their analysis being carried out coherent and systematic. Due to the influence of inflation, private agricultural structures, largely unconsolidated and noncompetitive, pricing for vegetable products calculated based solely on the free market can cause imbalances between supply and demand.

If the price of the obtained product, as a result of the variation of the demand and supply, falls below production costs, they can not be recovered. In such cases, the main measure to counteract the negative effects of the market lies in careful planning of vegetable production, thereby avoiding a situation where the market price of a product could fall below production costs.

Establishing the optimal price for vegetable products and the organization and efficient functioning of agricultural markets requires creating and implementing a computer system that, along with a system for providing statistical data, can meet the requirements of market economy. In this context it is mandatory to achieve the following objectives: estimating production costs and the prices of agricultural products; creating an informational guide on estimated prices and the appreciation of the production potential of main agricultural products.

Material and Methods

To achieve the case studies the main vegetable crops in Romania were selected, in order to highlight the utility of the computing system designed for technical and economic substantiation of production costs and price estimate of recovery of vegetable products.

From the methodological point of view technical and economic substantiation of production technology and production costs are achieved, average prices for capitalization and the degree of profitability for the main vegetable crops in Romania. From a technical standpoint, it starts with the technological preparation of each crops selected, differentiated by the allocation of factors of production, and by what is yielded per unit area, appropriate to the economical conditions for the selected farming system.

The computer system is made out of the following modules/components (Figure 1):

1. UI
2. Administrative module
3. Calculation module
4. Reporting module
5. Import/export data module

The application is based on a computing platform consisting of:

a) Operating system
b) Database
c) Server Application

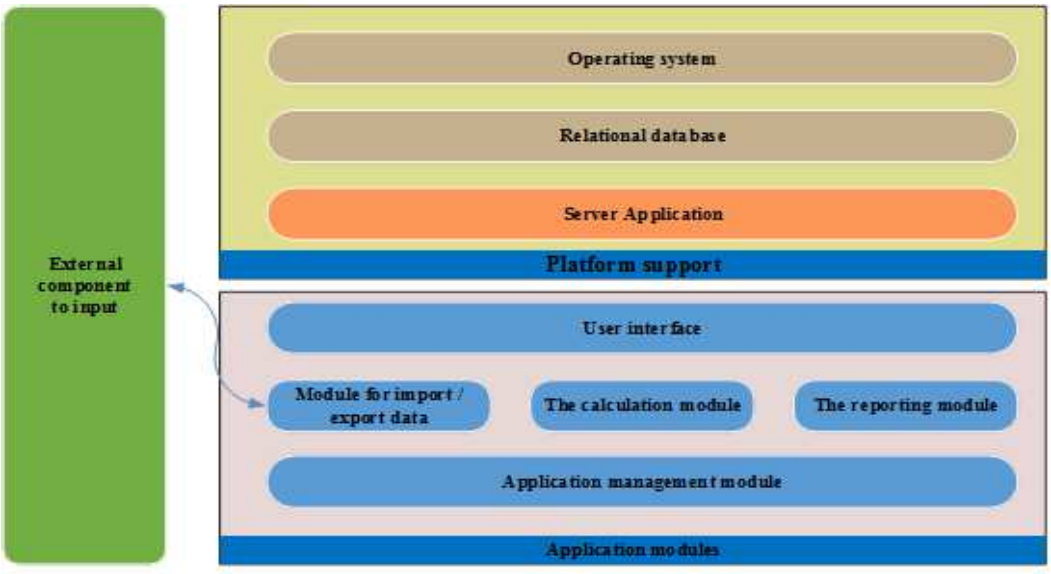

Figure 1. Scheme computing system software modules

The system architecture has considered the possibility of using the computer system simultaneously by internal and external users (Figure 2).

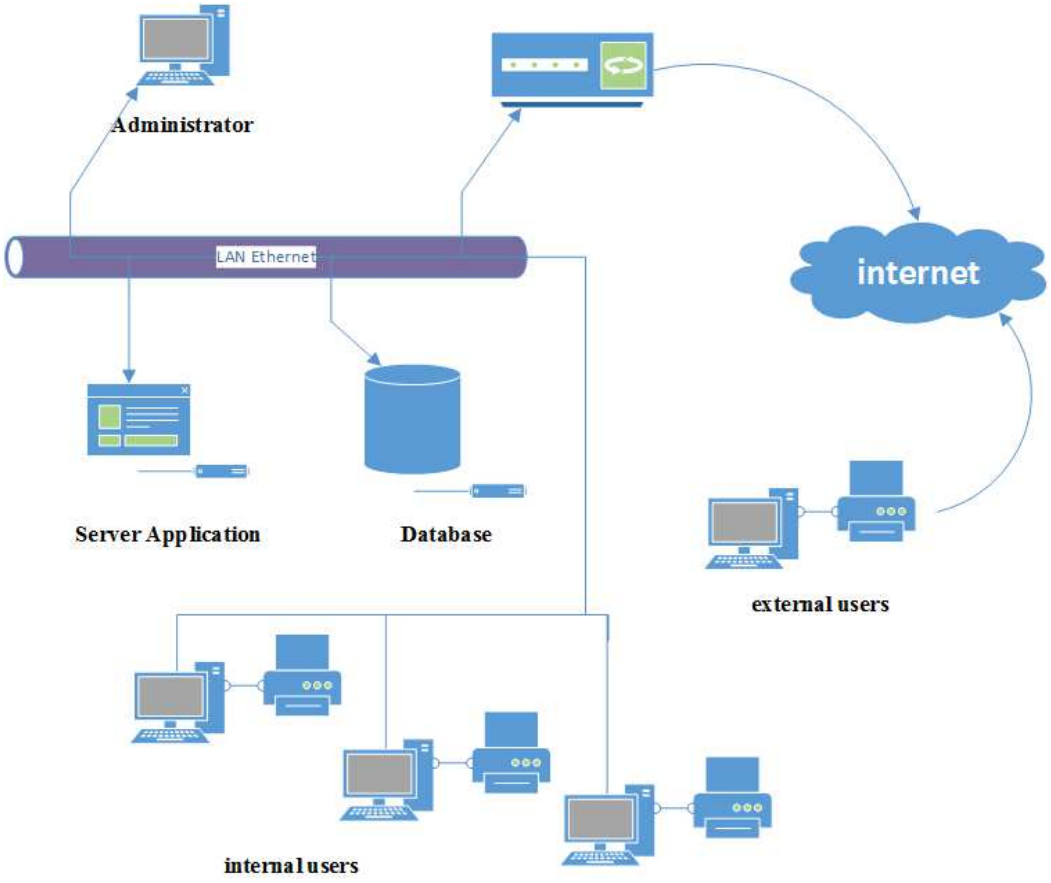

Figure 2. System architecture computing

Results and Discussions

I. Presentation of the database as part of the computer system.
The computing system uses a relational database managed through a proper system of programs. The database is organized so as to ensure the possibility of chaining in processing registrations and to eliminate duplication of information. However, the database is the common source of data for all subsystems of applications in the computing system.

In the computer system, the database consists of a collection of tables classified accordingly by the use and purpose for which they were created. Thus, the database includes:

- tables or permanent basis (constant), which contain information that is frequently consulted in the process of automatic processing;
- Tables variables that store quantitative data are updated frequently;
- auxiliary tables, which are establishment by a set of intermediate results required in processing.

The organization of these types of tables is a primordial requirement in the data processing system of calculation. We note that the information is recorded in coded form tables once they are used repeatedly to different treatments, systematically resorting to this unique source. The most important operations which is performed upon tables are query and maintenance (adding new records, updating records and deleting records). As a solution for encoding information is the most appropriate

automated processing numerical coding as the codes are unique, they can have long-term stability and flexibility in coding.

In the computer system, for an easy identification of the information required for processing, there were made encoding for mechanical works, manual works, seeds and seedlings, materials, and delivery prices, fungicides, herbicides, etc. Thus, the computer system has the following lists:

- lists with the names of cultures, of the production levels and allocation of agrotechnical production factors include: technology codes, codes for cultures used to establish the unit price of culture, the name of the technology, codes and quantities for primary and secondary production of crops, codes for phytosanitary actions and numbers for culture variation.
- The nomenclature of mechanical works includes: group works norm production, consumption norm, mechanized hours, payment rates.
- classification of manual work includes: manual labor group, band work, workload, man-days / unit of measure, payment rates.
- Lists of seeds, seedlings and various materials contain: codes that identifies the material, the material's name, unit of measure, unit price of material used, the identification code of the type of material.
- The classification of pesticides includes: identification code of the pesticide, the name of the material used, the concentrations of active substance, unit of measure, unit price of the pesticide.
- The nomenclature of phytosanitary actions includes: phytosanitary action code (this code groups several substances used in plant protection proceedings), code of the substance used, the amount of substance.
- mock crops include: code layout associated to the list of crops, job type (mechanical / manual), code of the paper, the volume of the work, materials and equipment and the volume associated with the current job, the calendar year in which the work is carried out, month in which the work is carried out.

II. Substantiation methodology of development of system models used in the calculation system:

A. The layouts for product technology

Production technology for vegetable crops includes enumeration, the sequence and description of operations, agrophytotechnical methods and procedures, type and nature of materials, machines and devices that are used determining using climatic factors and/or biological characteristics of plants, to obtain maximum production unit/surface, with minimal costs per unit of product.

The layout technology system includes the technological files for vegetable crops, which include technological links in chronological and logical sequences, materials and labor consumption, values of the consumption. All these technological elements are divided in months, quarters and annualy for the unfinished production. The technological sheet is drawn up for the area of 1 hectare per crop and it includes:

- the name of culture, the average system culture (field or area protected);
- the columns relating mechanical work contain: name of the work mechanical unit of measure, unit agriculture (tractor + car zone), the group works norm production, consumption norm, hours Motor-rates Payment work and mechanization costs;
- for manual labor we have data covering: manual labor name, unit of measure, group classification, ensemble work, workload, manual man-hours, payment price handiwork, manual work expenses;
- for various materials we have data regarding: the name of the material used, the unit of measurement, the amount of material used, the unit price of materials used, the total amount of various materials. By various materials we refer to inputs used to build production namely organic and chemical fertilizers, plant protection products to combat diseases and pests, herbicides, irrigation water etc.

The technological descriptions of the vegetables are required for programming, preparation and organization of production under economic conditions serving to determine the necessary means and manpower, as well as the direct costs of production required. Being an important source of

information for the preparation of annual production budget of income and expenditure sheet allows tracking technological and systematic control over the economic activity of the agricultural unit.

B. The layouts for budget revenue and expenditure of the product

The layouts for the income and expenses of the product include income from primary production, secondary and allowances, intermediate consumption, production costs, price, manufacturer, profit. Drafting of revenue and expenditure statement is based on technology. The structure of revenue and expenditure shall include elements related to:

- Production value, which is based on the average production per hectare and the estimated price on the domestic market;
- Intermediate consumption used for the output of main expenditure groups include the following:
  - Variable expenses, which include costs of materials and supplies (seed and planting material expenses, organic fertilizers and chemicals, expense with products against pests and diseases, expenses with other materials) costs mechanization, the expenses with irrigation (water consumption applicable to the culture), supply expenses (expenditure incurred for procurement, storage and transport of materials and materials provided in the technological schedules) expenses, temporary labor (representing the employees for performing different activities), expenses with crop insurance (rates are set according to the crop's risks and quotations, depending on the frequency manifestations of risk factors).
  - Fixed expenses, which include costs of permanent labor and management (representing expenditure taxes, maintenance assets, third party services, various services, etc.), interest expense on loans (fixed as a percentage of tech expenditures the technological sheet prepared for each crop).
- Taxable income is obtained by the difference between primary and intermediate consumption for the production of primary production value.
- Net income is based on the reduction of taxable income taxes related value.
- The taxable income rate is a percentage of the taxable income reported for the main production costs.
- The percentage of net income is the percentahe to net income reported for the main production expenses
- The production cost is the ratio of expenditures for the main product and main production culture
- The predictable domestic market price is the price at wich the crop is to be sold refferenced with the year.

C. System models for technical and economic indicators

The layouts for the technical-economic analysis was designed to achieve economic efficiency of production technology and includes:

- Indicators of production with respect to average production and production value reported in 1 hectare
- Economic indicators, referring to the structure of production costs, unit cost of production and price recovery, labor productivity, the yield rate of return, breakeven rate risk of exploitation

For the analysis of investment projects at farm level / vegetable farms is achieved breakeven analysis or cost-volume. Thus one can appreciate the relationship between the volume of production, production costs and profit.

III. Diagram of operation of the computer system

From a functional perspective, the computing system comprises the following components:

1. Component maintenance data
   a. Data entry
   b. View existing information
2. User interface component
   a. Select actions
   b. Set parameters
3. Specialized computing components
   a. Computing technology
   b. Calculating budgets

c. Calculation of indicators

4. Reporting Component
   a. Internal reporting database content
   b. Reporting generated technology
   c. Budget reporting income / expenses
   d. Reporting indicators

Schematic diagram of the functional application can be described as follows (Figure 3):

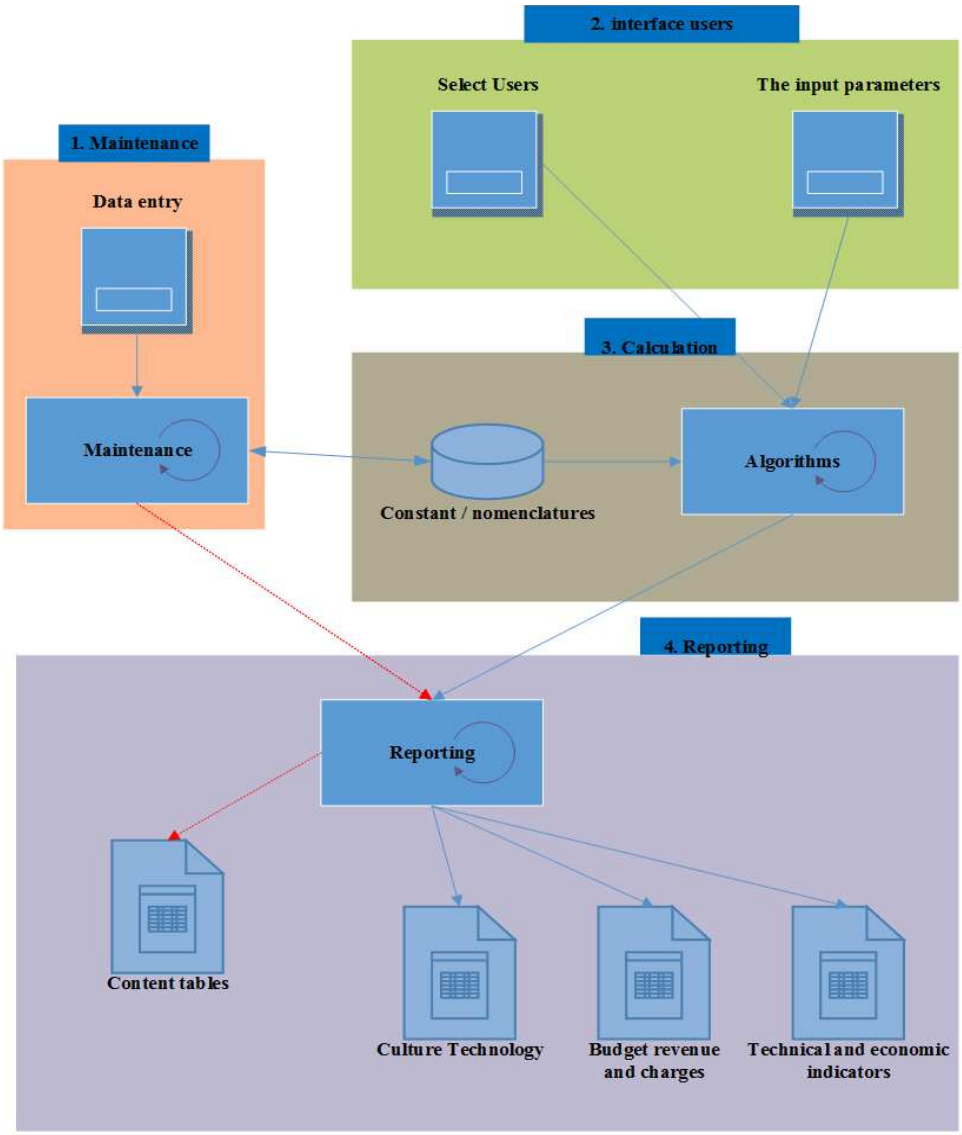

Figure 3. Scheme functional computer system

For the computing system to be effective, they considered some evaluation criteria, namely:

- compatibility database created with other computer systems;
- the possibility of including the computer system in a similar computer program;
- ratio of outcome or results achieved by implementing the computer system and all development costs to be as economically efficient;
- the design and implementation of the computer system took into account user requirements.

IV. Exemplifying the computer system for the main field and vegetable crops in protected areas.
For efficient use of the computing system we recommend the following:

- technological charts have to be developed by research experts from institutes with development profile;
- economic substantiation technologies for production and estimated production costs and domestic prices predictable crops under study, will consider technological input prices for the year in question. To calculate average tariffs on mechanization, will consult specialists from research institutes for agricultural mechanization development, production specialists;
- tariffs on irrigation works will be taken for 1000 cubic meters water prices set by legislation;
- Seed prices are taken from specialized units in the field;
- prices of fertilizers will be averaged using the companies that produce and charged them;
- prices for herbicides and pesticides used in crop technologies will be used from the distribution firms;
- tariffs and prices will be updated depending on market developments from the areas where the holding/vegetable farm is located.

The values of technological inputs mentioned above may influence production costs so predictable market prices will be established so that, each vegetable crop farmer to be able to cover their production costs and to ensure return appropriate to the culture system practiced.

The computing system is validated by the economic efficiency of production technology, measured by the ratio between incomes and expenses. Solution given hardware system is validated if the size of the benefit per hectare is optimal. Otherwise, we recommend reducing the costs per hectare, eliminating some optional technological works to compliance with the normative costs.

For example took into account two vegetable crops grown in the open and protected spaces 2015: peppers and tomatoes. For each vegetable crop, the informational system was used for analysis and calculation technologies of production, income and expenditure budgets and the specific technical and economic indicators. Based on the results of the analyzes were performed measurements of economic efficiency and profitability thresholds.

A. Pepper
A.1. Substantiation cost of production and predictable domestic market price for growing peppers (Table 1).

- Bell pepper cultivated field:
- The growth rate of revenues growth rate is higher by about 1.14% of the expenditure.
- Material expenses: a share of 64% of all resources consumed.
- The cost per unit of output - indicator reflecting the economic efficiency of expenditure items - 0.5 euro / kg.
- The average selling price per unit of output - factor with qualitative character in relation to time - 0.568 euro / kg. Culture has a return of 14.5% which is equivalent to an increase of the degree to which resources consumed brought profit.
- Gross rate of return of 14% shows a favorable situation that characterizes positive work culture bell pepper field.
- Labour productivity: 1 ton bell pepper field was obtained with a consumption of 58.3 hours for work (of which 1.3 hours / t / and mechanical works 57 hours / t / manual work).
- Safety index of the culture is 0.4%.

- Bell pepper cultivated in protected space (solar)
- The growth rate of revenues growth rate is higher by about 1.24% of the expenditure.
- Material expenses: a share of 66% of the resources consumed.
- The cost per unit of output - indicator reflecting the economic efficiency of expenditure items - 0.52 euro / kg.
- The average selling price per unit of output - factor with qualitative character in relation to time - 0.636 euro / kg. Culture has a return of 24.3% which is equivalent to an increase of the degree to which resources consumed brought profit.

- Gross rate of return of 24.3% shows a favorable situation that characterizes positive work culture in solar pepper.
- Labour productivity: 1 tonne of pepper in solar was obtained with the time consuming work of 65.2 hours (including 1 hour / t / mechanical work and 64.3 hours / t / manual work).
- Safety Culture Index is 0.6%.

Table 1: Financial ratios pepper

Nr crt	Indicators	UM	Culture values pepper	
			Culture in field	Culture in solar
1	Average production	t / ha	25.0	50.0
2	The production value per hectare	euro	14204.5	31818.2
3	Costs of production per hectare	euro	12404.5	25599.4
4	Variable expenses	euro	10196.3	20743.0
5	Raw materials	euro	8026.4	17115.2
6	Fixed expenses	euro	2208.2	4856.4
7	Permanent labor expenses	euro	1607.3	3622.6
8	Unit production cost	euro / kg	0.5	0.52
9	Price recovery	Euro / t	568.2	636.4
10	Labour productivity in physical expression	man-hours / t	58.3	65.2
11	Profit or loss per unit of production	EUR / ha	1800.1	6218.8
12	The rate of return	%	14.5	24.3
13	Margin on variable costs (CVM)	euro	4008.3	11075.2
14	Margin on variable costs	%	28.2	34.8
15	Breakeven in value units	euro	7825.4	13952.0
16	Profitability threshold in physical units	t	14.0	21.9
17	Operating risk rate	%	55.1	43.8
18	Safety Index		0.4	0.6

Source: Own calculations - Values are targeting indicators and may change depending on changes in output and input prices, seasonal conditions and characteristics vegetable farm.

A.2. Determining breakeven; simulations of possible scenarios for the cultivation of pepper

- Bell pepper cultivated field (Table 2):

- at an average of 25t/ha, breakeven is 7825 euro value in units and 13.8 t expressed in physical units. To an increase in turnover by 20% the result (amount of gross profit) increased by 44.5%. Price recovery for growing peppers in the field can vary from 0.45 euro / kg, while the turnover is reduced by 20% to 0.68 euro/kg, while the turnover increases 20%. The situation pepper culture in the field of culture for the year can be assessed in the study, compared to breakeven, as comfortable as actual turnover by 40% exceeds the critical point.

Table 2: Breakeven: simulations of possible scenarios for pepper field

	Fiscal value EUR / ha	Variable expenses EUR / ha	Margin on variable costs	Fixed expenses EUR / ha	Gross
Values	14.204	10.196	4,008	2,208	1,800
%	100	72	28	-	-
Breakeven	7825	5.617	2,208	2,208	0
Obtainable result in an increase in turnover by 20%	17.045	12.236	4.810	2,208	2602
The result obtainable from a decrease in turnover by 20%	11.364	8157	3207	2,208	998
Maintaining the initial result when turnover is reduced by 10%	13.422	9635	3.787	1,987	1,800

Source: Own calculations

- Bell pepper cultivated in protected space (solar) (Table 3):

- at an average of 50t / ha, breakeven is 13 952 euro in units and 21.9 t value expressed in physical units. To an increase in turnover by 20% the result (amount of gross profit) increased by 35.6%. The price recovery in the solar pepper crop can vary from 0.50 euro / kg, while the turnover is reduced by 20% to 0.76 euro / kg, while the turnover increases 20%. The situation pepper culture in the solar year in the study of culture can be appreciated in relation to breakeven, as comfortable as actual turnover by 60% exceeds the critical point.

Table 3: Breakeven: simulations of possible scenarios for solar pepper

	Fiscal value EUR / ha	Variable expenses EUR / ha	Margin on variable costs	Fixed expenses EUR / ha	Gross
Values	31.818	20.743	11.075	4856	6219
%	100	65	35		
Breakeven	13.952	9096	4856	4856	0
Obtainable result in an increase in turnover by 20%	38.182	24.892	13.290	4856	8434
The result obtainable from a decrease in turnover by 20%	25.455	16.594	8860	4856	4.004
Maintaining the initial result when turnover is reduced by 10%	30.423	19.833	10.590	4,371	6219

Source: Own calculations

B. Tomatoes

B.1. Substantiation cost of production and predictable domestic market price for the summer-autumn crop of tomatoes (Table 4).

- Autumn summer tomatoes grown in the open

- The growth rate of revenues growth rate is higher by about 1.20% of the expenditure.
- Material expenses: a share of 48.8% of the total resources consumed.
- The cost per unit of output - indicator reflecting the economic efficiency of expenditure items - 0.27 euro / kg.
- The average selling price per unit of output - factor with qualitative character in relation to time - 0.329 euro / kg. Culture has a return of 20.5% which is equivalent to an increase of the degree to which resources consumed brought profit.
- Gross rate of return of 20.5% shows a favorable situation positive activity that characterize the tomato crop in summer and autumn field.
- Labour productivity: 1 ton of tomatoes summer-autumn field was obtained with a consumption of 65.04 hours for work (of which 0.99 hours / t / mechanical works and 64.05 h / t / manual work).
- Safety index of the culture is 0.4%.

- Autumn summer tomatoes grown in protected space (solar)

- The growth rate of revenues growth rate is higher by about 1.26% of the expenditure.
- Material expenses: a share of 54.4% of the resources consumed.
- The cost per unit of output - indicator reflecting the economic efficiency of expenditure items - 0.33 euro / kg.
- The average selling price per unit of output - factor with qualitative character in relation to time - 0.420 euro / kg. Culture has a return of 26.6% which is equivalent to an increase of the degree to which resources consumed brought profit.
- Gross rate of return of 26.6%, showing a favorable situation that characterizes the positive work of the summer-autumn crop of tomatoes grown in solar.
- Labour productivity: 1 ton of tomatoes grown in summer-autumn sun was achieved with the time consuming work 72.18 hours (of which 0.62 h / t / mechanical works and 71.56 h / t / manual work) .
- Safety Culture Index is 0.5%.

Table 4: Financial ratios summer-autumn tomatoes

Nr crt	Indicators	UM	Summer-Autumn tomatoes values	
			Culture in field	Culture in solar
1	Average production	t / ha	40.0	90.0
2	The production value per hectare	euro	13181.8	37840.9
3	Costs of production per hectare	euro	10938.3	29891.2
4	Variable expenses	euro	7563.6	20402.6
5	Raw materials	euro	5.332.3	16285.4
6	Fixed expenses	euro	3374.7	9488.6
7	Permanent labor expenses	euro	2870.7	8126.8
8	Unit production cost	euro / kg	0.27	0.33
9	Price recovery	Euro / t	32.9	42.04
10	Labour productivity in physical expression	man-hours / t	65.0	72.18
11	Profit or loss per unit of production	EUR / ha	2243.5	7949.6
12	The rate of return	%	20.5	26.6
13	Margin on variable costs (CVM)	euro	5618.2	17438.3
14	Margin on variable costs	%	42.6	46.1
15	Breakeven in value units	euro	7917.9	20590.2
16	Profitability threshold in physical units	t	240.3	489.7
17	Operating risk rate	%	60.1	54.4
18	Safety Index		0.4	0.5

Source: Own calculations - Values are targeting indicators and may change depending on changes in output and input prices, seasonal conditions and characteristics vegetable farm.

B.2. Determining breakeven; simulations of possible scenarios for the tomatoes

- Autumn summer tomatoes grown in the open (Table 5)

- At an average of 40t / ha, breakeven is 7564 euro and value in units of 240 t expressed in physical units. To an increase in turnover by 20% the result (amount of gross profit) increased by 50%. The price recovery in the summer-autumn crop of tomatoes grown in the open may vary from 0.26 euro / kg, while the turnover is reduced by 20% to 0.38 euro / kg, while the figure business increase by 20%. The situation of the tomato crop grown in the open summer-autumn crop year can be assessed in the study, compared to breakeven, as comfortable as actual turnover by 40% exceeds the critical point.

Table 5: Breakeven: simulations of possible scenarios for the summer-autumn tomato field

	Fiscal value EUR / ha	Variable expenses EUR / ha	Margin on variable costs	Fixed expenses EUR / ha	Gross
Values	13.182	7564	5618	3,375	2,244
%	100	57	43		
Breakeven	7918	4543	3,375	3,375	0
Obtainable result in an increase in turnover by 20%	15.819	9076	6742	3,375	3.367
The result obtainable from a decrease in turnover by 20%	10.545	6051	4,495	3,375	1,120
Maintaining the initial result when turnover is reduced by 10%	12.390	7109	5281	3.037	2,244

Source: Own calculations

- Autumn summer tomatoes grown in protected space (solar) (Table 6)

- At an average production of 90 t/ha, breakeven is 20.590 euro in units and 489.7 t value expressed in physical units. To an increase in turnover by 20% the result (amount of gross profit) increased by 43.8%. The price recovery in the summer-autumn crop of tomatoes grown in solar can vary from 0.75

euro / kg, while the turnover is reduced by 20% to 1.11 euro / kg, while the turnover increases 20%. The situation of the tomato crop grown in solar summer-autumn crop year can be assessed in the study, compared to breakeven, as comfortable as actual turnover by 50% exceeds the critical point.

Table 6: Breakeven: simulations of possible scenarios for the summer-autumn solar tomato

	Fiscal value EUR / ha	variable expenses EUR / ha	Margin on variable costs	Fixed expenses EUR / ha	Gross
Values	37.841	20.403	17.438	9489	7,950
%	100	54	46		
Breakeven	20.590	11.102	9489	9489	0
Obtainable result in an increase in turnover by 20%	45.409	24.483	20.926	9489	11.437
The result obtainable from a decrease in turnover by 20%	30.272	16.322	13.951	9489	4.462
Maintaining the initial result when turnover is reduced by 10%	35.782	19.292	16.489	8,540	7,950

Source: Own calculations

Conclusions

On the presented study basis, we conclude that the calculation system can provide information to producers from the vegetable sector, since before the crops establishment, in conjunction with the estimates concerning the demand assessment for different destinations, with the indicative price which will be obtained from the manufacturer, as well as the ways for supporting and stimulating the obtained production capitalization in good condition in the agricultural year. Also, it can be achieved some operational objectives namely: a planned vegetables production and adjusted to the market demand type in terms of quantity at the farm level, of quality and traceability; improving technical and economic management of the vegetables production ; the prices stabilization at the producer and at the processor at a decent level; the promotion of the vegetables technologies that ensure the quality protection of water, soil and landscape, preserving and promoting biodiversity; the analysis of the main specific indicators of yield per unit area, so as to create the possibility that on the basis of some complex analysis can be identified the qualitative and quantitative losses at the farm level.

Acknowledgment

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Evaluating employee performances in the Romanian organizations

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Abstract:

Performance evaluation is the core business of human resourses management, held to determine the extent to which employees of an organization efficiently fulfill their responsibilities or tasks, and it directly influences the performance of the company. In general, the performance achievement of organizational goals designate any would be their nature and variety. Human Resource Management plays a crucial role in achieving the organization's objectives. A key objective for any organization is to achieve performance standards established for its employees. It is very important to distinguish between the notions of performance and competence. If the first is associated with a process or outcome, the second is synonymous with potential. However, the difference between the two concepts is often imperceptible. The market economy of a country is in constant motion and is subject to permanent change processes. The organizations in turn are forced to keep up with these changes in order to remain competitive. The actions of managers take into account each employee as a distinct individual characteristic. The successful application of human resources management requires the existence of a system of performance evaluation of an incentive system to reward employees and results. In these conditions a survey was conducted on identifying appraisal potential employees.

Keywords: human resources, evaluation, performances, interview.

1. Introduction

Modern management of human resources involves, apart from clarifying roles, creating a climate of openness to the external environment, establish a communication system able to meet the needs of employee participation, stimulating creativity, merit recognition, the liability transfer tasks. To achieve these objectives it is necessary to first change the mentality of managers before changing the employees.

Every organization interested that its employees work to achieve good results. For this reason, people who work in organizations are regularly assessed in terms of their professional performance, and candidates who present to selection for a position are evaluated in terms of psychological characteristics and / or individuals who were found to have a connection for performance in work on that position.

2. Defining employee performance evaluation

Employee evaluation system is mainly focused on improving communication between employees and management of the organization and providing a work environment most favorable course of business. Also, depending on the results of the assessment of employees, organization leaders adopt a series of measures:

- establishing a form of improving training for certain employees;
- the adoption of new solutions on the level and type of remuneration of employees;

- promotion of employees etcetera.

In the mean time, each employee is interested in obtaining an assessment as objective activity and potential and as such, may know better development opportunities existing within the organization, requirements and possibilities for improving his professional training, development prospects career opportunities within the organization and the multiplier rewards.

Performance evaluation is the core business of Human Resources Management, held to determine the extent to which employees of an organization efficiently fulfill their responsibilities or tasks. [1]

Performance evaluation in a broader sense, is considered an action or some type of cognitive activity by an evaluator who appreciates or estimate performance of a person in relation to the performance standards set and representation of mind, with its own system values or his own thinking on the performance.

Performance assessment systems is an intrinsic and crucial system of human resource management as the assessment, when it is not designed as a mechanical activity, proves to have a significant influence on economic and social activity and organizational climate within an organization with direct repercussions on increasing the efficiency generally and productivity in particular.

In human resource management, evaluation of the development potential of those used in the processes of recruitment and selection of employee, the second group reviews the career development of individuals within a company and personal performance evaluation is used to determine the results obtained by each person in the post or work and to estimate the mode of action and future evolution of the occupant of the post.

Employee appraisal can be defined as a set of processes through which are issued judgments on the employees of the enterprise, separately, as holding certain posts, in order to reveal the essential elements of how to achieve the objectives and duties conferred and exercise competences and responsibilities of granting rewards and penalties, to establish the ways of improving the training, the promotion prospects of outlining. [2]

A great importance in human resource management holds the correct evaluation of the results obtained by all employees and each. This assessment requires the correct application of the principle pyramidal leadership at various levels so as to ensure effective control. In synthesis, consists in assessing the degree to which employees meet their personal responsibility to return on them in relation with the occupied position. This process is called employee assessment or evaluation of results. [3]

3. Formal and informal assessment evaluation

Managerial practice in human resources attest that recruitment, selection and promotion decisions, redundancy requires substantiation for some form of performance evaluation. Within organizations there are thus two systems of performance evaluation: informal and formal assessment evaluation.

Informal evaluation of performance - daily relations between manager and employee offers multiple ways for employee performance that can be assessed. One of the concerns managers is to observe and evaluate their subordinates so informal evaluation is ad hoc, relying equally on intuition and on the evidence of results.

Formal evaluation - involves performance evaluation of human resources within the organization in a planned and systematic manner.

This type of evaluation involves a formal contact between the manager and the employee, and documentation of observations on employee performance. Formal assessment of employees is preferred to be performed at certain intervals, usually once or twice a year.

Commonly used in modern organizations, professional, formal assessment proposes several objectives:

- establishing rewards staff - to achieve this goal, the assessment procedure must be based on performance and results actually obtained and should be part of the reward system of the organization. It also allows rewarding employees performance evaluation to be perceived as fair;

- realization feed-back performance - employees feel the need for feedback as correct performance and to evaluate the effectiveness of information that efforts to improve performance. Performance assessment can be used to stimulate employee development, playing an important role in improving the performance and in determining career goals;

- identifying individual training needs and staff development - through performance evaluation may indicate some deficiencies in staff training, to get information on the weaknesses or strengths of employees to receive training or professional development;

- improving communication and increasing collaboration between managers and subordinates - performance evaluation is a basis for interaction those parties who get to know even better; [4]

Tabel 1. The benefits of performance evaluation

For employee	For manager	For organization
- The opportunity to encourage employees to analyze recent results in performance and development; - The recognition of aspects of work that considers difficult or irritating, and the contributions they have been appreciated; - Analysis and confirmation of agreed objectives and standards according to which he will work in the future; -To identify all concrete measures that could be taken to improve the current performance (training, mentoring); - The chance to discuss career aspirations or any movements towards	- The opportunity to motivate employees by recognizing achievements; - The chance to clarify to strengthen key objectives and priorities so that employees can see precisely where their contributions fall; - Opportunity to learn the fears and hopes of the workers regarding their current and future roles; - Basis for discussing and agreeing on lines of action with employees; - Classification of areas of overlap between jobs,	- Succession planning assistance for the post: - identify employees who could be promoted in the future; - requirements development and employee training performers; - Help in workforce planning: identifying strengths and weaknesses in terms of existing professional skills and development requirements of all departments of the organization; -The guarantee that all agreed targets for groups and individual employees harmonize with the objectives of the organization;

professional aspirations; - Improving labor relations by enhancing communication and understanding.	improving overall team.	- Better communication throughout the organization; - Improved organizational results.

4. Interview Performance Review

Interviewing is a specific form of interpersonal communication, planned and prepared, organized by question and answer structure and may purposes: performance evaluation, personnel selection, guidance, discipline.

The objectives of performance evaluation interview, to be determined in the preliminary stage by the manager, employee and communicated early, decisively influences the style and conduct the interview, interview performance evaluation can be sustained for the following purposes:

- recent performance evaluation of the interviewee;
- providing feedback to the employee performance;
- indication of problems existing in the work of an employee;
- identification of business opportunities to improve the activity of an employee;
- improving communication between superior and subordinate;
- bringing arguments on the reward.

Interview performance evaluation involves the following steps:

- interview preparation
- conducting the interview

Advantages and disadvantages associated with different categories of evaluators

The categories of evaluators who can perform human resources performance evaluation within an organization can be:

a) managers or the direct heads;

b) colleagues;

c) internal and external customers;

d) subordinates directly;

e) self-evaluation;

f) external evaluators.

5. Methodology

Motivating employees is one of the major problems faced by each company. The principal data collection is structured based on a questionnaire.

5.1 Sample

Therefore, 586 persons were evaluated, both genders, holding management positions or positions of responsibility in society. Persons age was between 23 years and maximum 45 years.

5.2 Sampling Method Selection

Sample size: 586 people in 41 counties, 21% of respondents working in commerce, 32% in manufacturing and 47% in services.

Inclusiveness: the sample is representative of the collection represented with an error of ± 4.9% at the limited probability of 95% guarantee.

5.3 Data analysis and interpretation

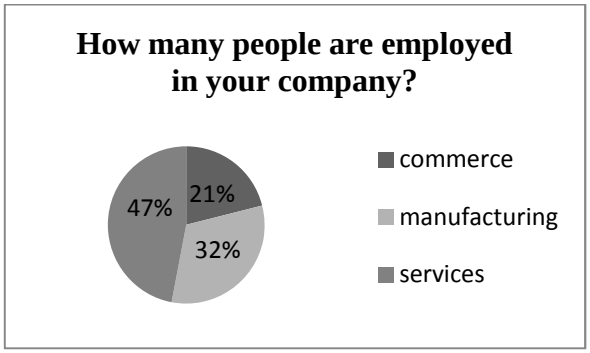

Figure.1 How many persons are employed in your company?

As a result, we see that of the 586 people interviewed, 123 people work in commerce, which represents a rate of 21% of the total sample. Also 187 people work in manufacturing, and the remaining 275 companies working in services, which represents a rate of 47%.

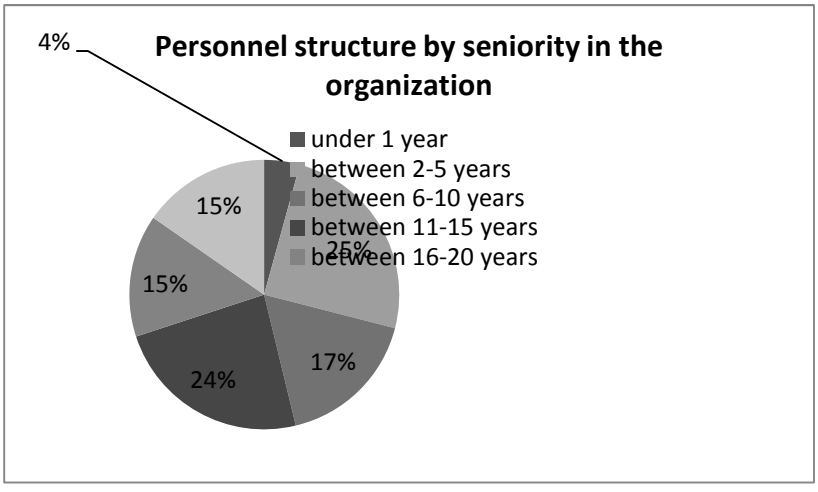

Figure. 2 Personnel structure by seniority in the organization

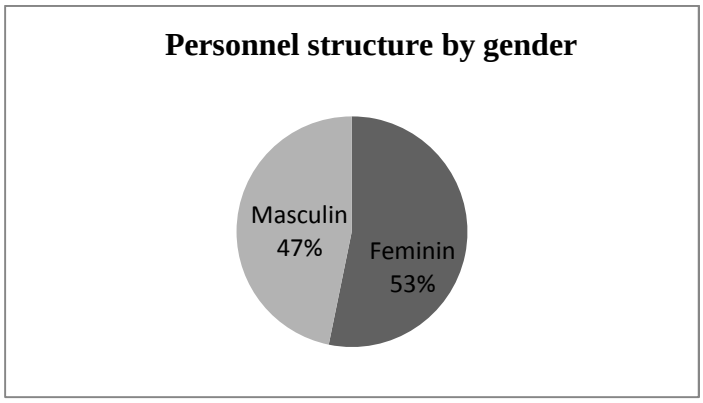

Figure.3 Personnel structure by gender

6. Conclusions

Theme evaluating employee performances plays a central role in management, is one of the most important responsibilities of managers, they must find the best ways to make their subordinates to perform at work.

The conclusions that we can detach behind this research show that there is a strong correlation between the desire to promote openly expressed by a number of factors questionnaire measuring various personality traits.

Performance Evaluation of human resources is important in sizing wages, and to identify the strengths and weaknesses of the employees.

A training program will only succeed if based on careful analysis of the needs of the organization and the success depends on the extent to which it knows to be taught, why, for whom and in what way.

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Research on the Relationship between GDP, Unemployment and Employment in the EU-28

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Abstract

The paper empirically analyzed the relationship between GDP, Unemployment and Employment in the EU-28 economy in the period 2003-2014 using Eurostat data, descriptive statistics, correlation and regression functions. In the analyzed period, GDP increased by 35.15 %, but it declined in 2009 after the beginning of the economic crisis. Unemployment increased by 20.59 %, with the lowest level recorded in 2008 and then with the highest one in 2013. Employment increased only by 4.38 %, with the highest level in 2008 and a deep decline after and a slight growth of 1 % in 2014. A negative strong correlation, r = - 0.829 was found between GDP and unemployment, and a strong positive link, r = 0.731 was found between GDP and employment. The regression function confirmed that GDP and unemployment are negatively connected while GDP and employment are positively linked. Okun's Law was confirmed by the results, but the asymmetrical dynamics of the indices of the three macroeconomic indicators reflected the deep influence of the global economic crisis on the EU-28 economy. The gap between the output growth and unemployment growth could be caused by a high productivity rate and more worked hours, but also by other factors such as: population aging, education level, gender ratio, and the share of young labor force. Global crisis continues to be a challenge that the EU-28 must surpass by a corresponding strategy destined to harmonize the economic growth with the population well being.

Keywords: EU-28, relationship, GDP, unemployment, employment

Introduction

Gross Domestic Product and unemployment are two important macroeconomic factors characterizing a country economy. They are closely linked because GDP growth sustains, in general, an increased employment and a decreased unemployment. This was empirically demonstrated by Arthur Okun in 1962 in the USA economy. He noticed that between output and unemployment is a negative connection. He affirmed that an unemployment growth by 1 % determines a 2 % fall in output, or, in other words, for each 1 % of output below and above the full employment level, unemployment rises by 0.5 %. (Okun, 1962, Fuhrmann, 2012, Asbury, 2013, Thoma, 2014).

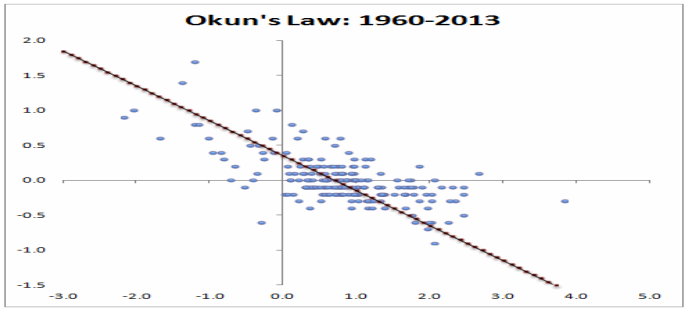

Fig.1.Okun's Law:1960-2013
Source: Mark Thoma (2014)

Other economists considered that Okun was partially right, as it was noticed that output and unemployment do not vary in the same way across different periods and in various economic conditions. For this reason, Okun's Law has many versions: (i) 1 % decline in unemployment rises GDP by 3 %; (ii) 1 % growth in unemployment determines a 2 % decline in GDP; (iii) 1 % increase in GDP determines 2 % employment growth (Furhrmann, 2012, Asbury, 2013).

The link between output and unemployment may chnage over the time due to the changes in the labor market. Therefore, it is an assimetrical relationship between GDP and unemployment over the business cycle (Burgen, 2012, Mc.Bride, 2010, Levine, 2013, Meyer, 2012, Daly, 2013).

But it is unanimously accepted that Okun's Law is a very usefull empirical tool for predicting and analyzing the trends between unemployment and GDP for its precission for short-term forecasts (Knotek, 2007). “Okun’s law” has been included in a list of “core ideas” that are widely accepted in the economics profession" as mentioned Alan Blinder (1997).

In this context, the paper aimed to study the relationship between GDP, unemployment and employment in the EU-28 economy in the period 2003-2014 and check if Okun's Law is verified by the economic reality.

Materials and Methods

Data collection. The study is based on empirical data provided by EuroStat Data Base for the period 2003-2014, especially chosen in order to see what happened in the EU-28 economy in terms of GDP, unemployment and employment before and after the economic and financial crisis which started in 2008. In the study Croatia was included, as found in Eurostat in order to make a complete analysis at the EU level in its actual form.

Methodology. The paper presents the evolution of the three indicators graphically based on the absolute figures, interpreting their evolution in the analyzed period. Also, the relative indices with variable basis were determined for each indicator to better understand its variation from a year to another in the chronological series under study.

The descriptive statistics: mean, standard deviation, standard error, kurtosis, skewness, maximum and minimum, and variation coefficient were determined to empirically characterize each indicator.
The Pearson correlation coefficient was used to analyze the power and sign between GDP and unemployment and GDP and employment.

The linear regression function, $Y= a + bx$, was utilized to reflect the links between the following pairs of indicators: GDP x Unemployment, Unemployment x GDP, GDP x Employment, and Employment x GDP, therefore, each factor has been considered a dependent as well as an independent variable. It was used to adjust the dependent variable (Y) for the period 2008-2014, considering 2008 the year when the economic crisis started to affect the EU economy and the last years reflecting the economic recovery. In this purpose, the adjusted Y was calculated by replacing X from the regression function with its real values. The differences between Y and Y_e allowed to observe what it would have been happened if the economic crisis did not exist and in what measure it disrupted the evolution of each pair of indicators. This allowed to verify the existence and the form of correlation between each pair of economic indicators.

The results were graphically and tabled presented and also commented.

Results and Discussions

GDP Evolution in the EU-28. In the period 2003-2014, the EU-28 GDP increased by 35.15 % from Euro Billion 10,327.8 at market prices in 2003 to Euro Billion 13,958.3 in 2014. Despite its increasing trend, in 2008, GDP slowed substantially and also in 2009, it contracted considerably due to the global financial and economic crisis. In 2010, it started a slow recovery which continued in the next years with a slight pace before its accelerated growth in 2014 (Fig.2.). (National Accounts and GD, EuroStat Statistics).

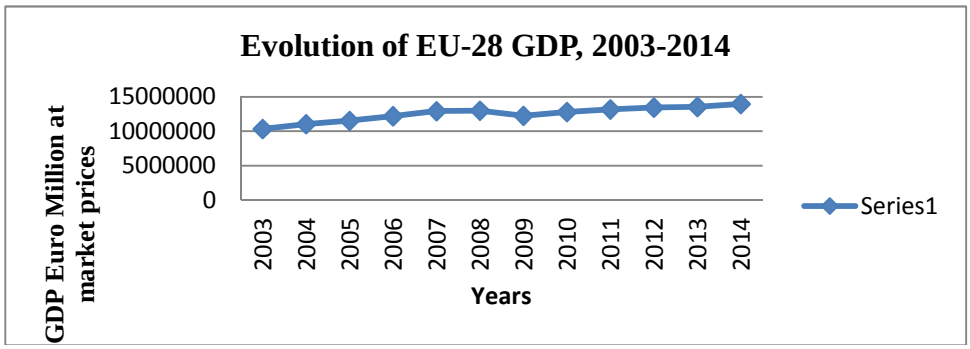

Fig.2.Dynamics of EU-28 GDP, 2003-2014
Source: Own design based on EuroStat Data.

Unemployment Evolution in the EU-28. In the analyzed period, the number of unemployed persons increased by 20.59 % from 20,570.7 thousand persons in 2003 to 24,807.5 thousand persons in 2014. The lowest unemployment was registered in 2008, accounting for 16,660.1 thousand persons, at the beginning of the economic crisis, but in the following year, 2009, the unemployed persons accounted for 21,303 thousands, being by 27.86 % higher than in the previous year. In 2013, it was recorded 26,109.8 thousand persons employed, the highest level, being by 26.92 % higher than in 2003 and by 4.05 % higher than in 2012. But, in 2014, it slowed by 4.99 % compared to 2013.(Fig.3.)

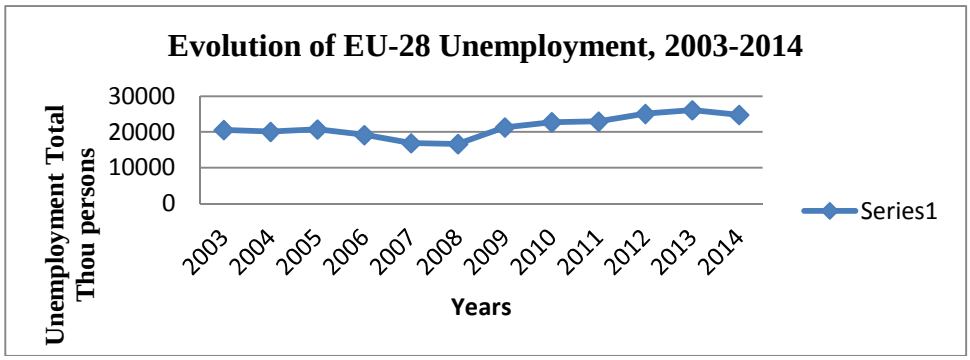

Fig.3.Dynamics of EU-28 Unemployment, 2003-2014
Source: Own design based on EuroStat Data.

Employment Evolution in the EU-28. The employed number of persons in the EU-28 increased by 4.38 % in the analyzed period from 217,078.4 thousands in 2003 to 226,604.5 thousands in 2014. Along the period, it was noticed a continuous growth from 2003 to 2008, the highest employment being recorded in 2008, 231,178.3 thousand persons.

Then, after the beginning of the economic crisis, the employment has continuously declined till 2013, when it reached 224,374.7 thousand persons. In 2014, once the economy has recovered, the employment increased by 1 % compared to 2013. The employment rate had the highest level 70.3 % in 2008. (Fig.4.)

Despite that employment is one of the cornerstones of the economy and well-being development, it was deeply affected by the demographic changes, the EU-28 being facing the population aging, an increased demand for skilled and highly educated employees, an inappropriate share of young labor force, changes in supply/demand ratio in the labor force market. (Europe 2020 Employment).

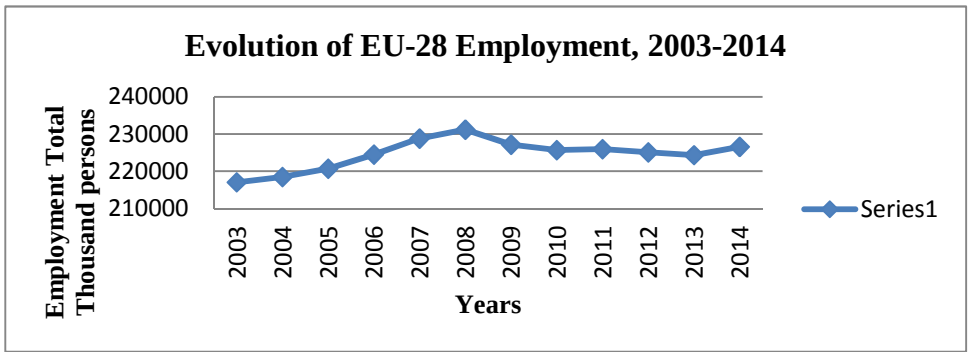

Fig.4.Dynamics of EU-28 Employment, 2003-2014
Source: Own design based on EuroStat Data

The descriptive statistics for GDP, Unemployment and Employment is presented in Table 1. The variation coefficients are less than 15 %, reflecting that the dispersion is a representative one. Employment varied very little, having 1.81 % variation coefficient, the lowest one, while unemployment recorded the highest variation coefficient, 14.23 %, compared to the variation of the other two indicators. GDP recorded 8.71 % coefficient of variation.

Table 1: Descriptive statistics for GDP, Employment and Unemployment in the EU-28, 2003-2014

Statistics	GDP Euro Million at market prices	Employment Total Thousand persons	Unemployment Total Thousand persons
Mean	12,511,363.88	224,652.0833	21,425.90833
Standard Error	314,884.1413	1,179.76312	880.33200
Standard Deviation	1,090,790.663	4,086.81934	3,049.55951
Kurtosis	-0.11885	-0.01181	-0.80610
Skewness	-0.78134	-0.55437	-0.07690
Minimum	10,307,874.6	217,078.4	16,660.1
Maximum	13,958,351.8	231,178.3	26,109.8
Variation coefficient (%)	8.71	1.81	14.23

Source: Own calculation based on Eurostat Data

The evolution of GDP, Unemployment and Employment in the EU-28 in terms of indices with variable basis is presented in Fig.5, Fig.6 and Fig.7, where every variation from a year to another may be observed in the periods of growth and also in the intervals when the EU economy was affected by the economic crisis.

Comparatively looking at Fig.5., reflecting GDP indices dynamics and Fig.5 regarding the unemployment evolution, we may notice an inverse trend. This confirms the negative relationship between GDP and unemployment.

Also, looking at Fig.5. and Fig.7, we can easily notice the GDP and Employment relatively similar declining trends, showing that these two indicators are positively correlated.

The reverse evolution of the Unemployment compared to the slope registered by the other two indicators is obviously clear, looking at Fig. 5 comparatively with Fig.4 and Fig.6.

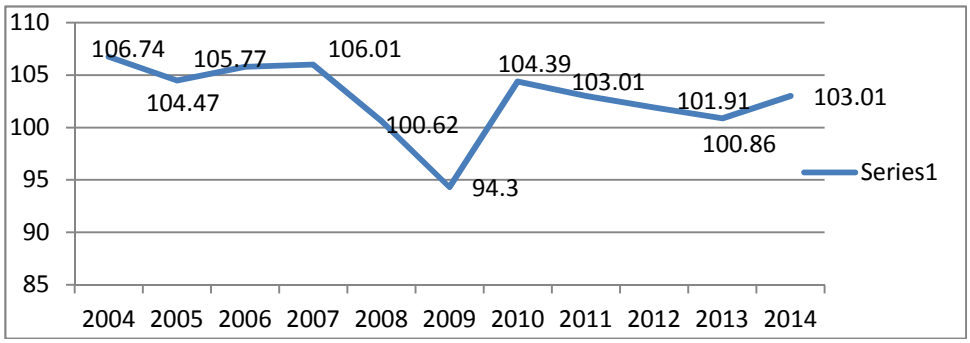

Fig.5. The evolution of GDP indices, EU-28, 2004-2014 (%)
Source: Own calculation and design based on EuroStat Data

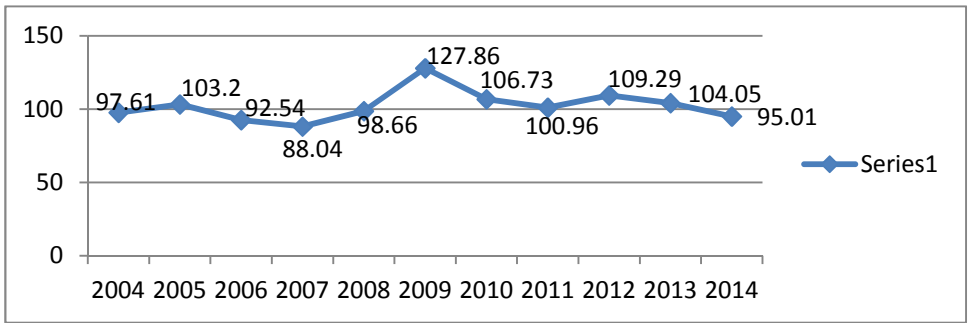

Fig.6. The evolution of Unemployment indices, EU-28, 2004-2014 (%)
Source: Own calculation and design based on EuroStat Data

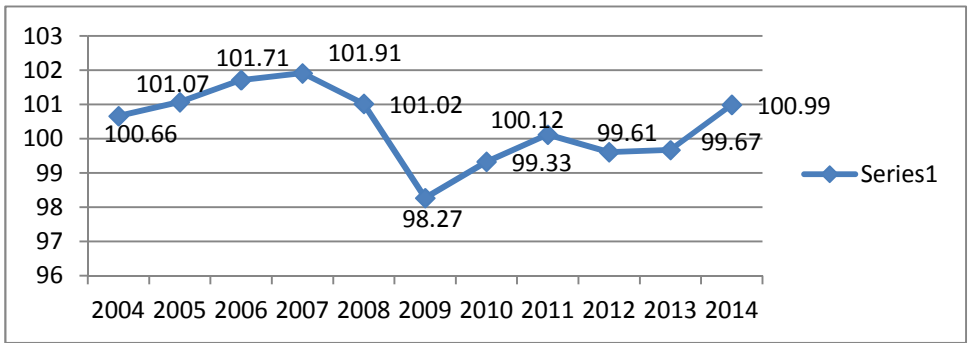

Fig.7. The evolution of Employment indices, EU-28, 2004-2014 (%)
Source: Own calculation and design based on EuroStat Data

Pearson's Correlation coefficient. While between GDP and Unemployment it was found a strong negative coefficient of correlation, r = - 0.82968, between GDP and Employment it was found a strong positive correlation, r = 0.731161. (Table 2). These figures confirm Okun's Law regarding the sense of the relationships between the macroeconomic indicators considered in this study.

Table 2: Correlation coefficient reflecting the relationship between GDP and Employment and GDP and Unemployment in the EU-28

Specification	r- Correlation coefficient	Significance
GDP x Employment	r = 0.731161	**
GDP x Unemployment	r = - 0.82968	**

Source: Own calculations.

The Linear Regression Functions between GDP and Unemployment and the reverse, and GDP and Employment and the reverse are presented in Table 3.

Table 3: Parameters a and b and the linear regression function reflecting the relationship between GDP and Employment and GDP and Unemployment in the EU-28

Specification	Intercept A	X Variable 1 b	Linear Regression Function Y= a + bx	Coefficient of determination R^2
GDP x Unemployment	3.6152	- 0.25234	Y= - 2.339641 X + 3.41908	0.6266
Unemployment x GDP	1.298643	- 0.267815	Y= - 0.267815 X + 1.298643	0.6266
GDP x Employment	0.768080	0.229303	Y=0.229303 X + 0.768080	0.5392
Employment x GDP	-1.33312	2.351253	Y=2.351253 X- 1.333312	0.5392

Source: Own calculations

The values and signs of a and b parameters reflect the trend of the relationship between these pairs of economic indicators.

The R squared values reflect how much of this relationship is determined by the independent variable. In case of GDP x Unemployment pairs of indicators, the coefficient of determination was found 62.66 %, while in case of GDP x Employment it was found 53.92 %.

The influence of GDP on Unemployment is a negative one, as it can be noticed in Fig.8. From Table 4, we may notice the growth of unemployment estimates in the 4th column), calculated using the regression function, and the indices of the actual values (in the 3rd column).

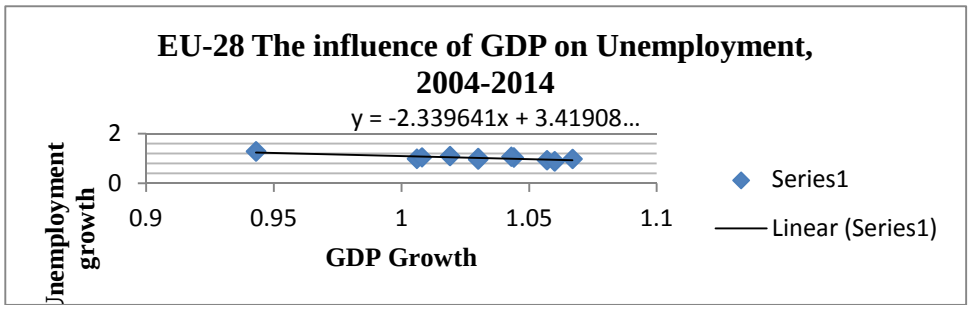

Fig.8. The influence of GDP on Unemployment in the EU-28, 2004-2014

Source: Own calculation and design.

Table 4: EU-28 The estimation of Unemployment depending on GDP

Year	GDP -X	Unemployment-Y	Ye= - 2.339641 X + 3.41908
2008	100.62	98.66	106.49
2009	94.30	127.86	121.27
2010	104.39	106.73	97.67
2011	103.01	100.96	100.90
2012	101.91	109.29	103.47
2013	100.86	104.05	105.93
2014	103.05	95.01	100.80

Source: Own calculations.

There are high differences mainly in the years 2008, 2009 and 2010 when the economic crisis had a deep impact, but then the gap declined from a year to another. The existence and the form of the correlation between GDP and unemployment was verified.

The influence of Unemployment on GDP can be seen in Fig.9 and also in Table 5.

There are differences between the actual values and estimated values of GDP determined by unemployment, mainly in the year 2009 when the effects of the crisis were very strong.

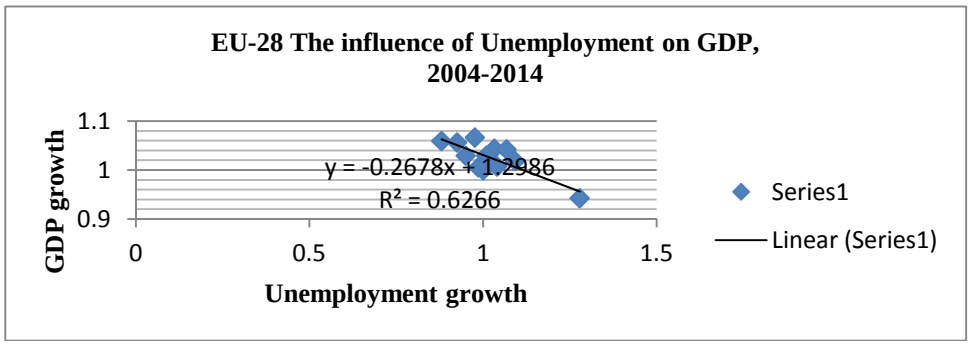

Fig.9. The influence of Unemployment on GDP in the EU-28, 2004-2014
Source: Own calculation and design.

Table 5: EU-28 The estimation of GDP depending on Unemployment

Year	Unemployment-X	GDP -Y	Ye= - 0.267815 X + 1.298643
2008	98.66	100.62	103.44
2009	127.86	94.30	95.62
2010	106.73	104.39	101.28
2011	100.96	103.01	102.82
2012	109.29	101.91	100.59
2013	104.50	100.86	101.87
2014	95.01	103.05	104.41

Source: Own calculations

The influence of GDP on Employment was a positive one as confirmed by Fig.10 and the data from Table 6.
A deep decline of employment was determined by the decrease of GDP mainly in the period of economic crisis.
Also, a slight growth of employment begun after starting the economic recovery.

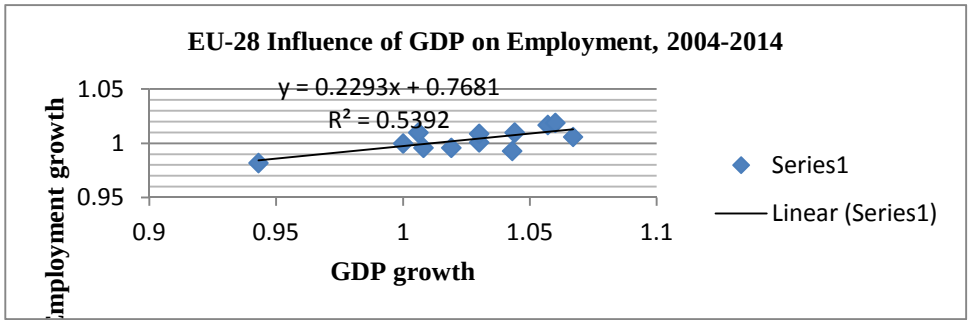

Fig.10. The influence of GDP on Employment in the EU-28, 2004-2014
Source: Own calculation and design.

Table 6: EU-28 The estimation of Employment depending on GDP

Year	GDP -X	Employment-Y	Ye= 0.229303 X + 0.768080
2008	100.62	101.02	99.88
2009	94.30	98.27	98.43
2010	104.39	99.33	100.74
2011	103.01	100.12	100.42

2012	101.91	99.61	100.17
2013	100.86	99.67	99.93
2014	103.05	100.99	100.43

Source: Own calculations

The influence of Employment on GDP was also a positive one as one can see from Fig.11. and also it is confirmed by the indices from Table 7.

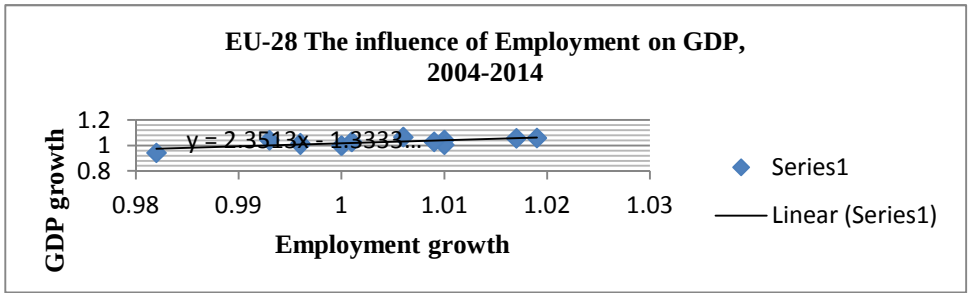

Fig.11.The influence of Employment on GDP in the EU-28, 2004-2014
Source: Own calculation and design.

Table 7: EU-28 The estimation of GDP depending on Employment

Year	Employment-X	GDP -Y	Ye= 2.351253 X-1.333312
2008	101.02	100.62	104.19
2009	98.27	94.30	97.72
2010	99.33	104.39	100.22
2011	100.12	103.01	102.07
2012	99.61	101.91	100.87
2013	99.67	100.86	101.01
2014	100.99	103.05	104.12

Source: Own calculations

The increase of employment had a positive effect on the GDP growth or, in other words, the decline of employment could led to a decrease of GDP as it was noticed mainly in the years 2009 and 2010, the years when the EU economy was substantially affected by the economic crisis.

Conclusions

The analysis of the empirical data of GDP, unemployment and employment in the EU-28 in the period 2003-2014 reflected the powerful relationship between these three macroeconomic indicators. The world economic and financial crisis affected the EU-28 economy and produced important changes in the dynamics of output, employment and unemployment.

It is partially confirmed the availability of Okun's Law as long as the economic growth was asymmetrically linked to employment and unemployment in the EU economy. If till 2008, GDP increased and employment as well, the decline of GDP in 2009 has deeply affected unemployment which recorded the critical level in the analyzed period. In the period 2009-2014, employment annual increase was maintained below 1.02 %, the level recorded in 2008, and this confirmed that the policy makers applied a "less job economic growth".

This was caused, besides the economic crisis, by many other factors the EU economy is facing: the unbalanced demographical structure determined by population aging, high demand for employees with high level of qualification, training and education, the gender ratio among the employed people, the share of young labor force, labor productivity, the number of worked hours, etc.

However, it could be considered that the recovery of the EU economy was based mainly on the increase of labor productivity and worked hours.

The socio-economic development of the EU-28 depends both on internal and external factors which must be known and deeply analyzed to enable policy makers to develop sustainable strategies to help the community to surpass the global economic crisis which continues. It is a big challenge to harmoniously combine economic growth and social development.

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Research on the Correlation between Economic Growth, Unemployment and Employment. A case study-Romania

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Abstract

The paper objective was to analyze the economic growth in close relationship with unemployment and employment in order to identify the main trends and correlation existing among these macroeconomics indicators in Romania during the period 2003-2014. In the analyzed period, GDP increased 2.83 times reaching Euro Billion 52.9 in 2014, while unemployment declined by 10 % and employment by 9.74 %. The economy was affected by the economic crisis in 2009, but since 2010 GDP registered a recovery based on a "jobless growth". The correlation coefficient and the linear regression functions confirmed the negative link between GDP and Unemployment and a weak positive relation GDP x Employment. R^2 pointed out that GDP is responsible of 32 %, and respectively, 56 % of employment and unemployment variation. An inelastic link between employment, unemployment and GDP was reflected by the small negative and positive elasticity coefficients. As a conclusion, Romania's economic growth is based on a consumption model which does not create jobs, 1 % GDP increase resulting in 0.87 % employment decline. A revised realistic strategy is needed to be set up by policy makers in order to harmonize economic and human development in Romania.

Keywords: correlation, economic growth, unemployment, employment, Romania

Introduction

For obtaining a sustainable socio-economic growth of a country it is important to increase GDP in close relationship with employment. However, there are countries where economy is continuously growing while employment remain more or less stable and unemployment rises. This happens due to many factors such as: economic crisis, technical progress, demographical structure, demand/supply ratio in the labor market, wage policy, institutional changes, legal framework (Dopke, 2001, Dumitrescu et al., 2009).

It was empirically demonstrated that the economic growth in terms of GDP has a negative impact on unemployment, but a positive effect on employment (Okun, 1962). However, a normal use of capital stock could be connected with an employment growth. But, it was noticed the contrary that a high capital invested in the economy could led to a high unemployment rate (Persefoni, 2009).

The global economic and financial crisis, which started in 2008, determined many countries to apply a "jobless economic growth". Job creation is a big problem for many EU states, but mainly for the CEE countries (Herman, 2011). Also, the high inflation in the CEECs could affect labor force, employment, unemployment, wages and capital flows (Lupu *et al*., 2015).

Romania was facing a deep economic decline after 1990 till the year 2000, strongly influenced by structural changes, legal framework, the decline of employment and labor productivity, the increase of unemployment and the change in monetary and taxation policy. Since 2000, the economic growth in Romania was assured by consumption under an increased employment mainly in the services sector and under a low productivity. The negative relationship between the economic growth and unemployment in Romania was confirmed by various economists (Dumitrescu, 2009, Herman, 2012, Anghelache *et.al*, 2013, Gibescu, 2013). Also, a positive relationship between GDP/capita and employment rate was another feature of the Romanian economy (Prodan, 2012).

GDP is usually used to empirically characterize the economic growth at regional and international level. Compared to other EU countries, Romania is situated almost on the last positions for its economic growth in terms of GDP and GDP/capita and labor productivity (Iuga *et al*, 2009, Savoiu, 2012).

In this context, the paper aimed to highlight the dynamics of GDP, unemployment and employment in Romania in the period 2003-2014, considered as interval of economic growth, but also significant for the impact of the economic crisis, and to determine the correlation and identify the trends of these three macro economic indicators using the empirical data provided by EuroStat.

The structure of the paper includes two sections: (a)Dynamics and main descriptive statistics of GDP, unemployment and employment, and (b)Analysis of the link between GDP, unemployment and employment using Pearson' correlation coefficient, linear regression function, determination coefficient, estimates of each indicator while the others were constant, and elasticity coefficients.

Materials and Methods

Data collection. The data for GDP, unemployment and employment were collected from National Accounts and GD, EuroStat Statistics for the period 2003-2014, considered both a period of economic growth and decline due to the global economic crisis.

Methodology. The macroeconomic indicators were studied in dynamics both in absolute figures and indices with variable basis. For each indicator it was designed the graphical evolution and determined the descriptive statistics: average, standard error, standard deviation, kurtosis, skewness, maximum and minimum, and variation coefficient (Montgomery *et al*, 2003).

The Pearson correlation coefficient was calculated in order to identify the sense and intensity of the relationship between GDP and unemployment and GDP and employment.

The linear regression function, $Y= a + bx$, was used to characterize the connections between the following pairs of indicators: GDP x Unemployment, Unemployment x GDP, GDP x Employment, and Employment x GDP. Thus, each factor has been considered dependent (Y) as well as an independent variable (X). Also, the linear regression function was used to adjust the dependent variable (Y) for the period 2008-2014. (Montgomery *et al*, 2003, Green, 2002).

The annual growth rate was calculated for each indicator as well as the average growth rate for the whole period 2004-2014 in order determine the elasticity of unemployment and employment in relation to GDP, using the formula was $E_{UN} = \Delta UNEM/\Delta$ GDP for unemployment elasticity and $E_{EM} = \Delta EM/\Delta$ GDP. The obtained results were compared to 1 to identify if the link between indicators is an elastic or an inelastic one. (Tudose *et al*., 2013, Ehrenberg *et al*., 2012). The results were graphically and tabled presented and also commented.

Results and Discussions

The evolution of GDP in Romania. Romania's GDP had a positive dynamics in the analyzed period. In 2014, it accounted for Euro Million 151,230.1, being 2.83 times higher than in 2003, when it was recorded Euro Million 52,931. This is a higher economic growth compared to only 35.15 % in the EU-28 in the same period of time. The increased trend registered a bottleneck in 2009, Euro Million 120,746.4, by 16 % less than in 2008. This was the effect of the economic crisis, but, since 2010, the economy has started its recovery.(Fig.1.) Similar results were found by Iuga et al, 2009.

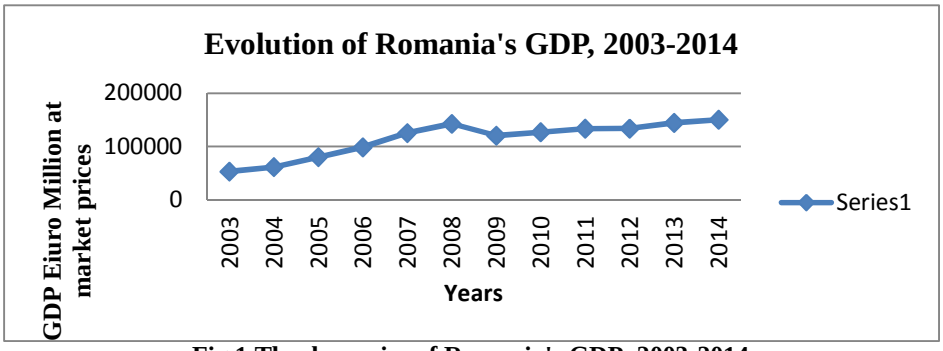

Fig.1.The dynamics of Romania's GDP, 2003-2014
Source: Own design based on EuroStat Data.

The contribution of Romania to the EU-28 GDP is very small, ranging between 0.51 % in 2003, the lowest level, and 1.08 % in 2014, the highest level. The share of Romania's GDP/capita in the EU-28 GDP/capita ranged between 31 % in 2003, the lowest level and 55 % in 2014, the highest performance. (Table 1).

Table 1: Romania's contribution to the EU-28 economy in terms of GDP, GDP/capita, unemployment and employment (%)

	2003	2004	2006	2006	2007	2008	2009	2010	2011	2012	2013	2014
GDP share	0.51	0.55	0.70	0.81	0.97	1.10	0.98	0.99	1.01	0.99	1.06	1.08
GDP/ capita share	31	34	35	38	42	48	49	50	51	54	54	55
Unem. share	3.40	3.86	3.39	3.79	3.80	3.45	3.20	2.87	2.87	2.50	2.50	2.53
Empl. share	4.40	4.31	4.20	4.16	4.09	4.05	4.04	4.05	4.02	3.84	3.82	3.81

Source: Own calculations based on EuroStat.

The evolution of Unemployment in Romania. Unemployment decreased by 10 % from 699.7 thousand persons in 2003 to 628.7 thousand persons in 2014. The highest number of unemployed people was 728.4 thousand persons registered in 2006, and the lowest level was 627.2 thousand persons recorded in 2012.(Fig.2.)

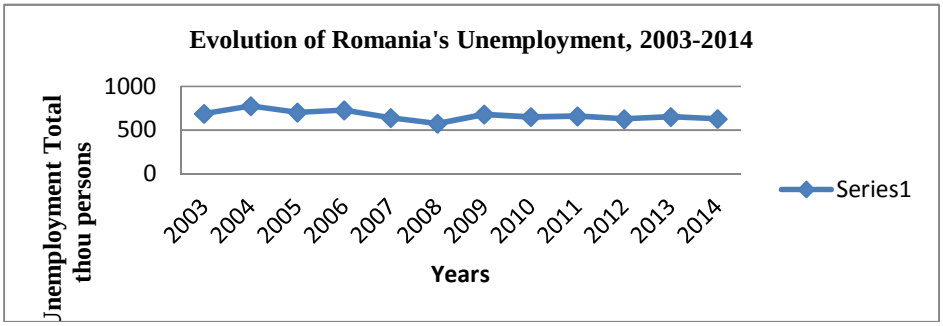

Fig.2.The dynamics of Romania's Unemployment, 2003-2014
Source: Own design based on EuroStat Data.

It is obviously a different situation compared to the EU-28 where unemployment increased by 20.59 % in the same period of time. Romania registered 7.4 % unemployment rate, the highest level in 2011 compared to 5.8 % in 2008 (Iuga et al, 2009). The share of Romania's unemployment in the EU-28 has recorded a continuous decline from 3.40 % in 2003 to 2.53 % in 2014. The highest share was 3.86 %, registered in 2004 and the lowest one was 2.50 %, noticed in 2012 and 2013 (Table 1).

The evolution of Employment in Romania. The number of employed population registered a continuous decline from 9,569.4 thousand persons in 2003, the highest level, to 8,637.8 thousand persons in 2014.

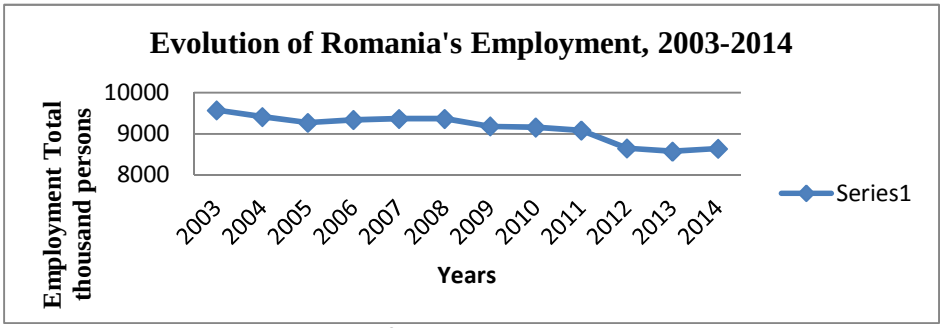

Fig.3.The dynamics of Romania's Employment, 2003-2014
Source: Own design based on EuroStat Data.

The lowest level was 8,569.4 thousand persons recorded in 2013. The decrease in the analyzed period accounted for 9.74 % in 2014 compared to 2003, while in the EU-28 employment increased in the same interval by 4.39 % (Fig.3.). As a result, the share of Romania's employment in the EU-28 employment has continuously declined from 4.40 % in 2003 to 3.81 % in 2014 (Table 1).
The employment rate was 59.7 % in 2012, a middle one in the EU-28, as compared to 75 % in Netherlands, 72.8 % in Germany, 70.1 in United Kingdom, but higher than 51.3 % in Greece and below the EU average 64.1 %. However, the employment rate in Romania is far away of 70 %, the target established by the EU-28 for this country in 2020 and also even the EU has to make efforts to reach its target of 75 % (Serb et al., 2015).
The main statistical parameters for GDP, Unemployment and Employment. In Romania, in the period 2003-2014, the average annual GDP accounted for Euro Million 114,102.95 with Euro Million 33,029.41908 standard deviation and a high variability coefficient, 28.94 %, reflecting that the dispersion is not a representative one.

Table 2: Descriptive statistics for GDP, Employment and Unemployment in the Romania, 2003-2014

Statistics	GDP Euro Million at market prices	Employment Total Thousand persons	Unemployment Total Thousand persons
Mean	114,102.95	9,132.18333	667.33333
Standard Error	9,534.7719	96.96149	15.17444
Standard Deviation	33,029.41908	335.88448	52.57720
Kurtosis	- 0.513496	- 0.73043	0.77315
Skewness	- 0.916372	- 0.78596	0.46159
Minimum	52,931	8,569.4	575.5
Maximum	150,230.1	9,569.4	776.5
Variation coeff. (%)	28.94	3.67	7.87

Source: Own calculation based on Eurostat Data

Employment recorded an annual average of 9,132.18 thousand persons with 335.88448 thousand persons standard deviation and a very small coefficient of variation, 3.67%.

Unemployment registered 667.33 thousand persons in average with 52.57 thousand persons standard deviation and a small coefficient of variation accounting for 7.87 %.(Table 2).

The evolution of GDP, Unemployment and Employment in Romania in terms of indices with variables basis in the period 2004-2014 is presented in Fig.4, Fig.5 and Fig.6.
Making a comparison between the slope of GDP indices and Unemployment indices, it is easy to notice the different evolution of the two macroeconomic indicators, confirming that between GDP and Unemployment is a negative relationship.

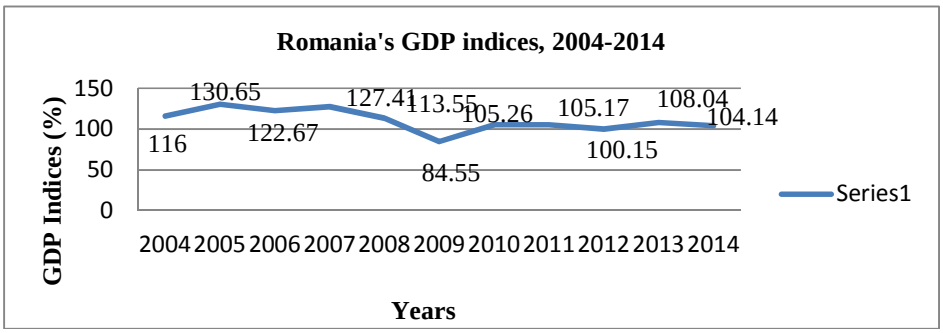

Fig.4.Dynamics of GDP indices in Romania, 2004-2014
Source: Own calculation and design based on EuroStat.

The slope of GDP indices reflects some differences compared to the slope of Employment indices. While in the period 2004-2009, the evolution of the two indicators was almost similar, reflecting a positive relationship, since 2010, GDP started to recover with an inflexion in 2012, while employment continued to decline registering the lowest level in 2012, but then, it started to grow till 2014, while GDP declined in the last year of the analysis. Therefore, in the period 2003-2009, the economic growth was able to create jobs, assuring employment, but since 2010, Romania has been developing based on a "jobless economic grow".

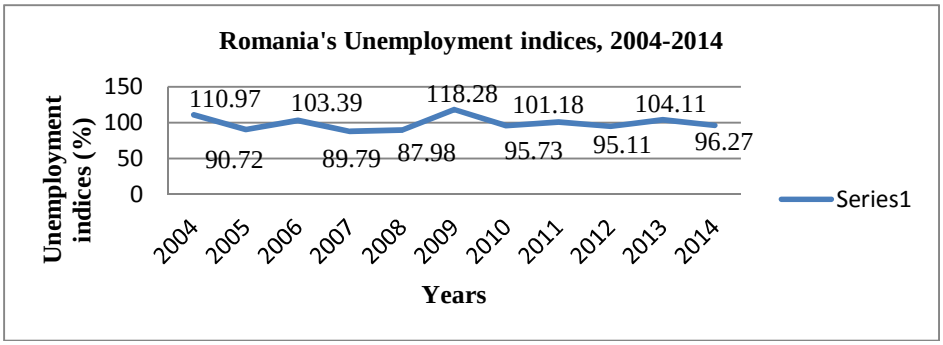

Fig.5.Dynamics of Unemployment indices in Romania, 2004-2014
Source: Own calculation and design based on EuroStat

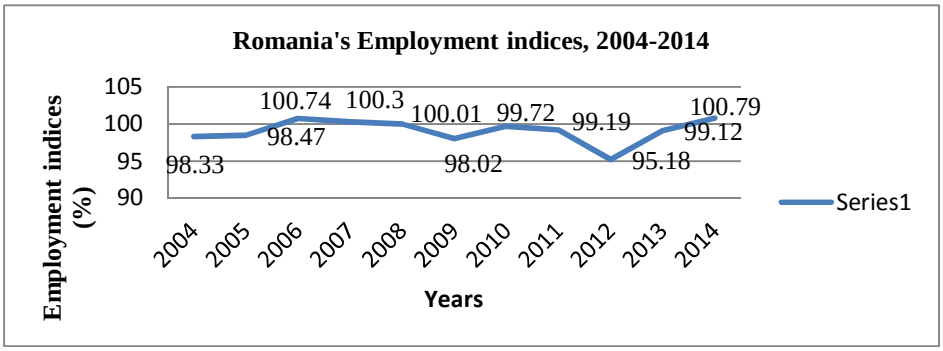

Fig.6.Dynamics of Employment indices in Romania, 2004-2014
Source: Own calculation and design based on EuroStat

Pearson's Correlation coefficient between GDP x Unemployment registered a strong negative value, r = - 0.5751 statistically significant, while the coefficient of correlation between GDP x Employment had a positive value, r = 0.376747, reflecting that an increase of GDP did not produce a high growth of employment in the analyzed period, due to the period when the economy recorded "a jobless growth" (Table 3).

Table 3: Correlation coefficient reflecting the relationship between GDP and Employment and GDP and Unemployment in Romania

Specification	r- Correlation coefficient	Significance
GDP x Employment	r = 0.376747	*
GDP x Unemployment	r = - 0.5751	**

Source: Own calculations.

Iuga (2009) found a weak coefficient of correlation between GDP and Unemployment was between 2005 and 2011, due to the shorter analysis period and the influence of technological development, inputs, taxation, investments, education, legislative framework which positively influenced the GDP growth (Iuga, 2009).

Also, the correlation between GDP and employment is smaller compared to r = 0.7806 between GDP/capita and employment rate for in the period 2002-2011, when employment rate was a significant factor (R^2>50) with a 60.95 % determination GDP variation (Prodan, 2012).

The Linear Regression Functions. For GDP x Unemployment and the reverse, and GDP x Employment and the reverse, it was set up the linear regression function as presented in Table 4.

Table 4: Parameters a and b and the linear regression function reflecting the relationship between GDP and Employment and GDP and Unemployment in Romania

Specification	Intercept a	X Variable 1 B	Linear Regression Function Y= a + bx	Coefficient of determination R^2
GDP x Unemployment	1.41666	- 0.38501	Y= - 0.38501 X + 1.41666	0.56386
Unemployment x GDP	1.91550	- 0.82581	Y= - 0.82581 X + 1.91550	0.56386
GDP x Employment x	0.94891	0.03841	Y= 0.03841 X + 0.94891	0.32015
Employment x GDP	- 1.54676	2.66814	Y= 2.66814 X - 1.54676	0.32015

Source: Own calculations.

The values of "a" and "b" parameters confirmed that between GDP and Unemployment and Unemployment and GDP, it is a negative relationship, while between GDP and Employment and Employment and GDP, it is a positive relationship as mentioned Okun's Law. Also, the determination coefficient R^2 = 0.32015 between GDP and Employment reflected that just 32.01 % of influence on employment is due to GDP, empirically explaining the " jobless economic growth" while the value R^2 = 0.56386 reflected 56.38 % influence of GDP on unemployment.

The influence of GDP on Unemployment is presented in Fig.7., reflecting that unemployment decreased due to the GDP growth.

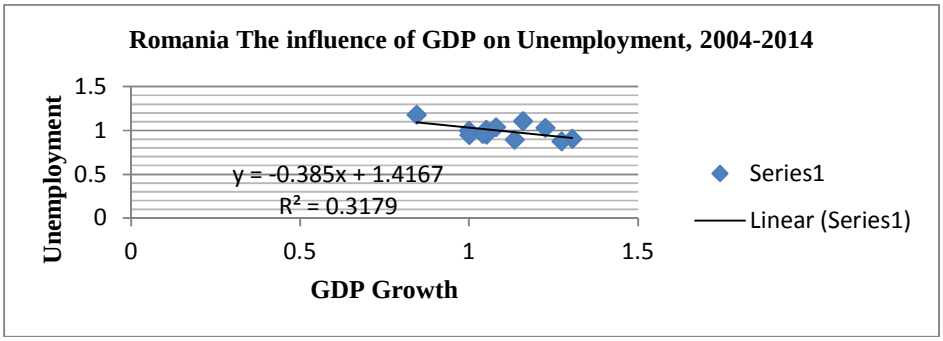

Fig.7. The influence of GDP on Unemployment in Romania, 2004-2014
Source: Own calculation and design

The estimated value of Unemployment, the dependent variable Y, is presented in Table 5 in the last column. Comparing the figures of the real and estimated Unemployment, we may notice important differences and especially in the years 2008, 2010, 2012 and 2014.

Table 5: Romania The estimation of Unemployment depending on GDP

Year	GDP -X	Unemployment-Y	Ye= - 0.38501 X + 1.41666
2008	113.55	89.79	97.94
2009	84.55	118.28	109.11
2010	105.26	95.73	101.13
2011	105.17	101.18	101.17
2012	100.15	95.11	103.10
2013	108.04	104.11	100.06
2014	104.14	96.27	101.57

Source: Own calculations

The influence of Unemployment on GDP was a negative one (Fig.8) and the variation between the estimated value of GDP and the GDP from a year to another were obvious (Table 6).

Table 6: Romania The estimation of GDP depending on Unemployment

Year	Unemployment-X	GDP -Y	Ye= - 0.82581 X + 1.91550
2008	89.79	113.55	117.40
2009	118.28	84.55	93.87
2010	95.73	105.26	112.49
2011	101.18	105.17	107.99
2012	95.11	100.15	113.00
2013	104.11	108.04	105.57
2014	96.27	104.14	112.04

Source: Own calculations.

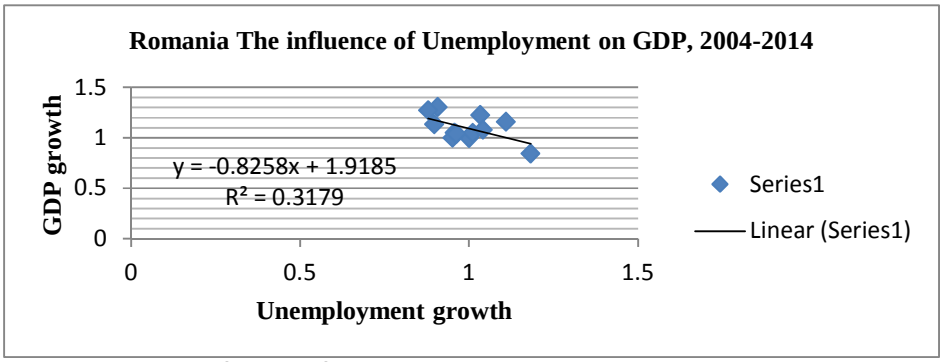

Fig.8. The influence of Unemployment on GDP in Romania, 2004-2014
Source: Own calculation and design.

The influence of GDP on Employment reflected a relative positive link between these indicators (Fig.9). The estimated value of Employment, as the dependent variable and the difference between these estimates and the real data were visible every year of the period 2008-2014 (Table 7).

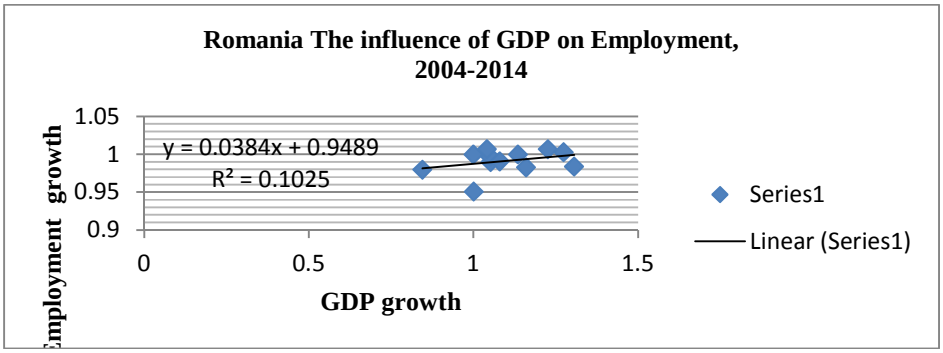

Fig.9. The influence of GDP on Employment in Romania, 2004-2014
Source: Own calculation and design.

Table 7: Romania The estimation of Employment depending on GDP

Year	GDP -X	Employment-Y	Ye= 0.03841 X + 0.94891
2008	113.55	100.01	99.25
2009	84.55	98.02	98.13
2010	105.26	99.72	98.93
2011	105.17	99.19	98.93
2012	100.15	95.18	98.73
2013	108.04	99.12	99.04
2014	104.14	100.79	98.89

Source: Own calculations

The influence of Employment on GDP is presented in Fig.10, also reflecting a relative positive link between these indicators and the estimates values of GDP, presented in Table 8, show huge differences compared to the real data.

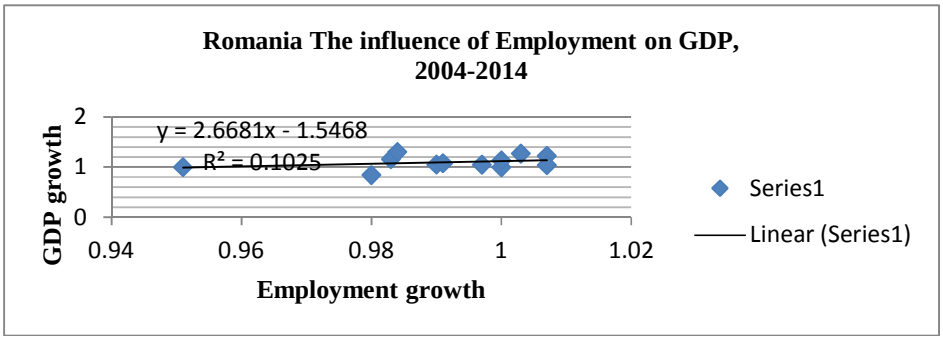

Fig.10.The influence of Employment on GDP in Romania, 2004-2014
Source: Own calculation and design.

Table 8: Romania The estimation of GDP depending on Employment

Year	Employment-X	GDP -Y	Ye= 2.66814 X - 1.54676
2008	100.01	113.55	112.16
2009	98.02	84.55	106.85
2010	99.72	105.26	111.39
2011	99.19	105.17	109.97
2012	95.18	100.15	99.27
2013	99.12	108.04	109.79
2014	100.79	104.14	114.24

Source: Own calculations

Elasticity of Unemployment and Employment in relation to GDP. The determination of elasticity imposed to calculate the annual growth rates of GDP, Unemployment and Employment, as presented for the period 2004-2014 in Table 9.

Table 9: Annual growth rates for GDP, Employment and Unemployment and elasticity of employment and unemployment in relation to GDP in Romania, 2004-2014(%)

Year	GDP	Employment	Unemployment	Elasticity of Employment	Elasticity of Unemployment
2004	16.0	-1.67	10.97	- 0.10	0.68
2005	30.65	-1.53	-8.28	- 0.04	- 0.30
2006	22.67	0.74	3.39	0.03	0.14
2007	27.41	0.30	-12.02	0.01	- 0.43
2008	13.55	0.01	-10.21	0.0007	-0.75
2009	-5.45	-1.98	18.28	0.12	- 1.18
2010	5.26	-0.28	-4.27	- 0.05	- 0.81
2011	5.17	-0.81	1.18	- 0.15	0.22
2012	0.15	-4.82	-4.89	- 32.13	- 32.60
2013	8.04	-0.88	4.11	- 0.10	0.51
2014	4.14	0.79	-3.73	0.19	- 0.91
Average, 2004-2014	11.59 %	-10.13	-6.47	- 0.87	-.055

Source: Own calculation.

In the analyzed period, it was found a high annual growth for GDP, a negative growth rate in 2009, as a result of the economic crisis and then a smaller growth rate in 2010 and 2011, the lowest positive one

in 2011 and then a recovery in 2013. The average growth rate of GDP in the analyzed period was 11.59 %.

Employment recorded both negative and positive annual growth rates, confirming the "jobless economic growth" practiced mainly in the period 2009-2014. The unemployment annual rates were also both negative and positive, but they had higher values compared to employment. The average increase for Employment was -10.13 % and for Unemployment was -6.47 % in the period 2004-2014. The values of elasticity of Employment and Unemployment in relation to GDP were both positive and negative and very small, reflecting an inelastic link between the these indicators. (Table 9).

The average elasticity of employment in relation to GDP was -0.87, an identical figure with the one found by Herman (2012). The main causes are: policy errors regarding social and economic reform, rigidity in labor market, high labor cost, and the consumption model which does create jobs.

Conclusions

In the analyzed period, GDP increased 2.83 times, while unemployment and employment decreased by 10 % and, respectively 9.74 %. After the impact of the global economic crisis in 2009, the economy restarted to recover since 2010, applying "jobless growth model".

The correlation coefficient, r = -0.5751, confirmed the existence of a strong negative relationship between GDP and Unemployment, while the coefficient of correlation, r = 0.3767, pointed out a weak positive between GDP and Employment. This was also highlighted by the linear regression functions. R squared showed that GDP is responsible of only 32 %, and respectively, 56 % of employment and unemployment variation.

An inelastic connection was found both in case of employment and unemployment in relation to GDP, confirmed by the very small negative and positive coefficients of elasticity, in most of cases less than 1.
Romania's development is based on a consumption model which does not create jobs, as long as it was empirically proved that 1 % GDP increase will led to 0.87 % decline in employment.

Therefore, the policy makers have a difficult task to change the economic strategy, paying attention to investments, job creation and labor productivity to assure a secure economic growth harmonized with human development.

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Stochastic Model of Inventory Control

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Abstract

Optimizing inventory control belongs to fundamental optimization tasks of management of various companies. If some of the variables of the inventory control problem have a stochastic character, it is useful to simulate the problem and subsequently accomplish analysis of obtained data. Such an analysis allows to choose the optimal inventory control. The present paper describes one of the possible variants of solving such a problem. First, the selected model of inventory management is described and then its implementation in MATLAB is characterized. Finally, the selected parameters for a particular simulation are specified and an essential description of gained data are presented.

Keywords: inventories - control - demand - supply –simulation.

Introduction

Inventories can be considered as quite expensive and also very important part of property of many companies and organizations. This means that as long as the organization uses its inventories for its activities it can store a significant variety of assets provided these assets are used in the most effective way they have to be controlled optimally. There are two problems connected with the inventory control: (1) what quantity of inventories to order and (2), when and how often should the company make the orders. In certain conditions it is possible to set analytical models of inventory control where the problems would be solved satisfactorily, Ragsdale (2011) and Ross (2013). However, in a number of real situations some parameters of the problem can have the character of random variable and it is impossible to find any analytical solution. For instance the demand for a given item can be random, which means that the amount of withdrawn inventories is uncertain. Similarly the lapse of time between the order of an inventory supply and the real supply of such inventory can be a random variable, Balakrishnan et al (2007) and Turban et al (2011). As a result a situation may happen where the inventories are totally exhausted. In such a case there can be customers which demand may not be satisfied and the given company carries financial costs because the customers will find a competitive firm or seller. As far as the demand of stored semi-manufactures are concerned such exhausted inventories could lead to delay or stoppage of production resulting in financial loss of the given organization. In this paper we will characterize a model where it is expected that the demand is characterized by random variable with a given probability distribution. We will consider that this distribution as unchangeable in time, which means that the stationary demand is given. The considered probability distribution can come out of empirical findings.

Description of the Model

To be able to describe the considered model in detail, we will introduce the following terms and their labelling:

- The total costs, which will arise during T, $T \in \mathbf{N}$, periods of time in which we follow the development of the amount of inventories of the given semi-product, product, or goods, will be denoted C, $C \in [0, \infty)$.

- The state of inventories at the beginning of the time period t, $t \in [1:T]$, (beginning inventory) will be denoted $Z_0(t)$.

- The state of inventories at the end of the period t, $t \in [1:T]$, (ending inventory) will be denoted as $Z_k(t)$.

- An order which increases inventories will be displayed in such a time period t+1, $t \in [1:T-1]$ when the inventories decrease under the given limit is called reorder point, cf. Ragsdale (2011). It will be denoted as R, $R \in \mathbf{N}$. The amount of the order representing the number of newly stored pieces will be denoted as d, $d \in \mathbf{N}$. Let us add a more detailed commentary. When the state of inventories in the time period t, $t \in [1:T]$ decreases to the reorder point *R* or gets under it a new order *d* is made. The supplier can carry out this order only in the next period of time that is *t*+1 obviously.

- The supplier delivers the consignment it U periods, where U~R(*a*, *b*) a R(*a*, *b*) is a discrete uniform distribution, in which *a* and *b* respectively represents the minimal and maximal respectively number of periods in which the required supply can be delivered. If a new order was made in the period *t*, it will be delivered in the period $t_{dod}=t+1+U$.

- On the basis of the knowledge about the supply period t_{dod} we can assess the amount of inventories in the current time period *t*. When $t=t_{dod}$, then $Z_0(t)=Z_k(t-1)+d$, otherwise it is only $Z_0(t)=Z_k(t-1)$.

- To be able to monitor if the supply of new inventories was ordered and there is no need to make new ones, it is important to implement the control function O(t) for the period t, $t \in [1:T]$. This function reaches the value 1 provided an order was made and it has not been delivered yet. It reaches the value 0 provided the order was delivered and a new one has not been made.

- A new order $O_n(t)$ in period t should be made, provided there is no order i.e. O(t)=0, and $Z_k \leq R$, i.e. the inventories at the end of the period t are smaller than the reorder point *R*.

- The current demand in the time period t, $t \in [1:T]$, will be denoted D(t). We suppose that it is a random variable the distribution of which can be set in the frequency table obtained on the basis of consumers behaviour in the past time periods.

- The demand is satisfied if sufficient amount of units is stored. If we denote the satisfied demand in the time period at *t* as $D_S(t)$, then

$$D_S(t) = \min\{Z_0(t), D(t)\},$$

i.e. provided that at the beginning of the time period *t* the inventories are satisfactory and $Z_0(t) \geq D(t)$, the whole demand D(t), is satisfied , provided the reversed relation is valid the demand is satisfied just to the amount of current inventories $Z_0(t)$, which are available at the beginning of the time period *t.* At the end of the period t the value of stores will be:

$$S_k(t) = S_0(t) - D_S(t)$$

and the unsatisfied demand *DU*(*t*) in the period of time *t* is

$$D_U(t) = D(t) - D_S(t).$$

- Let us further denote c_1, $c_1>0$, storage costs for one unit.

- Let us denote c_2, $c_2>0$, costs connected with unsatisfied demand.

- Finally let c_3, $c_3>0$, be costs connected with the new order and its subsequent supply.

Partial storage costs in the current time period *t* are comprised of the costs $c_1Z_k(t)$ for storage $Z_k(t)$ units (holding cost), costs $c_2D_U(t)$ expressing the price of unsatisfied demand (stock out cost) and finally the costs $c_3O_n(t)$ for the realization of new delivery (order cost). For the costs in the period *t* the sum $c_1Z_k(t)+c_2D_U(t)+c_3O_n(t)$ can be written. The total storage costs for the whole period of time *T* can be expressed by the relation

$$C=\sum_{t=1}^{T} c_1Z_k(t)+c_2D_U(t)+c_3O_n(t).$$

Implementation of the Model

For the aforementioned process it is necessary to prepare a simulation model. On its basis we can observe the qualities of the described process then. For the final implementation we use software MATLAB. Function function[C]=supply(Z0,R) was written. Its inputs are inventories at the beginning of the current period of time Z0 and the reorder point R. Its output is the searched total storage costs C. The key part of the algorithm is set in the following listing (the text after symbol % is the commentary).

```
for t=1:T
   Z0=Zk;                                  % beginning supply
   if t==T_dod
      Q=d;
      On=0;
   else
      Q=0;
   end                                     % beginning delivery
   Z0=Z0+Q;                                % supply in current period
   u=rand();                            % distribution of the demand
   D=distribution(u);
   DS=min(Z0, D);                          % satisfied demand
   Zk=Z0-DS;                               % final supply in the period
   DU=D-DS;                                % unsatisfied demand
   if (On==0 && Zk<=R)
      On=1;
      new_claim=1;
      u=randi([1 3]);
      T_dod=t+u+1;                % period of new delivery
   else
      new_claim=0;
   end
   C=C+c1*Zk+c2*DU+c3*new_claim;   % increasing of costs
end
```

The random variable *D* characterizing the demand concerning the stored product is firstly generated by the generator of pseudo random numbers rand() with uniform distribution within the interval [0, 1]. Then the method of inverse transformation, cf. Winston (2003) and Prazak (2015), is used and the uniform distribution is transferred to the real distribution of demand. The discrete uniform distribution characterizing the period of time *U* concerning the supply of new inventory delivery can be generated by function randi() in MATLAB.

Simulation and its Results

For simulation we used the following values: T=25, i.e. we count with 25 working days, the initial value of the inventories at the beginning of the planned period of time is Z_0=7, i.e. 7 units. The distribution characterizing the demand is described in the following Table 1.

Table 1: Demand distribution

Demand *D* in pcs	0	1	2	3	4	5
Probability	0.05	0.10	0.20	0.40	0.15	0.10

Let us also assume that the value of one supply is constant and the value is d=10 pieces. For unit cost (in money units) we considered values c_1=0.02, c_2=8 a c_3=20. We are interested in minimal expected costs E($C(R)$) for the inventory control with respect to reorder point R, where R∈[1:20]. This task can be formally written as argmin{E[$C(R)$]| R∈[1:20]}.

Provided we use the described simulation model which is replicated e.g. 1000 times we find out that optimal value of the reorder point is R=11. For this value we found the following descriptive statistics where values are set in money units, see Table 2.

Table 2: Results of simulation

average costs	median costs	mode costs	standard deviation	1Q costs	3Q costs
184	179	144	29	164	202

The graphical presentation of the obtained cost distribution can be found in Figure 1. Provided the values of parameters are changed in the prepared model, or other probability or time for delivery is set, we get the relevant simulation which corresponds with the new conditions. This universality of the prepared model enables to simulate a variety of particular situations concerning inventory control.

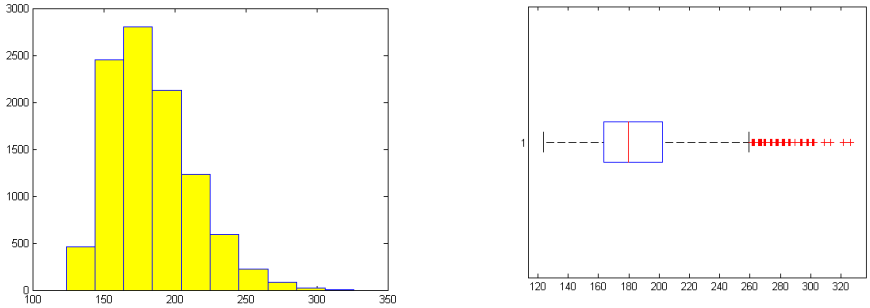

Fig 1. Histogram and boxplot of inventory costs gained with simulation model of inventory control. Source: Own computation and arrangement with MATLAB.

Conclusion

In the paper we characterized the probability model for inventory control. We supposed that the demand and the time delivery of the new supply are discrete random variables with known probability distribution. The prepared model was used for simulation which enables us to find the

probability cost distribution of inventories for the relevant period of time. On the basis of the parameter change which characterizes the reorder point we stated the optimal value of this parameter according to the size of expected value of storage costs. The described simulation leading to the storage cost optimization can be extended to another parameter for which the optimal value can be looked for. In the described model it could be e.g. the parameter that characterizes the size of one delivery. This will be the objective of our next work.

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Study on the Dynamic Factors of Qingdao Industrial Transformation and Upgrading

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Abstract

By setting up an industrial growth model based on classical growth theory, this paper studies the dynamic factors of Qingdao industrial transformation and upgrading by analyzing the main influence factors of Qingdao GDP. Qingdao should transform and upgrade industries by the innovation of science and technology, enlarging consumption and promote international trade.

Keywords: Dynamic factors, Industrial transformation and upgrading, Econometric model, Principal component analysis

I Introduction

During the period of "the 12th Five Year" Plan, the GDP growth rate of Qingdao has decreased beneath 10%, which shows a downward trend since 2005. With the speed of economy development slows down, the structure of economy also adjusts at the same time. The 3rd industry became the main part of GDP and exceeded the 2nd industry first time in 2011, and the gap between these two industries expanded in the next two years. According to the above changes of economic indicators, it's apparently showing that Qingdao has its anther round of industrial transformation and upgrading. Therefore, it is very important to find out the main dynamic factors of Qingdao industrial transformation and upgrading, which will strongly support "the 13rd Five Year" Plan.

As GDP is the main economic indicator of macroeconomic, and it is influenced by social production, consumption and the investment, this paper starts from the dynamic factors that affects GDP of Qingdao in order to analyze the target and dynamic mechanism of Qingdao industrial transformation and upgrading [a].

II Selection and Design of Model

This paper sets up an industrial growth model based on classical growth theory. Then this paper collects data from 2006 to 2013[b]. In this model, GDP is the dependent variable and the economic development factors are independent variables. The model mainly analyzes endogenous dynamic factors which promote industrial transformation and upgrading. Construction of the model is as follow:

$G=F(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9)$
G represents gross domestic product of Qingdao.
X_1 represents the per capita disposable income of urban residents of Qingdao.
X_2 represents per capita disposable income of rural residents of Qingdao.
X_3 represents total wages of staff of Qingdao.
X_4 represents retail sales of social consumer goods of Qingdao.
X_5 represents productive fixed assets investment of Qingdao.
X_6 represents unproductive fixed assets investment of Qingdao.
X_7 represents the total amount of foreign trade imports and exports of Qingdao.
X_8 represents social employed population of Qingdao.

X_9 represents research and development funding of Qingdao.

After natural logarithm processing of data, we obtain the correlation matrix which is shown in Table I by SPSS.

Table 1 Correlation matrix

	LNX_1	LNX_2	LNX_3	LNX_4	LNX_5	LNX_6	LNX_7	LNX_8	LNX_9
LNX_1	1.000	.998	.992	.999	.986	.976	.947	.997	.981
LNX_2	.998	1.000	.997	.995	.991	.972	.953	.995	.978
LNX_3	.992	.997	1.000	.986	.997	.957	.947	.988	.964
LNX_4	.999	.995	.986	1.000	.981	.982	.936	.996	.985
LNX_5	.986	.991	.997	.981	1.000	.949	.930	.979	.957
LNX_6	.976	.972	.957	.982	.949	1.000	.902	.984	.990
LNX_7	.947	.953	.947	.936	.930	.902	1.000	.940	.929
LNX_8	.997	.995	.988	.996	.979	.984	.940	1.000	.985
LNX_9	.981	.978	.964	.985	.957	.990	.929	.985	1.000

Table 1 represents that the relevance of factors is large. We extract the main factors by principal component analysis and we obtain the results which are shown in Table 2 and Table 3 [c].

Table 2 The total explanatory variance

	Eigen value	Difference	Proportion	Cumulative	Difference	Cumulative
1	8.784	97.603	97.603	8.784	97.603	97.603
2	.118	1.310	98.913			
3	.072	.805	99.717			
4	.014	.151	99.868			
5	.007	.080	99.948			
6	.004	.041	99.989			
7	.001	.011	100.000			
8	1.001E-013	1.014E-013	100.000			
9	-1.000E-013	-1.004E-013	100.000			

Table 3 Coefficient matrix of component score

Factor	Component
	1
LNX_1	0.114
LNX_2	0.114
LNX_3	0.113
LNX_4	0.113
LNX_5	0.112
LNX_6	0.112
LNX_7	0.109
LNX_8	0.114
LNX_9	0.112

We can see from Table 2 that cumulative contribution rate of the first Eigen value is 97.603%, which means the first principal component represents 97.603% information of the original nine factors. We can get the relationship between the first principal component and the original variables:

$$Z = 0.114LNX_1 + 0.114LNX_2 + 0.113LNX_3 + 0.113LNX_4 + 0.112LNX_5 + 0.112LNX_6$$
$$+0.109LNX_7 + 0.114LNX_8 + 0.112LNX_9$$

III Parameter Estimation and Test

We create a linear equation between *Z* and *LNGDP* by Eviews5.0.

It is assumed to be: $LNGDP = C + \alpha Z$

1.Heteroscedasticity test:White test

Table 4 White test

White Heteroskedasticity Test:				
F-statistic	2.931649	Probability		0.143721
Obs*R-squared	4.317877	Probability		0.115448
Test Equation: Dependent Variable: RESID^2 Method: Least Squares Sample: 2006 2013				
Included observations: 8				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000119	0.001303	0.091202	0.9309
Z	0.000408	0.000904	0.451626	0.6705
Z^2	0.002716	0.001134	2.395611	0.062
R-squared	0.539735	Mean dependent var		0.002496
Adjusted R-squared	0.355629	S.D. dependent var		0.002978
S.E. of regression	0.00239	Akaike info criterion		-8.954795
Sum squared resid	2.86E-05	Schwarz criterion		-8.925004

Log likelihood	38.81918	F-statistic	2.931649
Durbin-Watson stat	2.007268	Prob(F-statistic)	0.143721

Table 4 represents that $nR^2 = 4.31788$, it is known by the White test that we can get the critical value $\chi^2_{0.05}(2) = 5.9915$ by checking the distribution table of χ^2 with $\alpha = 0.05$ [d]. It indicates that there is not heteroscedasticity in the model because of $nR^2 = 4.2676 < \chi^2_{0.05}(2) = 5.9915$.

2. Autocorrelation test

By Eviews5.0 test results are shown in Table 5：

Table 5 Autocorrelation test

Sample: 2006 2013				
Included observations: 8				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.00025	0.020396	-0.012248	0.9906
Z	0.998517	0.021803	45.79772	0
R-squared	0.997148	Mean dependent var		-0.000125
Adjusted R-squared	0.996672	S.D. dependent var		1.000018
S.E. of regression	0.057689	Akaike info criterion		-2.655184
Sum squared resid	0.019968	Schwarz criterion		-2.635323
Log likelihood	12.62074	F-statistic		2097.431
Durbin-Watson stat	1.200884	Prob(F-statistic)		0

Data from the Table 5 indicate that $R^2 = 0.997, DW = 1.200884$ and Table V represents degree of fitting is quite high in the econometric model. We can get $d_L = 0.763, d_U = 1.332$ by checking DW statistics for a model with eight samples and an explanatory variable. We cannot determine whether there is autocorrelation for $d_L < DW < d_U$ in this model.

The residual plot (Fig 1) shows that there is a systematicmode about the residual changes and the residual changes are continuously positive and continuously negative, which indicates that there is a positive autocorrelation.

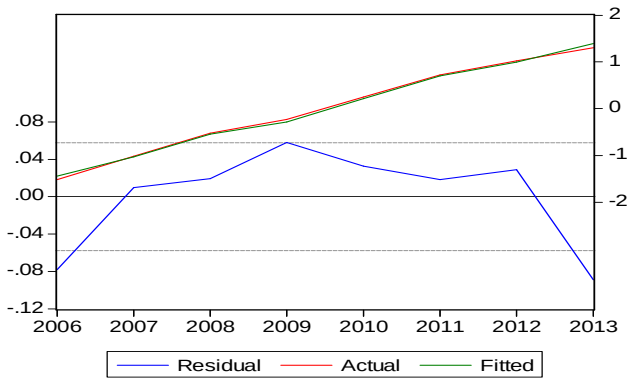

Fig 1. Residual plot

To eliminate autocorrelation of the model, we set up a generalized difference model by Durbin method:

$$LNGDP_t = \beta_1(1-\rho) + \beta_2 Z_t - \rho\beta_2 Z_{t-1} + \rho LNGDP_{t-1} + v_t$$

The above equation is a multiple regression model and we estimate the parameters by ordinary least squares method (OLS).The results are shown in Table 6. Table 6 represents that the regression coefficient of $LNGDP(-1)$ is 0.761525, and we regard it as an estimated value of ρ .

Table 6: the estimated value of parameters in generalized differential equation by OLS (1)

Dependent Variable: LNGDP Method: Least Squares Sample (adjusted): 2007 2013 Included observations: 7 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.086409	0.075869	1.138915	0.3375
Z	0.762584	0.191493	3.982305	0.0283
Z(-1)	-0.57819	0.51984	-1.112244	0.3471
LNGDP(-1)	0.761525	0.535784	1.421328	0.2503
R-squared	0.998806	Mean dependent var		0.217
Adjusted R-squared	0.997612	S.D. dependent var		0.85247
S.E. of regression	0.041656	Akaike info criterion		-3.22316
Sum squared resid	0.005206	Schwarz criterion		-3.254069
Log likelihood	15.28106	F-statistic		836.5737
Durbin-Watson stat	1.647296	Prob(F-statistic)		0.00007

Dependent Variable: LNGDP-0.761525*LNGDP(-1)
Method: Least Squares
Sample (adjusted): 2007 2013
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.082507	0.025164	3.278784	0.022
Z-0.761525*Z(-1)	0.772068	0.061459	12.5623	0.0001

R-squared	0.96929	Mean dependent var	0.35897
Adjusted R-squared	0.963148	S.D. dependent var	0.168179
S.E. of regression	0.032285	Akaike info criterion	-3.793451
Sum squared resid	0.005212	Schwarz criterion	-3.808905
Log likelihood	15.27708	F-statistic	157.8113
Durbin-Watson stat	1.676782	Prob(F-statistic)	0.000057

The regression equation $LNGDP^* = 0.083 + 0.772Z_t^*$

can be obtained, where $LNGDP_t^* = LNGDP_t - 0.761525LNGDP_{t-1}, Z_t^* = Z_t - 0.761525Z_{t-1}$

We get $d_L = 0.700, d_U = 1.356$ by checking DW statistics with 5% significance level. In this model, $d_U < DW < 4 - d_U$ indicates that generalized differential model is no longer autocorrelative, and the coefficient of determination R^2 and statistics t, F reach the ideal level [e].

According to the test results, $\beta_1 = \frac{0.083}{1 - 0.761525} = 0.348$ and the modified model is:

$$LNGDP = 0.348 + 0.772Z = 0.348 + 0.088LNX_1 + 0.088LNX_2$$
$$+0.087LNX_3 + 0.087LNX_4 + 0.086LNX_5 + 0.086LNX_6$$
$$+0.084LNX_7 + 0.088LNX_8 + 0.086LNX_9$$

We seek geometric mean about the annual growth rate of each factor. The definition of pulling degree to GDP is the product of geometric average growth rate and elastic coefficient of the modified model. We divide the geometric average growth rate of GDP by the pulling degree to GDP to get the contributions to GDP. The pulling degrees and contributions to GDP are shown in Table 7.

Table 7 The pulling degrees and contributions of factors to GDP

Factors	Average growth rate	Elastic coefficient	Pulling degree to GDP	Contribution to GDP
GDP	13.7 %	——	——	100%
Per capita disposable income of urban residents	12.4 %	0.088	1.1 %	8.0 %
Per capita disposable income of rural residents	13.1 %	0.088	1.2 %	8.8%
Total wages of staff	15.5 %	0.087	1.4%	10.2%
Retail sales of social consumer goods	16.4 %	0.087	1.4 %	10.2%
Productive fixed assets investment	17.8 %	0.086	1.5 %	10.9 %
Unproductive fixed assets investment	16.1 %	0.086	1.4 %	10.2%
Total amount of foreign trade imports and exports	11.2 %	0.084	0.9 %	6.6%
Social employed population	2.2%	0.088	0.2 %	1.5%
Research and development funding of Qingdao	25.5%	0.086	2.2 %	16.1 %

IV Conclusion

1.The first contribution of GDP is the factor of research and development funding, which is 16.1% as the top. This indicates that technology is the main driving force of economic development of Qingdao industries and Qingdao depends strongly on technological innovation.

2.The contribution of productive fixed assets investment to GDP is 10.9% and the contribution of unproductive fixed assets investment to GDP is 10.2%,which indicates that Qingdao industrial transformation and upgrade has a strong dependence on investment and supplying, and this situation would make serious challenges to the economic development model of Qingdao.

3.The contribution of foreign trade to GDP is 6.6%,which means foreign trade has a certain influence on GDP. Meanwhile, the factor of Social employed population is only 1.5%, which shows this has a very low influence on the development, which means Qingdao labor intensive industry is not the main body.

According to the above analysis, we can draw a conclusion that Qingdao should expand the investment on R&D to strengthen Hi-tech factor influence, which will be the main dynamic factors of industrial transformation and upgrading. Meanwhile，consumption is also another trigger of economic development, and Qingdao should promote consumption to increase the speed of transformation. Finally, Qingdao should enlarge foreign trade contribution, by which it can not only promote international industry development but also become another dynamic factor of industrial upgrading.

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A Country under Siege: Reflection of Identity Crisis on the Formation of Public Opinion in Turkey

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Abstract

To date, academic attention in social sciences remains inadequate with regard to research and analysis of public opinion in Turkey. Most of the existing research has assessed the public opinion during political election periods. Therefore, it is of great interest to find out what the public thinks about current issues in the country, and how to interpret the results to be able to reveal whether they may have any reflections on social, political, and cultural structure of the country. The current study aims to fill this gap. *The research on political and social trends in Turkish public opinion* has been conducted since 2010 by Kadir Has University Turkey Research Center. The survey's objective is to reveal public opinion on the most important current issues in the country, the economy, terror, the Kurdish Issue, domestic and foreign policies, the judicial system, democracy and the media, and, social relations/life in Turkey. The data was collected via face to face interviews. The sample included 1000 respondents, representative of the country's population, aged 18 and above, residing in the city centers of 26 cities in Turkey.

Keywords: Public opinion, politics, media, terrorism, economy, Kurdish issue, Turkey.

Introduction

Turkey has been experiencing one of the worst times in its history. Surrounded by different terrorism threats within and outside of its borders, the country is struggling to find the best answer to the question of "how to deal with terrorism." Terrorism is defined as "the unlawful use or threatened use of force or violence by a person or an organized group against people or property with the intention of intimaditing or coercing societies or governments, often for ideological or political reasons" (*dictionary.com*). The victims are anonymous, and the aim is to cause damage or spread a credible threat. To call an act as terrorism, an average "man on the street" needs to feel uneasy about his security the next day (Leitzinger, 2002).

Terrorism is not a new phenomenon for Turkey since 1984 when the Kurdish Workers Party (PKK) began its armed struggle against the country. Despite the rise and fall of the attacks throughout the years, PKK terror never ended completely. Especially after the second part of 2015, it escalated again as a result of the strategy change of Turkish government from soft methods to the military ways by launching heavy military operations against Kurdish insurgents from the outlawed Kurdistan Workers' Party (PKK). By looking at the general picture of the country, it can be easily seen that terrorism is a number one problem not only in political agenda also in public agenda.

The research and analysis of public opinion academically regarding the important agenda items of one country outside of election periods are very rare. This argument is also valid for Turkey. In order to understand how the social and political systems and policies of the country function, there is a need for an empirical assessment of recent trends in Turkish public opinion. Accordingly, this study seeks to fill the gap in the social sciences literature in English regarding Turkey's social and political stand which may be perceived to be very different by other nations (Baybars Hawks 2014, 1). The timely feedback taken from public surveys is important not only yielding important insights into public's opinion about the current agenda in Turkey, but also in shaping of public policies. The information gathered further enlightens us on why and how some problems exist in a particular society.

"The research on political and social trends in Turkish public opinion" has been conducted since 2010 by Kadir Has University Turkey Research Center, where the author works as the coordinator. For the first two years, the method of data collection was CATI (computer-based telephone interviews). Since 2012, the data has been collected via face to face interviews. For the years of 2012, 2013, 2014, and 2015, the sample included 1000 respondents, representative of the country's population, aged 18 and above, residing in the city centers of 26 cities in Turkey. In analyzing data from the "Social and Political Trends in Turkey research", my hope is to develop a new insight in understanding of Turkish public opinion and its underlying factors.

Literature Review

It is important to know how and by whom the public is itself influenced. Diffusion studies center on the process of message adoption and examine the roles of intervening steps and conditions "which increase or decrease the likelihood that a new idea, product, or practice will be adopted by members of a given culture" (Diffusion of Innovations Theory, 2010). According to Watts and Dodds, "[a] central idea in...diffusion research is that influentials—a minority of individuals who influence an exceptional number of their peers—are important to the formation of public opinion" (2007, p.441). "A person evaluates a new idea and decides whether or not to adopt it on the basis of discussions with peers who have already adopted or rejected the innovation"(Rogers & Shinghal, 1996, p.410). This dependence on peers underlines the role of opinion leaders in the innovation diffusion process.

Opinion leaders influence the opinions of audiences via personal contact, 'but additional intermediaries called change agents and gatekeepers are also included in the process of diffusion.' (Diffusion of Innovations Theory, 2010) Besides opinion leaders and other intermediaries, news commentators, presidents, political party leaders and special interest groups also have the power to shift public opinion, which has substantial proximate effects on policymaking.

Diffusion is defined as a process by which either an innovation or information is communicated through certain channels over time among members of a social system (Rogers 1983, p.5). Opinion leaders are initiators of the diffusion of a new idea or practice. The degree of influence exercised by an opinion leader is predicated in part on the potential adopters' assesment of his or her credibility and trustworthiness. Opinion leaders have more credibility with decision-makers because of an established relationship. Although the mass media may be used as a tool, more direct and personal communications may be used to reach opinion leaders, who in turn influence the decision makers.

Public opinion has substantial proximate effects upon policymaking. Government policies are judged according to their foreseen costs and benefits for the public. Since there is great uncertainty about the effects of policies, the expected utility of a particular policy alternative depends upon beliefs about present and future facts and causal relationships. For this reason, "new information that modifies relevant beliefs can change the expected utility for citizens" (Page et al. 1987, p.23-24). And, if the conditions below are "met in the same way for many individuals, there may be a change in collective public opinion..." (Page et al. 1987, p.23-24). These conditions are: If the information is 1) actually received, 2) understood, 3) clearly relevant to evaluating policies, 4) discrepant with past beliefs, and 5) credible (Page et al. 1987, p.23-24).

Agenda-setting is described as the process in which the perceptions of a given issue are shaped by the mass media, the public, and/or policy elites. Following McCombs and Shaw's pioneering study during 1972 American presidential election period, agenda-setting has been heavily researched and more than 500 research articles have been published on the issue by making the field extremely prominent in mass communications. In the past, researchers have been more inclined to focus on what shapes the public agenda, treating the media agenda as an independent variable in that process. Recently, however, they have begun to carry out studies focusing on who and what shapes the news agenda and have thus taken the media agenda as a dependent variable.

On the other hand, according to the agenda-building perspective, not only mass media and policymakers, but also social process which involves mutually interdependent relation between the concerns generated in social environment and the vitality of governmental process carries

importance. Cobb and Elder state " the agenda-building framework makes allowances for continuing mass involvement and broaden the range of recognized influences on the public policy-making process" (1971, p.912).

The advent of the Internet has increased the role of citizens in the agenda-setting process, making everyone as both the reader and reporter of the news. According to Lee, Lancendorfer and Lee (2005, p.59), "various opinions about public issues are posted on the Internet bulletin boards or the Usenet newsgroup by Netizens, and the opinions then form an agenda in which other Netizens can perceive the salient issue." Within this context, the Internet plays role in forming Internet user's opinion as well as the public space. Research on Internet mediated agenda-setting (Kim and Lee 2006, p. 175) revealed 'reversed agenda effects', " meaning that public agenda could set media agenda.

Research Design and Methodology

Knowing the importance of public agenda in the agenda-setting and agenda-building processes, this paper seeks to reveal the current social and political trends in Turkish public opinion. For that purpose, a survey was carried out in December of 2015 to determine these trends in Turkey for that same year.The subjects for the study, which utilized a questionnaire in one-on-one interviews, included 1,000 individuals aged 18 years and older from 26 cities representing the general population. A stratified random sampling frame was used.

The topics covered by the survey were; the most important current problem in Turkey; the Economy; Terror; Approaches to the Kurdish Issue; Evaluations of the Government and Opposition Parties; Evaluations of Institutional Efficiency; Foreign Policy; the Judicial System/Constitution; Democracy and the Media; and, Social Relations/Life in Turkey.

In the interviews used for this study, subjects were first asked about their political opinions and ethnic backgrounds. Those who identify themselves as conservatist and religious make up 37 percent of total population, and when compared with previous years, it looks like the conservatism trend has been stabilized around that amount. A decline has been observed in the ratio of nationalists (16.3%) and social democrats (9.4%), compared to 2014.

In response to the question "How do you define yourself ethnically?" 65.7 percent of respondents replied that they were Turkish and 11.1 of them indicated that they were Kurdish. 16.8 percent of population did not know the meaning of ethnic background.

Results

The Most Important Problem of Turkey is "Terror"

In 2015, terror was "the most serious problem in Turkey" according to the majority of respondents. While 13.9 percent of participants indicated terror to be the most serious problem in the country in 2014, this rate went up to 39.3 percent in 2015. Unemployment, seen as the second most important problem in 2015 at 16.3 percent, has fallen significantly from the much higher rate of 33 percent recorded for the previous year.

Economy not going well

According to the survey results, Turkish public does not think that the economy doing well. While in 2014, in response to the question "How did the economic developments of the preceding year influence you?" 45.3 percent of respondents stated that they were negatively affected, this rate has increased to 53.2 percent this year. Only 5.3 percent of respondents stated that they were in economically good shape. Last year this rate was found to be 7.1 percent. In addition to this, 67.4 percent of the survey respondents state that the Central Bank of Turkey should be independent of politics.

"*Fight against PKK is unsuccessful, Turkey may be divided*"

According to the survey, in 2015 there is a more balanced approach towards solving terrorism problem. Last year, 39.2 percent of respondents stated that military methods were the most effective way to solve this problem, this year however, the same response has fallen to 31.6 percent. The ratio of respondents who regard political measures as being the best remedy for terror has remained unchanged since the previous year at 30.9 percent. This year, options such as culture policies and economic measures seem to come to the fore more than in previous years.

When asked about the government's performance in the fight against the PKK, 45.8 percent of respondents stated that they found the government's performance to be unsuccessful.

Moreover, the survey results reveal that the rate of those who regard Turkey as being in danger of being divided has increased. In response to the question "Do you think Turkey is under the threat of being divided?" 54.2 percent of participants said "Yes." In 2014, this rate was 46.2 percent. When this result is evaluated in terms of political party allegiance, regions and ethnic background, the perception that Turkey is in danger of being divided appears to be the common perception across Turkey.

The percentage of respondents describing ISIS as a terror group and perceiving it as a threat to Turkey has also fallen. Those who describe ISIS as a terror group decreased from 93.2 to 86.4 percent since last year. While in the last survey, 82.3 percent of respondents described ISIS as a threat to Turkey, this rate has decreased to 78 percent this year. 54.1 percent of respondents agree that direct and intensive air strikes should be carried out against ISIS. Moreover, 45.1 percent of participants believe that the recent bomb explosions in Diyarbakır, Suruç and Ankara were "carried out by ISIS alone" and 50.2 percent think that "ISIS was responsible for these events."

The research also reveals that there is a rise in the percentage of people who perceive the government's actions on the Kurdish issue to be successful. While this approval rate was 25 percent in the previous survey, it increased to 29.9 percent this year. There was also a decline in the percentage of respondents who perceive the government's approach to solving the Kurdish issue to be unsuccessful: while this disapproval rate was 47.7 last year, it decreased to 40 percent in the new survey. The 19.1 percent who approve of the government's approach to solving the Kurdish issue do so because they find "The government to be successful in the negotiation process", while the 36.8 percent who find the government's approach to be unsuccessful, state "terror has not ended in all these years" as the grounds for this opinion.

Does the Peoples' Democratic Party (HDP) represent Kurds, and do Kurds want Independence?

When asked whether they thought the Kurdish people were represented by the Peoples' Democratic Party (HDP) and the PKK, the percentage of participants who believe that the HDP represents the Kurdish people was found to be 32.2 percent, while those who believe that the HDP does not represent the Kurdish people was found to be 35.3 percent.

Public's perspective on the PKK's representation of Kurds is as follows: 19.9 percent of respondents believe that the PKK represents Kurdish people, while 52 percent think it does not. 52.8 percent of participants approve of education being provided in the mother tongue, while 47 percent of respondents suggested "Islam" as the main bond connecting Kurds and Turks to each other. 53 percent of respondents expressed a desire for the negotiation process to restart.

The survey also reveals that 64.6 percent of respondents support a unitary state, while 32.6 percent of respondents believe that Kurds desire an "Independent Kurdish State."

Everyone finds his/her own political party and its leader to be successful

The study shows that most of the respondents consider the parties and party leaders they vote for to be successful.

Thus, 42.3 percent of survey participants consider the Justice and Development Party (AKP), 25.9 percent the Republican People's Party (CHP), 13.5 percent the Peoples' Democratic Party (HDP) and 11.2 percent the Nationalist Movement Party (MHP) to be successful. When this question is asked based on the parties the respondents voted for; 65 percent of AKP, 56.3 percent of MHP, 45.6 of CHP and 43.2 of HDP voters consider their parties to be successful.

When it comes to judging leaders' success, the percentage of respondents who describe the following leaders as successful is as follows: AKP's leader Ahmet Davutoğlu 42.3 percent, CHP's leader Kemal Kılıçdaroğlu 25.5 percent, HDP's leader Selahattin Demirtaş 14.9 percent, and MHP's leader Devlet Bahçeli 10.9 percent. This year the percentage of respondents who consider the President Recep Tayyip Erdoğan to be successful is 43.6 percent, while those who consider him to be unsuccessful is 40.7 %. It is worth mentioning that last year 35.9 percent of respondents considered him to be unsuccessful.

The Military is once again the Most Trusted Institution

According to the survey results, the Turkish Armed Forces (TSK) were once again the most trusted institution. While 62.4 percent of respondents stated that they considered the TSK to be successful, police forces were the second most trusted institution at 51.9 percent and universities were third at 49.8 percent. The least trusted institutions were the presidency of Turkish Parliament at 31.8 percent, the media at 27.8 percent and political parties at 33.9 percent.

No support for 'Beştepe' and the Presidential System

When asked whether they approved the Presidential Office being moved from Çankaya to the Presidential Complex in Beştepe, 44 percent of respondents stated their disapproval.

75.4 percent of survey participants stated that the Presidential Office should be neutral.

When asked "What do you think the administrative system of the country should be?" 68,9 percent of respondents stated their preference for "parliamentary democracy". Despite a 10 point increase from the last year, support for a Presidential system remained low at 22.1 percent. 32.2 percent of participants gave as their main reason for not wanting a presidential system the possibility that this would "increase the polarization of society" and 27.1 percent of participants thought a presidential system would lead to "one-man rule."

*Belief in the existence of a 'Parallel Structure' has decreased*Belief in the existence of a parallel state structure within the state has fallen to 43.5 percent of respondents. 63 percent of participants stated that they found the government's fight against the parallel structure to be adequate, while 73.8 percent approved of the methods used to fight the parallel structure.

Support for the European Union continues to fall

While 71.4 percent of respondents supported the EU in 2014, this rate decreased to 65.1 percent this year. There has been a sharp fall in the belief in the possibility of Turkey's EU membership with a decrease from 45.1 percent to 38.3 percent since the last survey. Similarly, the percentage of those who support the continuation of Turkey's NATO membership, which was 76.2 percent last year, has fallen to 69.5 percent in this survey.

Russia is the Most Threatening Country

Although Israel had been at the top of the list of countries thought to "pose the biggest threat to Turkey" since 2011, this year the Russian Federation replaced Israel on this list. The percentages of those who consider the USA, Syria and Israel to pose a threat to Turkey have fallen in 2015.

The Government's Syria Policy is unsuccessful

In 2015, the percentage of respondents who find the government's Syria policy to be completely successful or successful was 29.5 percent, while 50.3 percent consider it to either be unsuccessful or completely unsuccessful. 46.5 percent of people expressed a preference for "being neutral and not intervening."

In the survey, when questioned about the policies Turkey should apply towards refugees, 56 percent of participants stated that Turkey should stop taking more refugees.

78.5 percent of participants stated approval for Turkey's downing of a Russian warplane in Syria in order to protect its borders.

Turkey is changing for the better

In the research, opinions towards changes Turkey is undergoing were also questioned and 63.4 percent of participants stated that they consider Turkey to be a changing country and the percentage of those who believe Turkey is changing for the better has increased from 55.7 percent in 2014 to 60.4 percent in 2015.

Happiness Rates are Falling

When participants were asked about their level of happiness for living in Turkey, it was observed that the percentage of those stating that they were very happy or happy to be living in Turkey has fallen from 60.7 percent to 48 percent since the last survey, while those saying that they were unhappy or very unhappy rose from 19.7 percent to 25.7 since last year.

Conclusion and Discussion

As a result of the changes in technology, there have been major changes in the ways in which people receive their news. Now people search for news in different ways, and therefore, the media and its agenda have to be harmonized. Although the basic assumptions of agenda setting theory have kept their importance with the changes of new media, an aspect of agenda setting theory has changed. This change is called "Agenda Melding" which focuses "on the personal agendas of individuals vis-à-vis their community and group affiliations"(McCombs 2006, 142). "This means that individuals join groups and blend their agendas with the agendas of the group. Then groups and communities represent a "collected agenda of issues" and "one joins a group by adopting an agenda." On the other hand, agenda setting defines groups as "collections of people based on some shared values, attitudes, or opinions" that individuals join" (Ragas and Roberts, 2009, p. 46). In other words, in the past people would learn and adopt the agenda of the group in order to belong. Now with the rapid changes in the access of media, people first form their own agendas and then find groups that have similar agendas that they agree with. The technological advancements have made agenda melding easy for people to develop because there is a wide range of groups and individual agendas. With the advent of the Internet, it became possible for people all around the globe to find others with similar agendas and collaborate with them" (Ragas and Roberts, p.47).

Agenda melding studies intersect with information diffusion. Developments in communication technologies have also created new channels for information dissemination, as they brought up fresh perspectives to agenda setting theory. These developments have triggered new questions about the spread of ideas and policy change.

As the findings of this study reveal, whether or not a policy innovation is adopted depends on how the politics of ideas and how policy debates are shaped in specific contexts. The information diffusion process "tends to rely upon networks of actors sharing similar interests and concerns, who trade in ideas, and whose efforts to shape and structure policies to fit specific contexts constitute what we have come to think of as the politics of ideas" (Mintrom and Mossberger2008).

Under the ruling of AKP, the agenda items have been quickly changing in Turkey, and the public was not able to grasp and understand them. As a result, as indicated in the findings of the survey, the

public did not have concrete opinions on issues such as solution to the terror problem, the Kurdish issue, and Turkey's foreign policy. There is a break in the information diffusion process between the reception and understanding phases. Because of the rapid changes in the political and media agendas, the powerful political actors in Turkey were able to mobilize the public in the directions they desired on certain issues. At this point, there was no surprise to see 10 point increase in support of the presidential system, compared to 2014. President Recep Tayyip Erdoğan has been very successful alone to lead the public opinion on that issue. It can be even speculated that he is the most powerful actor in Turkey that sets the political, media, and even the public agendas regardless of whether the media covers, voluntarily or involuntarily, what the government wants.

Turkey is becoming a polarized society in many respects. The research findings indicate that the majority of respondents do not want live with others different than themselves politically, ethnically, culturally, in addition with others from different religions and different gender preferences. Most of the participants are also in dilemma regarding whether Turkey is western or eastern country. The same dilemma also exists in the perceptions of whether the country belongs to Europe or Middle East, it is a modernized or underdeveloped country, and whether the Turkish society is religious or a secular society. The survey results point out the equal segmentation (50/50) in the population holding the one side of these beliefs. Although there reveals a consistent trend in public opinion about certain issues for the last five years of the survey, on most others, the public opinion has also been changing, in a country experiencing an identity crisis.

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Policies and Protections for Ageing Society in Malaysia

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Abstract

The 4th Malaysian Population and Family Study by the National Population and Family Development Board (1), which was matched with the result of the population and housing census in 2010 found that about 23%, or 538,000 of the 2.4 million senior citizens in Malaysia suffered from the 'empty nest' syndrome. A report issued by the UN Development Programme (UNDP) stated that 90% of the contributors towards the Employees Provident Fund (EPF) in Malaysia did not even have enough money to live a simple lifestyle for a period of five years after retirement. United Nation projected that the country will achieve the status (ageing country) in year 2030. Malaysia in an upper middle-income country and as of 1 January 2016, the population of Malaysia was estimated to be 31,127,247 people. This is an increase of 1.58 % (482,954 people) compared to 30,644,293 people the year before. In 2015, the natural increase was positive, as the number of births exceeded the number of deaths by 494,905. Due to external migration, the population declined by 11,951. The sex ratio of the total population was 1.029 (1,029 males per 1,000 females) , which is higher than the global sex ratio. The global sex ratio in the world was approximately 1,016 males to 1,000 females as of 2015.(2) This paper analyses the Malaysia government's policies and protections in overcoming ageing society and preparing to support and assist the ageing population by 2035. The researcher uses doctrinal research methodology and secondary statistic from the authorities for this research to gather the data and examining the policies. Interestingly, despite the policies and protections suggested and implemented by the government, there are still much more the government needs to do to overcome the challenges faced by the ageing society in Malaysia.

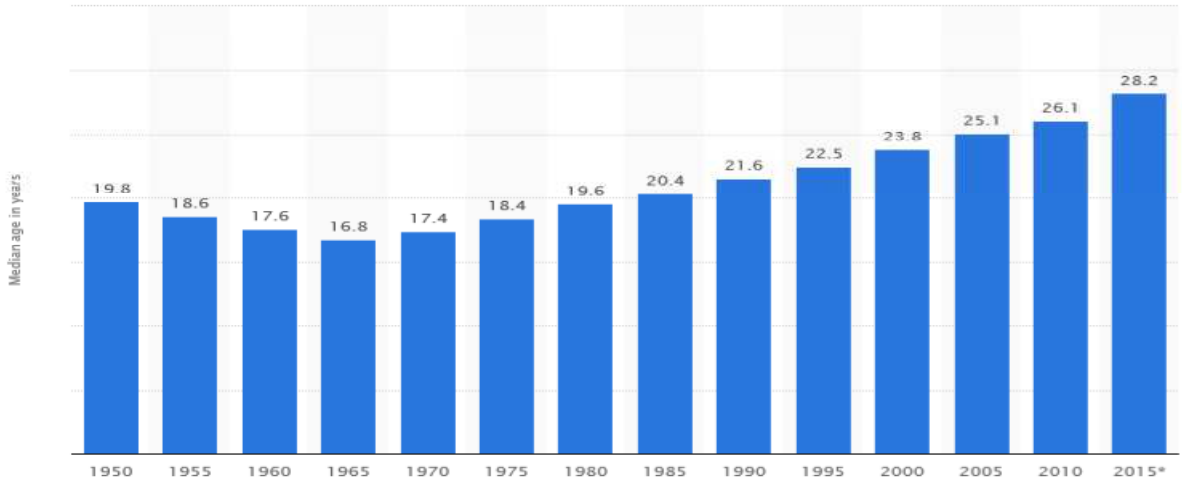
Keywords : Ageing Society, Policies, Protections

1. Introduction

Department of Statistic (DOS)(3) Malaysia, estimates that in 2015, the proportion of the Malaysian population aged 60 years and older is 9.1% outnumbering the proportion of children younger than five years old by 0.6%. Even though, this may seem like a small difference, the gap between the two age groups is set to increase continuously and dramatically over the next three decades. This is a reflection of the phenomenon known as population ageing, defined by the United Nations (UN) as "the process by which older individuals become a proportionally larger share of the total population." According to the National Population and Family Development Board (LPPKN), based on projections made by DOS, Malaysia is expected to reach ageing population status by the year 2035, at which point 15% of the total population will be 60 years and older.

The key challenge for Malaysia is managing and planning for the ageing society. By 2030, 15% of Malaysian population will be above 60 years of age. This indicates that Malaysia's government has to ensure decent employment as well as awareness programmes and services for the young, while at the same time, providing necessary assistance of life options for the elderly. The changes and increasing life expectancy, the economic development and the challenging of family relationships pose a number of challenges, especially in financial sustainability, adequacy of retirement incomes, healthcare financing, care and support and social security for the elderly population.

Average age of Malaysia population from 1950 to 2015(4)



Source: http://www.statista.com/statistics/318690/average-age-of-the-population-in-malaysia/ (7th August 2015).

An increasingly large proportion of global elderly, especially in developing nations, as continued pressure is put on limiting fertility and decreasing family size. Traditionally, elderly care has been the responsibility of family members and provided within the extended family home. Currently, modern societies, state or charitable institutions are now providing elderly care. These changes are due to decreasing family size, the greater life expectancy of elderly people, the geographical dispersion of families, and the tendency for women to further their education and work. Malaysia is facing the same challenges and obstacles like any other aging society. Such as in the case for Japan, their life expectancy is about 83 years. In many ways, the requirements of senior citizens are similar to what disabled people need. Disability experts mention that accessible public facilities in developed countries such as Japan and Singapore were established for the ageing population rather than for disabled people. With that in mind, and observing that disabled people are facing great difficulty in society, Malaysia is currently not ready to cater to the needs of senior citizens by any measure.

Notwithstanding that, it is not insolent to cast doubts on the determination of the government in preparing the country for an aged population. Like disabled people, senior citizens needing the convenience of accessible facilities are facing difficulties now. If the situation remains unchanged, many more will experience exclusion 20 years down the road.

2. Policies Proposed

2.1. The revised National Policy for Older Persons (2010-2015) outlines 6 strategies (5) to empower the individual, family and the community towards improving the well being of the older Malaysian through improving the efficiency and effectiveness of the programmes.

2.2 The UNFPA (United Nations Population Fund) Country Programme for 2013-2017, is consistent both with the national priorities of Malaysia as delineated in the 11th Malaysia Plan.(6) The Government of Malaysia began the first cost-sharing arrangement with UNFPA in July 2003. The four specific outcome areas within the 11th Malaysia Plan are, namely:

a. The five-year plan reaffirms the government's commitment to the people, and the belief that growth cannot be measured by economic success alone.
b. The plan reckons that the well-being of the rakyat and a commitment inclusive and sustainable growth are necessary hallmarks of an advance nation.
c. The Malaysian Well-being Index to increase by 17% per annum, an indicator of improvement in the well-being of the rakyat.
d. Poverty rate dropped to 0.6% in 2014, from 49.3% in 1970.

2.3 A five year Country Programme is proposed in January 2013 to be implemented under a continuing cost-sharing arrangement between Government of Malaysia and the United Nations Population Fund. The cooperation will be based on a systematic situational analysis and country programme assessment and the joint development of a response strategy through this Country Programme Action Plan. Given this context, the Country Programme has addressed the improvement of services of cohesive approach to population dynamics, including the management of the interaction of multidimensional factors in meeting the needs of a country that has both a very young as well as an increasingly aged society/nation.

3. Economy Situation

The Unemployment rate in Apr 2015(7) stayed at 3.0% as the number of jobless fell slightly to 429,000 from 430,800 in Mar 2015, although this was up 5.4% from a year ago when the jobless rate was 2.9%. However, the seasonally adjusted unemployment rate edged up to 3.1% versus 3.0% in Mar 2015. The jobless rate was relatively stable. Despite the unemployment rate is relatively stable at the moment in Malaysia, the government should still monitor the aging factors of the society, whereby it may affect the contribution to the economy by 2035. Hence, the National Policy for the Elderly(8) is a great step forward in preparing the Malaysian society for a transition into an ageing society. One major issue that affects the welfare of the elderly is conspicuously absent from the Policy - social security, which is included as a sub-program. Although health care receives substantial attention, the financing aspect is not covered. The emphasis of the Policy appears to be on social aspects, not denying that these too contribute toward the well being of the elderly.

The author Ong Fong Sim stated in his article,(9) stated “in Malaysia, insufficient retirement savings is a cause of concern. Individuals with no savings or insufficient pension funds will find it financially demanding to get through their old age, especially with the current cost of accommodation, food, medical expenses and other basic items. Dealing with financial problems at an old age will increase stress among those in the age group and prevent them from enjoying their retirement or living in a comfortable life. Challenges that arises as a result of ageing is not limited to senior citizens, rather, it also has consequences to the people surrounding them”. A report published by the United Nations

Development Programme (UNDP)(10) mentioned that 90% of retirement fund contributors did not have sufficient funds to sustain even a simple lifestyle for five years after retiring. In Malaysia (11), formal social protection systems include: the Employees Provident Fund (EPF), 1951, the Social Security Organization (SOCSO) established in 1969, Government pension scheme for Civil servants, Old Age Benefit Scheme for the Armed Forces, and private sector provident and pension funds. These different schemes provide protection for different contingencies such as disability as in the case of SOCSO, old age (pension and EPF) and deaths. "While these schemes provide coverage for the formal sector, the provision is not mandatory for those in the informal sector, which is substantially large in Malaysia. Although EPF is extended to the self-employed on a voluntary contribution basis, the participation rate is low. Those in the informal sector have to rely on savings, drawing down on past wealth and financial support from children to provide them with income security in their old age" (Ong Fong Sim, 2001).

As for Pension, Ong further stated, "it is a non-contributory social security scheme for government employees. Pensions expenditure is wholly borne by the Federal Government through annual allocation from the Federal Budget. It is a pay-as-you-go plan. An employee who has served at least 10 years is entitled to receive a life-long monthly pension upon retirement. The quantum receivable by an employee who has completed at least 25 years of service is half of the last drawn salary. This scheme serves not only as a security for old age, it is designed to provide financial assistance to the dependents of those in the Government service in the event that the government employee passes away while in service or after retirement. The pension also provides compensation to officers who are forced to retire or pass away due to injuries or sickness in the course of performing their official duties. These kind of retirement benefits offered in the pension scheme include service pension and service gratuity which is a lump sum payment granted to a pensionable officer upon retirement. The other type of benefit is in the form of derivative pension, which is granted to the widow/widower/child of a permanent and confirmed officer who dies in service. Derivative gratuity is payable to the widow/widower, child, and mother/dependant father of the deceased or legal personal representative of the deceased officer if the officer dies in service. It is a safety net for the widowed spouses and it is particularly beneficial in providing for the female spouses as they generally experience a higher incidence of widowhood. In terms of coverage, only less than one per cent of the people are protected. In view of the large pension pay out, the government has taken steps to ensure that pensions payment do not become a burden for the government in the future".

"Apart from social security as the primary source of income for the aged, savings, personal life insurance and unit trust funds are alternative forms of sources of protection available to the elderly. The national investment schemes provide attractive returns with the aim to encourage wider participation, particularly, participation from the lower income group. All these are voluntary schemes and hence individual decision is critical in influencing participation.

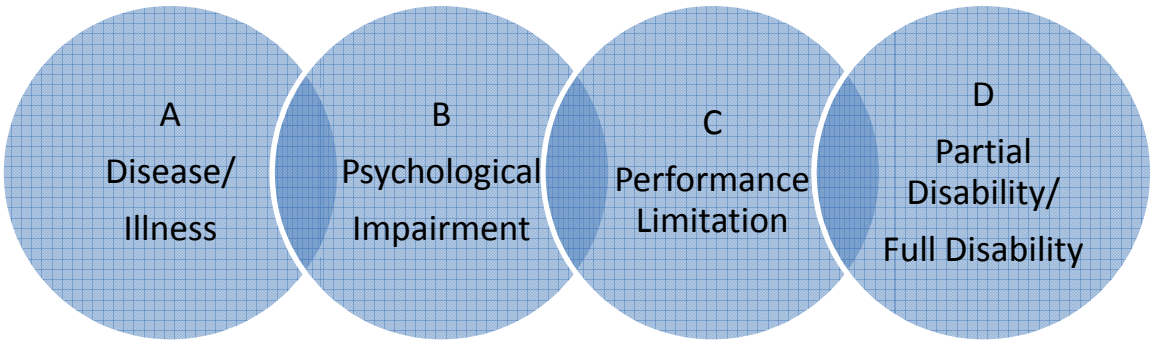
Purchasing an insurance policy is also another alternative toward saving for old age, although it provides protection to other sections of the population as well. Insurance is a way of protection against interruption or elimination of earning capacity of human capital and property resources. It is used as a shield against unexpected expenses that might diminish disposable income available for financial planning objectives including those for retirement. Possessing an insurance policy minimises and ensures against unnecessary economic hardships during ones working life as well as during retirement. No specific insurance scheme is tailored for the elderly at the moment in Malaysia except trust funds recently offered by participating banks" (Ong Fong Sim, Ageing in Malaysia: National Policy and Future Plan, Faculty of Business and Accounting, Universiti Malaya, May 2001).

4. Findings and Recommendations

As stipulated earlier, a country is said to have become an ageing nation when 15%of the population falls into this group. Recent projections estimate Malaysia will achieve that status in 2035. With only 20 years to go, how prepared are we in handling issues related to growing old? Two decades may seem like a long time still, but going by past records, our complacency in the preceding years will come back to haunt us when we pass that threshold without having put the necessary measures in place. In many ways, the requirements of senior citizens are similar to what disabled people need. It

was pointed out by disability experts that accessible public facilities in developed countries in Asia like Japan and Singapore were put in place because of the ageing population rather than for disabled people specifically. With that in mind and seeing that disabled people are facing great difficulty in society, we are currently not ready to cater to the needs of senior citizens by any measure. There are two laws that regulate facilities for disabled people, by-laws 34A and 34B. Senior citizens and the general public can benefit from them as well. What is good for disabled people is good for everyone else. By-law 34A and 34B of the Uniform Building By-laws cover all states in the peninsula. It is a disappointment to see many new buildings and the majority of old buildings within the jurisdiction of the by-laws are still not in compliance with the requirements due to the lack of implementation and enforcement. Like disabled people, senior citizens needing the convenience of accessible facilities are facing difficulties currently. If the situation remains unchanged, many more will experience exclusion 20 years down the road. The rates for private nursing homes start from RM1,200 per month excluding medical treatments and other recurring expenses. The total monthly expenditure can amount to more than RM3,000. This is beyond the means of many senior citizens. There is an urgent need for a better support system that is affordable and one they can fall back on in times of need. Support extended to senior citizens must ensure that their dignity is preserved and a reasonable quality of life assured. After all, they contributed to the nation in their prime. It is not too much to ask that the nation properly provides for them in their golden years should they require it, although currently the government has implemented numerous policies for the betterment of the aged society; however, there are much more to be achieved especially in healthcare and medical financing for the elderly as shown in Chart A- Progression of Ageing.

Chart A-Progression of Ageing



Source : Researchers' Self Development Chart

Stages A-D indicates medical assistance, healthcare and public facilities and all these involves financial implications and the majority of the elderly in Malaysia needs such support upon reaching age 60 and above. Empty nest elders have considerable needs for daily living, health care, social support and public facilities support. The growing need for care of an aging population requires to be met through adequate policy decision making by the government.

Conclusion

A sound old age pension or employee provident fund (EPF) system is needed to guarantee sufficient financial support for the elderly. Looking into the future, positive steps towards an improved pension or employee provident fund contribution system are as follows:

(1) Expand the coverage of the pension/EPF system to bring more percentage of worker and employees into the social security system.

(2) Gradually increase the payment standards of the pension/EPF so that the participants of the system can get more benefits. It can make the system more attractive to those potential participants.

(3) Improve the management of the fund, especially increase the net value of the assets by investing them in a prudent manner.

End Notes

1.Malaysia to become ageing population by the year 2030, The Sunday daily, 17 March 2015

2.Malaysia Population Clock. http://countrymeters.info/en/Malaysia (22nd February 2016).

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Scenarios for regionalization – Analysis on Romania's educational system using Onicescu informational statistics

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Abstract

We have demonstrated that the model for Romania's regionalization has to consider multiple criteria. The purpose of this paper is to study one of them, the educational system. With the help of informational energy, we show that Romanian regions are very homogeneous regarding the number of students and teachers and their areas of residence, and they are also homogeneous when considering the number of schools in rural and urban areas from each county. This leads to the conclusion that we cannot use these criteria in order to decide on the structure for regionalization and that other variables also need to be analyzed.

Key words: development, education, regionalization, informational statistics, informational energy.

JEL Classification codes: C49, I21, I25, R13

1. Introduction

Regionalization with the purpose of stimulating economic development and cooperation with other regions in the European Union has been a common discussion in the last few years in Romania. Our so called "development regions" have only statistical purposes, they lack the status of administrative units and institutions able to stimulate progress. Before creating these institutions it is necessary to find the optimal structure for each Romanian region.

In previous studies (Lie, I. R, Mihăiţă, N. V., 2014, pp. 1-6), we have reached the conclusion that regionalization needs to be decided using multiple criteria, in order for them to be efficient and to last. Consequently, this study on the educational system is part of a more extensive research, taking into account different social and economic aspects important for Romanis's development. Until now, we have found that regions are homogeneous regarding population (Lie, I. R., 2015, (a), pp. 22-28), while variables from industry and services can be used in order to decide on the optimal formula for the terriotiral organization (Lie, I. R, 2015, (b), pp. 11-18).

In this paper we focus on variables from the educational area: the number of pupils and students, on levels of educations and areas of residence, the number of teachers, also considering the level of education and the areas where they teach, and the number of schools in rural and urban areas. We find that regions are homogeneous from these points of view, which means that other varibles should also be considered in order to make a decision on regionalization.

The first section of the paper presents the importance of education in development, as it is shown in literature, and the main characteristics of the Romanian educational system. Next, we discuss the methods used in the analysis and the results we obtained. We conclude with the main findings of the study and directions for further research.

2. General Characteristics of the Romanian Educational System

One of the main reasons that generated the process of regionalization is the necessity to stimulate Romania's development. We have chosen, as part of an extended study, to include the analysis of the educational system because we consider it is essential for development: "the economic development of a country depends on the level of education of its citizens" (Biriescu, S., Băbăiţă, C., 2014, pp. 77-86). The significant role of education is also underlined by UESCO (2007), in a document cited by Sedlacek: "education has the potential to play a major role in the future realizations of a vision of sustainability that links economic well-being with respect for cultural diversity, the Earth and its resources" (Sedlacek, S, 2013, pp. 74-84).

Also, related to the subject we study, regionalization, there are authors who emphasize the fact that education at all levels has great impact on the areas surrounding the educational institutions, but their role is often underestimated (Sedlacek, S., 2013, pp. 74-84).

The educational system in Romania has suffered different changes in the last years, in order to improve its performance, but reforms haven't proved useful. The system is currently characterized by a decrease in the weight of those who pass national exams (especially the baccalaureate at the end of high school), and also, by a decrease in the scores they receive. Also, there are concerns regarding the low scores that Romanian students obtain in the PISA tests.

Another important characteristic of the educational system is the presence of important differences between the education in rural and urban areas: in rural areas the enrollment rate is lower than in cities, the average duration of school attendance is also lower in the countryside, and school dropout is less frequent in urban areas (Apostu, O. et al, 2014, pp. 1-66). These problems come from the economic situation of the families (the lack of financial support especially for students coming from rural areas makes them dropout of school and get a job in order to help their parents), from the poor quality of education in the countryside (which makes children to migrate to urban schools) and from the lack of well-prepared teachers, who don't find it motivating to teach in those areas.

A positive evolution has been noticed in the professional education, with an increasing number of students who choose this path (Apostu, O. et al, 2014, pp. 1-66). A positive effect of this is the decrease in the dropout rate from high schools.

Also, as a consequence of lower graduation rates in the baccalaureate, the number of students who choose post-secondary education and foreman education has increased (Apostu, O. et al, 2014, pp. 1-66), which we consider to be a good thing, as not all high school graduates can cope with tertiary education.

It is obvious that some progress has been made, especially in what professional education is concerned, but there are still many reforms to be done and we consider that these reforms would have better results if they were designed for each region, considering the characteristics of each area. This will be easier to implement when regions will have administrative status, this is why we included the education system in our research on how to regionalize Romania in the optimal way.

3. Methodology

For this study we have chosen three variables that we consider important when analyzing the complex educational system: the number of pupils and students in each Romanian county, the number of teachers and the number of schools in these counties. We have calculated the informational energies for the regions of Romania, in order to determine their level of homogeneity regarding the three variables considered. As we have previously mentioned, the main purpose of our extended research is

to obtain the optimal formula for Romania's regionalization, so we have compared the homogeneity of the regions calculated for the current structure and for the proposed structures, the goal being to find the most homogeneous version.

We have used the latest data provided by the Romanian National Institute of Statistics, corresponding to the year 2014.

4. Data Analysis

First, we have analyzed the homogeneity of Romanian regions considering the number of pupils and students in each county, considering both the different levels of education (primary education, high school, professional education, post-secondary education and foreman, tertiary education), and the area of residence (rural and urban areas).

As Table 1 shows, in most of the cases the information gained is less than 5%, which means that from this point of view, Romanian regions are very homogeneous. However, except for Center region, the information for the proposed structures is lower than for the current version, which means that reorganizing the regions the way we propose would lead to more homogeneous regions. It is also worth mentioning that we have less homogeneity when analyzing the number of pupils and students by area of residence, which means that there are more differences between counties regarding the number of pupils educated in urban and rural areas. Some of the causes for this situation are the fact that in the country school dropout rate is bigger than in cities, and also the fact that some families from rural areas send their children to study in cities, hoping they will receive better education there.

Table 1: Informational energies - Results for pupils and students

Region	Structure	Information gained - levels of education (%)	Information gained - areas of residence (%)
Northwest	Current: BH, BN, CJ, MM, SJ, SM	6,688	3,379
	Version: BH, MM, SJ, SM	0,924	1,019
West	Current: AR, CS, HD, TM	2,586	2,327
	Version: AR, CS, TM	2,273	0,070
Center	Current: AB, BV, CV,HR, MS, SB	1,609	1,712
	Version 1: AB, BV, CV,HR, MS, SB, CJ, BN	5,217	3,224
	Version 2: AB, BV, CV,HR, MS, SB, HD	1,630	3,254
	Version 3: AB, BV, CV,HR, MS, SB, CJ, BN, HD	5,083	4,228
Southeast	Current: BR, BZ, CT, GL, TL, VN	1,694	4,033
	Version: BR, BZ, GL, VN	1,219	3,913
South Muntenia	Current: AG, CL, DB, GR, IL, PH,TR	0,671	2,083
	Version: AG, DB, GR, PH,TR	0,537	2,329
New region in the Southeast	CL, CT, IL, TL	2,309	2,856

North East	Current: BC, BT, IS, NT, SV, VS	1,437	0,302
Southwest	Current: DJ, GJ, MH, OT, VL	1,400	0,096

Source: Excel calculations based on data from Romanian National Institute of Statistics, corresponding to the year 2014.

It can also be seen that the region we proposed to create in the Southeast of Romania, made of two counties from Southeast Region (Constanţa and Tulcea), and two from South Muntenia (Ialomiţa and Călăraşi), is very homogeneous. The two regions we consider should remain unchanged, North East and Southwest, are also homegeneous, which supports our opinion.

Next, we have analyzed the homogeneity of the regions, considering the number of teachers in each county. In this case we have also considered the levels of education (school education and university education), and the area in which they teach (rural versus urban areas, only for primary and secondary education).

Table 2: Informational energies - Results for teachers

Region	**Structure**	**Information gained - levels of education (%)**	**Information gained - areas of residence (%)**
Northwest	Current: BH, BN, CJ, MM, SJ, SM	11,185	3,389
	Version: BH, MM, SJ, SM	2,297	1,321
West	Current: AR, CS, HD, TM	5,570	1,970
	Version: AR, CS, TM	5,170	0,344
Center	Current: AB, BV, CV,HR, MS, SB	1,885	1,984
	Version 1: AB, BV, CV,HR, MS, SB, CJ, BN	8,908	3,122
	Version 2: AB, BV, CV,HR, MS, SB, HD	1,725	3,167
	Version 3: AB, BV, CV,HR, MS, SB, CJ, BN, HD	8,514	3,865
Southeast	Current: BR, BZ, CT, GL, TL, VN	1,543	2,460
	Version: BR, BZ, GL, VN	1,161	1,733
South Muntenia	Current: AG, CL, DB, GR, IL, PH,TR	0,388	2,538
	Version: AG, DB, GR, PH,TR	0,320	2,890
New region in the Southeast	CL, CT, IL, TL	1,796	3,604
North East	Current: BC, BT, IS, NT, SV, VS	5,535	0,338
Southwest	Current: DJ, GJ, MH, OT, VL	2,454	0,299

Source: Excel calculations based on data from Romanian National Institute of Statistics, corresponding to the year 2014.

As it can be seen in Table 2, Romanian regions are also homogeneous when considering the number of teachers, both in the current structure, and in the proposed one. As in the case of pupils and students, the level of homogeneity grows in the proposed versions, except for the Center version. This result is not surprising, as the Romanian educational system has a number of teachers proportional to the number of students. As noticed for the other variable, the level of homogeneity is lower when analyzing the number of teachers according to the area where they teach. This is because in most of the cases, rural areas are less accessible; combined with the fact that wages are small, and working conditions are poor, teaching in the countryside is not motivating for teachers.

It is interesting to see that the regions in the South and East are more homogeneous, than those in North, Center, and West (area more developed than the others), which means that some counties from North, Center, and West are less developed than their neighboring ones, while in the rest of Romania counties have a more similar level of development.

The last variable studied was the number of schools, considering their location: rural or urban areas. The results of the calculations are shown in Table 3.

Table 3: Informational energies - Results for schools

Region	Structure	Information gained - areas of location (%)
Northwest	Current: BH, BN, CJ, MM, SJ, SM	3,705
	Version: BH, MM, SJ, SM	3,121
West	Current: AR, CS, HD, TM	1,313
	Version: AR, CS, TM	1,446
Center	Current: AB, BV, CV,HR, MS, SB	2,064
	Version 1: AB, BV, CV,HR, MS, SB, CJ, BN	2,696
	Version 2: AB, BV, CV,HR, MS, SB, HD	1,819
	Version 3: AB, BV, CV,HR, MS, SB, CJ, BN, HD	2,457
Southeast	Current: BR, BZ, CT, GL, TL, VN	4,930
	Version: BR, BZ, GL, VN	3,113
South Muntenia	Current: AG, CL, DB, GR, IL, PH,TR	1,625
	Version: AG, DB, GR, PH,TR	1,926
New region in the Southeast	CL, CT, IL, TL	6,662
North East	Current: BC, BT, IS, NT, SV, VS	0,510
Southwest	Current: DJ, GJ, MH, OT, VL	0,693

Source: Excel calculations based on data from Romanian National Institute of Statistics, corresponding to the year 2014.

As Table 3 shows, the situation for this variable is not as simple as for the other two, even if the information gained is less than 5%, sign of a high level of homogeneity. Most of the regions show more homogeneity in the proposed version, but West and South Muntenia are more homogeneous when keeping their current structure. The most homogeneous regions are those for which we didn't propose any change, North East and Southwest.

The high level of homogeneity of the educational system makes it impossible to use it in order to decide on the structure of the new Romanian regions, but the analysis can be developed further and used in order to propose suitable educational policies in each region, after they obtain their status of administrative-territorial units.

5. Conclusions

To sum up, in an attempt to find the optimal structure for Romania's regions (rank NUTS 2), we have studied variables regarding the educational system, as we consider this domain to be extremely important for development.

Using informational statistics, we have tested the homogeneity of Romania's current development regions, and also that of the proposed regions, regarding the number of pupils and students, the number of teachers and the number of schools. We have studied these variables considering the different levels of education, and also the area of residence, comparing the situation for rural and urban areas.

We reached the conclusion that in both current and proposed structures, Romanian regions are very homogeneous from the education point of view, which means that these variables cannot be used when deciding on the optimal formula for regionalization. The results can be used after the decision is made, in order to promote the best educational policies for each area. The extended research will continue, considering other variables, from other domains, that would help decide on the regionalization formula.

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Documentation Strategy in Collecting Intangible Cultural Heritage (ICH) Collection at Cultural Heritage Institutions: A Conceptual Framework

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Abstract

Heritage is property that is transmissible by hereditary; it is treasury that has been owned before by some community, group, society, or humanity, and it has now become a priority in preserving and conserving the heritage. To consolidate and nurture appreciation that is intact to culture and heritage within a society, various efforts have been taken to protect, by collecting and documenting cultural heritage whether with tangible or intangible cultural value. Overall, the aims of this study are to propose a conceptual framework formation on the implementation of documentation strategy for Mak Yong's Performing Art collection in the cultural heritage institutions. Therefore, a pure qualitative methodological approach was used by a case study design, conducting semi-structured interviews and document analysis to examine the aperture on the implementation of documenting intangible cultural heritage collection in national archives, museums, and libraries.

Keywords: Documentation Strategy, Intangible Cultural Heritage, Traditional-performing art, Mak Yong

Introduction

Heritage is like an archaic diary that represents the life journey and civilization of a certain community through inherited knowledge and expertise of lifestyle, beliefs reincarnated through cultural objects, tradition, beliefs, and others. Heritage is divided into two main categories: tangible and intangible heritage, which respectively has a significant interest to the nation, community, organization, and individual. Tangible cultural heritage can be defined as something permanently seen, static, and portable (Jabatan Warisan Negara 2007; Lowenthal 2005; McLean 2006; Wilson 2009). Meanwhile, intangible cultural heritage is something explicit such as knowledge, expertise interpreted through oral tradition, customs, values and culture, language, and literature (Boylan 2006; Ekwelem et al. 2011; Howell 2013; Rees 2012; UNESCO 2013; Yazid Saleh 2010). The Malaysia National Heritage Act 2005 (Act 645) broadly identify an intangible cultural heritage as including any form of expressions, languages, lingual utterances, sayings, musically produced tunes, notes, audible lyrics, songs, folk songs, oral traditions, poetry, music, and dances produced by the performing arts, theatrical plays, audible compositions of sounds and music, and martial arts, that may have existed or exists in relation to the heritage of Malaysia or any part of Malaysia or in relation to the heritage of a Malaysian community.

UNESCO's effort through the Convention for the Safeguarding of Intangible Cultural Heritage 2003 concerning the ICH has seen an upsurge due to awareness of the disappearance of traditions as a result of failure in local cultural reproduction, preservation, and maintenance in the globalization epoch. This has prompted Malaysia to get a proclamation of intangible heritage. On 25 November 2005, UNESCO declared Mak Yong's Performing Art as the "Third Proclamation of Masterpiece of the Oral and Intangible Heritage of Humanity" in the world. This is an enormous recognition and a huge responsibility to the nation to conserve and preserve it as a world heritage and to make it accessible and profitable to the country.

Overview of Mak Yong's Performing Art

Mak Yong is an ancient dance-theater form integrating the elements of ritual, stylized acting and dance, vocal and instrumental music, song, story and formal as well as improvised spoken text (Yousof 1979). It is predominantly found in the villages of Kelantan in the northwest of Malaysia and performed mainly for entertainment or ritual purposes related to healing practices. However, the region's governmental authorities are adjudicative and prohibit this cultural capital of Malaysia because it contradicts with the Islamic ideology, which bars the sexual involvement in the performances. Due to this strict prohibition, this cultural heritage is being eroded by the premier mainstream, modern social focuses, and the lack of community engagement. Moreover, Ab. Aziz Shuaib & Raja Iskandar Raja Halid (2011) conceive that this action debilitates the Malay ICH particularly the performing arts given the rising tide of Islamization in Malaysia.

National support of ICH

National support in the safeguarding of ICH can be seen through the setting up of a national agenda. Two decades of Malaysia Plan from the 7th Malaysia Plan (1996-2000) to the 11th Malaysia Plan (2016-2020) comprise of respectable planning, strategies, and outcome in integrating the cultural heritage sources. Below is a table that summarizes the main cultural agenda of each Malaysian Plan.

Table 1: Malaysia National Plan (RMK) main agenda

Malaysia National Plan	Main Agenda
RMK-7	Development of a cultural infrastructure
RMK-8	Appreciation and promotion of cultural heritage as a tourism attraction
RMK-9	Preservation and conservation of cultural heritage products
RMK-10	Art and cultural transformation
RMK-11	Research and expansion of the cultural heritage

The Ninth Malaysia Plan's (2006-2010) documents encompass the strategies, programs, and the required allocation of RM 442.2 million budget. A total of 63 percent was allocated to the relevant organizations that deal with heritage to realize heritage protection, preservation, and conservation programs in cultural heritage (Nurulhuda Adabiah Mustafa & Nuraisyah Chua Abdullah 2013). The national archive and national museum received a total of RM113 million and RM100 million respectively in support of distribution of information and knowledge among the public as well as to promote research and generate a source of economic growth (Unit Perancang Ekonomi 2005).

Roles of the Cultural Heritage Institutions in Safeguarding ICH

Globally, archives, museums, and libraries are recognized as cultural heritage institutions that are responsible for managing, storing, classifying, distributing, and preserving the rich resources for access to the public and for transmission from one generation to the next. These institutions have their own methods of collection and management; archives act as national research centers that collect and maintain records and vital documents containing particular evidence and history; museums act as the national exhibition center in collecting and demonstrating objects and artifacts; and libraries act as an information resource center in collecting various sources of reference.

However, when reviewed from the perspective of documentation science, it can be said that the relationship among archives, museums, and libraries are "related". They are related because each one deals with documentation concerning the activities of acquisition, classification, description, storage, preservation, and reference services towards enriching the cultural heritage (Sulistyorini 2015). The collaboration of the

documentation activities among these institutions will instigate responsiveness in sustaining the cultural heritage and enriching the ICH collection. Cox (2003) describes this as a multi-institutional collaboration in establishing institutional archival programs rather than being especially dependent on collecting historical manuscripts, setting explicit goals for developing documentation, and merely achieving adequate documentation by analyzing existing records that are often fragmented. In addition, Perera and Chandra (2014) expressed that archives, museums, and libraries can collaborate not only in documenting ICH collection to ensure accessibility and sustainability for future generations but also in assisting countries to generate income for economic stabilization.

Literature review

Documentation strategy model

In archival science, Helen Samuels, Larry Hackman, and Patricia Aronsson initially presented the documentation strategy concept at a session of the 1984 Society of American Archivists' annual meeting. In spearheading the work in the archival literature, Helen Samuels (1986) proposed the characteristics for documentation strategy that would require (1) a particular scope of documentation; (2) the involvement of archivist, records creator, users, and administrators; (3) multi-institutional participation; (4) encouragement in the creation of records, rather than only dealing with existing documentation; and (5) continuous processing and improvement for transformation to take place. Years later, other proponents such as Hackman and Warnow-Blewett (1987) emanated a model for the development and implementation of documentation strategies by viewing the case study of the documentation program at the Center for History of Physics in the American Institute of Physics (AIP). Experience from the project offered further reassurance that a documentation strategy could be successfully implemented.

This model remained until Richard Cox reviewed it as a "largely untested" concept (Cox 1989) against the Western New York Documentation which poses a number of additional issues about the documentation strategy that still needs resolving such as geographical issues, funding resources, long-term strategy, and the issue of what distinct options of the documentation strategy model may yield better results in enhancing the documentation of a society. Based on the outcome of this project, Cox suggested that the documentation strategy had four basic elements: (1) an analytical tool; (2) an interdisciplinary process; (3) recognition of inherent documentary problems; and (4) the formulation of a plan. The stance of both scholars has an apparent trifling gap because it is still focused on the development of collection in the archival institutions, refined acquisition policies and formulation of plans to assure adequate documentation, which necessarily involves the step of identifying and filling the gaps in existing documentation strategies.

Community engagement and trust

The Convention strongly recommends community participation in all safeguarding activities (Article 15) where ICH depends on continuous community involvement for its presence, and community participation is an imperative tool in documenting ICH. This involves thorough awareness and continued engagement and trust with local communities, involving practitioners, community, organization or local people of a province in ICH mapping. Chaudhuri (2012) proposed that the community and practitioner lead the documentation process with the information; however, this might raise issues prompting further research. On the other hand, Deacon (2012) argued that the most successful community-research partnerships have a community-driven motivation for involvement, community representation at an early stage of the project design, strong community involvement in implementation, and dedicated community liaisons. Although the Convention encourages and even requires community engagement in safeguarding ICH and a number of existing guidelines that could be used to address some specifications on documenting ICH as a tool for safeguarding, new ICH documentation guidelines or framework would need to be designed together with appropriate existing guidelines and additional guidance for use by community members, documentation experts, researcher, NGOs, etc.

Cooperative Collection Development Policy

The key elements in implementing an integrated documentation of ICH among cultural heritage institutions are considering and applying cooperative collection development policy for the institutional collection. According to the necessary steps in a thoughtful and systematic acquisition program by Booms (1987), it involves an extensive social theme with a perspective to preserve records representing the topics in a variety of repositories (including private archives, public archives, libraries, museums, and other appropriate institutions).

However, to develop a successful documentation project, a practical and flexible written collection development policy with standards as well as a constructed strategic plan for continuing collections that emphasize on particular communities or events are required (Thomas 2010). A more practical policy can be used to guide archivists, museum curators, and librarians to make decisions on collections that need to be accepted, rejected, or ignored in order to fulfill the gap of institutional collections.

Professional System

Systematic human asset administration is the root to effective protection for ICH collections in cultural heritage institutions. Professional competency and consultancy in the documentation and preservation process need to be enhanced based on knowledge and academic qualifications specific to this field. Navaneethakrishnan (2013) agreed that librarians could act as historians, anthropologists, commenters, philosophers, artists, and improve themselves as policy makers in design research and practice to strengthen their obligation and role of safeguarding the ICH collection. Training is similarly significant to the professional system in ICH documentation where it requires specialized training and unique dependence on the nature of ICH (Phiri 2014).

Collection Management Procedure

Cultural heritage institutions respectively configure their prominent roles in sustaining ICH in this country through the process of acquisition, classification, description, storage, preservation, reference services, and advocacy towards offering an enriched cultural heritage to the public. Without these attributes, there would be no means for sustainable documentation of ICH for the future generation (Templanza & Templanza 2015; Habeenzu 2014; Pijeaux 2007; Manžuch 2009). It seems the sustenance of the national agenda is in creating public awareness and appreciation of the valuable treasure in order to make information and indigenous knowledge accessible, retrievable and comprehensible at the right time, to the right people, in the right format.

Figure 1: Research Conceptual Framework for documenting ICH collection

Conclusion

Documentation of Intangible Cultural Heritage (ICH) requires a distinctive methodology contrasted with execution towards heritage sites, monuments, buildings, and nature. ICH, much like language, workmanship, music, and dance, is more complex and requires particular information, knowledge and ability towards preserving it. The treasured and sensitive value needs to be reared through cultural heritage expertise that covers prospective dancers, musicians, minstrels, writers, historians, and the local community, and it requires guidelines in documenting their collection systematically.

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Resilience of the European Nations against Antropological Risks: A Need of Development of Holistic Framework

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Abstract

Since 2006, the EU has provided a framework for national policy in area of resilience against anthropologic risk which is known as the European Programme for Critical Infrastructure Protection. However, this program is rather summative than holistic. From that reason, some EU member countries have developed national resilience concept. The paper deals with the issue of further scientific development such concepts in nexus with changing of social paradigm known as population aging and vagueness of concepts of resilience focusing on values of social environment. They considered as a decisive factor for national resilience but they are to operationalize with difficulties.

Keywords: Resilience, Anthropological Risks, EU.

Introduction

After the 9/11-terrorist attack on the World Trade Centre in New York, the United States, the European Union as a vital partner of the United States and essential part west Christian civilization as well faced up to a surge of extremism and terrorism menace. In response to such a challenge, the European Programme for Critical Infrastructure Protection (EPCIP) was adopted in 2006 (EU 2006). In fact, this document was issued in order to provide an initial framework and guidance to the EU countries in area of economic and social resilience of nations against illicit activities undercutting the European Union´s effort to ensure social cohesion. So far, such activities have been carrying out by non-state actor such separatists and terrorist organizations; however, since staring the Ukraine crises, the vital interests of European citizens have been endangered by activities generated by some state actors. Some security and defence experts, e.g. Kofman & Rojansky (2015), Popescu (2015) Major & Mölling (2015), Aaltola (2014), have considered such activities as hybrid warfare endangering vital interests of some European Union member countries.

Taking into account the aim of EPCIP is to "*improve the protection of critical infrastructures in the EU*" (EU 2006) as well as the fact that National Critical Infrastructure ought to be designated by severity criteria such political and psychological effects, any concept of European nation´s resilience against anthropological risk should be more complex and holistic. Furthermore, such a concept should be tailored by each EU nation itself. Thus, the aim of this paper is to provide some points for orientation of research focusing on the development of a national resilience concept.

Concept of national resilience in brief

On the one hand, the resilience topic emerged as an agenda in strategic governance of European countries 15 ago, on the other one, the concept of national resilience appeared already in the 20th century. From sociological point of view, the resilience of a society or a national economy is derived from biology. In particular, that is an analogy Windle (2011) with living organisms and the term reflects individual's ability to properly adapt to stress and adversity. From such a point, both primitive organism such viruses, germs, insect, etc., and complex ones such mammals are able to overcame shocks, stress, injuries, illnesses, and other factors endangering their ability to exist and develop in their life-cycles. That can be applied on small groups of individuals, for instance, on families, even,

on complex groups of organized individuals which often form themselves into institution such production plants, cities, armed forces, public administration, states, civilizations and so on.

In case of social groups, the purpose of having resilience is to recover from any attack/shock/stress as soon as possible and be prepared for another such harmful event with a devastating impact. Going more into details, such an event was a war. On that account, the concept of national resilience was developed after 1918 because the WWI has predetermined the pattern of the next war. In comparison with armed conflict in the past, the course of WWI has proved that the military effort in the front line requested more resources than any other ever and warfare lasted for such long time than any conflict in 19th century. (Broadberry & Harrison 2009, Harrison 2000) After all, any future war must be getting total one because even larger part of society and national economy ought to be mobilised and militarized in order to increase the only tiny prospect for fighting it out as a winner. From such a point of view, the winner in a long war should be the nation which resilience would be higher than its opponent.

Regarding that fact, the concept of resilience was re-developed in communist countries during the Cold War. Communist experts in war economics, e.g. Cavar (1980), emphasized the resilience of national economics for expelling a NATO´s military attack with full success. Therefore, the resilience was a topic fully integrated into central planning. Nonetheless, such complex approach has been abandoned in all former Warsaw Pact countries which a lot of them are EU members now. Some differences between the EU and communist approach are presented in tab. 1.

Table 1: European resilience concepts for military and non-military/civilian purpose

	European Union	**Cold War (Communist Countries)**
main support for	global competitiveness	total war
main purpose	continuity of economic activities and ensuring of human rights	continuity of economic activities
protection against	terrorism, cyber-attacks	nuclear attack, military warfare and sabotage activities
main focus on	infrastructure protection, vitality of economy and government	abundant stockpiles, industry protection, population protection, indoctrination
system features of concept	non-ideological, summative	ideological, holistic
justification of concept (doctrine)	human security concept	Marxism–Leninism (military protection against imperialism)
main stakeholder	ministry of the interior, economic ministries	ministry of defence/the military
framework	contingency planning/emergency planning (co-ordinated strategic planning)	defence planning (an extra part in central planning: comprehensive Five-Year-Plans)

In comparison with the communist concept of national resilience, the essential deviation of EU national resilience of a democratic country from the resilience of state carrying on people's democracy consists in the quality of national resilience concept. In particular, the communist concept is holistic whereas the European one is rather summative despite the fact that EPCIP requests a comprehensive risk management. (EU 2006) Going more into details, it is caused by different approach to polity matters. In comparison with subsidiarity and complementarity principles of EU public policy, we should bear in the mind that the block of communist countries was formed by

principles of blind ideological unity. Hence, the processes, institutions, organizational structures, strategies, public policies, etc. were copied from Soviet Union to its satellite people democracies in accordance with ideological doctrine of Marxism-Leninism known as dictatorship of the proletariat and international reciprocity communist countries. On the contrary, such an undemocratic approach is in the EU inadmissible.

A need for the development of national resilience concept

Nonetheless, a difference in principles of convergence applied by EU would not be a barrier in re-thinking of the national resilience concept. Further development of EPCIP would be beneficial be in nexus of the Ukraine crisis. From that point of view, some EU countries bordering with non-EU countries using hybrid warfare have developed their national concept. In order to raise the level of national resilience against hybrid threats, they re-introduce some measurements abolished after the end of Cold War. However, any concept is usually indefinite, in particular, if it is focusing on values of social environment, such solidarity, cohesion, sustention of human rights, and so on. Unfortunately, such values contribute to national resilience significantly according to evidence given by some experts, e.g. de Weijer (2013), Kihmi (2015) Renschler et al (2010).

Many theoretical concepts of national resilience published recently, e.g. Gal (2014), Chasdi (2014), and Canetti et al (2014), underlined significance values of social environment for national resilience, on the one hand; on the other one, those concepts are difficult applicable for justifying on allocation of public money. Neither fear nor support of values of social environment should be a main reason for raise of public spending in any state in the world. The question “how much is enough?” should be answered ex ante and programs focusing on improving the level of national resilience ought to be scrutinised by economy efficiency, effectiveness criteria.

In addition, that kind of analysis is essential due to changing of paradigm. While the governments in the 20th century could on demographic development the population aging is going to change that paradigm. Most of European societies are changing bit by bit; postures and opinions in polls will have been determined more and more in the next 10 years by elderly population, largely by women. Moreover, the structure of ethnicity would change as well. Taking into account such prospects, the development of national resilience concept should be based rather on modelling and simulation than on experience from the past. Ergo, more scientific approach is desirable in the strategic governance. The war against terrorism lasting already for decades would be fought out only by states which resilience would be higher than its opponents. Ironically, a most of EU governments does not know which level of resistance has their nation although EPCIP is implementation in almost a decade.

Conclusions

The decade of terrorism, hybrid warfare and the recent influx of refugees into Europe have attracted attention of many European governments to defence and security matters. One of the re-introduced agenda in that field of governmental activity is the national resilience against anthropological risk. A European framework for developing a national concept of resilience is EPCIP. Unfortunately, EPCIP is rather orientated on technical aspects of resilience, in addition, on the resilience of national economy. However, resilience is complex phenomenon; hence, some nations developed national resilience concepts including specific values of national environment. In relation to changing social paradigm, it is rather vague if the allocation of public spending driven by such concept will be ever fruitful. In order to prevent from wasting public money, a more scientific and multi-discipline approach is needed for development of national concept of resilience. Primarily, mathematic modelling and simulation should be applied in that area of governance.

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The impact of Knowledge Based Organizations on Managerial Reengineering

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Abstract

Adapting to the requirements and demands of the global economy depends, to a large extent, on the development of a new type of organization, with a different management. The organization and management based on knowledge are the result of complex, burdensome efforts, in which the objectives, modalities of resources employed and organizational culture have new dimensions. One way to promote and develop knowledge management is by means of managerial reengineering, based on five components: objectives - processes - structures - people (managers and performers) - results. Considered a development of the already popular BPR (Business Process Reengineering), managerial reengineering aims the whole management of the company, from organizational component to human resources management, decision-making, informational and methodological components. The new type of organization creates unprecedented opportunities in order to improve the management role in achieving performance, through knowledge reconsidering and intellectual capital. Managerial Reengineering conducted under these new conditions requires a new type of management exercised by T-managers with the active and responsible participation of knowledge based employees. Our work shows direct links between reengineering, on one hand, and the organization and management based on knowledge, on the other hand, by showing the connection type cause - effect.

Keywords: business process reengineering, knowledge management, knowledge organization.

Introduction

The generally recognized framework which brought to record knowledge management is relatively recent, although there are many issues and concepts related to the roots of management on which specialists of those times drew attention and which are now, decades after, considered to be a foundation of knowledge management. Among the most relevant examples of this are the Hawthorne experiments (1924-1932), where the importance of informal groups is recognized for the first time, as the basic unit of the communities of practice in today's knowledge management. Also, Theory Y by Douglas McGregor, although developed in 1950, can be seen as a turning point, a signal alert for the approaching era of knowledge management,when managers should incline to support employees, guide and encourage them and act like leaders (Wren, 2005).

Another issues is related to the emerging concepts and studies related to intellectual capital (as an asset which includes knowledge) constituted a turning point. It has been demonstrated that the processes of knowledge creation in organizations have a direct impact in terms of human capital accumulation and growth, and this performance growth in human resources entail an evolution in the structural and relational capital of the organization (Gholamhossein 2014). Moreover, in the public sector, researchers (Akdere, 2009) are already looking into the way the intellectual capital exists in the organizations, considering that the phase of generating normative solutions has already been exceeded. Of course, being a highly complex subject, intellectual capital, just like knowledge management, still demand effort from specialists in many respects, because the solutions given so far on measurements still involves many empirical evidence and too little quantitative ones (Ramirez & Grodillo, 2013).

At macroeconomic level, formally, the European Union recognizes the importance of knowledge in the Summit in the year 2000 through the Lisbon Strategy, whose overall objective is to make Europe the "knowledge economy the most competitive and dynamic in the world, characterized by sustainable economic growth, employment more and better quality and greater social cohesion" (Presidency conclusions, Lisbon European Council, 23 and 24 March 2000). Whilst this strategy has contributed significantly to the creation of knowledge-based economy in the EU, the accomplishments were far from the initial set of expectations, which led to the entrance on stange, in June 2010, of the Europe 2020 strategy, as an extension of the previous strategy. The Europe 2020 Strategy projects the EU development for 2011-2020, focusing on further developing the knowledge-based economies, in which the proliferation of knowledge-based organizations is a core element. This strategy is implemented in Member States through the National Reform Programmes (NRPs).

Literature Review

Related works on Knowledge Management

Specialists from around the world from various institutes and prestigious universities have seen the mutations in the economy, in organizations and in their management, due to the persistance of knowledge as a factor and prerequisite for obtaining sustainable performance and as evidence we have the strengthening of knowledge management as a scientific discipline since the year 1995 (Nicolescu&Nicolescu, 2011).

Because of the special concern shown to this area, the European Union takes another step forward in March 2004 through the European Committee for Standardisation. Following a workshop, the ECS (European Committee for Standardisation) issues a resolution (CEN Workshops Agreemennts - CWA 14924) - European Guide to good practice in the Knowledge Management - consisting of five parts related to: (i) a general framework for knowledge management, (ii) organizational culture in knowledge based organizations, (iii) a methodology in order to help implement knowledge management in SMEs, (iv) guidelines to measure the progress of companies in this field and last, but not least, (v) a brief overview of the concepts used in the guide. In part four (iv), dedicated to measuring the progress of knowledge management, there are mentions of evaluating the implementation efficiency of knowledge management a series of performance indicators of KM are proposed.

At the microeconomic level, it has been accertained that the practice of knowledge management is one step ahead of the scientific evolutions. Many experts (Brown & Zhang, 1999; Akdere, 2009; Nicolescu, 2011; Spekman & Davis, 2016) recognize the emergence of the knowledge organization (also called the knowledge based organizations) described in various general forms (learning organization, sustainableorganization), but also specific forms (clusters, virtual organizations, emerging companies etc).An interesting aspect to note here refers to the sequence of these two processes. Do we have the knowledge-based organization first, and inside its' shaping an adapted management, ie knowledge management? Or the practice of management, with new principles and new instruments, leads to organizational transformation and towards knowledge-based organizations? The authors tend towards the second option, because the type of management practiced in an organization is the primary determinant of the organization's functionality and performance. Adopting knowledge management instruments, step by step, then knowledge management models, and finally implementing knowledge-based strategies, companies are becoming knowledge-based organizations. Of course, the context or environment is also important, given that different studies (Liebowitz, 2011) show that certain industries are more open to implementing such knowledge based models and there are even recognised emerging industries from this point of view (energy, aerospace, pharmaceutical etc.), while other areas shows enormous potential in terms of knowledge-based processes, but the interest of managers can not be found easily, and so these specific industries have not yet taken enough steps to implement knowledge management models (health, for example).

As a definition, a consensus has not been yet reached regarding the meaning or content of knowledge management. There are more than 100 published definitions of this concept (Dalkir, 2011), and some

authors (O'Dell) came up to making clasificationsof defining schemes due to the increased number and multiple approaches in this regard. Some first definitionsof knowledge management arose from the business perspective: "knowledge management is an integrated and collaborative approach in order to create, capture, organize, access and make use of the intellectual property of a company" (Grey, 1996).

Later, the notion of intellectual capital became the center of finding meanings: "knowledge management refers to ways to leverage intellectual capital so as to improve organizational performance" (Stankosky, 2008). Of note is the definition of cognitive school (Wiig, 1993, 2002), which points to the role of knowledge as the main factor leading to the implementation of organizational life (also personal and social) in an intelligent manner, increasing the effectiveness and efficiency of the business processes conducted. There are many approaches that make a confusion among knowledge management and the so calles information or document management, and also technology-based on management. These approaches are certainly restrictive and limitative because they do not capture the important role of knowledge, norethe knowledge related processes.However, the consensus that has so far been reached in the literature refers to the multidisciplinary nature of knowledge management, which includes areas such as: technology on databases, cognitive science, artificial intelligence systems, decision support systems, web technologies, collaborative technologies, education and training, sociology and communication studies. (Dalkir 2011, p. 8).

The main theoretical approach on this subject in Romania delineates between knowledge management in practice, on the one hand, and scientific aspects, on the other. As a science, knowledge management consists in studying the "processes and relationships of knowledge management, in discovering legalities that govern this domains and develop new sistems, methods and management techniques in order to increase economic, social and ecological performance of the organizations, valences capitalizing knowledge"(Nicolescu&Nicolescu, 2011).

Although still under debate on the usefulness and the concrete results it generates, knowledge management has gone through various stages, which show the high degree of conceptualization of the changes that were recorded in the scientific and pragmatic fields. Some approaches (Dalkir, 2011) consider that the first phase of knowledge management was the period of 1900 (communications era), then the computers' period (1950, with the advent of the Internet in 1996), the virtual era (started in 1980) and the last phase, the current one, the personalization era (since 2000). Other approaches are more punctual and namethe first phase of knowledge management as the phase of information technologies, phase 2 - emphasis on human resources and aspects of organizational culture in the knowledge organization, Phase 3 - taxonomies and focus solely on content (Koenig, 2012). Another relevant approach concerning the development stages of knowledge management is explained through the tacit or explicit knowledge involved: thus, phase 1 would be the phase of explicit knowledge, whenthe importance of it is recognized and efforts are made to capture it for reuse; phase 2 would be the tacit knowledge phase, where the emphasis lays on communities of practice and their role, and Phase 3 is the phase of ideas, when we use the knowledge gained in phases 1 and 2 to generate new knowledge so as to solve complex problems and increase functionality and performance in organizations (Common Knowledge Associates, 2010).

Relates works on Business Process Reengineering

In literature, in the context of managerial reengineering approach, it is thought that we have two different knowledge management approaches. First, we have the structured approach (Nicolescu&Nicolescu, 2011), which states punctual changes in the management and organization based on knowledge (the appearance of knowledge function, training function, changes in the key management processes and the management system of the organization). Although this approach is comprehensive and also includes aspects related to procedural changes, the second approach to knowledge is preferable, the procedural approach (preferred by most foreign authors), which shows the organizational changes through the new and old processes in the organization, related to knowledge.

It is basically, the approach that puts in center the processes of knowledge, from their capturing, codification, sharing, application, protection and reuse. Whatever these processes are, whether they are part of the value chain (based on knowledge) of the company or not, they produce fundamental change in the management of the organization and should be treated separately, especially in the context of reengineering. Reengineering refers to business processes and the current activities that contribute to creating value for the customer and represents an important way of flexibility, economic and social modernization through fundamental and radical redesign of the organization.

In the last decade, there were numerous definitions of the BPR concept, both researchers and practitioners have introduced their own definitions of reengineering. No matter how it is defined, its main purpose is to restructure business processes (Yin, 2010). Similarly, Kontio (2007) provides an operational definition, stating that BPR is an approach in which business processes are redesigned to maximize the potential of the organization.Developing and applying the methodologies to analyze processes in an organization aim to understand how processes are inter-connected. The main processes leading to the achievement of objectives, increase efficiency and effectiveness of the organization, taking into account the customer needs.

At the center of the concept, there is the notion of discontinuous thinking - recognizing and challenging the traditional approach of management science (Calin, 2000); outdated rules of work design and basic, but invalid assumptions, about customer, IT technology, tacit and explicit knowledge, organizational culture.A BPR project requires a special effort from the company, especially at the allocated resources (human, technological, financial). The analysis and remodeling of the company's activities should focus first on the most important areas of its competence - objectives, processes, people, depending on the specific needs of the company. Subsequently, auxiliary processes will be addressed gradually and remodeled/outsourced to support core processes.

In today's turbulent and constantly changing environment, the processes must be agile to meet the challenges of customers, in an increasingly inter-connected global market. Characteristics of modern processes:

- Allows inter-departmental communication and improve the coordination function;
- Improve productivity, creativity and innovation;
- Greater transparency regarding the work done and the results obtained;
- Main processes, those that create value-added for clients, represent the support of knowledge management. (Hussein Hammoud, Bazzi, Haj-Ali, 2014)

BPR initiatives not only allow cost reductions, increased efficiency and added value for customer, but also represents a solid foundation for the implementation of many other existing tools and solutions for managing a modern company.

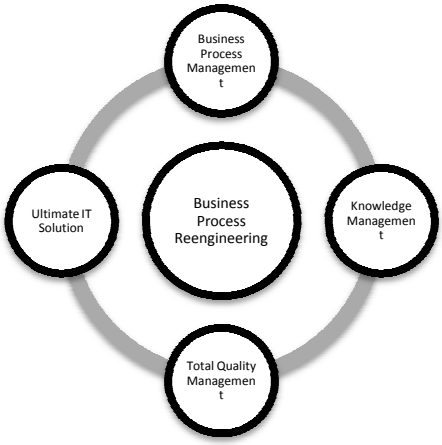

Fig. 1 - The fusion of BPR with other modern tools (made by authors)

A broader idea that we want to emphasize is that most reengineering projects create a favorable environment for knowledge management application. BPR can be considered the support triggering the shift to knowledge-based organization.

Research Methodology: the Optimized Model for Managerial Reprojection

Managerial reengineering means, according to Romanian experts (Nicolescu& Verboncu, 2008, p.15-34; Verboncu 2013, p.35-47), not just re-projection and redesigning of business processes, but also rethinking and redesigning of all management components (subsystems), using a methodological scenario divided into five sequences: objectives, processes, structures, people (managers and performers), results (performance). What will occur in the configuration and content of the management system, as a result of managerial reengineering, in the context of the transition in the organization and management based on knowledge?

Objectives

The first sequence of managerial re-projecting is represented by the objectives, where the expected changes in the context of transition to knowledge-based organization and management, are closely linked to the most important "product" of the foresight function, the company's strategy.Objectives are a crucial component of an organization's strategy, and, in production companies, where we have smart specialization strategy, based on eco-innovation, it is obvious that these objectives must aim, as a priority, increasing the stock of knowledge, with the implication of their T-managers; and their successful operationalization, by specialists (employees) based on knowledge.Like any strategy, the knowledge based strategy is developed by managers, approved by stakeholders and applied by T-managers, with the support of performers.The objectives of knowledge based strategy should be SMART (Specific, measurable, applicable, realistic and within a certain timeframe), contoured to stimulate creativity (individual's ability to produce new ideas, likely to be turned into practically, useful news) and innovations (new products, new technologies, new methods, etc.)

Objectives are the starting point in any complex process of organizational and/or managerial change, therefore, depending on their volume complexity and diversity, processes, structures, decisional, informational, methodological components and human resource management will be designed or redesigned. (Verboncu, Serban, 2015)

Processes

For achieving, objectives require, certain processes, mainly activities, redesigned through organizational, information and, above all, human perspective. Emphasis should be placed on the processes which generate value, on the treatment processes of knowledge (identifying knowledge, buying knowledge, assimilating - through learning - knowledge, creation of new knowledge, storing, sharing, use, protection and exploitation of knowledge (Nicolescu, Nicolescu, 2011 p.107-109).As a result of this enumeration process, combined by the authors of the source cited above in knowledge function, assimilating or learning of knowledge, involve a new procesual component, called the training function.Unfortunately, the specific processes of this last function are carried out sporadically, with low intensity, either because of the financial resources allocated to training and continuous professional development which continues to decrease, either due to a conservative attitude of managers, regarding the assimilation of new knowledge.We propose two types of training for managers and specialists of the Romanian companies:

- Option I - gradually training, following the model designed and operationalized by the Academy of Economic Studies in Bucharest, 13-14 years ago: stage I - improvement of senior managers; Stage II - improvement of middle managers; Stage III - training and managerial skills development (lower level managers); stage IV - training of specialists with managerial role in the performance of business processes and auxiliary positions in the company.

- Option II - training organized by the management of the cluster (where clusters were established as organizations which generate knowledge); trainers are university professors involved in the establishment and operation of the cluster and experts from research organizations and development (providers of know-how in technical and technological field) along with professors from universities/faculties and economic management for the transmission of economic and managerial knowledge;

The main problem is training content, i.e. the types of knowledge to be transmitted, assimilated, learned and subsequently applied by participating in professional and managerial training sessions: new production technologies, solutions for capitalizing upper waste (waste management), smart solutions for storage, advanced IT technology, managerial solution for new production technologies, solutions for capitalizing upper waste (waste management), smart solutions for storage, advanced IT technology, managerial solution for knowledge-based organizations (strategies based on knowledge, managerial reengineering, organizational culture based on continuous innovation, promoting new managerial tools, such as auditing and benchmarking knowledge, adapting management by objectives, management profit centers and development of clusters and virtual companies, etc.). Active learning, promotion of modern methods of e-learning, digital platforms courses, coaching and mentoring, are nothing more than organizational learning solutions for highly effective, relatively easy to use in the knowledge-based organizations (Nicolescu& Nicolescu, 2011). At the same time, training, along consulting services, management methodologies and improvement of recruitment, selection, classification, evaluation, motivation and managers are major ways of promoting professionalization of managers and management (Verboncu, Iorga, 2015).By procesual remodeling, the "narrow places" that block the full exploitation of production capacity are eliminated, acquiring a new dimension and new functionality, some critical activities in terms of informational or human capacity, are "re- stored" on the flow of production in order to obtain a new product.To function normally, any process, especially the core and support processes must have adequate structural and organizational support, i.e. to be the subject of a post or group of posts, delimited and properly sized.

Structures

The sequence "structures" of managerial reengineering methodology involves redesigning the whole or part of the structural organization.Repositioning of posts or compartments in the structural configuration of the organization, appearance and disappearance of posts or compartments, flattening the organizational structure, defining wider positions, avoid narrow specialization that inevitably lead to the manifestation "silo" effect, synchronization of the official authority with the personal authority, especially at management posts, promotion of "enrichment", "widening" and "rotation" of posts in terms of ensuring a high mobility of the structural organization, the outsourcing process and, especially, structural and organizational are as many ways to structural redesign and creating and promoting organizational structures capable to support the running of knowledge-generating processes.Switching to knowledge-based organization and management implies a lax definition of jobs and functions, increasing the share of authority relations of functional and cooperation type, in the detriment of control and hierarchical authority, managerial and economic decentralization within the company (we consider primarily midsize and large companies), appearance of specialized treatment knowledge positions and functions, focusing on achievement of pre-established roles more than the tasks executed, multiplication of projects and teamwork and strengthening the relationships with key stakeholders.These areas could become operational under conditions in which many of the companies in Romania (ex. woodworking industry) are active in different clusters, capable of managing large projects, such as environmental protection, waste recovery times or promotion of competitive new products and technologies. It is impossible to conduct such projects without financial support given by European funds and the sustainability of these efforts cannot be achieved only by involving clusters.

People

The fourth sequence of this methodological scenario is represented by people, meaning that those who provide management processes, business and auxiliary, managers and contractors with well

defined roles, bounded across the organization. The content of this stage involves substantial mutations of decisional, informational, methodological components and human resources management system; The starting point is the basic role of managers and performers, as follows (Verboncu, 2013):

a. Managers execute management processes, elaborate and adopt decisions which influents the decisional behavior and act of performers. To fulfill this very important role in the economy of organization management, they appeals to decision-making processes, divided into distinct stages and phases.Rigorous elaboration of decision requires, on the one hand, quality information, transmitted operative on supple information channels, treated with adequate informational procedures and proper technical means (mainly electronics) and, on the other hand, management tools as sophisticated (methods and management techniques), capable of facilitating solving of complex, multidimensional problem;
b. The performers apply those decisions through appropriate actions. To substantiate it, they need qualitative information and a good organizational climate, conducive to successful operational of decisions.

Performances

The last sequence of the managerial reengineering process is to identify and record the results in achieving the objectives. For this, we rely on a system of indicators and indices of variable nature, such as management, economic, financial, technical and technological, commercial etc, which are further debated in other types of researches.

Results and discussion

Therefore, as seen above, it is necessary a re-projection of the decisional, decision, informational, methodological subsystem and human resource management, which, in terms of transition at knowledge-based organization and management (and also as the most practical result of this study) involves the following changes.

Regarding the decision component

• In modern organizations, it is necessary the exploitation of an increased volume of knowledge in developing decision-making processes, which lead to adoption and implementation of strategic decisions;
• Strategic decisions become priority because of their pronunced innovative dimension (see also the decisions taken by the management of the cluster, which requires an active, effective and responsible involvement by the majority of stakeholders);
• given that creativity and innovativeness are notable features of the business processes of knowledge-based organizations, random and unique decisions tend to have a much higher proportion compared to traditional enterprise;
• substantiation and adoption of uncertain and risk decisions, involve resorting to methods and techniques with mathematical foundation, some of them found in specific IT tools (ELECTRE bi and three-dimensional method, decision tree, fuzzy sets method);
• Both managers (decision makers) and performers must be professionals, must possess complex and diverse knowledge, updated through continuous professional training;

Regarding the information system

- Consideration of a new paradigm of information system, embodied in focusing on identifying the needs of information and knowledge and ways of satisfying them, while addressing the use of information and knowledge in a strategic and economic vision, focused on efficiency (Nicolescu, Nicolescu, 2011);

- Reconsidering the educational and the documentation function of this system;
- The information system based on knowledge tends to expand among thr economic operators of the manufacturing sector, especially at cluster established in this area,we find defining elements such as: portal enterprise web applications, internet, intranet, extranet, e-learning platforms, a number of limited content management aplication, knowledge management applications, ERP,CRM etc.;
- The concept of e-business is becoming more popular, it was implemented first time by IBM, which involves the integration of a wide range of services, such as customers serving in cooperation with other business partners, e-commerce platforms, CRM, ERP, cloud services inside the company.(Bolcaş, 2011);
- Managerial communication, management techniques and decision methods will be influenced by information exchange. Access to information as quickly as possible involves: changing organizational goals, changing of organizational structures, diversification and modernization of collecting, recording and transmitting information, leading to reduced costs and saving time in the decision process;
- The "Online store", whose architecture we can find at a cluster architecture is highlighted by the figure 2, below;
- Business Management is an ERP solution (Enterprise Resource Planning), which helps companies to improve their effectiveness, organize and streamline daily operations of the business processes. Business Management allows all information to "flow" easily and quickly between all areas involved in various business processes, that enable their automation and storage.

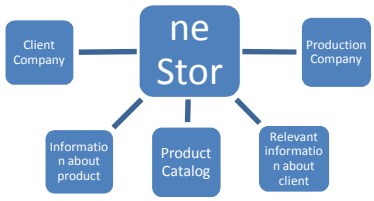

Fig. 2 - Architecture of an online store (Bolcas, 2011, op.cit).

Regarding the managerial - methodological component

- If we take on the premises that this subsystem is the most dynamic, the most sophisticated, the most algorithm-based one and that it has a major contribution tomaking the managers' work more scientific, then the reengineering of this subsystem must also lead to major mutations in how the other management processes take place and on the other components of the managerial system of the organization;
- The first specific tendency of the transition to knowledge-based organizations and knowledge management is reflected in the adaptation of different management instruments, such as management by objectives, profit center-based management and project management, to the requirements of the new statute of the organization; our proposal is focused on making operational and innovative use of management by objectives in small firms, on one hand, and widespread promoting of profit center-based management and project management in medium and large sized businesses, on the other hand;
- The management by objectives system has to be implemented in an innovative way, this meaning that, in small enterprises, an expert or the manager / owner of the business – who holds various knowledge regarding how to promote and implement this system in his organization, as well as knowledge on how the organization continues after this implementation – is in charge of dissemination, application / testing and harnessing this knowledge. Through simple ITapplications, he forwardsthe information (which was debated on in a participative manner) on the objectivesand the necessary knowledge to implement this objectives, whileas the other clasical types of resources are

provided; feedback is also provided by asimplified dashboard that records the degree of the attained objectives, the results and the causes of exceedances or failures;

- In medium and large companies, it is recommended, as stated above, to use profit centers based management and project management, separately or together. Implementing in a creative and innovative manner these complex methods of management requires the existence of both knowledge managers and knowledge specialists, and also the "online shop" in order to replenish the implementation and the operational functioning of the enterprise with its new profit centers, with various data, information and knowledge on the subject. Most medium and large enterprises in the production industry have such staging of the production process itself and the differences are coming from the degree of technical and technological level of the company, the level of training and qualification of the human factor and the professionalism of the managers.Given that the companies in this sector are specialized both technologicaly and by object (blanks obtained after each sequence of the technological process may be marketed as such finished products or they may continue the route to become end products which company the company is an expert on) the first noveltyemerged and was consolidated: each of the profit centers chosen has turned into a "business format", led and conducted by a manager (which is called"T-manager") bearing responsibility for achieving the performance targets. As a profit center isbroadly, but not fully, independent in decision-making and operational management, the first condition required in order to meet the condition of being "part of the whole" is the participation in the accomplishment of the strategic and first derivatesobjectives of the company.After meeting its obligations to the parent company ("the mother company"), the profit center may produce "for itself", within existing production capacity and market requirements, whilst the surplus is being used to motivate its additional components. Any boycott from a profit center should not be allowed,so as to this purpose there is a management contract between the companies's management and each profit centers' manager, a contract with firm rights and obligations for each party involved. The T-manager of the profit center must have an updated database, information and knowledge on the demand, the quality of the products, average selling prices, types of products sold and other type of information (to which hey all employees of the profit center have access), analyze it and, in consultation with its subordinates, adopt the necessary decisions. Recently, the business can be in a franchised format, in which case we have an increase in the manager's responsibility.
- The temptation to sell quickly and in blank favorable terms, decreases as the business format is a franchise, because the manager of such a businessdoes not risk not fulfilling contractual clauses that bind the company to which it belongs. We reffer again to the "online shop", specific to virtual companies, but which can become operational under the current circumstances, recipients (buyers) of the knowledge being the business format, through their managers. Benchmarking must operate within the company, whilst the experience and the best practices specific to one business format should be harnessed within the other profit centers also.Thefavorable economic results achievedby a profit center allow a refurbishment of its production line or additional investments in product quality, in the environment and in managerial and professional training. In this way, each business format becomes not only a "buyer" (consumer) of knowledge, taken from others, but also a "seller", a diffuser of knowledge concerning management practices, economics and production best practices. Directors or managers of the profit centers become genuine T-managers; the horizontal component of the "T" is very pronounced and represents the exchange of knowledge between them, on the degree of achievement of the objectives, on their decisions, on solutions to solve critical problems encountered in a given timeframe, on the cost of one operating hour, on deficit or surplus of the production capacity, on scientific news recently assimilated and the possibly to use them in the company etc.Basically, they constitute a powerful informal group, a type of "daisy", where the informal leader is the best informed director from the most profitable center. On the other hand, the vertical component of the "T" manager involves the exercise of authority vis-à-vis subordinates placed on the hierarchical level immediately below and working with a manager on thenext higher hierarchical level; in both situations, knowledge is transmitted and received and it concerns monitoring the implementation of decisions, assuring compliance with standards of management procedures or the promotion of various methodological elements;
- If we extend the issue of T-Managers in the area of clusters, we admit that in this area the exchange of experience in knowledge has an onvious role horizontally, between the managers of manufacturing companies, between them and specialists providers of know-how and continuous education on the one hand, and representatives of local government, on the other hand.This horizontal

transfer of knowledge can help to solve complex problems, such as "narrow places" and "places large" registered in determining the size of the production capacity from one manufacturer or another, environmental protection by harnessing biomass, identifying "gaps" and "pluses" in terms of strategic knowledge, by fundamenting and developing knowledge strategies witin the cluster and in the productive companies. Moreover, the cluster offers the advantage of professionalisation for the T-managers, through the acquisition of knowledge, especially technical and technological knowledge acquired by the cluster, as buyers from universities, R&D organizations of R & D, in the position of sellers by knowledge brokers (central or local authority representatives);

- In regard to project management, its promotion and implementation may be an independent, stand-alone one or in the context of profit center based management. In the latter case, the team or project team can and should be treated as a profit center. In both cases, project management is recommended to firms seeking to innovate faster, better and in better terms of efficiency and the projects are of a strategic nature, very complex and have an appreciable innovative size.Whichever organization type of project management is called on to resolve these projects - project management with facilitation, project management of individual responsibility, project management with staff or mixed project management - the project management system ensures the use of knowledge specialists (as part of project team, having trained in similar situations), of project managers close to what we call T-managers, also the use of matrix structures, with high functionality without templates and without specific stiffness of the functional hierarchical structures. At the same time, the project team is a veritable "deposit" of knowledge, capable of quick and valid solutions for some of the problems the company is faced with. The other managers and specialists of the enterprise also take part, practically, in such processes.

The organizational culture is an important factor through which human resources management helps the development of knowledge management. The organizational culture of knowledge-based firms essentially has the following characteristics:

- Holds the accent on people and knowledge, not on material elements;
- Is open towards internal and external stakeholders;
- Focuses on meeting consumer demands;
- receptive to news in all fields or domanins of expertise of the company;
- is supportive for knowledge sharing;
- is centered on individual and organizational learning;
- helps the creation of "new" and brings innovation in all activities of the organization;
- puts an intense focus on employee participation in decision-making;
- assures incentives for taking risks, actions and performance;
- is based on fairness and mutual respect for all stakeholders, tolerance for errors and failures, particularly in innovation;
- is a promoter of change in all areas of activity of the company;
- is protective of their employees' and other stakeholdersknowledge;
- focuses on sustainable group performance;
- places emphasis on nursering understanding, collaboration and cooperation between specialists (Todorut, 2011).

Conclusions

Although, in theory, knowledge management is a science on which specialists have not yet reached a consensus, due to extremely numerous and complex approaches, it is clear that the practice has greatly advanced and knowledge organizations are evolving in this environment, despite the difficulties. To facilitate the transition of the organizations to this level which allows them to be sustainable, actually the level of knowledge based organization, we proposed to combine the Romanian reengineering model with the features the organizations needs in order to build itself from a managerial pont of view, holding knowledge as a center piece.Addressing objectives - processes - structures - people - performance, in the context of knowledge management, is the solution that enables organizations to adapt to the changing environment, because this entails features of efficiency, effectiveness and adaptability in companies. In addition, the implementation of knowledge

management is not a very easy process, but it involves certain attitudes and knowledge of all human resources involved in this transformation, so it is highly appropriate that this change be made against the background of the reengineering model. Thus, the cycle will end with visible results, with performance that will lead to organizations whch are strong, adaptable and flexible in terms of management, ie knowledge-based organizations.

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The Effect of Foreign Direct Investments on Primary Industry in Emerging Economy: Case of Eurozone in the Light of Current Economic Instability and Uncertain Economic Climate

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Abstract

Over the years, foreign direct investments have been viewed as majorly the activities that contribute to the economic growth of any nation and are well known as a very important part in the economic growth of developing countries. Foreign direct investments play an important role in promoting economic growth in the Eurozone, and the employment rate is an important aspect of economic development. Eurozone has 19 countries of 28 European Union member states. It consists of developed countries, so they are emerging economies. In order to have a better understanding of the relationship between investments and employment in the Eurozone, this paper examines macroeconomic data to measure the effect of FDI inflows on employment rate in the primary sector. One of the questions addressed in this article is related to the existence of a significant relationship between the foreign direct investments and the employment rate in the Eurozone between 2000 and 2015. The main purpose of the article is to estimate the relationship between FDI and employment rate in the primary sector by employing a Vector Autoregressive model.

Keywords: Eurozone, FDI, economic growth, VAR, primary industry

Introduction

There is a small variety of conclusions that resulted from the empirical studies on the relationship between FDI and employment in the primary sector. Some economists found that inflow of foreign direct investments can contribute to the increase of productivity of all companies, including the ones that haven't directly received foreign capital. (Misztal, 2010)
Balcerzak & Zurek (2011) studies the influence of foreign direct investment on labour Markets by employing a VAR methodology for the period 1995-2009. They prove that there are interdependencies on the short term between FDI and employment and conclude that investment in high-tech industry is likely to bring many spillover effects in improving the economic situation of a country. Therefore, the government policies should focus on this kind of FDI inflows.
On the other hand, other authors analyze if the unemployment problem can be solved through economic growth, exports and FDI. By using econometric techniques of cointegration and Granger causality tests, they investigate the relationship between unemployment, economic growth, exports and foreign direct investment. (Ozughalu, Ogwumike, State, & State, 2013)
The paper is divided into the following sections: the next describes the methodology. The following section describes the data, the estimation procedure while the last section of the articles provides the results and the conclusions of the main findings as well as their implication for policy.

Methodology

The econometric model employed for the analysis is a Vector Autoregressive model. The software used is STATA. The VAR model has the advantage that captures the linear interdependencies among multiple time series (Koop & Onorante, 2012). In order to estimate the VAR model, the stationarity of the data should be tested by using the Augmented Dickey-Fuller (ADF) test.

Econometric Model

The econometric model accounts for the impact of FDI on Primary Industry in Emerging Economy while considering for economic instability and uncertain economic climate via the use of appropriate independent variables.

The paper examines the relationship between FDI and employment rate in the primary sector in Eurozone in the period 2000-2014, by estimating the following models:

$$FDI_t = \alpha_0 + \beta_1 E_t + \varepsilon_t$$

$$Y_t = \alpha_0 + \alpha_1 FDI_{t-1} + \alpha_2 FDI_{t-2} + \alpha_3 Y_{t-1} + \alpha_4 Y_{t-2} + \alpha_5 E_{t-1} + \alpha_6 E_{t-2} + \alpha_7 TO_{t-1} + \alpha_8 TO_{t-2} + \alpha_9 CPI_{t-1} + \alpha_{10} CPI_{t-2} + \alpha_{11} M2_{t-1} + \alpha_{12} M2_{t-2} + \varepsilon_t$$

$$E_t = \alpha_0 + \alpha_1 FDI_{t-1} + \alpha_2 FDI_{t-2} + \alpha_3 Y_{t-1} + \alpha_4 Y_{t-2} + \alpha_5 E_{t-1} + \alpha_6 E_{t-2} + \alpha_7 TO_{t-1} + \alpha_8 TO_{t-2} + \alpha_9 CPI_{t-1} + \alpha_{10} CPI_{t-2} + \alpha_{11} M2_{t-1} + \alpha_{12} M2_{t-2} + \varepsilon_t$$

Data

The following table contains the description of the variables included in the model.

Y	*= GDP per Capita (US dollars)*
FDI	*= FDI as a percentage of GDP in the Primary Industry (mil. USD)*
E	*= Employment Rate in the primary sector (%)*
TO	*= Trade Openness i.e. the ratio of export and import as a percentage of GDP (%)*
CPI	*= Inflation Rate in the economy (to capture economic climate) (%)*
M_2	*= Money Supply in the economy (to capture economic climate) (% of GDP)*

The sample period is 15 years (2000-2015) due to limits on the availability of data, which is sourced from the World Bank and Eurostat. Because in this article we are using annual data, the first step in analyzing the time series is to see the graphic of the observed value in time.(Brooks, 2008)

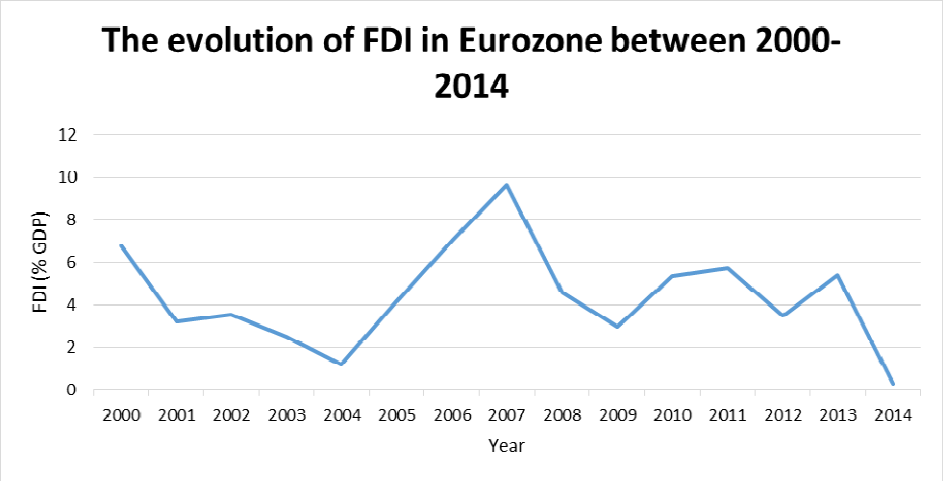

Fig 1. The evolution of FDI in the Eurozone between 2000-2014

The figure above presents the foreign direct investment in Eurozone between 2000 and 2014. By seeing this graphic, it can be observed that there is a continuous decrease in FDI starting with the year 2000 and ending with 2007. It can also be observed that in 2007 the investments in Eurozone rose.

The goal of the summary statistics is to calculate the mean and the standard deviation. For example, we can see that between 2000 and 2014 the mean of the employment rate is 67.93% while the

average inflation rate is 2.23%. Furthermore, the standard deviation is 1.30% for the employment rate and 0.92% for the inflation.

The variables are tested for stationarity by using the ADF test before the VAR estimation is conducted. The test results suggest that the first difference of GDP/capita, FDI, trade openness and money supply is stationary, which means the series are integrated of order 1, I(1).

Results & Conclusions

The estimation results for the first equation are the following:

$$FDI_t = -4.82 * E_t + \varepsilon_t$$

All the coefficients are significant at 10% level the F-statistic is 0, which means the model is valid. For this linear regression model that includes foreign direct investment and employment rate, we observe that the investments have a negative effect on the employment rate in Eurozone. This result corresponds to the economic theory.

The results of the estimation can be written using the following models:

$$E_t = 92.21 + 0.55 * FDI_{t-1} + 0.47 * FDI_{t-2} - 0.11 * Y_{t-1} + 0.008 * Y_{t-2} + 8.13 * E_{t-1} - 6.95 * E_{t-2} + 0.28 * TO_{t-1} - 0.33 * TO_{t-2} - 3.09 * CPI_{t-1} - 1.09 * CPI_{t-2} + 0.024 * M2_{t-1} - 0.15 * M2_{t-2} + \varepsilon_t$$

In the model above, the probability values are statistically significant for all the coefficients. However, the relationship between employment rate in the primary industry and GDP is not significant because this is close to 0.

The second model estimated using the VAR method is:

$$Y_t = 129461.4 + 819.11 * FDI_{t-1} + 1395.38 * FDI_{t-2} - 21.27 * Y_{t-1} + 12.54 * Y_{t-2} + 13826.77 * E_{t-1} - 11547.04 * E_{t-2} + 506.83 * TO_{t-1} - 437.33 * TO_{t-2} - 6688.47 * CPI_{t-1} - 2824.6 * CPI_{t-2} - 28.52 * M2_{t-1} - 367.17 * M2_{t-2} + \varepsilon_t$$

The interpretation of the above model is the following: if there is a 1% increase in the past employment rate, the GDP/capita will increase by 13827 EUR per capita. In the Eurozone, a 1% increase in the past foreign direct investment, gross domestic product will increase by 819.11 EUR per capita. The effects of the lagged foreign direct investment on GDP per capita is small. An increase in trade openness will become in an increase at gross domestic product.

This paper shows that link between foreign direct investment and employment rate in primary industries and the influences of employment are indirect, and at 1% increase in employment rate, foreign direct investment decrease with 4.82.

This paper shows that it is not easy to draw any general conclusions or build any assumptions in relation to interdependencies between investments and employment. The above results can be considered an empirical basis for some advice for economic policy in Eurozone. For the overall national economy of the Eurozone, FDI didn't show a significant relationship with employment in the primary sector. However, there are some situations when FDI inflow brings positive results for the labour market and on the long term, policymakers should form good conditions for improving the quality of labour force and as a consequence, increase the employment rate.

The Eurozone can attract more investments in the future, by focusing on the primary sector. Therefore, the primary sector may need the infusion of economic support in general and especially a

great inflow of FDI in order to sustain the work opportunities in rural area and avoid the mobility from the primary sector to the secondary and tertiary ones.

In order to reduce the erroneous development policy, the Eurozone should focus on international capital mobility. As a consequence, policymakers should design such policies in order to encourage investment and to make conditions for positive long term influence of foreign capital inflow on Europe labour market.

The Eurozone can attract more investments for the countries affected by the crisis, i.e. Greece, Spain, policy makers can influence the economic status, can create opportunities for these states, should design such policies in order to encourage investment and to make conditions for the positive long-term influence of foreign capital inflow on the labour market.

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Empirical Analysis of the Effect of Exchange Rate Volatility and Capital Inflows on Economic Growth in Nigeria (1970 – 2013)

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Abstract

This study examines the effects of exchange rate volatility and capital inflows on the economic growth (GDP) in Nigeria between 1970 and 2013. The study used FDI and remittance which proved to be most vital components of Foreign Capital inflow to Nigeria currently as demonstrated by various literature to proxy capital inflow. The result of our Generalised Method of Moments (GMM) estimator shows that F0reign Direct Investment (FDI), Capital, Financial Development (FD) had significant positive effects on Gross Domestic Product (GDP) while Remittance, the lag value of Exchange Rate Volatility ($EXRV_{t-i}$), Financial liberalisation (FL) and Labour force had significant negative effect on GDP. On the other hand, Exchange Rate volatility (EXRV) has positive but insignificant effect on GDP. This study therefore enjoined the present administration in Nigeria to provide enabling financial and infrastructural environment that will attract the inflow of FDI to agric sector, solid minerals and agro allied industry which the government intends to use as vocal points to diversify the economy from present dependence on failing oil revenue. Equally economic policy that will encourage more of the remittances inflow to Nigeria to productive investment rather than consumption which has no positive impact on economy should be enthreshed into Nigeria financial policy. Finally, more financial reforms that will not only improve financial inclusion especially at the rural sector but that will also remove totally the negative effect of EXRV on economic growth should be introduced into Nigerian financial system.

Keywords: Exchange rate volatility, Capital inflows, Economic growth, Saving- Investment gap, General Method of Moment and Nigeria

Introduction

Nigeria is the largest economy in Sub-Sahara Africa, which is monoculturally dependent on oil revenue in the last few decades. However, due to the dwindling oil revenue arising from the fall in international oil prices, the nation is currently facing an economic downturn. This trend is making the current administration in Nigeria to think along policy shift from overdependence on oil to agriculture, solid mineral and agro allied industries. It is on record that Nigeria is a toast of the world for business expansion based on her endowment of both human and natural resources as well as her rich population. Notwithstanding the above positive prerequisite, the lean purse of the Nigerian government did not encouraged the development of the necessary infrastructures for economic development that could attract foreign investment to the nation (Kumura and Todo, 2010; Selaya and Sunesen, 2011). Since this policy shift is vital to the future development of the nation, the policy

makers must consider alternative means of achieving this desire development by attracting foreign capital inflow to develop the identified sectors.

The role of capital (fund) in motivating investment cannot be overemphasised in the developing countries. Theoretical and empirical literature has applauded investment as a fundamental channel of accelerated economic growth (Agosin and Mayer, 2000). The shortage in investment coupled with the poor state of infrastructure has further been identified as a long standing obstacle to the growth of most developing countries. Moreover, it has been discovered that domestic savings in developing countries has been inadequate to bring about the investment required for steady growth. According to Ogunleye (2008) foreign capital inflow has been perceived as an important source of augmenting the savings - investment gap in most capital resource deficient economies like Nigeria. This opinion was corroborated by Elahi and Ahmad (2011) as well as Haider and Azim (2012). Thus, there is the quest to attract foreign fund across the globe to mitigate the effect of the shortfall. No wonder, in the last few decades Nigeria's dependence on foreign investors to develop its economy either in the form of foreign direct investment (FDI) or foreign portfolio investment (FPI) via stock exchange operation has been on the increase especially in the structural adjustment era. For instance FDI which was just ₦128.6 million in 1970 rose to ₦434.1 million in 1985(237.56% increase). While within the next one year (1986) after the introduction of structural adjustment programme (SAP) it almost doubled as it rose to ₦735.8 million. This geometric increase pushed FDI to ₦722, 115.34 million in 2013. In recent times, the drive for capital inflow via remittance has also been on the increase. For instance remittance that stood at $644,000 in 1970 rose to $22,000,000; $1,391,800,049 and $21,958,109,264 in 1980, 2000 and 2013 respectively.

Exchange rate volatility which is the risk associated with unexpected and unpredictable movement in the exchange rate has been proved in literature as impediment to foreign capital inflow. As a matter of fact neither low nor high exchange rate volatility is good for the economy (Chunz and Seungnoralan, 2009). The Structural Adjustment Programes (SAP) introduced by Nigerian Government in 1986 to stabilise overvalued naira was however not successful. Rather than achieving this naira has plummeted from N0.8938 to $1 in 1985 shortly before the advent of SAP in 1986 to N8.0378 to $1, N102.1052 to $1 and N159.05 to $1 in 1990, 2000 and 2013 respectively. Currently (2016) the exchange rate hovers around N300 – N330 to $1

A closer assessment of the reviewed literature reveals the following gaps that need to be filled urgently. First, majority of the literature especially on Nigeria focused on the impact of foreign Direct Investment on growth while other components of foreign capital inflows such as Foreign Portfolio Investment, Foreign Aid and Remittances were more or less excluded. The importance of these other components of foreign capital inflow to economic growth of any nation calls for fresh study that will incorporate more of these various components of foreign capital inflow in a single study that will explore the impact of foreign capital inflow on economic growth.

Secondly, there were conflicting views on the role of foreign capital inflow on economic growth. While some studies found capital inflows to be growth enhancing (Mishra et al, 2000;Edward, 2001; Klen, 2005; Ayanwale, 2007; Abhijit, 2010; Nkoro and Uko, 2012 Auragzeb and Haz, 2012) some other literature found foreign capital inflow as growth retarding (Oyinlola, 1995; Calvo et al 1996; Adelegan, 2000; Ndukumana, 2003; Rodrick and Subramanian, 2009; Kuwait and Lambarte, 2008, Ghosh, 2010; DePaula et al,2012;Rashid and Hussain, 2010) . Equally, literature is not conclusive on the effect of exchange rate volatility on economic growth. While some support the fact that exchange rate volatility improves economic growth (Froot and Stein, 1991;Blonigen, 1997; Ford, 2005) some others proffer a negative impact of exchange rate volatility on economic growth.(campa, 1993,Dixit and Pindyck, 1994)

Thirdly, most of the examined literature especially on Nigeria adopted OLS estimator techniques to estimate their econometric models. This might have been the source of the conflicting reports of findings in literature specified above. There is therefore the need to test improved estimator technique such as GMM to resolve this conflict..

This paper therefore examine the effect of exchange rate volatility and capital inflow on economic growth in Nigeria between 1970 and 2013 using GMM with a view to identify areas that require policy improvement so as to attract adequate foreign capital to grow the economy.

Literature Review

Several relevant theories on the effect of exchange rate volatility and foreign capital inflow on economic growth are available in literature. However our review will focus on theories on exchange rate volatility, theories on FDI, theories on workers remittance and some basic economic growth theories. It has been theorised that exchange rate volatility has direct impact on the economic growth however it is dependent on the level of financial development in the economy (Aghion, Howit and Mayer, 2005). In other words low financial development in the presence of high exchange rate volatility will aggravate the divergence of the economy growth from the world frontiers while a country with well developed financial system will have less adverse effect of the exchange rate volatility on the economic growth (Aghion et al, 2006). An example of this occurred in Chile between 1975 and 2000 where tremendous improvement in financial depth reduced the negative impact of exchange rate volatility buttressed this theoretically. Some other theories anchor the effect of the exchange rate volatility on the exchange rate regime in operation. While it was argued that flexible exchange rate Is highly detrimental to economic growth as it fuel exchange rate volatility, the fixed exchange rate is less detrimental to economic growth.

Many theories in literature have explained the impact of foreign capital inflow on the economy. While some theories tested how capital inflow in form of FDI affects the economic growth, some others theorised the effect of remittance on economic growth. Argawal (1991) explained the flow of FDI using three microeconomic theories namely: Electic theory, theory of differential rate of returns and the portfolio theory. In advancing the electic theory propounded by Dunning(1998,1995,1997) to explain motives behind FDI flow to another country, three main conditions considered by firms for making investment abroad were identified as firm specific ownership advantage, Location advantage and Internalisation incentives (OLI). The firm specific advantage includes competitive advantage over local firms, proprietary, technology, managerial and marketing advantages. While considering the internalisation incentive, effort must be made to ensure that the cost of exploiting the advantages is lower than the cost of sales of patient rights to the foreigners. Location advantage arise from either or combination of the low labour cost, cheap raw materials, abundant natural resources adequacy of necessary infrastructure among others. For the success of FDI, Dunning (1995) emphasised the significant role of the government in regards to monetary and fiscal policies and its ability to attract FDI flow. .Argawat (1980) criticized this OLI theory as being eclectic, static and not paying particular attention to political and sociological element. Also Rivoli and Solorio (1996) while criticizing OLI theory argued that some of the predictions of the theory may not hold especially when faced with uncertain environment.

The rate of return theory on FDI on the other hand postulates that FDI flows is a function of international differences in rates of returns on capital relative to the required rate of return. They argued that capital will naturally flow from countries with low rate of returns to countries with higher rate of returns. This hypothesis was evidenced in the work of Popkin (1965), Rueber et al (1978) and Blaise (1975). However research works by Bandra and Lacken (1978) and Walia (1975) did not find evidence to support this hypothesis. The Portfolio theory by Tobin (1958) and Markiwitz (1959) theorised that investors besides maximizing profit also endeavor to minimize their risk by way of spreading their investment in various countries. Some authors adopted this theory in their analysis of FDI flow abroad (Steven, 1968; Prachway,1972; Cohen, 1975; Rugma, 1975).

Some other theories on foreign capital inflow dealt largely with theories on workers remittance. Three theories of importance here are: Pure altruism theory, implicit family agreement theory and portfolio management theory. In advancing motives for workers remittance Kaasschieter (2014) anchored his argument on migrants concern for the welfare of their family and associate in his or her home country. However the volume of funds remitted is largely dependent on the income of the migrant and that of their family and associates at home. The second theory of workers remittance is the implicit family agreement theory propounded by Lucas & Stark (1995). Here the family agreed to

sponsor the migrant abroad on the premise that as soon as the migrant is gainfully employed he will need to remit both the principal and interest thereof back home. This theory was reinforced by the empirical work of Poirine (1997).The third theory is the portfolio management decision in which the migrant consider macroeconomic factors such as interest rate, exchange rate, inflation rate and economic policies prevalent in both home and foreign countries before taking decision on remitting fund home for investment purpose. Furthermore, Straubbaar (1986) provide empirical evidence on this theory in his research of Turkey. It is worthy of note that it is only the portfolio management decision theory that has element of investment drives which have the ability to grow the economy. The other theories are consumption oriented and bear no direct effect on economic growth.

One of the topical issues in economics from time immemorial has been that of economic growth The earlier classical economics theories pioneered by Smith(1876), Ricardo (1824)and Malthus (1798) all recognised the mechanism that influence economic growth as productive investment as well as capital accumulation. The classical economist did not make allusion to financial capital in their analysis but concentrated on physical capital. The first Economist to recognise the place of financial capital in growth theory was Keynes (1936) in his simple macroeconomic open economic model of national income where he theorised that foreign capital flow (E-M) is required to bridge the saving-Investment gap in the domestic economy. Interestingly too Harrod (1939) and dommar (1946) expanded Keynesian growth model by identifying precondition necessary for an industrial economy such as USA to attain a steady-state of equilibrium growth. The model identified three gaps of savings, trade balances and financial gaps as a limiting factor to growth which could be remedy by foreign capital inflow. This model was adapted in their studies for open economies in less developed countries by Little (1960), Chenery & Bruno, (1962), Mckianon, (1964) and Chenery and Strout, (1966). In advancing growth model further the Neoclassical economist champion by Solow (1956) postulates the place of steady state where investment is equal to depreciation as a sinequanon for economic growth. However as the capital growth overtime diminishing returns set in to make depreciation higher than investment and thereby impede economic growth. To guarantee economic growth therefore savings need to be stepped up so as to ensure the steady state. Solow therefore encourage the flow of foreign capital to improve savings required for growth in the domestic economy

Review of Empirical Review

Existing literature offers conflicting views concerning the effect of exchange rate volatility on capital inflow. While some discovered positive effect others noted negative effects. Those reporting positive effects argued that devaluation of the host country currency via exchange rate volatilityl increased FDI and vice versa because it has the capacity to increase the wealth of the foreigners as well as making assets acquisition cheaper thereby encouraging multinationals to promote local production in place of exportation to host countries (Froot and Stein, 1991; Blonigen, 1997; Ford, 2005). On the other hand, some argued that decision to invest by any company is based on expectation of profitability in future and the risk attached to the stream of future profit which in their opinion is negatively affected by the exchange rate volatility (Campa, 1993; Dixit and Pindyck, 1994).

In Nigeria, Osinubi and Amaghionyeodiwe (2009) used OLS and Error Correction model (ECM) estimation techniques to examine the effect of exchange rate volatility on FDI in Nigeria for the period 1970-2004 and discovered a significant positive relationship. This study tried to allay the worry of foreign investors on the effect of exchange rate volatility on their investment. This result was not in agreement with the outcome of the work of Ogunleye (2008) who noted that exchange rate volatility negatively influenced FDI inflow to Nigeria and South Africa. He equally noted that in both countries FDI aggravated exchange rate volatility. The position of Ogunleye (2008) was corroborated by Udoh and Egwaikhide (2008) who using GARCH model to examine the effect of exchange rate volatility and inflation uncertainty on FDI in Nigeria between 1970 and 2005 indicated that exchange rate volatility and inflation uncertainty exerted significant negative influence on FDI. The study further revealed that status of infrastructural development, appropriate size of government sector and International competitiveness are very crucial determinant of FDI inflow into the country.

Most of the reviewed literature on the effect of foreign capital inflow on economic growth adopted FDI to proxy foreign capital inflow. Interestingly, almost all of them noted a positive relationship between FDI and economic growth. At the international level, Soltani and Ochi (2012) while examining the effect of FDI inflow on GDP of Tunisia between 1975 and 2000 noted that FDI promoted long economic growth in Tunisia.. This view was buttressed by Insah (2003) in his dynamic OLS study of the impact of FDI flow to Ghana between 1980 and 2010 noted a positive impact on GDPin Ghana. Still on Ghana, Aveh, Krah and Dadzie (2013) came up with slightly different result. Their study using 2SLS and quarterly data from 2004 to 2011 shows that there was an insignificant positive relationship between FDI and economic growth in Ghana. This shows that model specification and methodology of data analysis could determined the outcome of the result. Lee (2007) took a different approach in his study of the effect of FDI on economic growth in Vietna. He noted that the positive impact of FDI flow to Vietna on GDP was activated through the spillover effects of technological transfer brought about by the GDP. The same position was taken by De Grorio & Whalee (1998).in their study.

Nigeria's experience shows that there was positive effect of FDI flow to the country on the economic growth regardless of the method adopted. Some literature in Nigeria for instance used OLS technique of estimation to study the effect of FDI on GDP and came up with a positive result (Ayanwale, 2007; Adofa, 2009; Abu and Achegbolu,2011; Egbo, 2011). On the other hand some literature used Johansen Co-integration test and Vector Autoregressive (VAR) within Vector error correction model to study the impact of FDI flow on GDP in Nigeria and they all obtained positive effect of FDI on economic growth of Nigeria.(Okodua, 2008; Egwaikhide,2012, Ogunmuyiwa & Ogunleye, 2011). However the only negative voice to this discussion was that of Oyinlola (1995) who arrived at the negative effect of FDI on economic growth using the two-gap model.

Looking at the impact of FDI on economic growth from different perspective, Dutse (2009) noted that FDI affect economic growth through the spillover effect of FDI on technological and efficiency. Ayanwale (2008) and Egwaikhide (2011) in their different studies examined the impact of FDI on sectorial output. They both noted positive impact of FDI on telecommunication while insignificant positive effect was noted on real sector such as agric, mining, petroleum and manufacturing sector.

Some other authors studied the effect of ODA on economic growth. For instance, Burnside and Dollar (2000) in his panel data study of 56 countries using 2SLS estimation technique discovered that ODA had robust impact on economic growth of the selected countries but he was quick to add that this is dependent on good policy environment. This position was supported by Hansen and Tarp (2001) in their panel data analysis of the effect of ODA to 56 countries between 1970 and 1993 where they noted that ODA increased economic growth. In his study of the impact of ODA on GDP of 67 LDCs between 1970 and 1988 Bowen (1988) took a different approach by examining the direct and indirect effect of ODA. He noted that direct aid had no significant effect on economic growth while indirect aid had significant effect on economic growth via its interaction with domestic savings. Most of the studies on Nigeria noted positive effect of ODA on economic growth regardless of the analysis method adopted (Fasanya, and Onakoya, 2012;Mba Bell-Gen and Ubi, 2012; Bashir, 2013). The only disserting voice here is that of Bakare (2011) who noted a negative relationship between ODA and GDP.

Most of the studies that used remittance to proxy foreign capital inflow in their study of the impact of foreign capital inflow on economic growth both internationally and in the local Nigerian context found a positive relationship between remittance and economic growth (Glytson,2005; Fayisa, and Nshar, 2008; Malik and Junaid, 2009;Iheke, 2013; Ukeje and Obiechina, 2013).

Some other authors in the quest to find robust analysis of the effect of foreign capital inflow decided to apply more than one components of foreign capital inflow (FDI, FPI, ODA and Remittance) to carry out their study. In this situation some authors applied FDI and FPI as a proxy for foreign capital inflow in their studies and noted positive impact of FDI on economic growth and negative effect of FPI on economic growth (Soto, 2000;Shen & Lee, 2010; Shabbir & Asher, 1992). Some other literature selected ODA and FPI as a proxy for capital inflow and noted positive impact of ODA on economic growth while FDI has negative or no impact on economic growth (Gupta and

Islam, 1993; Khan & Rahim, 1993). Some other literature adopted ODA and FDI and discovered that ODA impact positively on economic growth while FDI retards economic growth (Stoneman, 1975; Oyinlola, 1995). The only study that adopted FDI, ODA and FPI in his study was Shabbir & Azher (1992) who noted significant positive impact of FDI on economic growth while ODA had positive impact on economic growth but FPI had significant negative impact on savings and by extension on economic growth.

Deduction from the above is that FDI, ODA and Remittance have a positive impact on economic growth while FPI has negative impact on economic growth. However the effect may differ depending on model specification and method of analysis.

Model Specification

This study adopts a model developed by Borensztein, De Grezorio and Lee (1998) and Fry (1997) including Bosworth and Collins (1998). This model will be constructed to test the effect of FDI, Remittances and Exchange Rate Volatility (EXRV) on economic growth as represented by GDP in Nigeria. Overall a model of the impact of capital flow on economic growth must identify the role and relative capital on the rate of economic growth. Here foreign capital flow is used as input in addition to labour and domestic capital stock.

The model starts from general production function given by Solow which is explicitly given as:

$$Y = f(K,L,A) \quad (1)$$

Where Y = GDP

K =Capital input (capital formation in an economy which is equal to domestic Investment + foreign capital inflow).

L = Labour input

A = the level of technological knowledge.

If we decompose capital to physical capital (K) and financial capital (FDI and REM.) as presented by Balassa (1978), then we have:

$$Y = f(K,FDI, REM ,L,A) \quad (2)$$

In Asian developing countries financial liberalization or openness is used as indicator of technological knowledge. This is based on the assumption that financial liberalization or openness provide and impose a higher efficiency on financial system and the economy. If we denote financial liberalization as FL, then substituting we have:

$$Y = f(K, FDI, REM., L, FL) \quad (3)$$

Financial development as represented by FD could be introduced into the model. We introduce this variable because the level of financial development in a given economy will help to explain the extent to which capital introduced into an economy can be effective. Therefore we have:

$$Y = f(K, FDI, REM, L, FL, FD) \quad (4)$$

Note that the level of financial development could be proxy by money supply(M_2).

We can also introduce other variables of interest into the model. This in our own case is the Exchange rate volatility (EXRV). Thus the equation becomes:

$$Y = f(K, FDI, REM, L, FL, M_2, EXRV) \quad (5)$$

From the implicit model above, we therefore proceed to build our explicit model thus:

$$Y = \propto_0 + \propto_1 K + \propto_2 FDI. + \propto_3 REM + \propto_4 L + \propto_5 FL + \propto_6 M_2 + \propto_7 EXRV + U \quad (6)$$

The apriori expectation provides the expected significance of the values of the coefficients to be estimated, We expect the coefficient to have the following signs:

$\propto_0 > 0$, $\propto_1 > 0$, $\propto_2 > 0$, $\propto_3 > 0$, $\propto_4 > 0$, $\propto_5 > 0$, $\propto_6 > 0$, $\propto_7 < 0$.

The role of capital inflow (FDI, REM) which is counted as endogenous variables in process of economic growth is explained by the fact that in developing countries, the gap of domestic savings and investment is lagged and foreign capital plays a key role in the development process. It is therefore supposed that foreign capital flow raises capital stock and increased capital formation which will in turn lead to increase in the growth of GDP.

Estimation Techniques

The study employs annual time series data for Nigeria between 1970 and 2013 which will be analysed using econometric techniques. A simple ordinary least square (OLS) method of estimation will be used in the first instance on equation 6 since it is efficient, sufficient and best linear unbiased estimator. However because of the inconsistency of the result of OLS in literature, we shall equally adopt the Generalised Method of Moments (GMM) estimators which provide consistent estimators when lagged of dependent variables are used. This is necessary in order to overcome the problem of endogeneity that is inherent in the long run growth determinants in line with Arellano and Bond (1991). This modified method was adopted in similar studies in Pakistan and other related studies (Malik and Junaid, 2009; Aghion P. et al, 2006; Gunther S, 2007; Benhima K. 2013; Hanseith and Tarp F, 2000; Carerera and Vulesin, 2003). This method is widely used by other studies because of its consistency (Chang and Ying, 2008; Aghion, Howwitt and Martins, 2010; Islam, 2010; Hokayem and Ziliak, 2011). In applying this method, the explanatory variables are instrumetalized with their suitable lags so that the instruments are not correlated with the error term.

GMM is a dynamic model estimation technique which is valid because the instruments (Variables) are exogenous implying that the over identified restriction on instrument is valid (Roodman, 2006). The two popular and similar tests of over identifying restriction hypothesis in GMM estimates are the Satgan (1958) and J- Statistic of Hansen (1982) tests. They both test the Null hypothesis that the overidentifing restrictions are valid. A rejection of this null hypothesis implies that the instructions are not satisfying the orthogonality conditions required for their adoption; the instrument are not truly exogenous or heteroscedasticity problem is in existence as against Homoscedasticity assumption in Sargan tests (Baaun, Schaffer and Stillman, 2003). It has also been shown that the presence of intra – cluster correlation can cause an over-identification statistics to over – reject the Null hypothesis (Hoxby and Paserman, 1998).

Therefore this study adopted GMM. Taking the first-difference transformation of equation 6, the fixed country-specific effect and the correction between the error terms and the lagged dependent variables are removed, specifically for lag order greater than or equal to 2 then we have.

$$\Delta Y_t = \alpha_1 \Delta Y_{t-1} + \alpha_2 \Delta K_t + \propto_3 \Delta FDI_t + \propto_4 \Delta REM_t + \propto_5 \Delta L_t + \propto_6 \Delta FL_t + \propto_7 \Delta M_2 + \propto_8 \Delta EXRV_t + \Delta U_t \quad (7)$$

Estimation of Exchange Rate Volatility

We adopt the Standard Deviation of the first difference of logarithms of the exchange rate in estimating Exchange Rate Volatility. Here the change in exchange rate is computed over one month using end of month data. The standard deviation is calculated over a one year period as an indicator of short run volatility as well as over a forty three years period to capture long run variability.

The first order difference (FD) measures consider the difference between the current logarithm value of exchange rate and the previous value. It is defined as:

FD_t = ($inEXR_t$ - $inEXR_{t-1}$)- in $\overline{EXR}$

Where EXR = Bilateral exchange rate.

$\overline{EXR}$ = The mean of the bilateral exchange rate.

In = Natural log.

The second measure of standard deviation of the growth rates of exchange rate (SD^{43}) is approximated by time – varying measure defined as follows:

$$SD_{t+m} = (\frac{1}{m}\sum_{i=1}^{m}(inEX_{t+i-1} - EXR_{t+i-2}\ )^2]^{1/2}$$

Where m = the order of moving average.

The last alternative measure of the exchange rate volatility is defined as the time-varying twelve months co-efficient of variation (CV) of the bilateral exchange rate (this is in fact a measure of dispersion of the real exchange rate). It is define as:

$$CV_{t+m} = \frac{\{\frac{1}{m}\sum_{i=1}^{m}(\ inEXR_{t+i-1} - EXR\ )^2\ \}^{1/2}}{\overline{EXR}}$$

Where $\overline{EXR}$ is the mean of the bilateral exchange rate between month t and t+m.

Sources of Data

Data on various variables to be used in the study such as Exchange rate, GDP, FDI and money supply, were sourced from volumes of the Central Banks of Nigeria (CBN) Statistical Bulletin. On the other hand, data on Workers' remittances, Capital and labour were sourced from the World Development Indicator (WDI). Exchange rate volatility was computed by the author by applying standard deviation on the exchange rate data collected from CBN Statistical Bulletin.

Results and Discussion

We present the table of our results of both OLS and GMM estimation techniques below. The results of the effects of the variables of interest in both methods of estimation were almost the same with minor variations. Since GMM has already helped us to overcome the problem of autocorrelation and heteroscedasticity inherent in OLS, we stick to GMM analysis in this paper.

The R- Squared of 0.986413 shows that the variation in dependent variable (GDP) was 98.64 percent jointly explained by all the explanatory variables (L, K, FDI, REM. FL, FD and EXRV). The Adjusted R^2 of 0.982531 shows that the model has high goodness of fit as the explanatory power of this model is approximately 98 percent of the total variation in GDP. The validity of the instrument in the estimation was justified by the Prob. J- Statistics of 0.999404 which is closer to 1.0. Also the

standard error of all the variables which lies between 0 and 1 indicates that the coefficients of the estimator are reliable.

Model ESTIMATION (OLS & GMM)

Dependent Variable: LY
Method: Least Squares
Date: 02/22/16 Time: 18:47
Sample (adjusted): 1970 2012
Included observations: 43 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	80.84579	18.66521	4.331362	0.0001
LL	-4.690621	1.115186	-4.206132	0.0002
LK	0.022268	0.057297	0.388641	0.6999
LFDII	0.014429	0.063081	0.228737	0.8204
LREM	-0.046764	0.052440	-0.891768	0.3786
LFL	-0.398184	0.095824	-4.155354	0.0002
LFD	1.081215	0.120642	8.962204	0.0000
EXTV	-0.008150	0.034755	-0.234490	0.8160

R-squared	0.978808	Mean dependent var	11.93976
Adjusted R-squared	0.974570	S.D. dependent var	1.528077
S.E. of regression	0.243679	Akaike info criterion	0.180311
Sum squared resid	2.078280	Schwarz criterion	0.507976
Log likelihood	4.123324	Hannan-Quinn criter.	0.301143
F-statistic	230.9421	Durbin-Watson stat	0.673977
Prob(F-statistic)	0.000000		

Dependent Variable: LY
Method: Generalized Method of Moments
Date: 02/22/16 Time: 18:52
Sample (adjusted): 1976 2012
Included observations: 37 after adjustments
Linear estimation with 1 weight update
Estimation weighting matrix: HAC (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)
Standard errors & covariance computed using estimation weighting matrix
Instrument specification: LK(-1) LL(-1) LFDII(-1) LREM(-1) LFL(-1) EXTV(-1) LFD(-1) LK(-2) LL(-2) LFDII(-2) LREM(-2) LFL(-2) EXTV(-2) LFD(-2) LK(-3) LL(-3) LFDII(-3) LREM(-3) LFL(-3) EXTV(-3) LFD(-3) LK(-4) LL(-4) LFDII(-4) LREM(-4) LFL(-4) EXTV(-4) LFD(-4) LK(-5) LL(-5) LFDII(-5) LREM(-5) LFL(-5) EXTV(-5) LFD(-5) LK(-6) LL(-6) LFDII(-6) LREM(-6) LFL(-6) EXTV(-6) LFD(-5) LK(-6) LL(-6) LFDII(-6) LREM(-6) LFL(-6) EXTV(-6) LFD(-6)

Constant added to instrument list

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	92.52159	5.283602	17.51108	0.0000
LY(-1)	0.082556	0.038611	2.138150	0.0417
LK	0.050607	0.004571	11.07106	0.0000
LL	-5.303872	0.307631	-17.24105	0.0000
LFDII	0.063944	0.003358	19.04463	0.0000
LREM	-0.062961	0.004724	-13.32847	0.0000
LFL	-0.184613	0.006960	-26.52529	0.0000
EXTV	0.005670	0.002864	1.979911	0.0580
EXTV(-1)	-0.024395	0.002012	-12.12669	0.0000
LFD	0.883576	0.045644	19.35817	0.0000

R-squared	0.988770	Mean dependent var	12.42286
Adjusted R-squared	0.985027	S.D. dependent var	0.959214
S.E. of regression	0.117373	Sum squared resid	0.371964
Durbin-Watson stat	1.273402	J-statistic	9.779424
Instrument rank	38	Prob(J-statistic)	0.999435

We now examine the effect of each of the explanatory variables on the growth of the Nigerian economy. The coefficient of FDI which is 0.063944 shows that there was positive but very significant effect of FDI on GDP as demonstrated in the probability of 0.0000 In other words a percentage change in FDI lead to 0.064 percentage change in GDP. This shows that FDI has great impact on economic growth of Nigeria between 1970 and 2013. This could have been the direct implication of this kind of inflow on local investment, employment and indirectly on consumption. This therefore suggests an area of policy shift for government to meet her current economic diversification strategy.

Remittance on the other hand had significant negative effect on the Nigerian economy as evidenced in its negative coefficient of 0.026961 and probability of 0.00000.This shows that a one percent change in remittance will lead to 0.068 percentage change in GDP. This result was contrary to empirical evidence in previous literatures on Nigeria which produced positive relationship between remittance and economic growth (Iheke, 2013; Ukeje and Obiechina, 2013; Kanu and Ozurunbo, 2013). However literature that support negative impact of remittance on economic growth anchored their argument on the fact that remittance only have direct impact on consumption and not on investment and therefore could not form capital formation required for economic growth (Karagoz, 2009; Sanni and Mohammed, 2012). In particular Sanni and Mohammed (2012) found negative effect of remittance on MENA countries economic growth between 1970 and 2009 while examining channels through which remittance can promote economic growth in these countries. They concluded that remittance was consumed and thus could not stimulate growth which could only be stimulated by investment.

The negative effect of remittance on economic growth in Nigeria could be justified by the fact that most of the fund that come to Nigeria via remittance were consumed rather than invested. Effort should therefore be geared towards encouraging remittance flow towards investment that could lead to both human and physical capital accumulation.

Exchange rate volatility which is one of the key explanatory variables of interest in this study shows an interesting position. Here there is positive and significant effect of EXRV on GDP as evidence in its coefficient of 0.005670 and probability of 0.0000 this is contrary to the theory which specified that EXRV has a negative effect on GDP. But a study by Aghion, Howit and Mayer (2005) opined that the extent of financial development will dictate the impact of EXRV on economic growth. For instance a lower degree of financial development with high EXRV will aggravate the divergence of the economy growth rate while a country with well developed financial system will neutralize the negative effect of EXRV. The various reforms implemented by Nigeria's government overtime might

have explained the positive effect of EXRV on GDP in Nigeria. Such reforms include financial structure reform; monetary policies reforms; foreign exchange market reforms; liberalisation of the capital market and capital market reform. However we extend the study further to see the lag effect of EXRV for one period on economic growth. The outcome shows a negative but significant effect of this lag value of EXRV on GDP as evidenced in its negative coefficient of 0.024395 and probability of 0.0000 shown in the regression table above. This is the only situation that corroborates the theory on exchange rate volatility.

Financial liberalisation was found to have negative but highly significant effect on economic growth. This shows that a percentage increase in financial liberalisation will lead to retardation in economic growth by 0.185 percent. Therefore policy formulators must be careful about the level of financial liberalisation to be accepted in the economy. On the other hand financial development was also found to have positive significant effect on the economic growth in Nigeria as evidenced in the positive coefficient of 0.883676 and probability of 0.0000 That is for every percentage change in financial development there is 0.884 percentage increase in economic growth. Financial development is required to bring about speedy economic growth required in the economy. For the economy to grow therefore much effort must be directed towards developing the financial sector of the economy so that the sector could play a big role of the engine of growth ascribed to it as normal function. Capital has a positive and significant effect on economic growth on the other hand labour has a negative and significant effect on economic growth of Nigeria between 1970 and 2013.

The objective of this study was to assess the effect of capital inflow and exchange rate volatility on economic growth in Nigeria between 1970 and 3013. The result of the general Method of Moment (GMM) regression analysis show that R^2 of 0.978808 imply that all the explanatory variables jointly explain the variation in the GDP by 97.88 percent . This was buttressed further by Adjusted R^2 of 0.985027 which imply that the model has high goodness of fit. The FDI was discovered to have significant positive effect on GDP as shown by the co-efficient of 0.063944 which indicate that a percentage increase in FDI will lead to 0.064 percentage change in GDP. We also noted that Workers Remittance have a significant negative effect on FDI as shown by the coefficient of -0.62961. This was because remittance does not have direct impact on investment but rather impacted on consumption which does not have capacity to build up capital stock.

Exchange rate volatility has positive but insignificant effect on economic growth contrary to negative effect posited by theory but which could be justified by the level of financial development prevalent in Nigeria in line with the findings of Aghion et al (2005). However, the lag of EXRV has a negative and significant effect on economic growth in Nigeria. Financial development has a positive and very significant effect on economic growth in Nigeria as demonstrated by the coefficient of 0.883576 signifying that a percentage change in financial development will lead to 0.884 percentage change in economic growth, On the other hand financial liberalisation has a negative but significant effect on economic growth in Nigeria.

Conclusion and Recommendation

The study shows that FDI has a positive and significant effect on economic growth in Nigeria which identified FDI as a focal point to channel the policy to grow the economy. On the other hand remittance has a negative effect on the economic growth in Nigeria as it affects consumption and not investment which is capable of improving economic growth. Also EXRV has positive but insignificant relationship with economic growth in Nigeria contrary to basic theory on EXRV. However this was made possible because of the level of financial development prevalent in Nigeria arising from various financial reforms carried out in Nigeria financial system.

It is common knowledge that the present political administration intend to introduce economic reform that will diversify the Nigerian economy from the present monocultural dependency on oil revenue in her quest to bail out the nation from the dwindling economic fortune. The template in particular seeks to grow the nation agricultural base, solid mineral development and local industry development. This study therefore admonishes government to provide enabling infrastructural and financial development that will attract the inflow of FDI to agric sector, solid mineral sector and agro allied

industry. This will help to bridge financial, technological and managerial gap that exist in the domestic economy of Nigeria presently.

We also recommend that government should introduce financial reform that will encourage greater financial inclusion of Nigerian citizens in the financial sector of the economy. More importantly the impact of financial reform in Nigeria should not be restricted to urban areas but should equally be felt in the rural areas. In this way rural agricultural development needed to anchor the economic diversification of the present administration will be easily attainable. The space of financial development will also go a long way to further reduce the negative effect of EXRV on the economic growth.

More fiscal and monetary policies that will curtail the present overbearing control of foreign exchange by parallel market instead of real banking sector led control should be put in place. The mafia that presently control bureau de change in Nigeria should be dismantled. Government must put in place stringent control on the activities of these bureau de changes. Policy that will diversify more of remittance which is on the increase to the nation now from consumption to investment should be put in place. In this way the remittance will have direct impact on economic growth in Nigeria. Recipient household of international workers remittance should be re-oriented to channel more of the remittances to investment purpose rather than consumption so as to boost the growth of Nigerian economy.

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Proposition d'un modèle conceptuel de la résistance à l'adoption des panneaux solaires photovoltaïques.

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Résumé

L'objectif de ce papier est de combler le manque de recherches portant sur l'étude de la résistance à l'adoption des panneaux solaires photovoltaïques. Cette étude vise à étudier les principales barrières techniques, sociales et économiques qui constituent des freins à l'utilisation domestique des panneaux solaires photovoltaïques et à fournir une meilleure compréhension de ce phénomène dans un pays émergent. C'est ainsi que nous nous proposons d'élaborer un modèle conceptuel explicatif de la résistance à l'adoption des panneaux solaires photovoltaïques qui s'appuie sur la théorie du comportement planifié et qui intègre les barrières techniques, sociales et économiques. Ce modèle fera l'objet d'une validation empirique auprès de chefs de ménage Tunisiens.

Mots clés

Panneaux solaires photovoltaïques, Comportement du consommateur, Théorie du comportement planifié, Barrières sociales, économique et techniques.

Abstract

The aim of this paper is to fulfil the lack of research on the issue of resistance to adopting photovoltaic solar panels. Specifically, we aim to identify the key technical, social and economic barriers to the domestic use of photovoltaic solar panels and provide a better understanding of this phenomenon in emerging countries. Thus, we intend to develop an explanatory model of resistance to adopting photovoltaic solar panels. To this end, we opted for the theory of planned behavior as the theoretical background and integrate the technical barriers, social and economicfor our study. This model will be empirically validated on a sample of Tunisian households.

Keywords: Photovoltaic Solar Panels, Consumer Behavior, Theory of Planned Behavior, Social barriers, Economic and Technical barriers.

1. Introduction

En raison de l'excès de consommation des ressources énergétiques fossiles, de l'épuisement des réserves et de leurs effets néfastes sur l'environnement, les décideurs politiques ont pris de nombreuses initiatives pour inciter à l'adoption des énergies renouvelables (Faiers, 2007) telle que l'énergie solaire photovoltaïque (ESP) qui n'a pas d'effet nuisible sur l'environnement, (Ansari et al, 2013). Toutefois, l'ESP est confrontée à un certain nombre de contraintes et de barrières qui affectent son adoption par les particuliers, (Claudy et al, 2013). La présente recherche porte sur l'étude des obstacles inhérents à l'adoption domestique des panneaux solaires photovoltaïques (PSP). Le choix de ce thème se justifie d'une part, par le fait que la résistance à l'adoption des PSP n'a pas suscité un grand intérêt de la part des chercheurs (Luthra et al, 2015) dans les pays émergents, (Hansla et al, 2008) et d'autre part, par le besoin de comprendre le phénomène de non adoption des PSP afin d'identifier les barrières à leur adoption, (Krupa, 2012). C'est à ce titre que nous nous proposons d'élaborer un modèle conceptuel inspiré de la théorie du comportement planifié (TPB) pour étudier l'impact des barrières techniques, économiques et sociaux sur l'intention d'adoption.

2. Cadre conceptuel

Nous passerons en revue les barrières sociales, économiques et techniques à l'adoption des PSP et nous présenterons ensuite la TPB.

2.1. Les barrières à l'adoption des PSP

L'adoption des PSP est confrontée entre autres à des barrières économiques, techniques et sociales, (Karakaya et Sriwannawit 2015; Rai et al, 2016; Yaqoot et al, 2016).

2.1.1. Les barrières sociales

Les barrières sociales se rapportent au manque de confiance sociale et à l'absence de soutien social, (Yun et Lee, 2015). La confiance sociale est définie comme la volonté de l'individu de compter sur des experts lorsqu'il aune connaissance limitée sur une technologie, (Earle et Cvetkovich, 1995). La confiance sociale influence positivementles normes subjectives (Yun et Lee, 2015), et le manque de confiance sociale détermine négativement les normes subjectives. D'où, l'hypothèse suivante:

H_1:Le manque de confiance sociale influence négativement les normes subjectives.

Le soutien social représente la capacité de la communauté à informer la personne sur les avantages d'une technologie et il correspond à son évaluation subjective, (Montijin-Dorgelo et Midden, 2008, Stephenson et al, 2015). Le soutien social affecte positivement les normes subjectives, (Yun et Lee, 2015). Ainsi, l'absence de soutien social exerce un impact négatif sur les normes subjectives. D'où, nous proposonsl'hypothèsesuivante:

H_2:L'absence de soutien social influence négativement les normes subjectives.

2.1.2. La barrière économique

La barrière économique se rapporte aux coûts d'acquisition, d'installation et de maintenance des PSP, (Kim et al, 2014). Bauner et Crago (2015) soulignent que plus les coûts de l'acquisition des PSP sont élevés, plus leur adoption est ralentie. Vasseur et Kemp (2013) affirment que les coûts sont considérés comme l'une des principales raisons de non adoption des PSP. Ainsi, les coûts agissent négativement sur l'attitude vis-à-vis des PSP (Claudy et al, 2013). Nous soutenons l'hypothèse suivante :

H_3: Les coûts influencent négativement l'attitude à l'égard des PSP.

2.1.3. Les barrières techniques

Les barrières techniques se rapportent aux conditions techniques non adéquates ainsi qu'à la perception de la qualité du système des PSP, (Yun et Lee, 2015). En outre, l'adoption des PSPnécessitela prise en compte de donnée personnelle telle que la superficie de la maison (Claudy et al, 2013). A ce titre, Taylor et Todd (1995) trouvent que l'adéquation des conditions techniques influence positivement le contrôle comportemental perçu. Toutefois, les conditions techniques inadéquates agissent négativement sur le contrôle comportemental perçu. Par conséquent, nous émettons l'hypothèse suivante:

H_4:Les conditions techniques inadéquates influent négativement sur le contrôle comportemental perçu.

La qualité perçue du système des PSP est définie comme la cohérence et la fiabilité des performances, (Seddon, 1997). Yun et Lee (2015) trouvent que la qualité perçue du système des PSP influe positivement sur le contrôle comportemental perçu. Toutefois, la perception d'une mauvaise qualité des PSP influence négativement le contrôle comportemental perçu. Par conséquent, nous formulons l'hypothèse suivante:

H_5:Une mauvaise qualitéperçue des PSP agit négativement sur le contrôle comportemental perçu.

2.2. La théorie du comportement planifié (TPB)

La TPB vise à prédire les comportements et à déterminer l'impact de l'attitude, des normes subjectives et du contrôle comportemental perçu sur l'intention d'adoption d'une technologie, (Ajzen, 1985).L'attitude désigne l'évaluation globale d'un comportement. La norme subjective désigne les pressions sociales perçues pour effectuer ou ne pas effectuer un comportement. Le contrôle comportemental perçu se réfère aux ressources, aux capacités, aux opportunités disponibles et à la perception de l'importance d'obtenir les résultats, (Ajzen, 1985). LaTPB stipule l'existence d'un lien positif entre l'attitude et l'intention d'adoption, (Ajzen, 1991). Sur cette base, nous soutenons l'hypothèse suivante:

H_6:L'attitude influence positivement l'intention d'adopter les PSP.

Par ailleurs, la TPBsoutient une relation positive entre les normes subjectives et l'intention d'adoption, (Ajzen, 1991). Cependant, la TPB n'a pas étudié la relation entre les normes subjectives et l'attitude. Nous nous proposons d'explorer cette relation et nous supposons que les normes subjectives agissent positivement sur l'attitude. Ainsi, les hypothèses suivantes:

H_7: Les normes subjectivesinfluencent positivement l'intention d'adopter les PSP.

H_8: Les normes subjectivesinfluent positivement sur l'attitude vis-à-vis des PSP.

Quant aucontrôle comportemental perçu, la TPB considère qu'il agit positivement sur l'intention d'adoption, (Ajzen, 1991). Mais, elle n'a pas étudié la relation entre le contrôle comportemental perçu et l'attitude. Nous admettons que le contrôle comportemental perçu influence positivement l'attitude. D'où les hypothèses suivantes:

H_9: Lecontrôle comportemental perçu exerce un impact positif sur l'intention d'adopter les PSP.

H_{10}: Lecontrôle comportemental perçu agit positivement sur l'attitude envers les PSP.

3. Le modèle conceptuel

Le modèle conceptuel proposé se présente comme indiqué dans la figure 1.

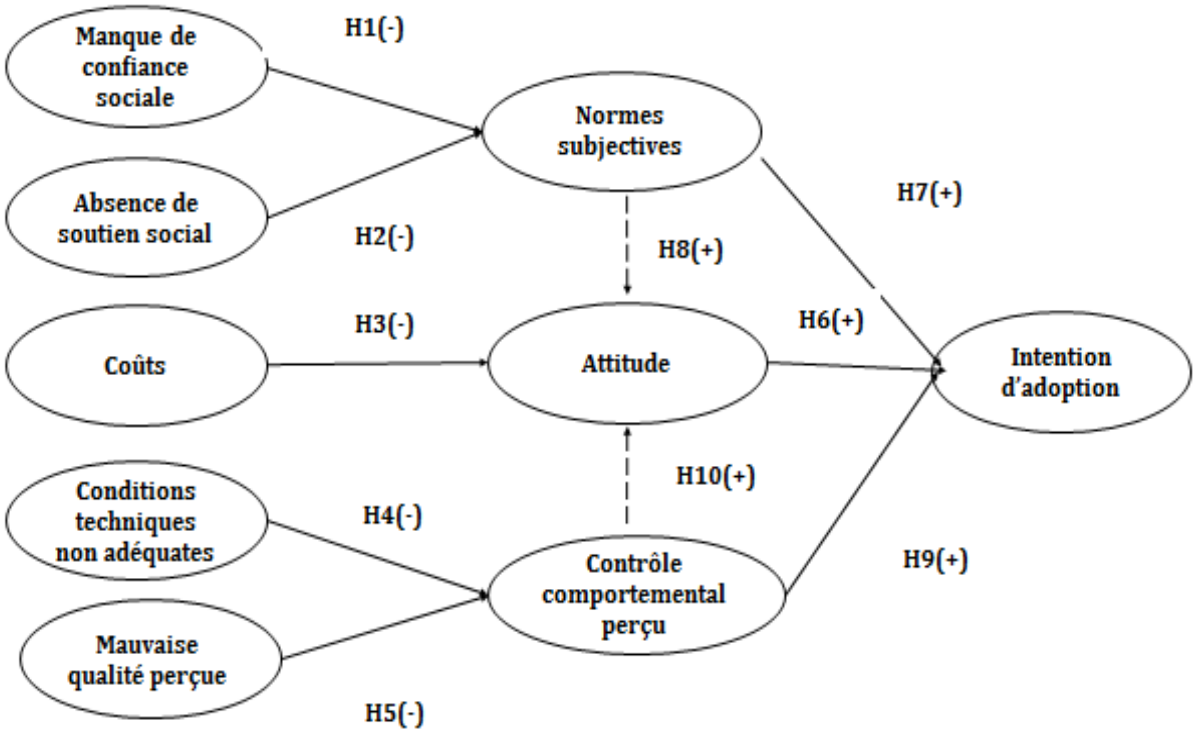

Figure 1. Le modèle conceptuel

4. Conclusion

Malgré les avantages des PSP, leur adoptionest confrontée à un certain nombre de barrières. En se basant sur une revue de la littérature, nous avons élaboré un modèle conceptuel inspiré de la théorie du comportement planifié. Ce modèle intègre les barrières économiques, techniques et sociales et vise une meilleure compréhension du comportement des particuliers à l'égard des PSP. Il constitue une contribution à l'explication du comportement de non adoption des PSP en tenant compte de trois types de barrières. Notre modèle sera testé auprès de chefs de ménage Tunisiens afin de confronter sa cohérence avec la réalité.

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A Guide of Culture Model for ascension on Education Pyramid

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Abstract.

The purpose of the study is to evaluate and create an educational model based on the development of sustainable model for education. The results show significant difference in the knowledge, attitudes and intention of students in their future decision. The role of the study is to quantify the influence of the media models presented in the mass-media as models of success in a new economical market and new orientation of job market. Also the study identifies the factors of influence upon the next generation in how to choose a profession. The question that arises is whether such prominent characters in TV and mass media, abandonment causes secondary studies in motivation "they managed no school" and may succeed because "the money are everything". Study covers schools and universities population from Romania and Albania, the target are the students from high school to the end of the childhood and adult transformation aware of their role in society and the transfer in academic life perception regarding the role of education in social life.

Keywords: sustainable education, cross cultural model, model education, quality.

1. Introduction

There are diverse studies in the literature related to motivation of students, factors that motivate them in learning, choosing a profession and achievement goals and the success. Fan (2011) examined the structural relations of social influences, task values, ability beliefs, educational expectation and academic engagement for both boys and girls and he found that despite the detected gender differences, similar findings across gender groups were also noted and demonstrated in the existence of latent factor mean non-invariance between boys and girls on multiple school motivational factors and social influences.

Xu (2014), identify at the student level, that homework motivation management was positively associated with family help, peer-oriented reasons, learning-oriented reasons, homework interest, arranging the environment and managing time. Girls, compared with boys, and Blacks, compared with Whites, were more likely to manage homework motivation. Also, De Bruin *et al.* (2012) examined the relationship between motivation for using digital portfolios and reflection and he found that that motivation for composing a portfolio was fair, but not related to the amount and nature of reflection.

Hudley *et al.* (2007) described a program of intervention research to improve social behaviour and academic motivation in elementary school students organized around principles of attribution theory. Their study was focused on reducing children's aggression and was then expanded to include enhancing personal responsibility and demonstrated that children's attributions in both the social and academic domains can be changed with cost-effective, educational strategies and can produced positive changes in behaviour.

Also, Covington (2000), found that the quality of student learning as well as the will to continue learning depends closely on an interaction between the kids of social and academic goals students

bring to the classroom, the motivating properties of these goals and prevailing classroom reward structures. Raufelder *et al*. (2013), examined if social relationships in school are equally important for motivation across a large sample of adolescent students. They considered four different motivation types: teacher dependent, peer dependent, teacher and peer dependent and teacher and peer independent motivation and the results of the confirmatory latent class analysis confirmed their four latent class model. Korpershoek *et al*. (2015) investigated the school motivation of students using four motivation dimensions: performance, mastery, extrinsic, and social motivation. Their aim was to identify distinct motivation profiles using this motivation dimensions in a latent class analysis and to investigate the relationships between students' school motivation profiles and several educational outcomes (school commitment, academic self-efficacy, and academic achievement).

They found two clusters of students with consistent response patterns across all four motivation scales, two clusters of which one showed relatively high scores on mastery and social motivation and the other on performance and extrinsic motivation, and two clusters with extremely low scores on performance motivation and to a lesser extent on extrinsic motivation. The results revealed notable differences in school commitment and academic self-efficacy across the six clusters, but not with regard to academic achievement.

McInerney *et* al. (2005) found seven factors underlying facilitating conditions for school motivation: perceived value of schooling, affect toward schooling, peer positive academic climate, parent positive academic climate, teacher positive academic climate, peer negative academic climate and parent negative academic climate. They found that last two factors were correlated positively with each other but negatively with all the positive constructs and academic achievement was positively correlated with the five positive factors but negatively correlated with the two negative factors.

Otherwise, Steinmayr and Spinath (2009) examined to which extent different motivational concepts contribute to the prediction of school achievement among adolescent students independently from intelligence. They found that beyond intelligence, different motivational constructs incrementally contributed to the prediction of school achievement. Domain specific ability, self perceptions and values showed the highest increments whereas achievement motives and goal orientations explained less additional variance.

In her study, Giota (2010), showed that the first- and second-order confirmatory factor analyses were used in order to investigate the structure of the different types of academic, social, and future goals pursued by adolescents in school, and whether goals can be hierarchically organized. The findings reveal that achievement goals are multidimensional in structure and that pupils in school pursue not only one type of goal at a time, but different types simultaneously. Analyzing the factors influencing the achievements of students in the subject of Islamic Studies in schools, as attitude and interest, Bin Che Noh *et al*.(2013) found that interested did not have significant relationship with the achievement of the students while the attitude factor has a significant relationship with the students' achievement in the subject of Islamic study.

Tiwari *et al*. (2014) analysed the relationship between academic motivation and school performance among students and they found that the medium of instruction was found significant on the two dimension of academic motivation scale namely academic belief and self regulated learning as well as school performance scale. Similarly, the interaction effects of the type of family and school were also found significant on the academic motivation and school performance. School performance was positively correlated with motivational belief and self regulated learning.

Regression analysis revealed that the motivational beliefs and self-regulated learning emerged as the best predictor of school performance. Jereb (2010) considers that study success can be influenced by following factors: social elements (social class position, parents' education, parents' profession, parents' income), student related factors (motivation, aptitude, effort, IQ, time spend on study, opportunity to learn, pre-university education), quality of instruction (organisation, course material, communication, assignments, exams, grading, course outcomes), curriculum (number of courses, sequence of courses, test schedule, system-block or parallel), government (grant, student

accommodation). He found that: the influence of these factors on study success is presented; social and academic integration are central aspects; "social elements" greatly influence the decision to enrol, but have less influence on marks received and the duration of study; grants also greatly influence study success and factors from the "quality of instruction" group can only explain 12.3% of the variance of exam results.

In order to measure students' motivation toward science learning, Tuana (2005), developed a questionnaire with six scales: self-efficacy, active learning strategies, science learning value, performance goal, achievement goal, and learning environment stimulation. He found a significant correlation of the students' motivation toward science learning with students' science attitudes and with the science achievement test. McInerney and Ali (2009) examined the multidimensional and hierarchical structure of achievement goal orientation measured by the Inventory of School Motivation (ISM) using eight specific dimensions: task, effort, competition, social power, affiliation, social concern, praise, and token. Their analyses suggest that there is considerable support for the multidimensional structure of achievement goals as represented in the items drawn from the ISM.

So, our study start from Amabile (1993) suggestion, the best way to help students bring maximum creative potential is to be allowed to do what they like. Thus, Ausubel and Robinson (1981) believes that there are three components of the concept of motivation in school:

1. The first component, **centred around the need to know and understand,** to master knowledge and formulate and solve problems giving rise to what is called cognitive impulse. Cognitive impulse is directed entirely to the teaching task in the sense that necessity to be involved in the task that is intrinsic to the task itself, i.e., is simply necessity to know.
2. The second component of motivation is a strong affirmation of **self and high school performance** can meet this need as achievements thus lead to primary or acquired social situation which generates feelings of acceptance student awareness and self-esteem.
3. A third component of the motivation of school work is based on **necessity of affiliation.** She did not return to education is oriented rather towards achieving that ensure individual approval by a person or group of people with which he identifies in the sense of dependence on them, and that if a declaration of, he acquires a social situation, or derived indirectly.

Golu (2001) and Afzal et al. (2010) examining the influence of student motivation on academic performance found a positive and mutually causal relationship between student's motivation and student's academic performance. This relationship is reciprocal which means students who are more motivated perform better and students who perform better become more motivated. More than that, they concluded that academic performance is positively influenced by intrinsic motivation and negatively affected by extrinsic motivation. Kusurkar *et al*. (2013) provided acceptable evidence that the quality of motivation is important in determining good performance among medical students through good study strategy and high effort.

They arrived to this conclusion using Structural Equation Modelling analysis technique in order to test a hypothesized model in which high *relative autonomous motivation* would positively affect *good study strategy and study effor*t, which in turn would positively affect academic performance.

Taking into account these studies, the aim of the paper is to quantify the influence of the media models presented in the mass-media as models of success in a new economical market and new orientation of job market.

The social models, the human activities and the global evolution generate the need for sustainable development in education. Studding the international initiatives that have emphasised that education is an imperative for societies to become more sustainable, Ramos *et al*. (2015) found that there have been many efforts in the implementation of sustainable development in higher education institutions, there are still many challenges to integrate sustainable development into their systems, and many opportunities for research in this topic: implementation of sustainable development, stakeholder engagement and participation, campus operations, sustainability reporting and assessment, organisational change management, and curriculum development.

They consider that the main steps that must be followed by the higher education for sustainable development discipline may be considered: exploring new and rethink theories, approaches, concepts, methods, and frameworks, as well as providing case studies and guidelines for practitioners.

Verhulst and Lambrechts (2015) already presented a conceptual model, which links human factors to the sustainable development integration process, applied in a specific case study of a Belgian university college. The results indicated that the conceptual model helps to get a profound understanding of human related barriers for integrating sustainable development in higher education, as well as to understand the underlying reasons for these barriers and linkages between them in different stages of the integration process.

Thus, we consider that a new model must to be proposed in order to define a way of connection with the present generation needs without compromising the ability of future generation in order to respond to the demands of society the European Union that is promoting a new educational model linked to the development of competencies in research work focused on university and which fields are attractive for today's generation and can satisfy also the market need. From this point of view sustainable competencies can be define as a complex of knowledge's, skills attitudes that can influence and model the future intellectuality the power engine of economy and society.

In the context of globalization it has been recognized that education sustainability can additionally increase cross institutional compatibility (Godemann et. al, 2014), provide evidence of accreditation bodies and improve ranking position research, educational and environmental indicators (Lukman et. al, 2010). The limits of the sustainability education are the lack of sector with specific development, time and resources for sustaining education and lack of common understanding of sustainable education. There are three types of organizational change, according to intervention in the change process – radical intervention, serendipitous change a continual and unpredictable process s of adaptation to changing conditions and planned change, which offer to educational system the advantages of some type of guidance, without being to constrictive (Adam, et.al, 2013). The respond to the actual society demands, it is given by the European Union which is promoting a new educational model linked to the development of competencies, in our case focused on university level training (The Bologna Declaration of 19 June 1999).

2. Research methodology

This study is structured in three parts, in the first part we performed a diagnose for high school students, in the second part we made a diagnose for students which are already involved in academic education using the same survey, in the third part of the research we presented a cross cultural model for education system (Vega Marcote et.al. 2015), created by using a parallel between two education systems from different countries, that is Romania and Albania. The research establishes and counts the differences of perception of education between two types of education systems, in Romania the classical style and in Albania which is already applying and developing the dual system education. The paper proposes that higher education institutions need to consider sustainability reporting as a dynamic tool to plan sustainability changes and not just a communication activity.

2.1. Research Methods

The research was designed with the propose of evaluating the effect of an experimental educational model based on the development of sustainable competencies as opposed to a traditional model and comparing the data with the effect of educational intervention in the new field of environmental education with direct impact as possible with a cross contamination model for education (Hargreaves, 2007), (Abrudan, 2012). Three instruments were used in the research process based on the study variable:

1. A survey containing 25 questions, focus on a specific topic items;
2. The data collecting were analyzed with the statistical package SPSS™ program (Statistical Package for Social Sciences) version 20;
3. LISREL8.7™ program to establish the connection between variables and measure the possible correction (Guide on line, 2015).

SPSS program helps to introduce all the information and survey results. To be able to establish a cross cultural model for education, a PRELIS^{TM} program was used as a application for manipulating data, transforming data, generating data, computing moment matrices, computing asymptotic covariance matrices, performing regression analyses, performing exploratory factor analyses, etc.

2.2. Case study

The number of participants in the research totalled 450 students from Baia Mare, Romania and 150 students from Durres and Tirana cities from Albania. They have different education level, involved in different activities, enrolled in academic education system or graduated different type of adult education.

This study's aim was to explore the relationship between sustainability and organizational change management for sustainable education. The study was targeted schools in urban and rural areas on a representative sample in the Maramures County Region, Romania for 280 students, and another target group of 170 from Baia Mare University and 150 from "Aleksander Moisiu" University Durres, Albania. The method of study was the questionnaire anonymously through its implementation by school psychologists applying classroom and 280 students were involved, 14 schools and 320 students from two universities.

Although Romania and Albania were both part of the communist bloc, between these two countries involved in the study there are some cultural and training differences, taking into account that Romania still apply the classical style and Albania already apply and develop the dual system education: in Albania higher education institutions ensure jobs for graduates, while Romanian universities ensure jobs, only occasionally, when come requests from business environment, but not covering the offer; more than that, Albanian higher education system provide internships in companies that will engage graduates while in Romanian system is not a rule, being possible to be met only as exception; the curricula in Albanian system is founded on developing practical skills and competencies for students while Romanian system is still is focused on the theoretical training; in Albanian system the fluency in English and German is compulsory for graduates while Romanian system doesn't guarantee this level of knowledge of foreign languages, although the curricula contain foreign languages in the first two years of study; the Albanian system prepares students to be able to adapt to any situation that can be met in practice, in business environment, while Romanian system ensure this preparation only occasionally and for a small number of students, by special programmes of students mobility, that offered the students the possibility to gain practical competences in different institutions from abroad. By these programmes, Romanian system could prepare the graduates for success on labour European market.

2.3 Survey structure

The questionnaire aims school motivation. Because we want to know to what extent the students are motivated to study, the questions given needs a single variant of answer or multiple choices. The questionnaire was structured in more parts: identifying the demographic details, age, gender, parents education level, identify students motivation on learning, if they choose a model from mass media promotion and if the learning process influence their decision for future development.

Each part shows an education analysis of the respondents and also the level of quality of education perceived.

- **Part 1**. Identify the characteristics of respondents which are involved in economical activities age, gender, social status;
- **Part 2**. Collecting some information about the education level of respondents and also how family influences his education perception for a successful life. Mother and father level of education are identified to be able to determine the connection between variable factors;
- **Part 3**. To determine the education perception and the influence of education upon the respondents orientation;

- **Part 4**. Establish if education is in direct relation with the vocational orientation, identify which type of models influence the young generation if mass media has an big impact the model;
- **Part 5**. The connection between the education wishes and their vision about education in function of importance of specific fields of education in their life;
- **Part 6**. Identify the typology of factors socio-economical which influence the education selection. For a realist data for some questions some instruments were used in the research process based on variables:

- A scale of environment attitudes build and validated by Cronbach's alpha coefficient;
- A scale for intention of behaviour with propose of analyzing the impact of education upon the respondents;
- A Likert scale from 1 to 10 to evaluate the impact of education for respondents (Allen et. al, 2007).

3. Results

The population distribution by gender is 57% female and 43% male. For our target the distribution in function of students' residence 47% comes from rural areas and 53% in urban areas. Students interviewed were aged between 10 years and 18 years, the lowest percentage of 1% percent for 10 years old, for students of 14 years we have the largest percentage of 21%.
This percentage can be explained by the fact that students of 14 years are graduating the secondary school and they have to take a decision about their future orientation and followed high school in different education profile.
The study takes also in consideration the factors that can influence the students decision regarding his/ her future.
The Mother's education level from data analysed show us that a share of 56% of students studied have mothers that in average finished high school, 24% of mothers graduate academic studies and 20% had mothers who completed 8 grades, the primary school. Analyzing the father's education of students studied it can be seen that most students have fathers with a level of basic study high school, 12 classes in the percentage of 59%, a percentage of 24% of fathers have higher education, 14% have completed 8th grade primary school and a percentage 1% of students did not know their fathers studies and 2% said they did not have father.
Another part of the survey was to identify the students' desire for success in their life. For item "To what extent do you want to have a successful life ?" students responded in 62% they want very much to have a successful life, 36% answered largely, and one percent responded limited extent and small extent. For the Part 3 the meaning of success for students has the following option: 1. Should have money; 2. Should have a job / to practice what you love; 3. Should be appreciated at work and / or family; 4. Should have social relationships; 5. To have many friends / be popular and 6. I don't know / No answer.
A percentage of 58% of the students associated success with job / to practice what you love. 22% of students associated with assessing success at work and 13% have associated success with money. For possible answers to have many friends / be popular and have social relationships were recorded 4 percent and respectively 1% percent.
Although at times we face the lack of motivation of students for learning, school in general, however, students believe that school is important to them. A percentage of 53% of students said that school is important to them and 44% said even that is very important. Only 3% responded that the school is not at all important.
Majority of respondents 97% consider the education a very important factor for their future for their successful life. Taking into consideration the influence of mass media, the connection to internet, IT, mobile phone, and another part of the survey is trying to identify how much the students like to learn.
The results show that students are actually happy to learn. 59% of students responded that they love to teach largely, 8% said they like to learn even heavily, 27% responded that they like little to learn, and by 3 % percent said they like a very small extent and not to learn. Students believe that a thorough training will help them achieve success in life.

Thus, 48% of students believe that thorough preparation helps them achieve success largely a percentage almost as big of students believes that thorough preparation helps very much to achieve success, 9% think that helps them to a small extent, and one percent responded that thorough preparation helps very little or no reach success.

3.1. Motivation for study

Looking at the chart we can see that small values of the scale showed lower rates and higher values of the scale have higher values. As the scale values grows, grow and percentages from 1 to 10. The highest percentage recorded for the value 8 scale with a percentage of 30% and a value of 1, 2, 3 scale recording a rate of 1%. From the middle of the scale values increase. The five value scale has been a variable of 9%, 6 scale value registered a 10% to 7 scale value registered a 16%. The highest percentage recorded for the value 8 of the scale, 30%, 20% recorded in September of the scale value and the value 10 has been a 10% share.

3.2. Factors that stimulate learning

Analyzing the factors that stimulate learning, the factor which has recorded the highest percentage is the desire to practice in a particular area of 23%. Another factor which students give great importance is encouraging parents/ teachers of 14%. A percentage of 13% of the students mentioned the desire for knowledge, a rate of 12% considered an important factor in stimulating learning assessment parents / teachers, and one mentioned a 10% success rate and success of parental figures taken as a model. Smaller percentages were recorded for teacher quality of 5%; 4% for success friends and attractive curriculum around 4% percent.

3.3 Influence of life stories of successful people

Asking students what extent the success stories of people motivate them to be successful in life, 45% of students responded largely, 21% heavily, and 26% small extent, 5% very little, and 3% at all. Students are very optimistic about the possibility of reaching the success. In 56% of students responded that they can successfully reach heavily, 39% of student's responded version largely, little 4% and 1% to a very small extent.

3.4. Factors that reduce school motivation

The factors mentioned by the students, which led to decreased motivation to learn are presented in Table 1. The statistical results present that 25% from students are negative influenced because of some events from unsuccessful learning marks or failed examination. 24% of respondents have negative attitude in front of education because of emigration trend influence of the very well paid jobs abroad, the separation from family and strictly rules from schools, the spirit of freedom and for that reason they abandon the school and they don't need education.

Table 1. Principal factors identified that influence the learning motivation process

Factors of decreasing motivation to learn	%
Previous failures in learning	25
Negative attitude towards school in general	24
Lack of appreciation from parents / teachers	14
Lack of encouragement from parents / teachers	13
Lack of successful models	7
Undecided	17

3.5. How does residence school can be a factor of influence of education

Analyzing school motivation in terms of the residence, it can be seen that students in urban schools are slightly more motivated than those in rural areas. It is interesting to note that students in both areas of residence are on the scale at a value of 8 (Figure 1).

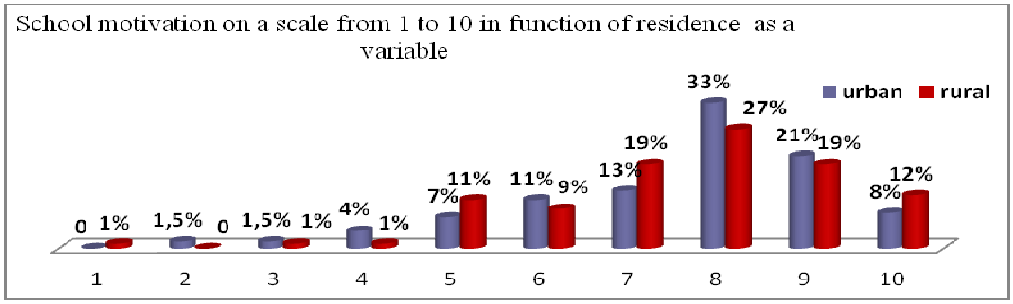

Fig.1. The influence of residence on school motivation

Analyzing school motivation based by gender there are apparent similarity values obtained from the association made between school motivation and variable scale on the area (Figure 2).

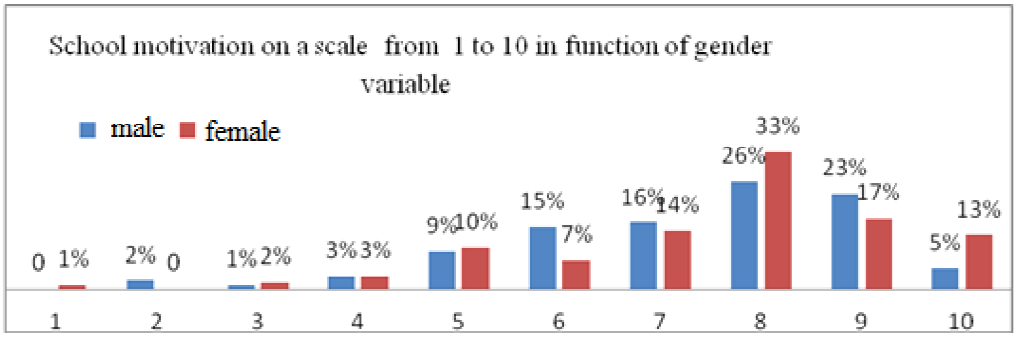

Fig. 2. Motivation of education process in function of gender

Motivation was analysed on a scale from 1-10. Value 8 scale recorded the highest percentage from both, the boys and girls, 26% boys and 33% girls. There were higher percentages of boys 6 values (15% of boys and 7% of girls), 7 (16% boys and 14% girls) and 9 (23% boys and 17% girls).

3.6. An Analyze of education in academic circle

The results show significant differences in the knowledge and students orientation attitudes and intention of the behaviour of the aspiring for an academic preparation. This first analysis shows that the dual system education model promotes and favours sustainable actions in higher education. The dual system it is responsible for basic training more efficiently and could be the basis for future proposals in this field. The study presents radiography from Albanian education system, with impact to a educational model and the sustainable orientation for a global educational model. Analyzing the data from research work focused on the importance of education, we found that for 104 Albanians person education it is very important, that's mean that 69.3 % consider education an important factor for their evolution in life and professional career (Table 2).

Table 2. Education impact on success in career

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	104	69.3	69.3	69.3
	no	46	30.7	30.7	100.0
	Total	150	100.0	100.0	

Taking in consideration the importance of a model in education students life, we can observe that from the 150 Albanians persons, a number of 28 persons are influenced by their parents and families relatives stories success, 23 persons answer that their model are famous business man, 16 persons are influenced in their educational and future orientation by politicians and only 9 persons are guided and by their teachers model. 72 Albanians respondents consider that there were not influences by any model or received suggestion in their professional and educational evolution.

The impact of education and her importance for each respondent's, present a stabile situation. People were giving a mark from 1 to 10 to education in function of importance in their evolution life, 63 respondents consider education very important, 25 people important and 38 persons give to education a score between 8-7. In balance on the Romanians' students, 87 persons answered that they haven't a model in their successful carrier. Another part of survey present a very interesting orientation of young generation, for example they have mention other models like celebrities from sport, actors but nobody mention or suggest persons from mass media, TV , moderators or famous newspaper redactors. That's mean that mass media and her products, even the impact of television it is very aggressive don't have such a big impact in respondents education orientation and majority of theme choose and followed as models typology. We can mention that for 6% from respondents, teachers remain models in the future orientation in student carrier life, and computer invasion can't replace or influence the future orientation of "face book" generation. Only 36% from respondents don't have any model which influences their educational evolution (Table 3).

Table 3. Models that influence education in Romania

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	other family relatives	15	6.3	8.8	8.8
	businessman	1	.4	.6	9.4
	politician	12	5.0	7.1	16.5
	teacher	54	22.5	31.8	48.2
	other mass media, actor, sport	1	.4	.6	48.8
	no	87	36.3	51.2	100.0
	Total	170	70.8	100.0	
Total		170	100.0		

For Romanian students we can observe the differences, maybe the conservator style in education, put accent on teacher influence as a model for future of young generation for majority of educated people 22.5% and family successful carrier 6.3%. The survey present also the results regarding the orientation and education vision of Albanian respondents. The majority of 22.7 % from young generation consider IT field an important education field for future development in a global management and technological evolution.

IT in respondents vision it is important if we take in consideration the new trend on market the e-generation: e-commerce, e-banking, it is normal and necessary to define and adapt an e-education model. The young generation it is orientated also on economic education with impact in future activities taking in consideration the Albanian transition market to capitalist, to small and medium business and the regeneration of new manufacture under the high tech technology. The engineering education also it is considered as a successful field because as we know the power of economy it is production. 19.3% are oriented to engineering including here mechanical, electrical which present a practical generation. 17% are oriented to economic fields, management and business administration to develop their own business for a free activity or production. As a result the law, languages fields are not successful taking in consideration the free spirit of young generation and the boom evolution of technology. The next analyze was taking in consideration the situation of respondents in which

education it is evaluate between wishes and respondents vision, different activities in which they are involved in function of aptitude, skills, knowledge and education level, in function of different field of universities profile and also to clarify which field it is consider to be successful.

In Table 4, Romanian students present their vision about and for future sustainable education field. Majority of 25% consider economical field very important for future and also IT as a fast and quickly solution for communication and maybe for a future e–education method and technology in educational systems.

Table 4. Education vision for Romanian students

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	economics	59	24.6	34.7	34.7
	law	6	2.5	3.5	38.2
	IT	40	16.7	23.5	61.8
	medicine	35	14.6	20.6	82.4
	engineering	24	10.0	14.1	96.5
	languages	4	1.7	2.4	98.8
	other	2	.8	1.2	100.0
	Total	170	70.8	100.0	
Total		170	100.0		

Albanian respondents already involved in an educational field consider that economic and medicine educational fields are important, also we consider that it is important to mention that engineers' wishes, for example, are to complete their knowledge's with economics notions.
The fields are different, on top it is economic education with 26.4%, medicine 18.2% followed in immediate values with 16.9% and 16.2 % by law and IT.
As we can see the IT and economic education are again in top of preferences of respondents taking in consideration that IT field and the new wave of technology invaded the daily life and give a new opportunity to a new Global Etiquette model in education.
This global etiquette is the new vision when doing business with other countries, modern technology is organization and people best friend. Technologies such as e-mail, Face-book, Twitter and Skype make it much easier to conduct international business with just a computer with an Internet connection.
The Internet makes it much easier to build a network of contacts quickly, and can help people start to establish a presence in the different country. Touching base and communicate with a local person can help people to understand the current market conditions in the country, the demand for organization product or services, as well as the business culture.

Table 5. Education importance in Romania

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	economics	63	26.3	37.1	37.1
	law	2	.8	1.2	38.2
	IT	51	21.3	30.0	68.2
	medicine	23	9.6	13.5	81.8
	engineering	24	10.0	14.1	95.9
	languages	6	2.5	3.5	99.4
	other	1	.4	.6	100.0
	Total	170	70.8	100.0	
Total		170	100.0		

Using informatics programs it was possible to establish and create a connection between the importance of education and the respondent's desire.

Education impact in function of importance for Romanian students, is 37% for economical education to increase the national market to a global provocation and 30% for IT.
The other field like medicine and engineering are on equal vision as importance from their point of view. In conclusion family also has a big impact in respondent's orientation and creates a balance between parents education level, mother and father influence is divided in a positive way.

3.7. Propose of A Cross Educational Model

Because the topic of paper it was to identify a cross model in education it was necessary to create cluster taking in consideration the variables and factors which influence the educational process.

For Romanian students the cluster grouping it is concentrated around the cluster 2 with 122 persons and 21 persons to cluster 4 and 20 to cluster 1.
We can observe that cluster 2 is focused on model influence in their education period with big impact in their future decision, teacher, family relatives and their successful story. For cluster 4 in comparison the cluster shows that students establish a vision for their future and decide that education is very important for their successful career.
Family also has a big impact for student profile and cumulates everything, it is important as individual culture education: family, mother and father education level, importance of education for each person as individual (Table 6).

- **Cluster 1-Education vision**- Education impact in success of career, Parents influence in education decision, Financial and social status
- **Cluster 2-Education wishes**- Education models. Models that influence education decision, Father education, mother education
- **Cluster 3-Education perception**- Education importance
- **Cluster 4-Education Culture environment**- Future vision.

For Albanian students taking in consideration the cluster grouping we can observe that from the 150 persons, a number of 52 persons belong to cluster 1, and 50 persons to cluster 4.
In function of age, level of education of respondents, family level of education mother and father, the influence of family for the future vision of people orientation and education wishes and education vision of person involved in different type of activities it was possible to define four type of cluster and harmonize the factors in four types of factors of influence upon the sustainable education model proposed by Boca, et.al (2015), (Table 7).

- **Cluster 1-Education vision**- Education impact in success of career, Parents influence in education decision;
- **Cluster 2-Education wishes**- Models which influence education decision, Father education, Mother education;
- **Cluster 3-Education importance**- Social status, Financial stability, Family appreciation, Education level of respondents;
- **Cluster 4-Education social environment**- A good job position, Supervisor/ boss/ chief appreciation, Colleagues appreciation.

Table 6. Cluster for Romania

Number of Cases in each Cluster Romania

Cluster	1	20.000
	2	122.000
	3	7.000
	4	21.000
Valid		170.000
Missing		0.000

Cluster in Romania

Case Clusters	4
Education level	1
Parents influence	1
Parents obliged you	1
Model who influence education	2
Education impact	1
A good job position	1
Financial stability	1
Colleagues appreciation	1
Supervisor/boss/chief/ appreciation	1
Family appreciation	1
Social status	1
Other influence	1
How important is education	1
Education importance	3
Future vision	4

Table 7. Cluster for Albania

Number of Cases in each Cluster Albania

Cluster	1	52.000
	2	21.000
	3	18.000
	4	50.000
Valid		141.000
Missing		9.000

Cluster in Albania

Case Clusters	4
Education vision	1
Education wishes	2
Social status	3
Models who influence education decision	2
Education impact in success of career	1
A good job position	4
Financial stability	3
Supervisor/boss/chief appreciation	4
Colleagues appreciation	4
Family appreciation	3
Education of respondents	3
Father education	2
Mother education	2
Parents influence in education decision	1
Parents obliged respondents in education decision	1

Using the principal components analysis as a tool to realize the educational model we can identify that the connection between mother and father influence upon education respondents decision with a balance values for example for Albanians between 0.64 for father influence and 0.61 for mother influence (Figure 3).

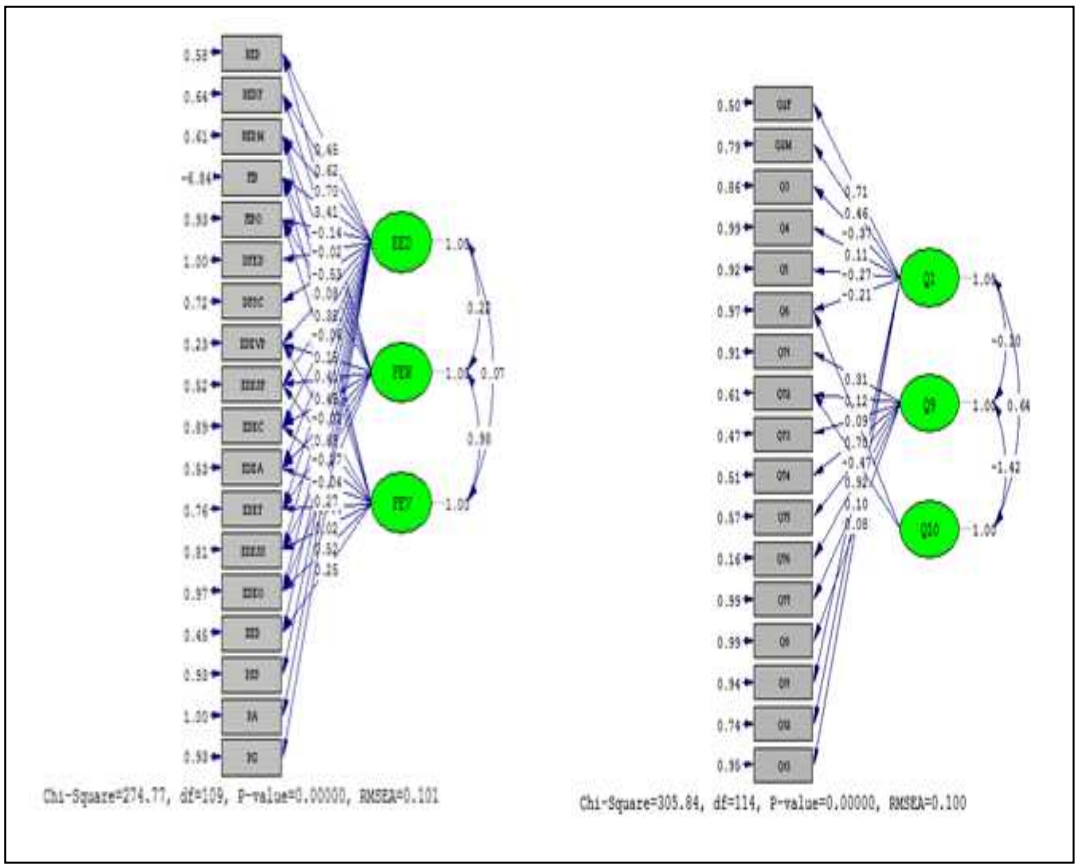

Fig.3. The principal components analysis of educational model

In conclusion, creating the clusters for educational perception and cultural model we can identify that we have an individual culture, a social culture and an environment culture which gives identity for each country but with the same final results.

Also family has an important role in student's life from the first stage of high school until academic environment, the mother and father are the first persons who can influence the individual culture.

From the data analysis only a low number of respondents confirm that the parents obliged there in education decision, the majority of respondents from both countries take their own decision in the education field that they followed. To create the cross cultural model for education it was necessary to establish some important factors like: the individual education EED –for Albania and Q1 –for Romania, the future vision of education FEV –for Albania and Q9 –for Romania and FEW -future wishes for education for Albania and Q10 for Romania. In function of those three factors the model presented in Figure 3, presents the strong relations between the individual culture and future vision and wishes regarding the education with strictly relation with the environment as a management culture of society.

The results denote that all items loading are statistically significant and the magnitude for most variables and their indicators are above reasonable benchmark. In relation to the score for the correlations, the score indicate the correlations are between the ranges and results can take in consideration as good model.

4. Conclusions

Results are significant and show that students genders, their families and particularly the parents education levels were significant factors in determining difference in the future orientation and development of students' sensitiveness and behaviour.

The results also show that the inclination towards a field or another is similar among the girls and boys. By applying the modelling method, the influence between the family involvements in educational activity, motivational states and the student's integration in the social, economic and global environment were validated.
In order to increase the education sustainability it is recommended to improve and create the base for a future education model.
The result of the study reveals certain trends in the students' population:

1. Influence of TV characters is not as great as previously believed, and students are aware of the need to mobilize to learn.
2. Preparation for future employment is a priority for children and adult, they are aware of the future.
3. There are enough motivational factors, both at school and in the family for children and students to learn more.
4. Unmotivated factors are only declarative and induce false idea that students are influenced by factors which are not distracting them from the study.
5. There is a huge difference between the actual results obtained in examinations and statements that lead students to the conclusion that there is good to learn and study, but the implementation of the desire to learn is reduced either because of lack of learning methods and factors that can motivate student.

Culture Model for managers from education system, in their sustainable vision for education can be a thematic reflection with a portfolio of solutions given by the article and for the educational organization management as well in other words culture is as well decision and execution.

4.1. Expected changes

The education organizational culture has exploded with a big impact in management, in that situation we can take in consideration the cross cultural management as a system with hard and soft aspects. The organization has its hard aspects including here knowledge, management and institutional support Expected changes are presented in the Table 8.

Table 8. A Cross Cultural Education Model

Albania			**Romania**	
C1	Education vision Education impact in success of career Parents influence in education decision Parents obliged respondents in education decision	**External influence**	Education level How important is education Family appreciation Education impact	**Education Culture individual**
C2	Education wishes Models who influence education decision	**Model influence**	Father education Mother education	**Family Culture influence**
C3	Social status Financial stability Family appreciation Education of respondents	**Social influence**	Financial stability A good job position Supervisor / boss/ chief appreciation Social status	**Social impact**
C4	A good job position Supervisor/ boss/ chief appreciation Colleagues	**Model appreciation**	Future vision Education importance	**Future vision**

	appreciation			
C5	Model that influence education Colleagues appreciation			**Management** **Culture** **Environment**

If we take in consideration the education organization like a human universe which include here the specific behaviour and colourful environment of individual culture and as a multi cultural team, in that situation if we maintain the analogy with the cluster image might be assimilated to the soft of model (Table 9).

The evaluation of the cross-educational model seems to indicate its highly effective resource for environmental education focused on sustainability, and favours the development of knowledge, attitudes and future intentions of inspiring educational environment.

In Romania, the professors, family and friends still have an important influence on students' motivation and performance in education while in Albania the motivation is focused on the good job position, appreciation of colleagues, friends, boss, family and financial stability. Some universities from Romania tried a cross cultural education by opening cross border branches in economics and engineering in Republic of Moldova in order to prepare students for the Romanian and/or European labour market.

Table 9. A Cross Cultural Model in Education

Romania	**Albania**
Parents success	A good job position
Friends success	Financial stability
A successful person as model	Colleagues appreciation
Teachers Model qualities	Supervisor/ boss/ chief appreciations
Encourage by parents and teachers	Family appreciation
Parents and teachers appreciation	Social status
Attractive school curricula	Other

Therefore it is very recommendable for the Albanian education system to act related to environmental education, to work on the development of sustainable competencies despite the research problems identified, and also to deal with the future scenarios or perspective.

In short, this research shows that an educational model on the development of sustainable competencies is very useful through the different periods of education systems and gives the possibility to identify the opportunities and traits from each education organization.

The paper of educational model proposes some factors impeding the changes in education institutions and also institutions need to consider the sustainability reporting as a dynamic tool to plan sustainability education changes and not just as a communication activity. In the context of higher education it has been recognized that cross institutional comparability improves the education perception, especially in a flexible education system.

The past should be a motivator for education and not a museum presentation. Sustainable education improvement and change connect the future to the past and create a social vision about where society has been and where it is headed. The model can be useful on passing of knowledge from one generation to the next generation, managing succession and distributing the competencies and responsibilities to a repetitive change.

The humanistic and creative pedagogies in school where every child matters, a new educational model can be a support of trust systems and offer some of the most promising ways forward. It is time for other more sustainable sensibilities to take their place and the climate is certainly ready for

it. Sustainable educational development respects, protects, preserves and renews all the values in the past and learns from it in order to build a better future.

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Towards the Use of E-Learning in Saudi Electronic University

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Abstract

This study presents e-learning analysis in Saudi Electronic University (SEU). The study investigate that SEU that apply the concept of blended learning, which relies entirely on ICT as a means of learning and education are aligned with the National Plan for Communications and Information Technology ICT. This study focuses on the 4th objective in the plan, that how much SEU uses e-learning in teaching, learning and in the academic research. The results show that Saudi Electronic University e-learning use is aligned with the Saudi National Plan for Communications and Information Technology.

Keywords: eLearning, ICT, Saudi Electronic University

1. Introduction

The role of Ministry of commination and Information Technology (MCIT) is one of the pioneers in the development eLearning in Saudi Arabia. MCIT focus on granting infrastructure and work on development and investment in the ICT sector. The MCIT set up a comprehensive plan focuses on a broader unification of the state process through the establishment of the National Communication and Information Plan (NCITP), which contribute to the improvement and development of the ICT in all Saudi government sectors of the state, educational and civil. The focus is on the fourth goal of the plan, which focus its attention on how to deploy and take advantage of education through effective communications and information technology in the field of teaching and learning on a broader level. In particular, Project P-4-17-70: Dissemination of ICT in Educational Institutions.

For these reasons, Saudi Electronic University has been founded to apply the Project P-4-17-70: Dissemination of ICT in Educational Institutions that mention in 4th objective projects. This research in progress study will investigate that is the use of ICT in Saudi electronic university is aligned with the National Plan for Communications and Information Technology?

1.1 Aim and Objectives

The aim of this study is to presents e-learning analysis in Saudi Electronic University. Following the main aim, the objectives are as follows.

- To address the active role of ICT in the Saudi Electronic University.
- The address role of MCIT in the Saudi Electronic University
- The address the concept of blended learning, which relies entirely on ICT as a means of learning and education in the Saudi Electronic University.
- To presents the results if aligned with the Saudi National Plan for Communications and Information Technology

The following section presents literature review. Then the linking of SEU to NICTP is presented. Then the methodology is presented. Finally, the study is concluded and some limitations are presented.

2. Literature review

Few studies have shown the use of Information and Communications Technology ICT in education in Saudi Arabia. This literature review discusses Information and Communication Technology (ICT) in Saudi Arabia, then Ministry of commination and Information Technology (MCIT), which has adopted National Communication and Information Plan (NCITP). In particular, the 4th objective of the plan about ICT disseminate in education. The Saudi Electronic University (SEU) is selected as case study to disseminate ICT in education.

2.1 Information and Communications Technology (ICT) in Saudi Arabia

The use of ICT is an omnipresent reality in our daily lives. The impact of ICT on the social well-being of a community is a more ground-breaking topic, one that is outside regulators' traditional comfort zone, but is now clearly emerging as an area of significant interest. Saudi Arabia, like many countries, is witnessing the socio-economic impact of the ICT revolution. This revolution has happened because of the rapid development of ICT infrastructure and usage in the Kingdom. Domestic broadband penetration has increased from nothing in 2005 to more than 44% today, while mobile penetration increased from 60% to 191% over the same period (Waverman, 2011).

2.2 Ministry of communication and Information Technology (MCIT):

A royal decree No. A/2 was issued on 28/2/1424 H.(1/5/2003) changing the name of the Ministry of Posts, Telegraphs and Telephones (MoPTT) to " the Ministry of Communications and Information Technology". This change reflects the attention given by the Saudi government to the communications and information technology sector. The change also aims at the realization of the ambitious goals for the transfer to information society (MCIT).

2.3 National Communication and Information Technology Plan (NCITP)

Kingdome of Saudi Arabia represented by Ministry of Communication and Information Technology has set a vision to improve the ICT skills in all spectrum of society and enhance productivity in order to lead the country transforming to digital economy and informatics society. To achieve its vision, MCIT put a plan contain seven general goals:

The seven General Goals of the NCITP (Saudi Electronic University, 2011)

The Seven General Goals of theNCITP		
	Target	Scope
1	First goal aims at raising the productivity of all sectors, dissemination of governmental, commercial.	Services and Productivity
2	Second goal seeks to regulate the ICT sector in a form that guarantees impartiality, stimulation and attracts investments.	ICT Sector Regulation
3	Third goal aims to build a solid ICT industry that is capable of competing locally and internationally and become a major source of income.	ICT Industry
4	Fourth goal seeks to secure the best possible utilization of ICT in education and training at all levels.	Education and Training
5	Fifth goal seeks to enable all sectors of the society, in all areas of the country to deal with ICT easily and efficiently in order to bridge the digital divide.	Digital Divide.
6	Six goal aims to provide best utilization of ICT in serving the Arabic language and consolidating the civilizational mission of Islam.	Islam & National Identity and Arabic Language
7	Seventh goal aims to provide qualified and trained, male and female human resources in the various ICT specializations through the preparation of national manpower as well as attracting international expertise.	Human Capacity
Source: 2012 Annual report of NCTIP		

The availability of proper infrastructures is vital for the dissemination of ICT systems. This project aims to achieve the following (The National Communications and Information Technology):

- Connect all educational institutions to the Internet.
- Dissemination of management and financial information systems in educational institutions.
- Provide e-mail services for all students and employees in all educational institutes.
- Dissemination of well-equipped electronic classes in all schools and universities.
- Equip classes with multimedia and video facilities.

3. Analysis

3.1 Saudi Electronic University (SEU) and foundation

The Saudi E-University is a government university that represents one of the modalities of higher education. The SEU is the only specialized university in distance education in the Kingdom of Saudi Arabia that offers both graduate and undergraduate degree programs along with life-long education environment based on information and communications technology, e-learning, and distance education (Saudi Electronic University, 2011).

3.2 SEU disseminate ICT in education

SEU has deployed many electronic services that reflecting their aiming goal such as:

- Smart boards in the classroom
- Computer labs
- University Forum
- Saudi Digital Library (SDL)
- English First (EF)
- Blackboard (BB)
- Student services

- Student Banner System
- E-mails

3.2.1 Smart boards in the classroom

Provides Flexibility with different forms of media – including photos, illustrations, maps, graphs, games, and video, to be displayed with many applications for the participation of the amendment by the opportunity for students to discuss to Write a review in the classroom. By Access to online information with teaching tools to show the possibility of learning aids such as display videos, review recorded lectures, scientific experiments to enhance the learning process to try to enrich the knowledge.

3.2.2 Computer labs

Computer labs are equipped so that the student and faculty member utilized in the process of education and the transfer of scientific information through experiments and the application to gain knowledge through practice process. The availability of computer labs produced the latest technical devices and pieces of physical education programs needed by both the student and faculty member, where it is characterized by availability in the study environment.

3.2.3 University Forum

University forum is an area of academic communication and exchange of experiences to study and share ideas and opinions that will improve client education and take advantage of sources and references. The forum is mainly equipped to service the student, enables you to counseling and seek help from an expert or a faculty member that these Forums representing the university officially.

3.2.4 Saudi Digital Library (SDL)

Saudi Digital Library (SDL), is the largest academic source of information in the Arab world, with more than (310،000) scientific reference, covering all academic disciplines (Saudi Digital Library, 2012). One of the remarkable features provided by SEU in order to enhance the education in the Kingdome, SDL have been connected with SEU website where it is going to help & serve university students and faculty by providing simply access to the huge usefully resources from worldwide between their hands.

3.2.5 English First (EF)

EF considered a global pathfinder programs to learn English as a second language. As a progressive step SEU employed an EF since established by the deanship of Preparatory year, EF allow students to log into the website by their own account to improve their ability in English language. A multiple activities are available in the website and collaborative learning tools to interact virtually with their English language instructors that help students participating and practicing effectively (Saudi Electronic University, 2012)

3.2.6 Blackboard

Saudi Electronic University (SEU) uses blackboard for eLearning system. Because of its ease of access, university Management preferred Blackboard solutions over and compared to competing vendors. Blackboard system is a Learning information management system, follow-up of students and monitoring the efficiency of the educational process in the educational institution (Subject-Based System). The system allows great opportunities for students to communicate with the course outside the class, anywhere and at any time through this electronic system which provides a variety of tools to view the content, scientific material for the courses and interact with them in an easy ways, as well as communicate with the instructor and other students enrolled in the same course with a variety of electronic means. It consists of tools and methods, which allows faculty members to build dynamic and interactive courses very easily with this content management courses in a flexible way, to do everyday tasks of the educational process effectively. In addition the system offers virtual communication at any time and at any place (Saudi Electronic University, 2012).

The system allows instructor to build integrated electronic courses, put notes, outline of the content, tasks, and announcements. Also it can view mid-terms exams, final exams and results. The system allows direct communication with students through the windows of dialogue and targeted e-mails and generalized. It could be linked with other e-learning systems and allows students and instructor to interact with these systems and in an integrated manner (Saudi Electronic University, 2012). The simplicity of the system encouraged global universities to employ blackboard system and in return SEU utilize it in order to connect their blackboard system with Colorado state University system (Partners Blackboard, 2012).

3.2.7 Student services

Facilitated "Saudi electronic university" a student services for their students who wish to request educational services without the need for physical communication and attendance in person to the university building, of course, it provides the students, faculty and employees of the university members to benefit from the services provided at the main university site, Student services sufficient to meet the students' academic and service requests. List of Student Services contain

- Status of academic
- Course schedule
- Reload communicate data
- The certificate
- A certificate of attendance tests
- Order English equation
- Educational systems
- Technical support and FAQ
- Request the withdrawal of the university
- Aviation reduction request
- Order university card
- Presence identification tests
- Make excuses
- Your progress in the EF school
- Submit an objection to the result of the final test
- Academic calendar
- Asked reset password mailed
- Transcript OF academic record
- Request a medical report
- Courses schedule
- Change Request Specialization
- Demand equation courses

- Request for registration
- Testimony tuition fees
- Request the withdrawal of the decision
- Study Plans
- Apology for the study
- The postponement of the study
- Changing study branch
- Recording the decisions of the preparatory year system
- Apologies for the study in the summer semester

3.2.8 Student Banner System

The BANNER Student Information System has option of student registrations, records and accounts to reflect his academic processes. The students can login to the Banner from the main SEU webpage.

3.2.9 E-mails

SEU used Outlook Office 365 as an official emails system by assigning each student his own email account upon the student's matriculation to the institution. It is uncharged and remain is active as long as the student stay as an active member. In addition to email service, the Outlook Office 365 includes task management, calendar application, and contacts manager.

3.2 SEU contribution to the 4th objective in NCITP

When look at e-services that mention in details in 2.3.1 section, it is obvious that SEU created a strong electronic learning environment.

These e-services:

- SMART boards in the classroom
- Computer labs
- University Forum
- Saudi Digital Library (SDL)
- English First (EF)
- Blackboard (BB)
- Student services
- Student Banner System
- E-mails

The above services have been deployed by SEU, which adopt 4th objective in NCITP (Project P-4-17-70). Project P-4-17-70: Dissemination of ICT in Educational Institutions (The National Communications and Information Technology, 2005)

- Connect all educational institutions to the Internet.
- Dissemination of management and financial information systems in educational institutions.
- Provide e-mail services for all students and employees in all educational institutes.
- Dissemination of well-equipped electronic classes in all schools and universities.
- Equip classes with multimedia and video facilities.

4. Conclusion and Future work

The aim behind this research is to study the contribution of SEU on case of MCIT national plan. Although the research has reached its object, there were some unavoidable limitations. First, due to time limitation as this research was conduct during the mess of last year prior graduating. The other

limitation is Lack of reality example of NP. However, the researcher hopes that this paper provide readers some valuable information about the considered subject area.
In future work this study intends to apply a qualitative approach to reach the aim and objective of this study. In particular, face-to-face interviews will be conducted to collect qualitative data. The population of this study will be employed at MCIT and SEU. The sample consists of employees and senior staff who are the users of eLearning technologies at SEU and policy makers from MCIT side. Open-ended questionnaire will be used for interviews. Questionnaire will consist of questions related to eLearning services in SEU. The qualitative data collected will be then analyzed using Nvivo software.

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Utilization of Controlling and Other Methods on Base of Pdca Model

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Abstract

The paper deals with controlling as one of the most important tools (approaches) of corporate management based on continuous improving. It lays out possibilities for its interconnection with other management tools. Possible relations between controlling and other management tools are examined and described. Their interconnection with the controlling system of a firm multiples its assets in terms of the synergy effect and increases the efficiency of management, creation of innovations and productivity of the entire organization. For these purposes graphic model is created that represents these basic relations and expresses also the principle of continuous improvement, which is considered to be the point of entire controlling.

Keywords: controlling, continuous improvement, relationships

Introduction and methodology

Today's very chaotic time places great demands on management system of all firms and the management is a very complex and demanding process. It is controlling that belongs to the most popular of such tools, and as far as the knowledge economy is concerned knowledge and process management are becoming more and more widespread. An essential question is what tools and methods the managements of organisations should use so that these aspects may, in mutual cooperation and fully utilised, maximally streamline management as well as continuous improving.

The objective of this work is to increase the practical value of controlling in relation to selected management tools supporting continuous improvement on base of PDCA model.

Based on a literature review and analysis of theoretical foundations is described relationship between controlling system and model of Deming's PDCA cycle. Interconnection of controlling and other management tools in context of continuous improvement is examined. After that, operative controlling is presented in form of a graphic model for the purposes of identification and analysis of contributions of interconnecting controlling and selected management methods supporting continuous improving.

1 The current status of knowledge

1.1 Controlling as a philosophy of management

Freiberg (1999) says that controlling represents a specific concept of the corporate management based on complex information and organisation links of the planning and control process. This means that controlling is not just checking – it is a certain attitude to the management system, a way of economic management of a company that focuses on future. Some even speak of a certain managerial philosophy based on management by exceptions. Eschenbach (2004) sees the basic difference between checking and controlling in the value added that is generated by evaluations and proposals of corrective changes, i.e. remedial and preventive measures, to eliminate deviations and achieve or modify a planned objective for future.

The most important tasks include planning, budgeting, calculation, common and special analyses, identification and evaluation of deviations, creation of informative reports, administration, etc. (Mikovcová, 2007) Operative controlling focuses on a short period of time. Reality (i.e. really achieved results) is continuously compared with plans, deviations and exceptions are identified and measures are proposed to secure the meeting of operative goals, which contributes to the fulfilment of the strategy. (Becker, 2011)

1.2 PDCA model

This model contains four stages - Plan, Do, Check, Act. Often represented as the four quadrants of the rim of a circle to reflect the fact that once all four elements have been accomplished, the cycle repeats. Generally, Plan stage involves analysing the current situation, gathering data and developing ways to make improvements. In the Do stage, plans are implemented according to planned ways and methods. The Check stage requires determining whether the all (processes) is working as planned or whether any revisions are needed. In Act stage, measures are proposed against existing deviations between plans and real results and improvements are implemented to practise. (Gorenflo, 2010)

2 The way to continuous improvement

According to many studies, for example (Darroch, 2005), effectively managed knowledge and processes are the key to innovations, which then have impact on the financial performance. Essentially, controlling also leads to the continuous creation of innovations (improvements) in the areas of interest in form of remedial and preventive measures aiming to prevent deviations. In this point the connection of controlling system to so-called Deming's PDCA cycle of continuous improving (adapting to external and internal conditions of the company) is clearly identifiable (Bhulyan, 2005).

Within controlling planning takes place (Plan), when targeted values of monitored quantities and the ways (procedures, action) to achieve them are identified. Planning definitely requires existing data, information and knowledge (DIK) of the company. In the next stage (Do) the plans are executed and the actually achieved values of selected attributes are monitored and measured. In this stage new data and information on monitored quantities and on the conditions of the company's economy are acquired. Subsequently the checking takes place (Check), during which deviations from the plan are identified. In the last stage (Act) these deviations and their causes and consequences are analysed and remedial and preventive measures are proposed and subsequently carried out (Čapek, 2014).

Changes (innovations) are made because of the identified deviations that are due to the changes in the external and internal conditions of the company, to which the creation of new DIKs is related. On the basis of existing DIKs and on the basis of the execution of controlling functions (activities) new (innovated) DIKs are created in the organisation, which will be incorporated into a new (improved) plan, will become established in organisation and will become current DIKs to next cycle of improving.

This idea is graphically depicted in figure 1, which presents the mutual link between controlling and knowledge management. At the start the controlling system needs certain existing DIKs as input. These are later replaced with new modified DIKs, which is done on the basis of analyses of changes in the company's environment and analyses of causes and consequences of deviations, and such new DIKs are the output of controlling functions in form of reports and remedial and preventive measures in areas of interest. Therefore controlling can be considered a tool for creation, sharing and utilisation of knowledge within the organisation.

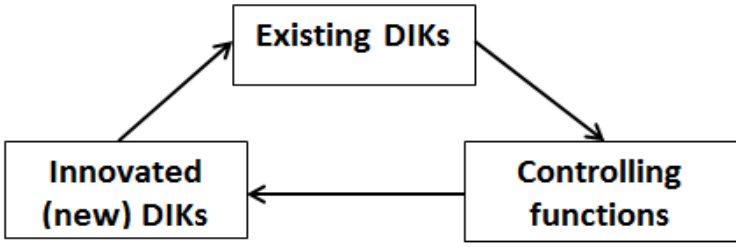

Fig 1: The mutual link between controlling and knowledge management within continuous improvement

Based on the above it can be stated that the shared goal and essence of controlling is, without doubt, the continuous improvement of the organization in various areas.

Within operative controlling it is possible to examine the exploitation of selected management tools supporting continuous improving from four different perspectives. These can be understood as four basic questions of controlling, namely where, what, how and who. The figure 2 graphically presents the controlling system, the underlying basis of which is formed by the mentioned four perspectives (questions).

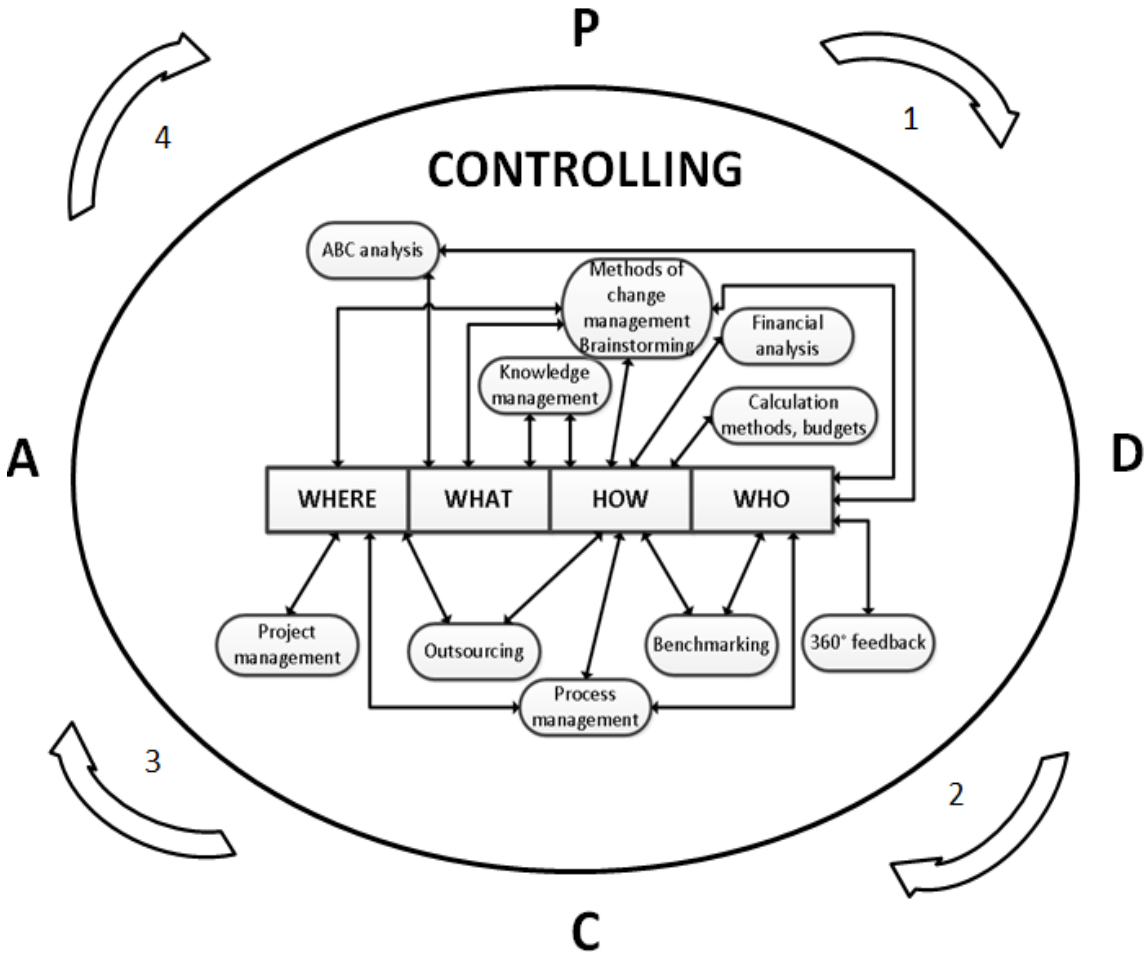

Fig 2: Controlling system interconnected to other management tools

3 Discussion and the conclusion

It is possible to identify connection of controlling system to Deming's PDCA cycle of continuous improving and its stages. The execution of controlling activities, which requires input existing DIKs (input), initiates creation of new (innovated) DIKs, which can be understood as the output of controlling functions. Controlling can be considered as a tool for creation, sharing and utilisation of knowledge in the organisation. Implementation of knowledge as well as process management supports the role and importance of controlling system in point of continues improvement. This all has influence on increasing number and quality of innovations and finally on economic (financial) performance.

Innovated DIKs, which are gained by controlling procedures with support of knowledge and process management, are one of the most beneficial pieces of knowledge that provide for the improvements in the activities of employees, especially in the economic, technical and business spheres.

The graphic model of the controlling system connected to other management tools, representing individual possible links between selected tools and controlling perspectives, needs to be further developed in future. Especially a more detailed analysis of individual links and the identification of particular contact points and conditions, under which these links create benefits, are appropriate.

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The Russian Stock Market: Is It Still Efficient?

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Abstract

The paper addresses the issue of the Russian stock market efficiency. Despite the growing controversy the efficient-market hypothesis has been widely applied. However, empirical findings on market efficiency are sometimes mixed. Besides, financial situation can dramatically change. It especially concerns emerging markets where there is still plenty room for research. This paper focuses on the Russian stock market's efficiency, mainly on two groups of hypotheses. The first group concerns the distribution of stock returns. The second group implies testing weak-form efficiency. To check the hypotheses, we studied the sample of 20 equities' and the main market indices' daily prices for the period from April 23, 2009 to January 22, 2016. The selected stocks comprises the Russian stock market in terms of capitalization. The study period was reasoned by the requirement of data comparability. The hypothesis of normal distribution was rejected. Therefore, to study the weak-form efficiency we applied a nonparametric statistical method (runs test). It was proved that the market remains weak-form efficient despite unfavorable conditions. The results of the research can be useful for financial decisions and market regulation relative to the Russian Federation.

Keywords: financial market efficiency, informational efficiency, weak-form efficiency, the Russian stock market efficiency.

1 Introduction

Since 2014, the Russian Federation has been faced strong economic end external risks, deriving dramatic challenges for financial market functioning. This determines the context of our research which is aimed to prove that the Russian stock market still remains efficient. We assume that economic transparency and financial market efficiency are important preconditions for the financial system soundness. Simultaneously, the more soundly a financial system functions, the more competitive an economic model becomes (Cihak et al., 2012).

According to the efficient-market hypothesis (EMH), financial markets should be efficient. The fundamentals of EMH were initially formulated by Samuelson (1965) and Fama (1965, 1970). Popular EMH definitions can also be found in the works of Jensen (1978), Malkiel (2003), and Timmermann and Granger (2004). The controversy about market efficiency has grown as a result of the global financial crisis (Ball, 2009; Krugman, 2009). However, EMH has been widely applied in finance and has been tested for various countries.

For Russia, the works of Dorofeev (2000), Abrosimova et al. (2002), Hall and Urga (2002), Worthington and Higgs (2003), Anatolyev (2005), and McGowan (2011) must be noted. There are other relevant works in Russian: Nalivaysky and Ivanchenko (2004), Botvinnik and Kozyrev (2008), Fedorova and Andreeva, (2012), Fedorova et al. (2013), Darushin and Lvova (2015).

Worthington and Higgs (2003) disproved the weak-form efficiency in the Russian market for the period from January 1994 to May 2003. They tested EMH on the basis of Morgan Stanley Capital International (MSCI) equity indices for 16 developed and 4 emerging markets, applying a variety of methods (serial correlation coefficient test, runs test, three unit root tests, and multiple variance ratio tests). Notably, not all developed markets corresponded with the strictest random walk criteria.

On the contrary, the hypothesis of weak-form efficiency for the Russian financial market was supported by Abrosimova et al. (2002) for the period from September 1995 to May 2001 (Dorofeev (2000) comes to the same results for the early, but a shorter period from January 1997 to June 1998). The authors applied unit root, autocorrelation and variance ratio tests to evaluate the predictability of the Russian Trading System Index (RTS index) time series. The random walk hypothesis was proved for the monthly data and rejected for weekly and daily data. Linear and nonlinear modeling of the serial dependence provided limited evidence of short-term market predictability.

The same conclusion was reached for later and longer periods by several other researches. Nalivayskiy and Ivanchenko (2004) tested and proved the weak-form efficiency hypothesis for the period from January 2000 to April 2004 using regression analysis and nonparametric tests for a daily data on the RTS index. Anatolyev (2005) analyzed weekly series of Russian stock returns from 1995 to 2004 using nonparametric methods (the excess profitability test of Anatolyev and Gerko) and confirmed the weak-form market efficiency. McGowan, Jr. (2011) evaluated the efficiency of the Russian financial market by applying runs and unit root tests for the period from September 1995 to June 2007 and found that the RTS index was generally weak-form efficient with the exception of 1995-1999.

Special attention should be paid to the dynamic models of EMH testing. Hall and Urga (2002) analyzed returns from the RTS and Skate Press Agency General (ASPGEN) indices and a small sample of frequently traded stocks by applying a time-varying parameter model with generalized autoregressive conditional heteroscedasticity in mean (GARCH-M) structure of the residuals. The analyzed data covered the period from September 1995 to the end of March 2000. The authors found that the Russian financial market was initially inefficient. Then, they observed the tendency toward weak-form efficiency both for the indices and for the sample of individual stocks. Unsurprisingly, the result for the RTS index, which is based on the most liquid stocks, was better than for the wider ASPGEN index. This study proved that it took approximately two and a half years for the Russian market to become less autocorrelated in terms of the RTS index.

The GARCH-M model was also applied by Botvinnik and Kozirev (2008), who tested daily data on the RTS index since September 1995 through April 2007 and found that the weak-form efficiency in the Russian financial market was observed not before 2000-2001. Fedorova et al. used the same method for the spot-prices of the MICEX index and come to conclusion that during the period December, 2000–December, 2012 the market did not move towards information efficiency (2013).
Surprisingly, findings concerning the Russian stock market efficiency are mixed even within one article (Fedorova and Andreeva). One of the main reasons for such contradictory conclusions applies to the emerging status of the market and, consequently, the lack of its operational efficiency (Darushin and Lvova, 2015). It has not been yet developed in terms of depth, access, efficiency, and stability. The same time, it continues changing and developing. Therefore, empirical research of the Russian stock market should be regularly revised, updated and improved.

2 Methodology

According EMH, there are three forms of informational efficiency: weak, semi-strong, and strong. A market is supposed to be efficient with respect to some information set if it is impossible to make economic profit by trading on the basis of this information set (Jensen, 1978). There is no strong efficiency in the real world. The form of real (weak or semi-strong) efficiency depends on the information which constitutes the abovementioned set. In particular, the weak form of efficiency means that the information set contains price history of the market (asset prices, dividends and variables such as trading volumes) (Jensen, 1978; Timmermann and Granger, 2004). And one cannot

make profit by trading on the basis of past information (technical analysis is useless). Practically, a weak-form informational efficiency is suggested if there is a random distribution of corresponding stock prices (or returns).

Emerging financial markets are inefficient or weak-form efficient. The majority of research suggests that the Russian stock market can be characterized as weak-form efficient. The possible drawback of such empirical research is commonly related to the fact that analyzed variables are assumed to be normally distributed. If normality does not exist, this factor should be taken into account when choosing statistical methods for efficiency evaluation. However, the choice of assessment methods is not always correct. In this regard, *the first question* of our research addresses of whether the stock returns are normally distributed.

The null and alternative hypotheses are the following:
H_o: Stock returns for the Russian stock market follow a normal distribution.
H_1: Stock returns for the Russian stock market do not follow a normal distribution.
Several statistical methods are used to test normality. However, considering results for the earlier period (Darushin and Lvova, 2015) and for emerging markets on the whole (Innovations on Financial Markets, 2013), it is highly probable that there is no normality. Therefore, we confine ourselves to the skewness and kurtosis analysis.
Then, we will turn to *the second (and the main) question* of the research: does the Russian stock market remain efficient? The null and alternative hypotheses are:
H_o: The market can be characterized as weak-form efficient.
H_1: The market cannot be characterized as weak-form efficient.
Weak-form informational efficiency is stated if there is a random distribution of corresponding stock prices (or returns). If the distribution is not normal, this factor should be taken into account when choosing statistical methods for efficiency evaluation. It requires applying nonparametric methods, for instance, the runs test.
To test both hypotheses, we will study the sample formed by the daily prices of 20 equities. They represent the largest Russian companies listed on the Moscow Exchange (MOEX) and the bulk of the main MOEX indices – MICEX and RTS. The total share of these equities in this indices is almost 90% (Tab. 1).

Table 1: Sample Stocks of the Study

#	Company Name	Stock Type	Trading System Ticker	Weight in the RTS-MICEX Index* (%)	Number of Prices**
1.	Public Joint-Stock Company “Gazprom”	Ordinary share	GAZP	14.53	1,691
2.	Public Joint Stock Company “Oil company “LUKOIL”	Ordinary share	LKOH	12.15	1,691
3.	Sberbank of Russia	Ordinary share	SBER	12.06	1,691
4.	Public Joint Stock Company “Magnit”	Ordinary share	MGNT	6.58	1,691
5.	Joint Stock Company “NOVATEK”	Ordinary share	NVTK	6.12	1,691
6.	Public Joint Stock Company “Mining and Metallurgical Company “NORILSK NICKEL”	Ordinary share	GMKN	5.12	1,691
7.	VTB Bank (public joint-stock company)	Ordinary share	VTBR	4.31	1,691
8.	Rosneft Oil Company	Ordinary share	ROSN	4.29	1,691
9.	“Surgutneftegas” Open	Ordinary	SNGS	4.03	1,691

#	Company Name	Stock Type	Trading System Ticker	Weight in the RTS-MICEX Index* (%)	Number of Prices**
	Joint Stock Company	share			
10.	Oil Transporting Joint Stock Company "Transneft"	Preferred share	TRNFP	3.40	1,691
11.	"Surgutneftegas" Open Joint Stock Company	Preferred share	SNGSP	2.98	1,691
12.	PJSC "TATNEFT"	Ordinary share	TATN	2.80	1,691
13.	Mobile TeleSystems Public Joint Stock Company	Ordinary share	MTSS	2.58	1,682
14.	Public Joint Stock Company "ALROSA" *(data from 29.11.2011)*	Ordinary share	ALRS	1.35	1,042
15.	Public Joint Stock Company "Severstal"	Ordinary share	CHMF	1.34	1,691
16.	Public Joint Stock Company "Moscow Exchange MICEX-RTS" *(data from 15.02.2013)*	Ordinary share	MOEX	1.29	735
17.	Public Joint-Stock Company Federal Hydro-Generating Company – "RusHydro"	Ordinary share	HYDR	1.06	1,690
18.	Public Limited Liability Company Yandex N.V. *(data from 04.06.2014)*	Shares of a foreign issuer	YNDX	1.02	410
19.	Public Joint Stock Company "MegaFon" *(data from 28.11.2012)*	Ordinary share	MFON	0.96	786
20.	Polymetal International plc *(data from 20.06.2013)*	Shares of a foreign issuer	POLY	0.86	643

Note. * Total for 20 stocks: 88.83%; ** End of the study period: 22 January 2016.
Source: Prepared by the authors.

It should be noted that the Moscow Exchange (MOEX) is the main stock exchange in Russia. It was founded in December 2011 as a result of a merger between Russia's two major exchange groups: MICEX group (Moscow Interbank Currency Exchange) and RTS group (Russian Trading System). MOEX provides almost all transactions with securities and derivatives in Russia, so it represents the securities market as whole. A limited number of regional exchanges were acquired by MOEX or serve a small part of local transactions. Therefore, we assume that the sample (Tab. 1) comprises the Russian stock market in terms of capitalization.

At present all stock in the trades are accounted for by the Moscow Exchange. In the past, however, the deals were provided by two different exchanges with different trading and execution rules. The sample therefore consists of only the stocks that were traded with the same procedures during the studied period. To provide information identity, we chose the stock segment that was not changed during the time. This is the *RTS Standart* sector of RTS before the merger and the MOEX Standard sector at present. The RTS Standart began on April 23, 2009.

According to the securities quotes provided by the MOEX database, we used the daily closing prices of the selected stocks to calculate the return as:

$$r_{i,t} = (P_{i,t} - P_{i,t-1})/P_{i,t-1} \quad (1)$$

where $r_{i,t}$ is the return of stock *i* at day *t*, $P_{i,t}$ is the stock price at day *t*, $P_{i,t-1}$ is the stock price at the previous trading day. The prices exclude dividends.

To check the results calculated by the equities prices, the daily data on the MICEX and RTS indices will be used as well. As for the period of analysis, we will use the data from the equity listing on the MOEX to the present date. Period for indexes will be taken from the beginning of the calculation.

3 Results

To test the normality we applied skewness and kurtosis analysis. These techniques are well known and widely used in social and economic research. The results of the yield distribution analysis are shown in Tab. 2, 3.

Tab. 2 shows the results of the normality test carried out for the whole study period from April 23, 2009 to January 22, 2016.

Table 2: Results of Normality Test
(For the whole study period: April 23, 2009 – January 22, 2016)

Stock #*	# of Returns	Mean (%)	St. deviation (%)	Skewness Statistic**	Kurtosis Statistic**
1.	1,690	-0.007	1.940	-0.17819 (0.05958)	3.92686 (0.11917)
2.	1,690	0.040	1.717	0.12212 (0.05958)	2.55719 (0.11917)
3.	1,690	0.099	2.432	0.23900 (0.05958)	5.55159 (0.11917)
4.	1,690	0.161	2.154	0.24543 (0.05958)	2.96984 (0.11917)
5.	1,690	0.124	2.148	-0.08241 (0.05958)	3.46843 (0.11917)
6.	1,690	0.096	2.167	0.02855 (0.05958)	3.95294 (0.11917)
7.	1,690	0.071	2.319	0.18005 (0.05958)	5.34697 (0.11917)
8.	1,690	0.038	1.914	0.20100 (0.05958)	2.16279 (0.11917)
9.	1,690	0.042	1.977	0.24938 (0.05958)	1.29859 (0.11917)
10.	1,690	0.193	2.541	0.63700 (0.05958)	6.22983 (0.11917)
11.	1,690	0.114	2.025	-0.71370 (0.05958)	5.88382 (0.11917)
12.	1,690	0.097	2.287	0.32931 (0.05958)	2.53251 (0.11917)
13.	1,681	0.034	1.928	0.79102 (0.05974)	20.49544 (0.11949)
14.	1,041	0.077	2.970	1.23884 (0.07592)	80.70735 (0.15184)

Stock #*	# of Returns	Mean (%)	St. deviation (%)	Skewness Statistic**	Kurtosis Statistic**
15.	1,690	0.117	2.485	0.33776 (0.05958)	4.50890 (0.11917)
16.	734	0.089	2.055	0.02779 (0.09041)	3.53902 (0.11917)
17.	1,689	0.005	2.298	0.49598 (0.05960)	4.37325 (0.11920)
18.	409	0.002	2.682	0.43281 (0.12112)	2.75921 (0.24224)
19.	785	0.053	2.131	-0.66853 (0.08743)	6.01107 (0.17485)
20.	642	0.164	2.961	-0.52259 (0.09667)	10.35843 (0.19335)

Notes. * The same number as in Tab. 2; ** Standard errors in parentheses are computed as $\sqrt{6/N}$ for skewness and $\sqrt{24/N}$ for kurtosis, where *N* is the number of observations (returns).
Source: Authors' calculations.

The values that correspond to the normal distribution are shown in brackets, and the actual values are without brackets. In two cases, the actual values of skewness are less than normative (highlighted in dark gray). The kurtosis statistics exceeds normative level for all 20 equities. However, in general, the obtained values are greater than the normative.
The same calculations were run for the sample of the last 250 values of returns for every date from April 23, 2010 to January 22, 2016. Thus, skewness and kurtosis were calculated as moving indicators on the data for the last year. We used 250 as a number of days in a year, and not 252 as usual, because it corresponds to the number of trading days on the Russian stock market. Generalized results are shown in Tab. 3.

Table 3: Results of Normality Test
(Skewness and kurtosis are calculated as a moving indicators on the data for the last 250 days (1 year), from April 23, 2010 to January 22, 2016)

Stock #*	# of Values	Skewness Statistic		Kurtosis Statistic		Skewness & Kurtosis Together			
		Greater than Normative**		Greater than Normative**		Greater than Normative**		Less than Normative**	
		#	share, %	#	share, %	#	share, %	#	share, %
1.	1,441	1,167	80.99	1,346	93.41	1,124	78.00	52	3.61
2.	1,441	913	63.36	1,417	98.33	909	63.08	20	1.39
3.	1,441	1,111	77.10	1,439	99.86	1,110	77.03	1	0.07
4.	1,441	1,070	74.25	1,441	100.00	1,070	74.25	0	0.00
5.	1,441	1,197	83.07	1,431	99.31	1,188	82.44	1	0.07
6.	1,441	1,017	70.58	1,440	99.93	1,017	70.58	1	0.07

Stock #*	# of Values	Skewness Statistic		Kurtosis Statistic		Skewness & Kurtosis Together			
		Greater than Normative**		Greater than Normative**		Greater than Normative**		Less than Normative**	
		#	share, %	#	share, %	#	share, %	#	share, %
7.	1,441	990	68.70	1,434	99.51	983	68.22	0	0.00
8.	1,441	1,077	74.74	1,427	99.03	1,066	73.98	3	0.21
9.	1,441	989	68.63	1,386	96.18	955	66.27	21	1.46
10.	1,441	1,110	77.03	1,431	99.31	1,101	76.41	1	0.07
11.	1,441	1,284	89.10	1,441	100.00	1,284	89.10	0	0.00
12.	1,441	883	61.28	1,158	80.36	805	55.86	205	14.23
13.	1,432	1,109	77.44	1,396	97.49	1,076	75.14	3	0.21
14.	792	567	71.59	764	96.46	562	70.96	23	2.90
15.	1,441	1,157	80.29	1,441	100.00	1,157	80.29	0	0.00
16.	485	329	67.84	414	85.36	266	54.85	8	1.65
17.	1,440	1,287	89.38	1,392	96.67	1,278	88.75	48	3.33
18.	160	68	42.50	160	100.00	68	42.50	0	0.00
19.	536	536	100.00	536	100.00	536	100.00	0	0.00
20.	393	278	70.74	393	100.00	278	70.74	0	0.00

Notes. * The same number as in Tab. 2; ** Normative values are computed as $\sqrt{6/250} = 0{,}15429$ for skewness and $\sqrt{24/250} = 0{,}30984$ for kurtosis, where 250 is the number of observations (returns). Source: Authors' calculations.

It is evident that in most cases skewness, kurtosis, or both of them do not correspond to a normal distribution (actual values greater than normative). But in some cases both indicators match the conditions of normality (both skewness and kurtosis statistics are less than standard errors). For example, in 52 cases from 1441 (3.61% of observations) the returns of stock #1 corresponded to the normal distribution. For stock #12 it was more than 14% of observations. Of course, in general, the number of such cases is rare small. It exceeds 1% of observation for 7 stocks only. But, it turns out that the wrong choice of a date or a period of the study may distort the results. The economic implication is that at certain periods, prices and returns behave differently than usual.

In general, the hypothesis of normal distribution of the selected stocks returns is disproved. However, to generalize our findings for the whole market, we also used the same tests for the most representative market indices (Tab. 4, 5).

Table 4: Results of Normality Tests for the Main Russian Indices (For the whole study period: April 23, 2009 – January 22, 2016)

Index Name	# of Returns	Mean (%)	St.deviation (%)	Skewness Statistic	Kurtosis Statistic
RTS	1,690	0.01	1.98	0.01035 (0.05958)	4.60657 (0.11917)
MICEX	1,690	0.05	1.56	-0.32922 (0.05958)	4.02654 (0.11917)

Source: Authors' calculations.

Table 5: Results of Normality Tests for the Main Russian Indices (Skewness and kurtosis are calculated as a moving indicators on the data for the last 250 days (1 year), from April 23, 2010 to January 22, 2016)

Index Name	# of Values	Skewness Statistic		Kurtosis Statistic		Skewness & Kurtosis Both			
		Greater than Normative**		Greater than Normative**		Greater than Normative**		Less than Normative**	
		#	share, %	#	share, %	#	share, %	#	share, %
RTS	1,441	1,070	74.25	1,415	98.20	1,061	73.63	17	1.18
MICEX	1,441	1,071	74.32	1,384	96.04	1,038	72.03	24	1.67

Source: Authors' calculations.

All the results (Tab. 2 – 5) reject the hypothesis of the normal distribution and force us to use nonparametrical methods to test the randomness of stock returns. We chose the runs test, since unlike other standard methods such as serial correlation, etc., the runs test does not require normal distribution of stock yields.

A *run* is defined as sequence of the return change with the same sign. For example, the line ++ 0 – – – + shows seven return changes with four runs. The sign + shows positive stock return or the price growth; – represents the negative yield of the stock and the price declining; 0 means unchanged stock return and price. In some cases, the runs test uses only two types of runs and ignores the 0 (e.g., Wald-Wolfowitz runs test), but this method is not appropriate for the Russian stock market because the runs with no change are presented.

If a sample shows too many or too few runs versus the number of runs expected in a random series, it means nonrandomness. Too few runs indicate that the stock yields in the time series do not change signs regularly, therefore showing a positive serial correlation, and, as a result, may suggest that price changes do not follow a random walk model. If there are too many runs, a negative autocorrelation may occur.

The total expected number of runs (*E(R)*) can be calculated as:

$$E(R) = \frac{N \cdot (N+1) - \sum_{i=1}^{3} n_i^2}{N} \quad (2)$$

where N is a total number of returns changes, n_i is the number of changes of each sign (+, –, 0). For large samples with more than 30 observations, the distribution of $E(R)$ can be accepted as normal with the standard error, which can be calculated as:

$$\sigma(R) = \sqrt{\frac{\sum_{i=1}^{3} n_i^2 \cdot [\sum_{i=1}^{3} n_i^2 + N \cdot (N+1)] - 2N \cdot \sum_{i=1}^{3} n_i^2 - N^3}{N^2 \cdot (N-1)}} \quad (3)$$

The standard normal Z-statistics used for runs test is given by:

$$Z = \frac{(\overline{R \pm 0.5}) - E(R)}{\sigma(R)} \quad (4)$$

where R is the actual number of runs, $E(R)$ is expected number of runs, and 0.5 is continuity adjustment. For large number of observations (N), Z is normally distributed with a mean of zero and variance of one. Thus, for tests of significance we apply a standardized normal variable Z-test. The result can therefore be accepted at significant at the 5% level if the absolute observed values of Z are less or greater than ±1.96. The results of corresponding calculations are reported in Tab. 6.

Table 6: Runs Test Results

Stock #*	*N*	*R*	*E (R)*	*σ (R)*	*Z***	Z_{min}***	Z_{max}***
1	1,690	826	855.68	35.32	-0.53	-1.33	1.11
2	1,690	853	849.87	35.48	0.91	-1.10	1.48
3	1,690	848	850.94	35.45	0.26	-1.15	1.03
4	1,690	865	858.02	35.25	-0.77	-1.43	1.12
5	1,690	874	848.85	35.51	-0.84	-1.24	0.59
6	1,690	872	852.81	35.40	0.57	-0.90	1.77
7	1,690	826	876.13	34.74	-0.26	-1.70	1.22
8	1,690	836	853.91	35.37	0.14	-2.08	1.41
9	1,690	844	852.95	35.40	0.26	-1.46	1.73
10	1,690	898	851.93	35.42	0.82	-0.85	1.78
11	1,690	921	844.58	35.63	-0.41	-1.62	1.05
12	1,690	848	848.97	35.51	-0.08	-1.18	1.10
13	1,681	849	846.33	35.36	0.47	-1.03	0.89
14	1,041	529	535.68	27.42	-0.79	-1.09	0.80
15	1,690	833	850.87	35.45	-0.05	-1.24	0.91
16	734	367	378.67	22.99	-0.86	-1.24	0.02
17	1,689	809	859.37	35.19	0.87	-1.23	1.27
18	409	189	217.48	16.80	0.69	0.25	0.88
19	785	401	404.69	23.79	1.06	0.10	1.43
20	642	315	325.91	21.75	0.60	-0.51	1.35
RTS index	1,690	861	846.73	35.62	0.01	-1.75	0.71
MICEX index	1,690	865	846.50	35.58	0.52	-0.71	1.14

Notes. * The same number as in Tab. 2; ** *Z* as computed for whole study period (23.04.2009-22.01.2016);

*** Z_{min} and Z_{max} are lowest and greatest from Z-scores calculated as a moving indicators on the data for the last 250 days (1 year), from 23.04.2010 to 01.22.2016.
Source: Authors' calculations.

At the 5% significance level, all the stocks from the sample show Z values within the limit (±1.96). 45% of stocks (9 from 20) have negative standardized variables (Z). This finding means that the actual number of runs was less than expected. For generalizations, we also added to the calculations the results of the runs test for the RTS and MICEX indices, which produced the same results as the most of the sample stocks. This indicates that the stock prices traded on the Russian stock market follow the random walk model. Therefore, the null hypothesis of the stock prices random walk cannot be rejected and hence, the results suggest the weak-form efficiency of the Russian securities market.

4 Conclusion and Discussion

As indicated above, the yields of sample stocks that comprise almost 90% of the Russian stock market are not normally distributed. Correspondingly, the weak-form efficiency was studied by the nonparametric statistical method. It was proved that the market remained weak-form efficient despite unfavorable conditions. Thus, in financial decisions relative to the Russian Federation, domestic and foreign investors should practice appropriate methods and modify them according to our results. In particular, the predictive power of technical analysis has been still limited. One more implication relates governmental officials monitoring and regulating the market, in the first instance its transparency.

In this regard, it should be noted that regulative and other institutional changes are sometimes taken into account when testing the efficiency of the Russian financial market. In particular, some authors appeals to improvements in market infrastructure (Fedorova and Andreeva, 2012; Fedorova et al., 2013). These changes are examined since they affect the level of operational efficiency, which in turn is a significant precondition for the informational efficiency. However, it seems quite logical to study the possible interconnection between the market efficiency and some key economic indicators. The main theoretical problem in this case concerns measuring the level of informational efficiency. Let us stress that there has been no generally accepted indicator of informational efficiency yet. This, in our view, determines a possible prospective way for further research.

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Effects of Value Added Tax (VAT) Reduction on Tourism in Romania

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Abstract

The Romanian tourism is a controversial and current topic, which is one of the sectors with high potential for economic growth and development at national level. Introducing the fiscal relaxation in the tourism sector (VAT - value added tax-from 24% to 9%) for all accommodation services, for "all inclusive" services, starting from January 2015 may lead to stimulate the tourist demand and thus economic growth. In this article, we shall analyze the impact of VAT reduction to 9% at one year from implementation and its effects on the current situation of the tourism sector in Romania, based on the statistical data available at national level. In order to highlight the aspects related to the benefits that such a measure may have on the national economy, we conducted a SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats), by which we updated the strengths, weaknesses, opportunities and threats in this sector, in order to formulate some recommendations, so that the Romanian tourism becomes competitive and visible at international level. The conclusions after analyze, highlight the idea that introducing fiscal relaxation in tourism brings contributions to the development of this sector, which may compensate the budget deficit through revenue increases brought by increasing the tourists flows.

Keywords: value added tax, tourism, tourist flow, SWOT analysis

Introduction

In Romania, VAT reduction to 9% for all accommodation services, starting from January 2015 contributed to increase of the number of foreign tourists visiting our country and to increase the revenues of the tourism operators and related sectors, a situation seen in other countries, too (Blake at all, 2006; Agell at all, 1996).

VAT is an indirect tax of the state budget, being the most important resource borne by the final consumer and it is charged on cascade by each economic agent that participate in the economic cycle of manufacturing a product, service or work for taxation purposes (Mc Gee, 2008). Through the monetary and fiscal policies (the budget tourism, ways of income tax, VAT level) the state can encourage or stimulate the tourism demand (Manente, 2010).

The adjustment of VAT on tourism services, represents a first step in the revival of the domestic tourism, reflected in the reduction of tariffs and in increase of foreign and domestic tourists arrivals in the tourists reception units (Angeloni, 2013; Manente at all, 2008). This analysis begins with a key question: "Does the reduction of the taxation in the tourism sector represent a growth factor for increasing the tourist flows visiting Romania annually?" Through the analysis based on data supplied by NIS (National Institute of Statistics) in the period January 2015 - December 2015, period overlapped the measure of fiscal relaxation from 24% to 9%, as well as SWOT analysis, we found the answer to this question. In this context, we propose to analyze the evolution of tourist flows, during the period when the measure of fiscal relaxation in tourism (VAT 9%) is active.

The results of these analyzes will form the basis for issuing some proposals from the authors, on the revival of the Romanian tourism, by economic and fiscal measures, which bring contributions in this sector (Minciu, 2004).

Material and method

In order to determine the effects that reducing VAT from 24% to 9% recorded in tourism in the period January 2015 (the date on which this fiscal measure was introduced) until the end of 2015, we conducted an analysis based on national statistics data. By comparing the data from the current period with the same period (January-December 2014), it was outlined a set of indicators, based on SWOT analysis, in order to highlight the qualitative and quantitative effects in the tourists flow.
Absolute deviation indicator, determined for the tourist flows recorded in Romania in the period January-December 2015, was calculated as the difference between their value, from the beginning to the end of the period, recording positive values respectively negative ones.
Relative deviation indicator, restored the percent increase and decrease of the tourist flow in the analyzed period. The study was based on documentation and a rich bibliographical study, in which information from the national reports of various agencies in the area (NIS) was used, specialty papers and national strategies for tourism revival.

Results and discussions

The tourism sector in Romania, was affected long time by a lack of some general and fiscal policies to encourage its long-term development, Romania is a country with significant unused tourism potential. In the Master Plan for The National Tourism Development 2007-2026, our country has established objectives to be achieved by 2026 (Erdeli at all, 2011).

Table 1: Arrivals and overnight stays in the tourist reception units with accommodation functions

Specification	Arrivals				Overnight			
	December 2014 - thousands	December 2015 - thousands	Deviation		December 2014 - thousands	December 2015 - thousands	Deviation	
			Absolute - thousands - (+/-)	Relative % (+/-)			Absolute - thousands	Relative %
Total, of which:	548.5	655.8	+107.3	+119.6	1146.1	1333.2	+187.1	+116.3
Romanian tourists	438.2	527.8	+89.6	+120.4	926.6	1068.6	+142	+115.3
Foreign tourists, of which:	110.3	128.0	+17.7	+116.0	219.5	264.6	+27.1	+120.5
Europe	83.9	92.3	+8.4	+110.0	163.1	183.8	+20.7	+112.7
EU	69.1	76.5	+7.4	+110.7	134.8	150.9	+16.1	+111.9
Asia	14.9	21.8	+6.9	+146.3	30.7	45.7	+15.0	+148.9
North America	6.0	7.6	+1.6	+126.7	9.9	13.4	+3.5	+135.4
America de South	0.8	0.8	-	100.0	1.6	1.7	+0.1	+106.3
Africa	1.0	1.4	+0.4	+140.0	7.4	12.6	+5.2	+170.3

Source: Own computation based on the date from National Institute of Statistics, Bucharest 2016.

Besides the aspects related to proper development of the material and technical base of tourism, an important aspect is attracting Romanian and foreign tourists by promoting and offering competitive prices, justified and aligned with those in the countries neighboring Romania (Zaman at all., 2013).

The promotion of Romania as a tourist destination, is an important aspect of creating and implementing a national tourism strategy, through improvements in the legislative area, fiscal facilities and solutions in the tourism sector (Pop at all, 2008).
Without being considered strategy in tourism, VAT reduction for all tourist services, a year of implementation, brought an increase in the number of tourists (arrivals and overnight stays) and consequently the revenue collected in Romania. Thus in December 2015 compared to December 2014 arrivals and overnight stays in the tourists reception units with accommodation functions, recorded increases by 19.6% respectively 16.3%, according to NIS. Analyzing the data from NIS, it is find out that in the analyzed period the absolute and relative deviation recorded positive values, representing an increase of both arrivals and overnight stays in the tourist units with accommodation functions. Regarding the arrivals, the total number recorded in December 2015 was 655. 8 thousand, with an absolute deviation of 107.3 thousand compared to the same period in 2014 the positive relative deviation being of 19.6%.

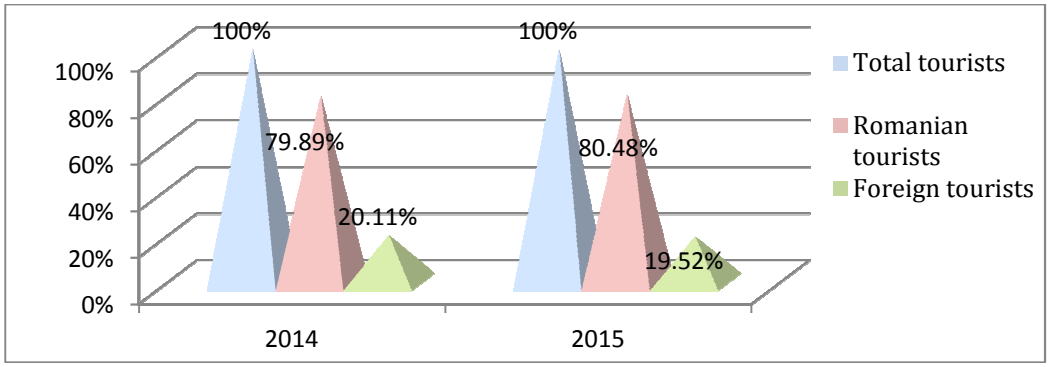

Figure 1: Arrivals in tourist units with accommodation functions

In 2014, most tourists were Romanians, representing 79.89% of the total arrivals in tourist units with accommodation functions, of which only 20.11% foreign tourists. In 2015, the Romanian tourists were also majority, in total representing 80.48% of which arrivals of foreign tourists 19.52% (Table 1).
Regarding the absolute deviation of arrivals in tourist units with accommodation functions, it was positive, representing an increase over the same period in 2014, 89.6 thousand, representing 20.4% relative deviation (Fig 1).

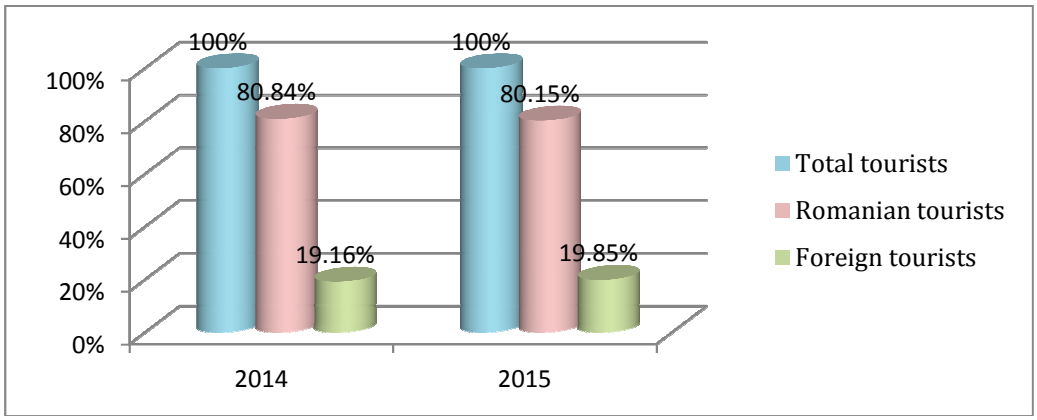

Figure 2: Overnight stays in tourist units with accommodation functions

In December 2014, from the total number of overnight stays spent in tourist units with accommodation functions, the Romanian tourists occupied a percent of 80.84%, while 19.16% were foreign tourists. In 2015 the situation is similar, Romanian tourists occupying a percent of 80.15% and the percent of foreign 19.85% of the total tourists (Figure 2). Regarding the absolute deviation of

overnight stays in tourist units with accommodation functions in December 2015, it is found out an increase in the number of overnight stays by 187.1 thousand compared to 2014. This aspect highlights a positive relative deviation, increasing by 16.3% over the same period last year. This increase in the number of overnight stays, is a consequence of VAT reduction from 24% to 9%, which led to a reduction in tariffs on accommodation but also in all-inclusive travel packages.

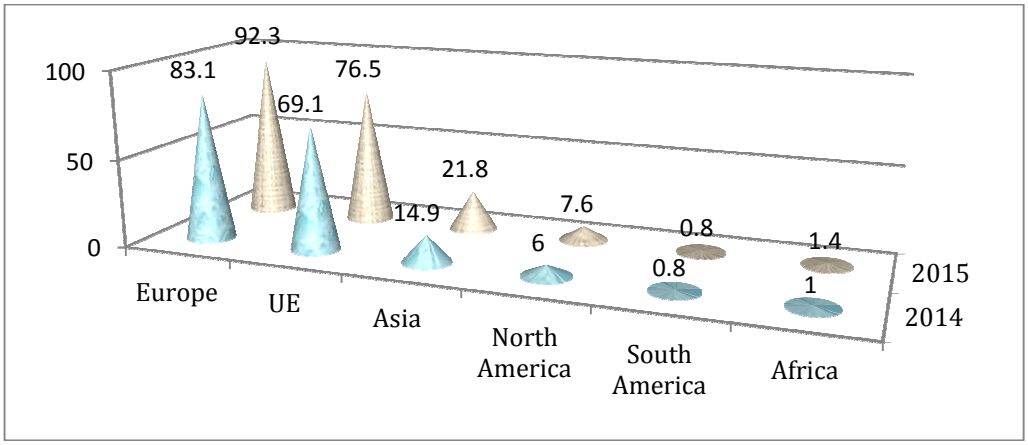

Figure 3: Arrivals in tourist units with accommodation functions, depending on tourist origin. Source: National Institute of Statistics, Bucharest, 2016

Regarding the arrivals of foreign tourist in the tourist units, the highest percent was in Europe, (76.06% in December 2014 and 72.10% in December 2015), and of these 82.35% (December 2014) and 82.88% (December 2015) were the countries belonging to the European Union (figure. 3).

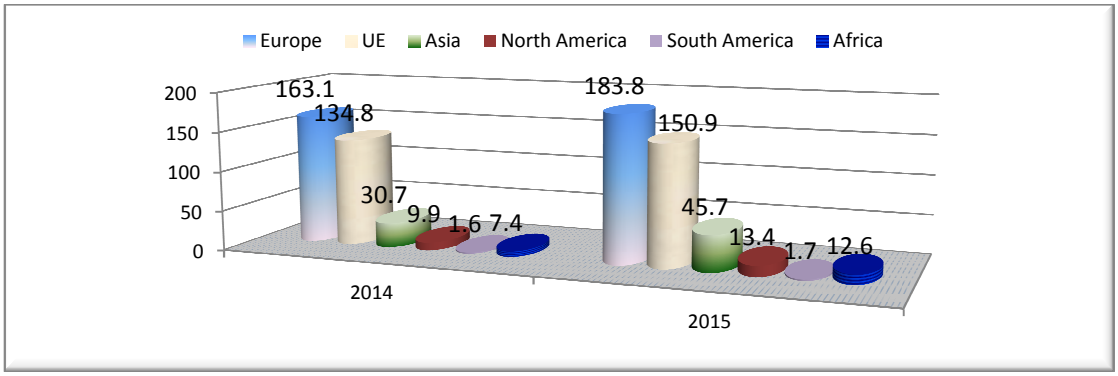

Figure 4: Overnight stays in tourist units with accommodation functions, depending on tourist origin. Source: National Institute of Statistics, Bucharest 2016

Analyzing the foreign tourists overnight stays in the tourist units, it is observed that most foreign tourists who spent the night in our country came from Europe (183800) increased by 10.92% compared to 2014 and 134800 tourists from EU with an increase of 10.66% compared to the same period of the previous year (figure 4).

Also, at other categories of tourists coming from Asia, North America, South America and Africa, increases were recorded in December 2015 compared to the previous year, although numerically, their overnight stays in the tourist units were much lower than on the European continent. In December 2015 compared with the same month of 2014, there were increases of foreign tourists, regarding the tourist demand for tourist units in the resorts in the mountain area, which has a positive

deviation of 0.2%. Also in spas, a positive deviation of 0.4% was recorded (Table 2). In the other tourist areas the deviations recorded were negative compared to the same period of 2014 (0.2%).

Table 2: Distribution of the Romanian and foreign tourists in the tourist units, on tourist areas

No.	Favorite tourist area	Foreign tourists			Romanian tourists		
		December 2014	December 2015	Deviation (+/-)	December 2014	December 2015	Deviation (+/-)
1	Bucharest and towns county residence	83.9	83.7	-0.2	45.9	47.7	+1.8
2	Other cities and tourist routes	9.9	9.7	-0.2	19.6	18.9	-0.7
3	In mountain resorts	4.4	4.6	+0.2	24.6	22.6	-2.0
4	Resorts in the spa	1	1.4	+0.4	8.7	9.7	+1
5	Seaside area	0.6	0.4	-0.2	0.9	0.8	-0.1
6	Delta area, including Tulcea city	0.2	0.2	0	0.3	0.3	0

Source: Own computation based on the date from National Institute of Statistics, Bucharest 2016

The foreign tourists chose the capital cities, in order to have a business travel or tourism for medical purposes (preference for private health system in Romania, with lower costs than in their countries of residence) (figure 4).

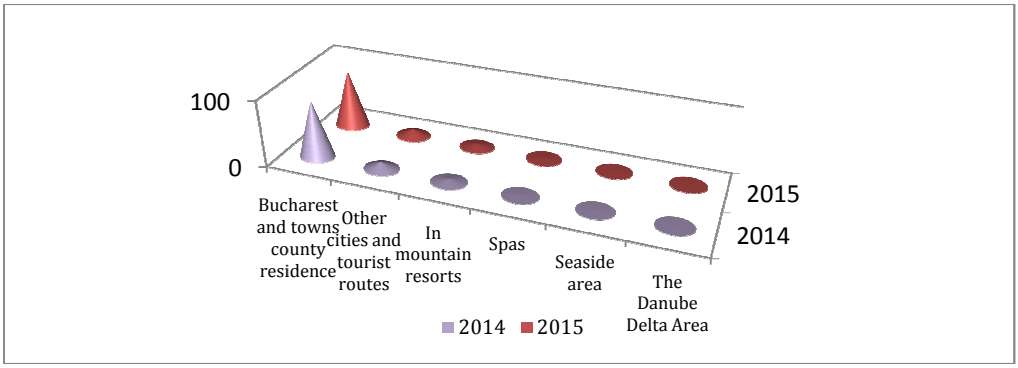

Figure 4: Preferences of foreign tourists as regards chosen destination, in 2015

This statistic highlights the importance of infrastructure in choosing the destination by the foreign tourists, considering that in big cities it is more developed than in the mountain resorts, spas, coastal or in the Danube Delta (Stefan at all, 2015). The Romanian tourists chose Bucharest as destination and the capital cities, with a positive deviation of 1.8% compared to the same month last year, namely in the spa resorts (positive deviation of 1%).

Other destinations have recorded negative deviation of the demand of Romanian tourists and were between 0.7% and 2%. A singular case, is the Danube Delta area, including Tulcea county, where the tourism demand of Romanian and foreign tourists is stationary during the survey period, not recording deviations.

Table 3: SWOT analysis in Romania, following the application of fiscal facility, of VAT reduction to 9%

S – Strenghts	**W – Weaknesses**
✓ Existence of exceptional heritage tourism: varied natural resources, history, culture and traditions with wide diversity; ✓ Temperate climate of Romania can attract the tourist throughout the year. ✓ Low prices for all-inclusive packages and those that include accommodation too, as a result of fiscal relaxation (9% VAT) ✓ A slight increase in the number of tourists due to the VAT reduction from 24% to 9% a year from applying the fiscal measure. ✓ Preferences of the foreign tourists in 2015, as regards visiting Bucharest and the capital cities in order to practice business tourism or medical tourism.	✓ Low number of tourists arriving in Romania compared to abroad departures, the existence of the negative balance of tourism. ✓ Insufficient promotion of Romanian tourism at internal and international level. ✓ Poor quality of services and of all tourism standard, which determines the decrease of population trust in Romanians and preference for foreign destinations confirmed ✓ Modernized infrastructure and difficult to use for rapid travels. ✓ Extremely low paid staff. ✓ High tariffs practiced in tourism even by VAT reduction from 24% to 9% compared to the quality of services. ✓ Non directing the state policies in order to encourage practicing the tourism to the real potential that Romania possesses.
O – Opportunities	**T – Threats**
✓ Tourism heritage with undisputed value, an optimal measure that should lead to put into application some multiple and inspiring forms of tourism, including agro-tourism, eco-tourism, health tourism, etc. ✓ Fiscal relaxation in the tourism sector, an optimal measure that should lead to the implementation of some measures and governmental strategies, in order to support as much as possible the development of the Romanian tourism. ✓ Existence of the European funds needed for the tourism development and its support infrastructure.	✓ Massive competition as quality of services and tariffs practiced in the European countries with tradition in this sector. ✓ Low efficiency of the government strategies implemented in the tourism sector, ✓ Lack of monitoring and evaluation of the effects of the strategies applied in tourism, by the competent institutions. ✓ Low degree of absorption of the European funds for the tourism development in the period 2007-2013. ✓ The lack of visibility at international level of the tourism resources provided by Romania.

Following the analysis and study made in this sector, it is proposed to continue the introduction of fiscal measures in tourism, for the consumer's benefit but also for the stakeholders involved in this sector through the reduction or cancellation of taxes in order to develop the technical and material base and to increase the quality of services provided. These fiscal measures needed to stimulate the Romanian tourism could address the following aspects (figure 6).

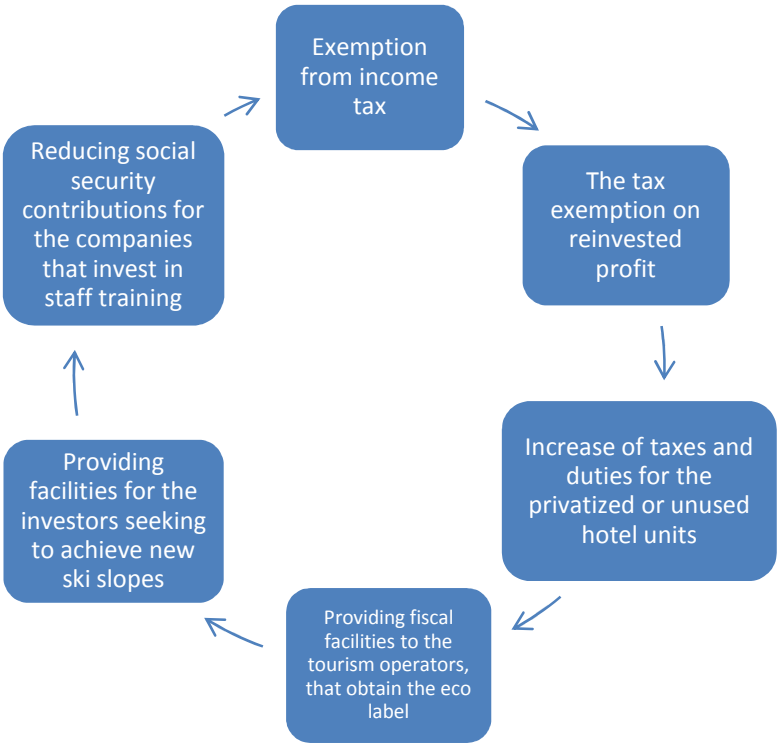

Figure 6: The fiscal measures necessary to stimulate the Romanian tourism

Conclusions

In order to develop tourism in Romania, a sustainable, important measure, would be the reduction or cancellation of some taxes and duties and their application non-unitarily, depending on the specific of activity in the national economy. From the secondary analysis of data, we can conclude that the number of arrivals and overnight stays in the tourism units with accommodation, increased during 2015, compared to the same period in 2014. There were increases both at arrivals and overnight stays of foreign tourists but especially the Romanian tourists, increase interpreted also in the context of VAT reduction from 24% to 9%.The net use of tourist accommodation capacity in operation, is relatively low but slightly increasing compared to the same period last year and it shows that the promotion of the tourism sector is an important factor in this regard. Foreign tourist who visited Romania, are most of them from Europe and from the European Union, the tourists from the other continents having low share in total arrivals, departures-arrivals report for Romania being subunitary. It is proposed to introduce new measures of fiscal relaxation in tourism, measures that aim both at the beneficiary of the tourism act, and the stakeholders involved in this field: investors, owners of tourist accommodation structures, catering, craftsmen, etc.

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Open Innovation as a Competitive Advantage, Process of Implementation

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Abstract

Nowadays, innovation is a very hot topic. The authors choose a part of it – open innovation, which is a trending theme in innovation management. Open innovation is the new imperative for creating and profiting from technology. The paper aims to define the basic concepts relating to innovation (how to make an innovation culture) and open innovation and to make a model of process how to take a change. Every innovation is a process of change and our model will be modified to open innovation.
Key words: innovation, open innovation, process of change

1. Introduction

Companies are constantly faced with the challenge of gaining competitive advantage over competitors. Developing that special edge may mean survival for some of a way to stay on the top of the competition for others. A critical ingredient for staying on the top is an innovation. To be innovative is seeing things from new angles, having broad perspectives, taking risks and being flexible.

Managing the process of innovation in the companies is great and endless topic of contemporary business. Globally successful companies create the conditions deliberately to enable ideas within the company not only formed, but to be implemented and to become the competitive advantage. Innovation is still seen as a critical drive of economic performance.

Main output of this paper is created process of implementation of open innovation which can help gain competitive advantage for a company. Process covers all phases of implementation of innovation. Process can be extended or adapted to the individual needs of concrete situation in concrete company or public institution.

2. Theoretical basis

Engel et al. (2015) defined innovation management „from the market to the market“ and manipulate five areas to improve their innovation performance and drive sustainable and profitable growth (Figure 1).

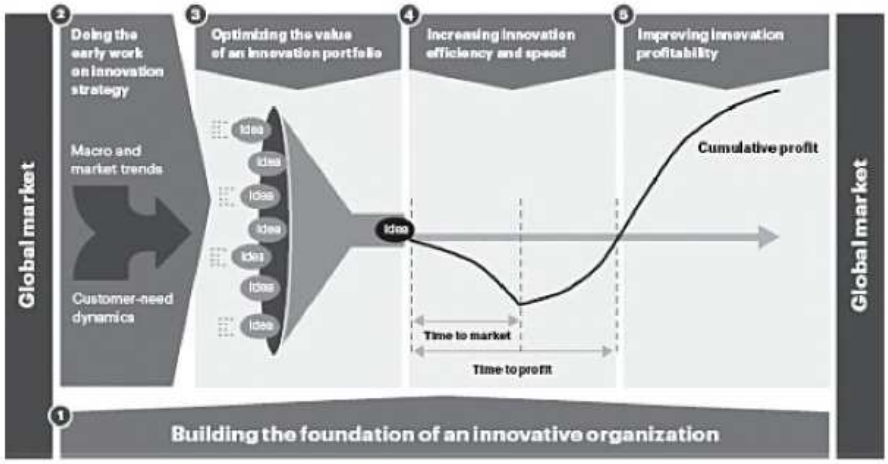

Figure 1: Areas for improving performance and sustain growth, source: Engel et. al (2015)

But what is an innovative organization? According to Engel et al. (2015) an innovative culture is culture as the shared values and behavior norms that guide not just what people do, but how they do it. They delineated factors for building the innovative culture (see figure 2).

Environment	*Values*: innovation is embedded in the operational principles
	Leadership: manager´s behavior supports innovation and demonstrates that innovation is a priority
	Recognition: innovations and innovators are recognized and rewarded
	Freedom: the company gives employees time and space for innovation
Mindset	*Creativity*: employees are open to new ideas and solve problems imaginatively
	Risk taking: taking appropriate risks is forested, and failures are learned from rather than punished
	Customer orientation: delighting the customer trough innovation and quality is a demonstrated obsession
Ways of working	*Collaboration*: cooperation defines work that takes place across functions and across locations
	Ownership: innovation is everyone´s job and can come from anywhere, within or outside the organization and its networks
	Openness: the company fights against "not-invented-here" syndrome, there is openness to and acceptance of external ideas and partners

Figure 2: Building an innovation culture: The elements you have to get right, source: Own elaboration based on Engel et al. (2015)

One of the element is "openness" – open innovation is a strategy or a concept of an access to the innovation. It allows the involvement of all employees and sometimes progresses beyond the boundaries of the organization – enables customer

engagement, the general public and the competing operators. Typically, it´s bound to crowdsourcing platform or open co-working centers that enable the sharing of ideas, resources, as well as risks.

According to Chesbrough (2006) the logic of Open Innovation is based on a landscape of abundant knowledge, which must be used readily if it is to provide value to the company that created it. The knowledge that a company uncovers in its research cannot be restricted to its internal pathways to market. Similarly, its internal pathways to market cannot necessarily be restricted to using the company´s internal knowledge. This perspective suggests some very different organizing principles for a research and for an innovation. Figure 3 shows some of these principles and contrasts them with the Closed Innovation.

Closed Innovation Principles	Open Innovation Principles
• the smart people in the company´s field work for the company	• not all the smart people work for the company, the company needs to work with smart people inside and outside the company
• to profit from R&D, the company must discover it, develop it and ship it itself	• external R&D can create significant value, internal R&D is needed to claim some portion of that value
• if the company discover it itself, the company will get it to market first	• the company doesn´t have to originate the research to profit from it
• the company that gets an innovation to market first will win	• building a better business model is better than getting to market first
• if the company create the most and the best ideas in the industry, the company will win	• if the company make the best use of internal and external ideas, the company will win
• the company should control its IP, so that the competitors don´t profit from the company´s ideas	• the company should profit from others´ use of the company´s IP and the company should buy others´ IP whenever it advances the company´s business model

Figure 3: Contrasting Principles of Closed and Open Innovation, source: Own elaboration based on Chesbrough (2006)

No company can expect its technology to remain fixed for very long time. It is far wiser to expect technology to change, sometimes is unpredictable ways, than it is to assume that the things will remain in their current state for a prolonged period. Companies that don´t innovate, die.

3. Open innovation in practice

Some companies are taking Open Innovation to a whole new level and involving communities to work together to solve complex problems or to help one another out with these dilemmas.

a. Hewlett Packard

Hewlett Packard is one company in particular that has really embraced the ideals of open innovation. It has developed labs where open innovation thrives. It has created an open innovation team that links collaborators that are researchers and entrepreneurs in business, government and academia, to come up with innovative solutions to hard problems with a goal of developing breakthrough technologies. For example, it works with universities in its "HP Labs Innovation Research Program" with a view to getting universities around the world to get involved in joint research with HP Lab Scientists. This is just one of the undertakings that HP is using to drive open innovation forward.

The office consists of a global team, bringing together expertise from around the world to foster discovery and address important issues, connecting the world's leading researchers, scientists and entrepreneurs through ground-breaking programs and collaborating with them to tackle the next generation of breakthrough technologies.

b. Philips Research

Philips Research is a global organization that helps Philips introduce meaningful innovations that improve people´s lives. They provide technology options for innovations in the area of health and well-being, targeted at both developed and surfacing markets.

Philips Research plays a significant role in bringing technology-enabled innovations to the Philips business sectors, but they don´t work in isolation. They work together with the companies that are complementary to Philips and share their vision. That is why they actively pursue what they call „Open Innovation" – sharing their expertise and technical abilities with universities, institutes and other companies so that. Together they can realizethe best ideas.

There are two kinds of Open Innovation:

- „inside-out" innovation – for making skills and resources available to the outside world (for example they regularly undertake contract research for external parties, provide technical facilities and support and assist with IP licensing),
- „outside-out" innovation – for drawing on the capacities of individuals, organizations and small start-ups from around the globe (by providing a broader window on the world of health and well-being, these strategic partners help them to gain new insights and access to new technologies).

Philips Research has decades of experience in both these approaches, but they are always looking for creative new sources of innovation. Building on their long-standing relationships with universities and technical institutes and on their experience in countless public-private partnerships, they are now experimenting with strategies like crowd-sourcing and social networking to come up with new technical solutions.

c. Starbucks

Starbucks has during the last fifteen years pioneered the field of open innovation. Opening up instead of locking up can provide real value with relatively small investments.

Starbucks has received 100 000 ideas so far from their customers. The number of workshops and focus groups Starbucks would need to host to generate so many ideas. Open Innovation is about bringing a group of people with a common goal together to collaborate. The Internet enables everybody to work together in larger groups than ever before.

Open Innovation opens up for inviting all members of a company to take part in the innovation process which will lead to different results than simply asking management or the R&D department. And innovating with the company´s partners, customers or competitors will almost certainly bring fresh perspectives compared to only innovating internally.

4. Process of open innovation

Methods of open innovation are increasing currently. It is one of possibilities how improve a company processes and gain competitive advantages. Employees of the companies personalize methods of open innovation to their companies. So it isn´t created whole methodic how used open innovation in companies. Every innovation is process of change, so it can be there some process how take a change. The process, modified to open innovation is shown like Figure 4.

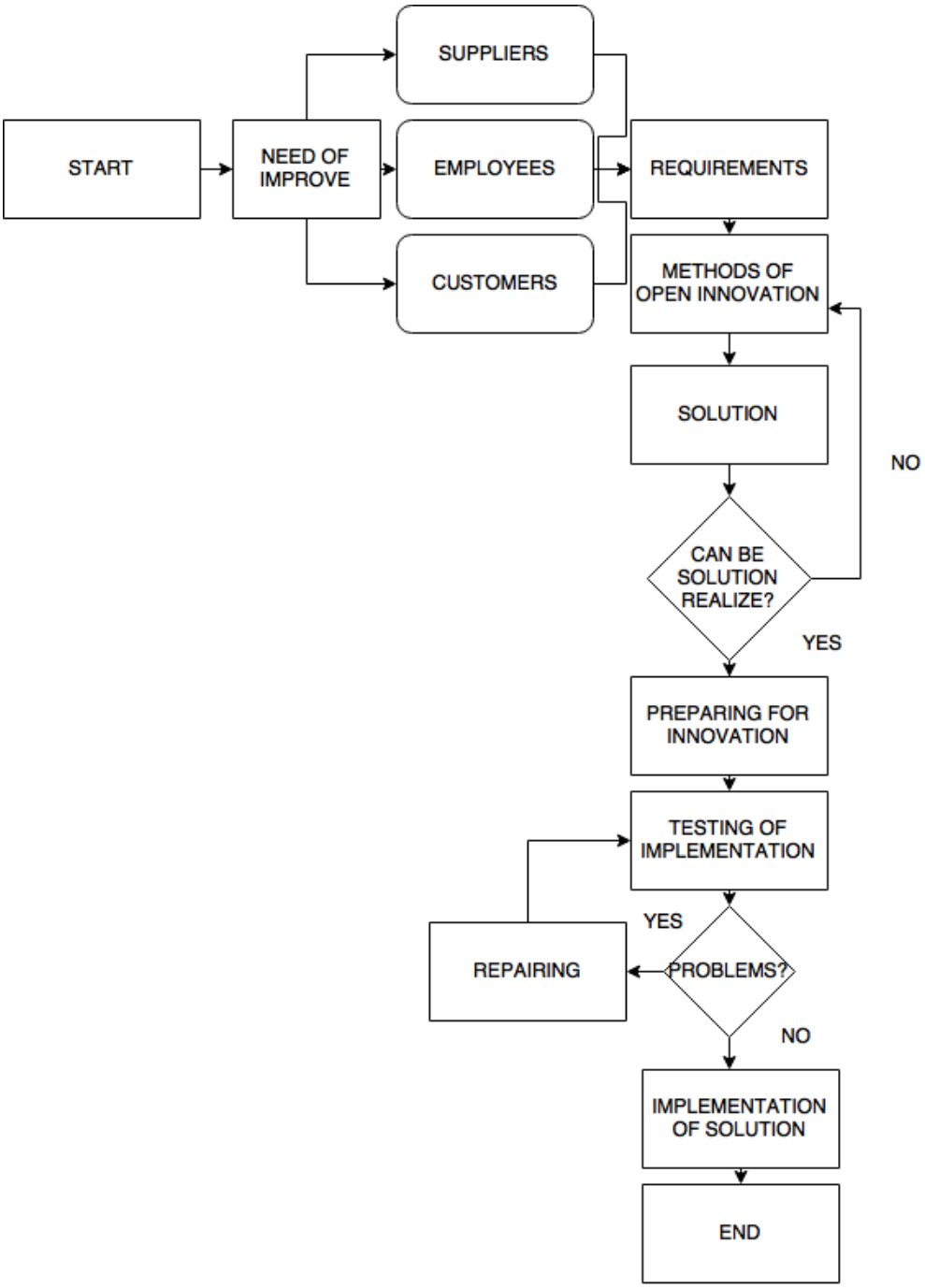

Figure 4: Process of implementation of open innovation, source: authors

Primary, the company musts want the change. The companies where are not improved processes regarding company will have problems with competition companies which innovate.

So firstly is available find out where the company has area for improving. One of possibilities is asking people which have daily contact with company. It means suppliers, employees and customers. These people can provide requirements for improving a company processes.

After this step is available apply methods of open innovation for finding out how improve requirement processes. It is many possibilities of open innovation which can be realize. For example, it can be brainstorming, brain writing and questionnaire research. The key part of open innovation is integration of all employees. This step can see point of view from other angles, because employees on other levels in the company have other opinions. Anonymous or public approve of opinion is individual (means it depends on a company culture and relationship between employees).

After applying methods of open innovation is necessary choose makeable opinions. This step eliminates most of opinions, because the person which decides which opinion is available musts consist other conditions also. Other conditions can be price of proposed solution, time period of applying of proposed solution or number of employees (eventually new employees) which will be retrained. Proposed solutions are eliminated and remained only solutions which are realizable. It is available write opinions which can´t be realize, because can be realize in the future.

Now control is available if the solution (eventually solutions) is really realizable. It is necessary find out if really is possible apply innovation in the company, if isn´t possible the solution must be returned to the proposal of opinions.

The company must be prepared for innovation. This step can´t be underestimated because without proposal steps of implementation of innovation and potential problems the problems will be occurred in the future and in the bigger measurement. Preparing for innovation means that must be planned step by step how will be innovation implemented. It is necessary provide information about innovation to the employees and delegate person (eventually team) who will be responsible of innovation. This person should solve the problems with implementation also.

Next step is testing of implementation. Methods how testing an implementation are many and every company used available method for them. Test of implementation usually detects problems. It is necessary repairs and dissolves problems before the whole implementation. After repairing and dissolving is available testing of implementation again. When the situation is appreciated follows whole implementation. It is available write documentation about implementation and problems with implementation. The documentation can be used for planning next innovation.

Implementation of solution is individual for every company. Firstly employees must be informed when the innovation will be implemented. When the implementation is processing it is necessary have available people who will be works like a “technical support”.

The people will should solve potential problems and eventually help people with change. After successful innovation is available write documentation about

implementation of innovation which can help preempt problems with implementation of next innovation.

5. Conclusion

Companies are institutions focused on profit and dominancy on the market. So companies must supply something better or extra to the customers than their competition. That means that their products must be improved and modified. Innovation is one of possibilities how a company can gain a competitive advantage. Methods of open innovation are increasing, because are applicate able for various company process.

Paper deals with universal process of implementation of open innovation, which can be modified for specified processes and companies or public institutions. Process covers all step how implement an innovation. Process of implementation can be extended or modified for specific situation in the company in the future.

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The Prospects for the Implementation of Industrial Policy in Countries in tThe Medium Term

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Abstract

The article analyses the priorities of the state industrial policy of various countries of the world in the global crisis. The purpose of the study was to analyze worldwide trends of industrial development and the rationale for the development of this direction in the future. To achieve this goal was identified the share of industry in GDP of leading world countries, analyzed the volume of production in major industries. This allowed to prove that the problems in the economic sphere of some States to a large extent caused by the low level of industrial development. Was analyzed the dynamics of various global indices: Industrial Production Growth Rate, %, ISM Manufacturing Index, PMI Manufacturing Index, the commodity structure of exports and imports, the volume of foreign trade. For research were used official data from World Bank, World Factbook, UNIDO, EREPORT, Eurostat, the International auditing company PricewaterhouseCoopers (PwC), Rosstat, Central Bank of Russia, the Russian Centre for macroeconomic analysis and short-term forecasting. The research provided a forecast of the index of industrial production in 2016, and 2017, and forecast the ranking of countries in terms of GDP calculated at purchasing power parity (PPP) in constant prices of 2014, expressed in US dollars. The prediction results confirmed the author's hypothesis about the need for the development of industrial production in the long term to increase economic growth and achieve competitive advantages.

Keywords: industry, state industrial policy, industrial production

1. Introduction

The globalization of the economy objective. It seeks to improve productivity by forming a single world market of goods, services and capital, global information and communication systems, the standardization of cultural attitudes on a global scale. Globalization is an objective form of existence of the fundamental economic law of labor division, specialization and cooperation. Most clearly this economic law is manifested in the sphere of industrial production.
It should be noted the significant contribution to the study of problems of development of the industry by scholars such as J. Galbraith (2007), A. Marshall (1920), J. Hobson (2003), W.S. Jevons (1957), T.K. Henry (1848), H. Levi (2001), D. Kendrick (1979). Summarizing the results of their research can be concluded that the existence of different, sometimes contradictory concepts of industrial, post-industrial, informational, service, etc. the economy does not deny the systemic nature of industry in the economic development of the state. A significant contribution to the development of theoretical and practical aspects of regional industrial development of Russia, the theoretical foundations of the development and implementation of state industrial policy, improvement of management systems of industrial enterprises introduced Yu. Vertakova (2013, 2015), V. Plotnikov (2014), I. Risin (2016), Yu. Treshchevsky (2013) and other Researchers have noted that in the period do section restrictions almost half of Russian enterprises cooperated with foreign countries, indicating the high level of integration of the country's industry in the global economy. However, changing macroeconomic factors of development of industry in Russia is creating the need for harmonization of Russian and international institutional environment of doing business, the development of industry.

Despite the presence of numerous works devoted to the analysis of problems of development of the global industry, which plays an important role in the creation of GDP and the economy as a whole, the introduction of sanctions restrictions in light of recent world events has made a radical change in the economic environment for industrial enterprises in a number of countries. In this regard, the study aimed at identifying the priorities of the state industrial policy, the study and implementation of industrial policy measures to improve industrial development, require upgrading and updating.

The need for adaptation of economic entities of the industrial complex to the changing factors of the economic environment and changing forms of the state support of competitiveness of industrial production determined the choice of objectives and research. The purpose of the study is to identify global trends of development of the industry based on the analysis of the share of industry in GDP in leading countries, volume of production for major industries, as well as the dynamics of the various global indices, such as Industrial Production Growth Rate, ISM Manufacturing Index, PMI Manufacturing Index, commodity structure of export and import, foreign trade, in order to justify the development of this direction in the future given made of the forecasts of industrial production index and ranking of countries in terms of GDP calculated at purchasing power parity.

2.Materials and Methods

Theoretical and methodological basis of research consists of scientific works, devoted to the development of the industry, global trends in the regulation of industrial production, expansion and modification of industrial policy instruments, as well as applied research on the subject. In the process of the study were used General scientific methods of analysis and synthesis, comparative, analytical methods, and statistical treatment of information, techniques and tools of logical analysis.

In this study, the authors collected and processed historical data for the development of industrial production in various countries around the world. By analyzing the data, it was identified the share of industry in GDP of leading world countries, as well as analyzed production volume by main sector of industry on the basis of official statistical data.

To achieve the objectives of the study the authors analyzed the dynamics of world stock indices:

• Industrial Production Growth Rate, %: compares the annual percentage increase in industrial production (includes manufacturing, mining, and construction)/

• ISM Manufacturing Index: is an index based on surveys of more than 300 manufacturing firms by the Institute of Supply Management. The ISM Manufacturing Index monitors employment, production inventories, new orders and supplier deliveries. A composite diffusion index is created that monitors conditions in national manufacturing based on the data from these surveys.

• PMI Manufacturing Index: is an indicator of the economic health of the manufacturing sector. The PMI index is based on five major indicators: new orders, inventory levels, production, supplier deliveries and the employment environment.

• Commodity structure of exports and imports: is the distribution of exports and imports by major commodity positions.

• Foreign trade: measured in monetary terms, the economic indicators of foreign trade of the country, group of countries or administrative-territorial unit (region) for a certain period of time: month, quarter, year.

For processing of the initial information used in this work such methods as structural, functional, economic-statistical financial and strategic analysis, as well as Excel software.

3. Results and Discussion

Industrial production is one of the strategic economic activities. The evolution of modern human civilization, first of all, technocratic, it is based on continuous improvement techniques and industrial technologies (formerly craft and manufacture) production.

Even though today many scholars proclaimed the idea of formation of a postindustrial society, as evidenced by the statistics (see Table 1), where industry played a minor role, we do not agree with this opinion.

Table 1: GDP - composition, by sector of origin (%), 2015

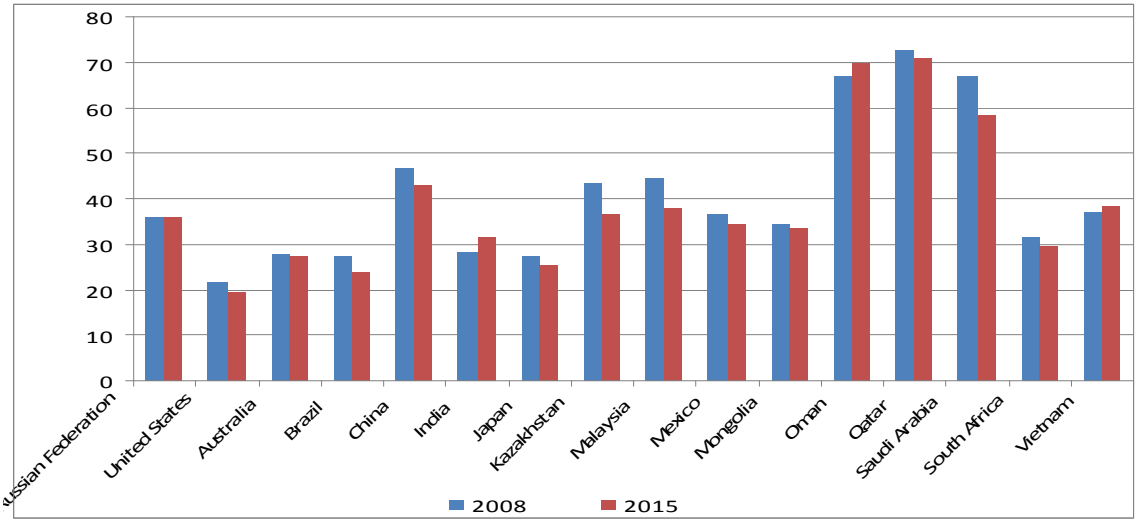
	World	Russia	European Union	United States
agriculture	6.5	4.4	1.6	1.6
industry	31.1	35.8	24.3	20.8

services	62.4	59.7	71.2	77.6

Source: http://www.indexmundi.com/world/gdp_composition_by_sector.html

Despite the emergence of the concepts of post-industrial, informational, service, etc. of the economy, industry in the modern economic system still plays a constitutive role. It is evident from the relatively "painless" passage of the lowest point of the last global crisis the economies of countries with developed industry (Germany, China, etc.). Further confirmation of the necessity of industrial development is the experience postcyclone (2014) development of Russia. As you know, after the introduction against Russia economic sanctions became topical problems of development of national import substitution industries. But without a modern industrial base, these tasks proved problematic.

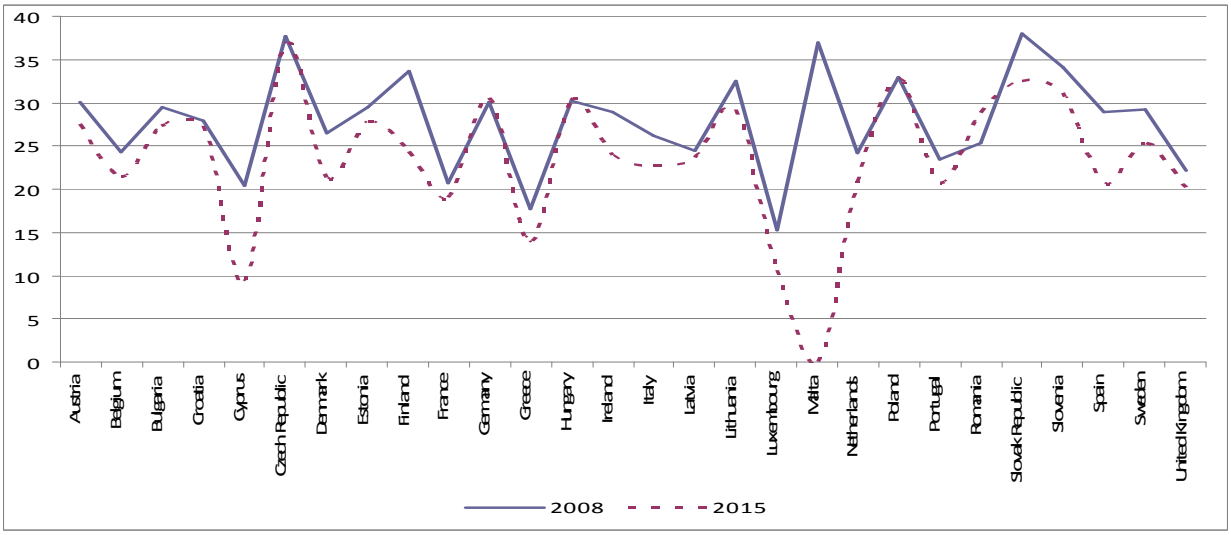
Experience shows that without a developed industrial production is not achieved the required level of stability of the national socio-economic system. This clearly showed a decline in the share of industrial production in GDP of countries in post-crisis periods (2008 and 2015) (Fig. 1).



2015 - predicted values calculated by the authors obtained for the preservation of existing trends
Source: http://data.worldbank.org/

Fig.1. Industry, value added (% of GDP)(World)

The decline in the share of industrial production in GDP of countries in post-crisis periods (2008 and 2015) and are characteristic for the Euro area (Fig. 2).



2015 - predicted values calculated by the authors obtained for the preservation of existing trends
Source:http://data.worldbank.org/

Fig. 2. Industry, value added (% of GDP) (EU-28)

Problems in the economic sphere, Greece, Cyprus and Malta, in our opinion, to a large extent caused by the low level of industrial development (table. 2).

In our view, the rising share of services in GDP of Russia and developed Western countries due to different reasons. If in developed countries (USA, UK, Netherlands, France, etc.) the main reason for this structure of the economy – rising standard of living and therefore the expansion needs to meet which is formed more and more developed structure of services sector in our country and acted by another factor. In 1990-ies was the start of a radical reorganization of the economic system of the country. Among the implications of the transition to a market economy was a very serious decline in the sectors of material production – industry, agriculture. As a result, some industrial production, for example, garments, shoes, machine tools with numerical control, some types of electronic devices virtually ceased to exist.

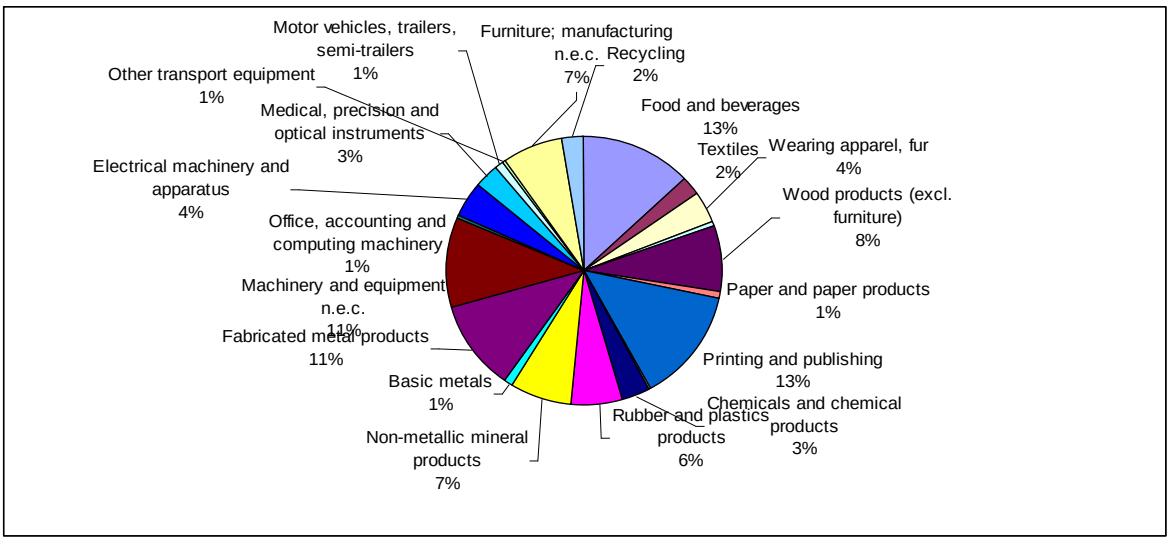
Table 2: Production volume by main sector, Greece, Cyprus, 2014

	Greece	Cyprus
Food and beverages	15	1
Textiles	2	0
Wearing apparel, fur	8	0
Leather, leather products and footwear	1	0
Wood products (excl. furniture)	5	1
Paper and paper products	1	0
Printing and publishing	3	0
Chemicals and chemical products	1	0
Rubber and plastics products	1	0
Non-metallic mineral products	4	0
Basic metals	1	0
Fabricated metal products	10	1
Machinery and equipment n.e.c.	5	0
Electrical machinery and apparatus	1	0
Furniture; manufacturing n.e.c.	7	1
Total manufacturing, millions	65	5

Compiled by the author based on http://stat.unido.org/home

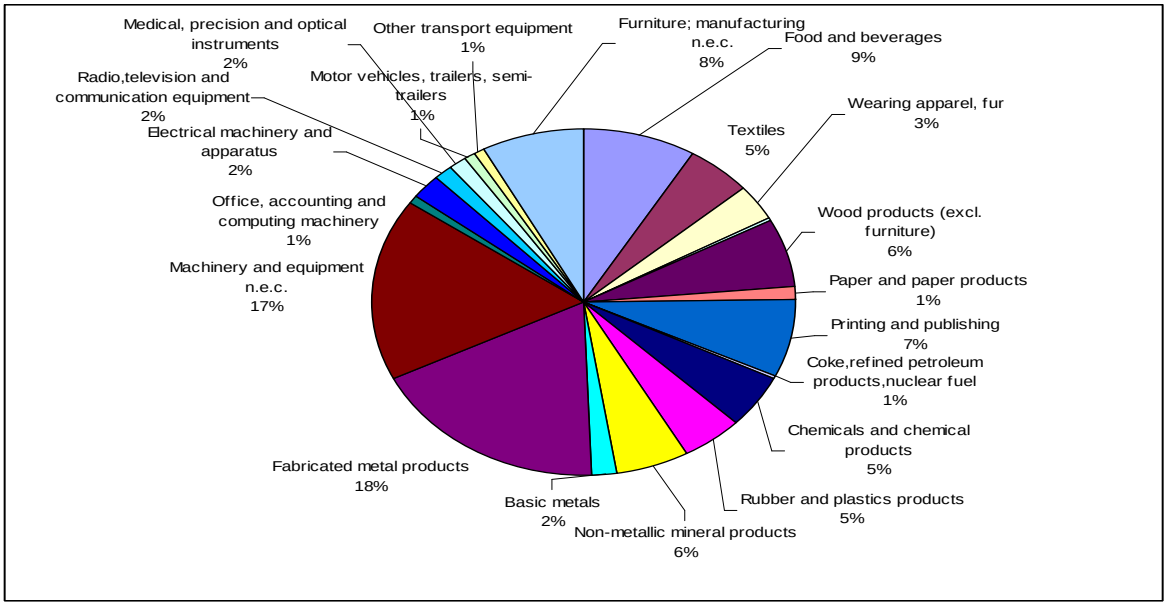
Against this background, the decline in the production of many services, especially oriented to the needs of the population (trade, housing and communal services, public catering, public transport, etc.) were much less significant. As a result, in the structure of GDP the share of services grew. In the end, the Russian economy is facing a structural situation similar to that available, say, in the US economy. But the underlying causes of these situations differ significantly. The Russian economy simply deindustrializers under the influence introduced by inefficient actions of the government shock, and not due to the internal logic of its evolution.

Shares of industries in total production of Russia and the USA are presented in figures 3 and 4.



Compiled by the authors based on http://stat.unido.org/home

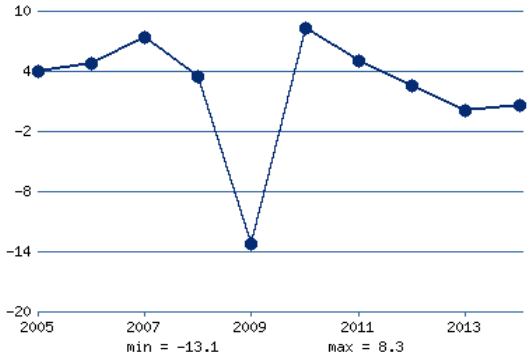
Fig. 3. Share of industry in total production, Russia, 2014, %



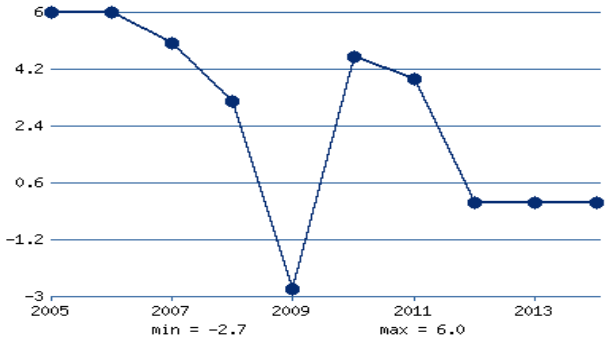
Compiled by the authors based on http://stat.unido.org/home

Fig. 4. Shares of industries in total production, USA, 2014, %

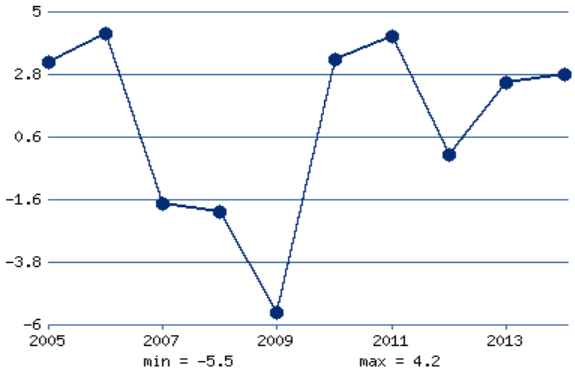
As can be seen from figure 5, in the acute phase of the crisis (2009) industrial production in Russia and in the world experienced the greatest compression. Its share in GDP had fallen to 27.5%. If you consider that GDP itself has fallen by almost 10%, the decline in production volumes as the industry looks very substantial.



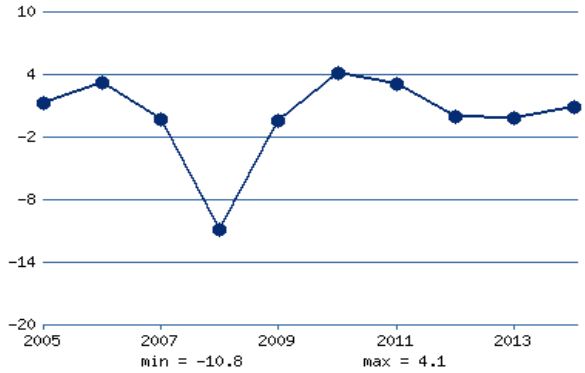
Industrial Production Growth Rate, %, Russia



Industrial Production Growth Rate, %, World



Industrial Production Growth Rate, %, USA



Industrial Production Growth Rate, %, European Union

Source: http://www.ereport.ru

Fig. 5. Increase in production in the world, %

Should stop at pre-crisis gradual decrease in industrial production. There are a variety of causes. A key reason, in our opinion, is inadequate to the tasks of economic development of the country's financial and economic policies that are implemented by the Central Bank of Russia and supported by the Ministry of Finance. Will stop on its quantitative characteristics.

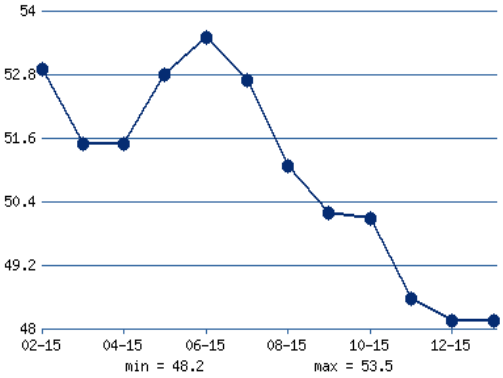
According to the data obtained by the authors on the official website of the Central Bank of Russia (http://www.cbr.ru), the index (growth rate) real effective exchange rate of the ruble to foreign currencies (December to December of the previous year) was changed as follows: 2004 – 4.7%, and 2005 to 10.5% in 2006 to 7.4%, 2007: 4.6%, 2008 – 4,3%, 2009 – (-3,9%), 2010 and 6.9% in 2011 to 3.8% in 2012 to 3.8%, 2013 (last used us data – November) – (1.9 per cent). In the calculation of this index (the basket of foreign currencies) are accounted for by two factors: first, the dynamics of domestic (ruble) inflation, secondly, the dynamics of the nominal exchange rate of the ruble. What we have in the end: real ruble strengthened during the period by 47.2%.

That is, the price competitiveness of Russian industrial products in less than 10 years "efforts" of Russian monetary authorities was reduced by half. In these conditions, the industry continued to operate, supplying products to the domestic and foreign market, and among the industrial enterprises of many profitable – makes only admire the level of efficiency of management of domestic enterprises. Naturally, the "margin of safety" of industrial production is not unlimited. Therefore, the observed decay (see Fig. 5) looks quite natural result of the carried out in Russia in recent years macroeconomic policy.

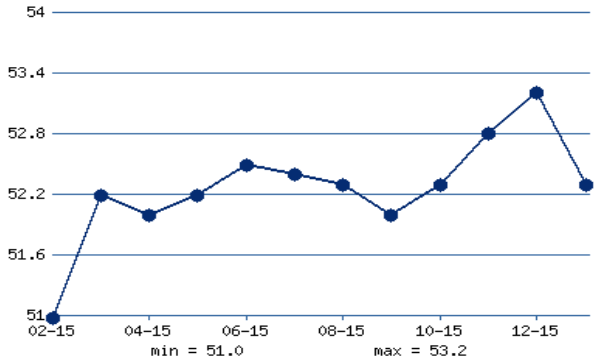
According to the Center for macroeconomic analysis and short-term forecasting in early 2015, the us economy demonstrates the prerequisites for accelerating growth, despite the weakness of the industrial sector: the unemployment rate fell in January to 4.9% of the economically active population with 5.0% of the economically active population (seven years minimum) on the background of growth of the share of the economically active population to 62.7%, 62.6%, the rate of job creation was 151 thousand/month after 262 thousand/month in December, the consumer confidence index University of Michigan in January was after 92.0 92.6 in December, the index of purchasing managers in the manufacturing sector ISM Mfg in January was 48.2 (in December recorded the 48.0 level, at least since 2009) and is below the 50 level that separates expectations of expansion and contraction.

A number of indicators of development of the European zone indicates slow growth in the first half of 2016: an Increase of 1.1% in industrial production in the Euro area in November 2015, compared with November 2014, due to growth in the production of semi-finished products by 2.1%, consumer durables by 1.7%, and capital goods and consumer nondurable goods - 1.2%, while energy decreased by 2.8%. In the EU-28 increased by 1.4% was due to increased production of capital goods by 2.0%, intermediate goods by 1.8%, consumer durables by 1.7% and consumer goods nondurable 0.8%, while energy fell by 1.2 %. Among member States for which data are available, the largest increase in industrial production were registered in Ireland (+14.2 percent), Slovakia (+11.9 per cent) and Hungary (+7.1 per cent), while the largest decline in the Netherlands (-8,0%) and Estonia (is 6.2%).

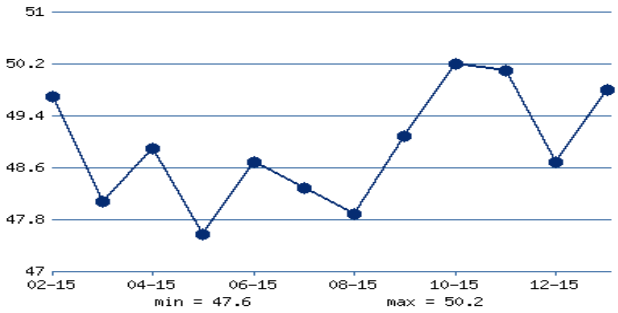
The analysis of dynamics of indexes of production (Fig. 6) shows negative trends in the development industry.



ISM Manufacturing Index (USA)



PMI Manufacturing Index (Euro area)



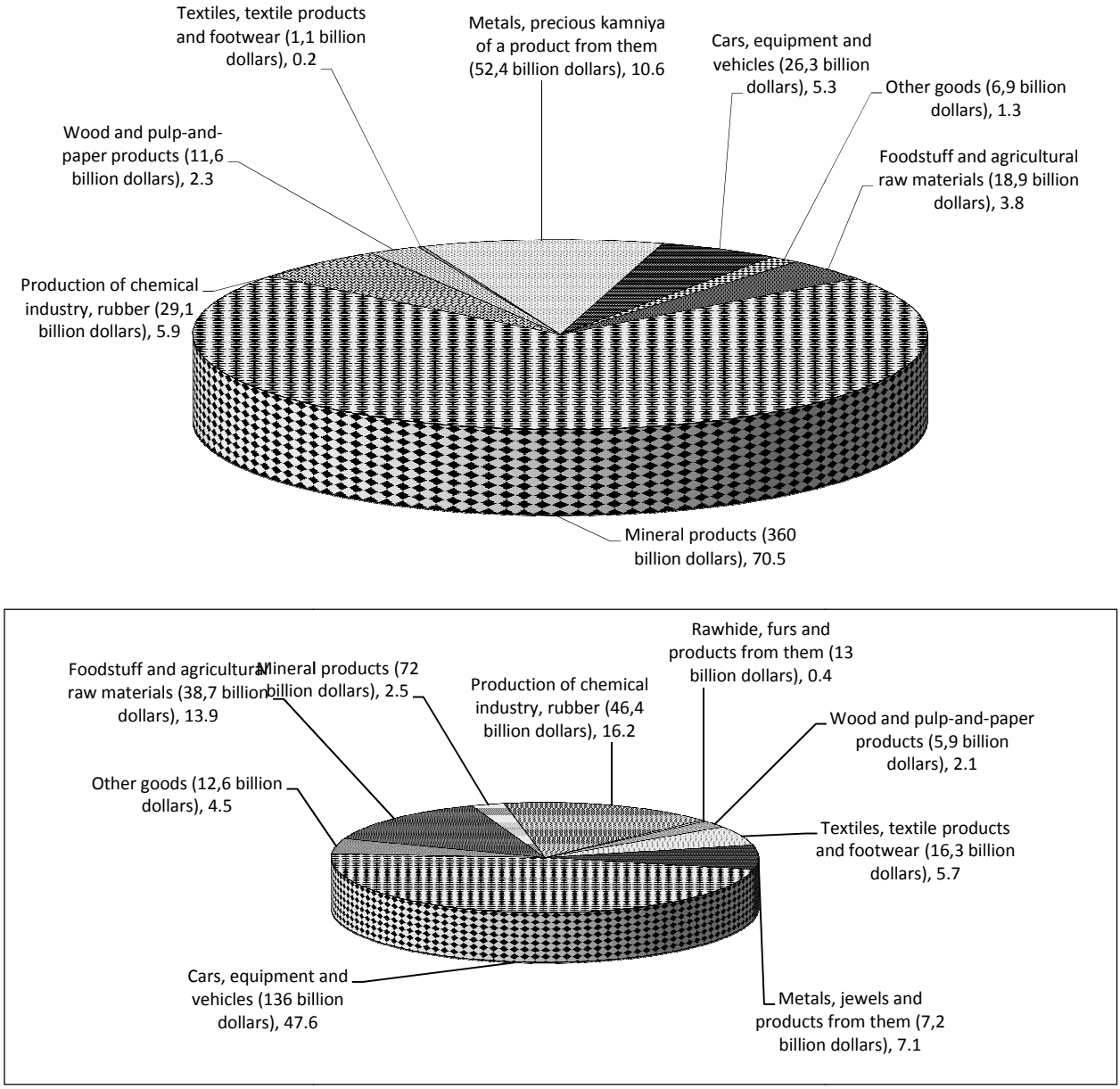
PMI Manufacturing Index (Russia)

Source: http://www.ereport.ru

Fig. 6. PMI Manufacturing Index

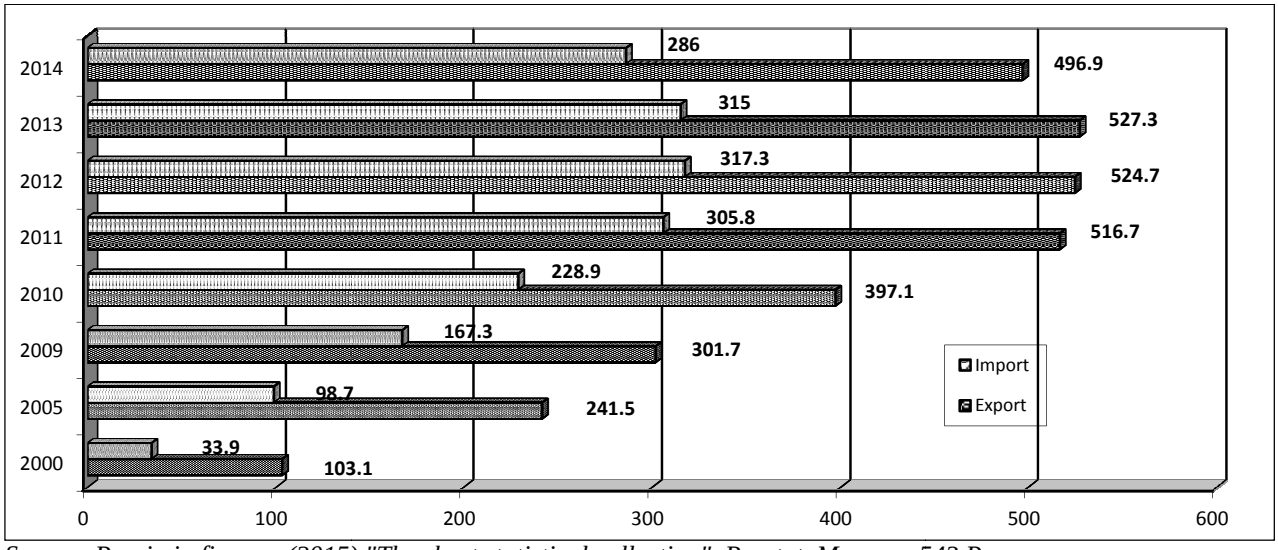
Analysis of the structure of production in Russia industrial production in the dynamics indicates a negative trend. It is interesting to note that the production of primary energy and electric energy in the country remains virtually unchanged. Thus, the volume of gas production practically does not decrease, oil production in recent years has slightly increased, coal mining decreased, which is probably connected with the fall in the consumption of this fuel and the drop in world prices.

The presence of a significant number of utilized sources of raw energy materials resources allows Russia to maintain exports at a high level and practically does not change its dynamics (a drop in the value of exports in 2014 may be related to negative for Russia, the exchange rate dynamics of the ruble against world currencies, as well as lower prices in world markets export of Russian goods). Collinear with the export dynamics is demonstrated and imports of goods (Fig. 7). It should be noted that significant changes in volume indices of external trade does not occur (Fig. 8).



Source: Russia in figures, (2015) "The short statistical collection", Rosstat, Moscow, 543 P.

Fig. 7. Commodity structure of export (top chart) and import (lower chart) of Russian Federation in 2014, % to a result



Source: Russia in figures, (2015) "The short statistical collection", Rosstat, Moscow, 543 P.

Fig. 8. Foreign trade of Russia in 2000-2014

The data, according to the authors, confirm the availability and the need for a government decision on the implementation of the import substitution strategy.

Analysis of foreign trade shows that the basis of the Russian export flows is the implementation of fuel and energy resources in the world market. This situation, in conditions of extended periods of high world prices for oil and gas, canned technological development of the Russian economy. The innovative process has stalled. Today, when the global environment is the basic export goods of Russia is unfavorable, a transition to the production and use of its products can be considered the most important task in Russia's economy, which entered into force Federal law of the Russian Federation dated 31 December 2014 No. 488-FZ "On industrial policy in the Russian Federation".

The Ministry of Economic Development of the Russian Federation has made the Forecast of social and economic development of the Russian Federation for 2015 and on planning period of 2016-2017 in which it is noted that on development of industrial production significant effect will be had a foreign policy situation and entered concerning the Russian economy of sanctions from the USA and the European Union. At the same time the low level of processes of technological updating and insufficient competitiveness of a domestic production on internal and foreign markets remains the basic reason of the contained growth of the industry of the Russian Federation.

Table 3: Indexes of industrial production in 2013 - 2017, %, Russia

Name	2013	2014	2015		2016		2017		2017 to 2013, %	
			forecast							
			1	2	1	2	1	2	1	2
Industry - all	100,4	101,7	101,6	102,8	101,7	102,9	102,1	103,1	107,3	110,9
Mining	101,1	100,6	100,2	100,4	100,3	100,6	100,4	100,7	101,4	102,3
The processing productions	100,5	102,6	102,3	103,9	102,3	104,0	102,8	104,2	110,4	115,4
Production and distribution of the electric power, gas and water	97,5	99,4	100,6	101,3	100,9	101,4	101,2	101,6	102,1	103,7

Source:http://economy.gov.ru/

In the medium term, the development of the industrial complex will be determined mainly by the dynamics of domestic demand. At this rate of growth will be due to the implementation of complex system of measures aimed at improving the competitiveness of domestic producers and import substitution in sectors of the economy.

Summarizing the reasoning is legitimate to conclude that today's problems can be solved, and the capacity can be used due to the methodology of accelerated industrial development.

The international auditing company PricewaterhouseCoopers (PwC) presented the results of a new global Outlook for the world economy in 2015 and economic growth of leading countries by 2050. According to the data given in the report, the center of gravity of the global economy moves towards countries with emerging economies. The study presents long-term forecasts of potential GDP growth up to 2050 for 32 of the largest countries in the world, which accounted for 84% of global GDP. The authors concluded that over the next 35 years the world economy will continue the realignment of powers – the industrialized countries of North America, Western Europe and Japan hold the leading positions.

Table 4 shows the ranking of countries according to GDP according to the forecast of PwC.

Table 4: Predicted ranking of countries in terms of GDP calculated at purchasing power parity (PPP), in constant prices of 2014, expressed in US dollars

	2014		2030		2050	
Place at PPP	Country	Country Forecast GDP at PPP, US $ in 2014 prices	Country	Country Forecast GDP at PPP, US $ in 2014 prices	Country	Country Forecast GDP at PPP, US $ in 2014 prices
1	China	17 632	China	36 112	China	61 079
2	United States of America	17 416	United States of America	25 451	India	42 205
3	India	7 277	India	17 138	United States of America	41 384
4	Japon	4 788	Japon	6 006	Indonesia	12 210
5	Germany	3 621	Indonesia	5 486	Brasil	9 164
6	Russia	3 559	Brasil	4 996	Mexico	8 014
7	Brasil	3 073	Russia	4 854	Japan	7 914
8	France	2 587	Germany	4 590	Russia	7 575
9	Indonesia	2 554	Mexico	3 985	Nigeria	7 345
10	UK	2 435	UK	3 586	Germany	6 338

Source: http://gtmarket.ru/news/2015/02/11/7089

Presented forecast figures GDP at market exchange rates without adjustment of relative prices. By this calculation, China will overtake the US in around 2028, while India clearly takes the third place in the ranking of the largest economies in the world in 2050, slightly behind the US.

Conclusions

On the basis of this study we have provided a few General recommendations:

• Given the economic problems in combination with institutional weaknesses, it can be assumed that to increase the pace of industrial growth will be difficult.

• You must thoroughly analyze the strengths and weaknesses of the institutional system as countries with developing market economy are very different from each other from the point of view of institutional development. There may be large differences in the level of institutional development among the economic sectors of a country.

• Developed markets countries in North America and Europe will continue to play a very significant role in the global economy in the coming decades, even if their average growth rate will be around 2%.

Thus, Europe should strive to improve your results as a result of the changes in the balance of power in the world economy. These changes returned to a situation in which the leading role in the world economy belonged to the Asian region. Last time such situation was observed before the industrial revolution. Thus, there is a very close

correlation between the growth rates of industrial production and the level of development of States. The data shows that on the foreground there will be those countries that will be able to increase the share of industry in GDP.

Acknowledgment

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Recruitment Methods for Students

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Abstract

This paper describes the methods used by the University of West Bohemia (UWB) for recruiting students to the Faculty of Mechanical Engineering (FME). Developments in the Czech educational system over the past two decades are also summarized.

The methods used to inform the general public about the possibilities of studying at FME and provide news in the field of science and the new technologies being developed at FME are described in this article. Information is given about activities organised by the Faculty for the general public and specialized events directed towards a closed number of potential students. New e-learning study materials created at UWB at FME are mentioned in this paper. These study materials contribute to increasing the interest in study at FME and assist in keeping students motivated during their studies.

Keywords: Recruitment Methods, Mechanical Engineering, Machine Design, E-learning

Introduction

The higher education system in the Czech Republic has changed significantly over the last twenty years. The universities, which were previously available for only a small percentage of the population, have become more open for a wide range of applicants. Combined with positive demographic growth, it has led to an increase in the number of students. In spite of this, a suitable number of students in engineering fields has not been attained. “Since the mid 1970s most “developed” countries have measured the “success” of universities on their capacity to produce skilled staff, professional workers, technical experts and lately flexible entrepreneurs for the economy“ (Kapranos, 2012).

The predicted decrease in the number of students is starting. It is important to place high demands on human resources management to ensure a suitable number of students. It is necessary to support and develop recruitment methods in the competitive environment of other universities. These methods stimulate interest in engineering study and help motivate students to study at FME.

Development of Higher Education in the Czech Republic

The proportion of students who completed high school and continued in higher education was only 20% in the first half of the nineties. The high level of competition among students resulted in the high quality of students enrolled at universities. Universities did not have to stimulate a large interest in the small number of vacancies at universities by using special recruitment methods. Significant changes to this state happened at the end of the nineties. The new laws adopted in 1998 took particularly into consideration the higher education system. The full master’s degree programme which had lasted five years was divided into two separate programmes. These programmes were the bachelor´s degree programme (3-4 years) and the master´s degree programme (2-3 years). The system of financial support was also changed. The budgets have become more reliant on the number of enrolled students. The amount of money received by the university increases with the number of enrolled students. The proportion of students who completed high school and continued in higher education changed distinctly between 2000-2010. It increased from 20% to 65%. An elite higher education system was transformed into a universal education system over just one decade.

“Elite higher education is concerned primarily with shaping the mind and character of the ruling class, as it prepares students for broad elite roles in government and the learned professions. In mass higher education, the institutions are still preparing elites, but a much broader range of elites that includes the leading strata of all the technical and economic organizations of the society. And the

emphasis shifts from the shaping of character to the transmission of skills for more specific technical elite roles. In institutions marked by universal access there is concern for the first time with the preparation of large numbers for life in an advanced industrial society; they are training not primarily elites, either broad or narrow, but the whole population, and their chief concern is to maximize the adaptability of that population to a society whose chief characteristic is rapid social and technological change" (Trow, 1973).

Growth continued until 2010, when the number of enrolled students peaked.

Since 2010 it has slightly decreased. This state was predicted, and is caused by demographic trends. Universities have used more aggressive recruitment methods to ensure a sufficient number of students. Limits in the number of enrolled students were adopted in 2011 to prevent universities from taking in less talented students. The financial structure of universities was also adjusted. Special attention was given to the quality of teaching and the cost of the study programmes. These facts led to a decrease in the number of students in higher education.

It is possible to predict a continuation of this trend, especially in technical departments. One of the main aims for the successful future development of the Pilsen region is to ensure a sufficient number of students in engineering studies. FME is increasing its activities focusing on the positive presentation of the Faculty and motivating potential students.

Current State at UWB at FME

The UWB in Pilsen has adjusted its study programmes in accordance with the trend in the number of students. The advancement of education is supported by the University. Over 13 thousand students are enrolled. They can choose from 201 study programmes. The development is particularly significant in the technical departments. Four new research centres have been established. The demand for an educated, flexible and skilled workforce increased after these research centres were opened.

FME currently has to fulfil the requirements of traditional industrial companies and also prepare students to work in new research centres. Enrolling a sufficient number of students is necessary.

A strong competitive environment is developing between the faculties. FME is focused on developments in human resources management.

Recruitment Methods at UWB at FME

FME is one of several technical faculties at UWB. It works with potential students in a similar way to the other faculties. A variety of different methods for recruiting new students are in use at FME. These methods aim to:

- Inform the general public about FME
- Inform potential applicants about opportunities at FME
- Offer interesting study programmes, fellowship programmes, etc.
- Motivate potential applicants to visit the faculty during open day events
- Motivate students to learning especially at the beginning of study

Public Perceptions

Engaging the general public is one of the main aims. Events are organised throughout the whole year. Some of these bring science to life, on the street. The Science and Technology Week is the most popular science festival in the Czech Republic, and all the technical faculties at UWB participate in it. For example see Fig. 1. The employees and students demonstrate the latest trends in science and present their research projects. Visitors can choose between professional science workshops or shows aimed at young people and less demanding audiences. Events are popular among young visitors. This is one way for the Faculty to capture the attention of children and teenagers. It is a perfect advertisement for FME and the other technical faculties.

Making presentations at high schools is another recruitment strategy. Scientists from FME visit high schools and provide information about studying at FME. They make presentations about the advantages of studying at a technical faculty. Students are often interested in employability in the labour market after graduation. A wide range of study programmes is important for them too.

A Faculty Open Day is also organised for applicants. It is a perfect opportunity for high school students to find out particular information about the Faculty. Visitors go through each department at the Faculty and have a chance to see scientists at work and students studying.

All these recruitment strategies are organized like face to face meetings.

Communication with the media

Communication with the media is another method for attracting the attention of the general public. TV radio reports give news about science and new technologies. The media are interested in new inventions and unconventional technologies. The attention of the media is currently aimed at electromobility and electric motorcycles at FME. For example see Fig. 2.The media are able to give information to many people in a short time. This is the main advantage of the media.

Getting positive media attention brings an increase in the number of applicants and it makes the Faculty more attractive to sponsors.

Fig. 1 The Science and Technology Week (Kolarova, 2015)

Fig. 2 Photo of motorbike from university websites (Kolarova, 2015)

Advanced E-learning Study Materials

Providing interesting study materials has the potential to interest new applicants. The new e-learning study materials created at UWB at FME are not only attractive for existing students but also for potential applicants. These are available for free download from the Faculty website. Materials are created in 3D PDF format, which makes them widely accessible. The new study materials consist of real design projects which have been adapted and reworked for study purposes.

"All e-learning materials are available to all students and academic staff at the Faculty of Mechanical Engineering at the University of West Bohemia in Pilsen. They can be used for studying and also for teaching. The teaching subjects will be enriched by valuable know-how and academics will be able to explain the theoretical foundations of the projects in practice. Thus they will be able to teach students the importance and meaning of the given information" (Muller, Max, 2015).

Study materials provide information about machine design and production tools.

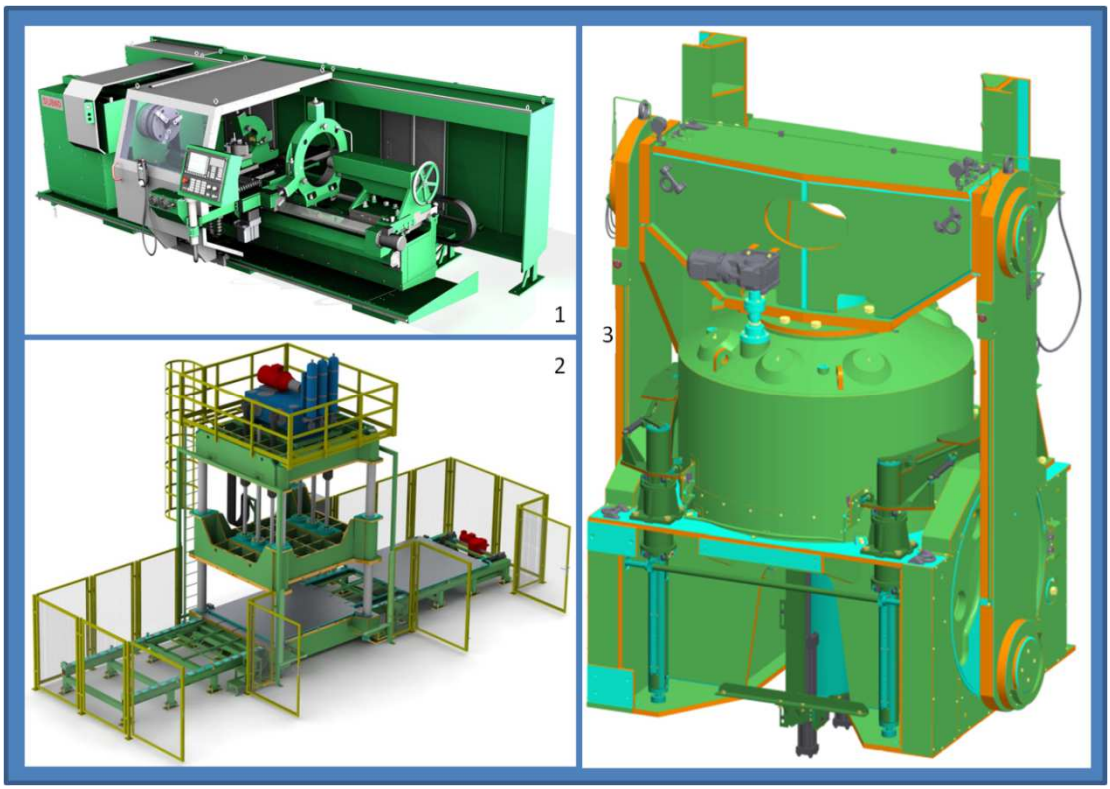

Fig. 3 Examples of design projects (Jirasko et al., 2015)

Conclusion

The developments in the Czech higher educational system have been described in this paper. An elite higher education system has been transformed into a universal educational system over the last two decades. Universities have become more open to a wide range of potential students. Laws adopted at the end of the nineties in the Czech Republic have brought about these changes. The swift growth in the number of students continuing in higher education after high school has created a new situation for universities. Universities have to attract student applicants. Technical faculties in particular have not been able to ensure a sufficient number of students.

This has led FME at UWB to use a variety of recruitment methods. The Faculty cooperates in events aimed at the general public. FME is one of the technical faculties engaged in the Science and Technology Week, the most popular science festival in the country. The Faculty places great emphasis on communication with the media. Positive advertising created by the media has the potential to make technical studies more popular among students. New e-learning study materials which can increase the interest of students have been created. These materials are available for free download from the Faculty website.

The recruitment methods described in this paper help to ensure a sufficient number of engineering students, and eventually qualified graduates, who are necessary for the future development of the Pilsen region.

Acknowledgements

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Students' Attitudes toward Problem-Based Learning – Analog Electronic Course in the Electrical Engineering Programs in PPU: A Case Study

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Abstract

In Palestine there is a growing recognition for innovative teaching and learning approaches such as Problem-Based Learning (PBL) in engineering education in order to develop competence graduates. According to Kitogo (2011), “today’s graduates have attractive curricula vitae, but practically, their performance is insufficient; it doesn’t match with what they claim to have studied. The researcher sees that people learn when being actively involved in constructing meaning. In other terms, successful learning requires individuals' active participation and involvement. PBL as a dynamic approach to teaching in which students explore real-world problems, issues and challenges, are inspired to obtain a deeper knowledge of the subjects they are studying and more likely to retain the knowledge gained through this approach far more readily than through traditional textbook centered. This principle agrees the Chinese saying *"Tell me and I forget, show me and I remember, involve me and I learn".*

This article presents a survey about the usage and the attitudes toward education technology at PPU in Palestine. The survey aims at assessing the experience, skills and computer efficacy of students, measuring their attitudes towards the use of education technology and distinguishing obstacles for the development of a co-operative learning environment. The results indicate positive attitudes of students toward this new approach of learning. The survey is used for the development of the university teaching and learning strategies, providing information on how to establish systems and procedures that enable the effective use of an PBL approach.

Keywords: Problem-Based Learning, Features, Analog Electronics, Students’ Attitudes.

Introduction

No one can deny that advances in information technology coupled with the changes in society, are creating new paradigms for education and training. These changes will affect our education and training systems. Participants in this educational and training paradigm, require rich learning environment supported by well-designed resources (Khan, 1997). Therefore, there is a great demand for affordable, efficient, easily accessible, open, flexible, learner- centered and facilitated learning environment. One of the approaches which reflects the principles of learner- centeredness is Problem–Based Learning (PBL).The theoretical foundation of Problem-based learning is strongly grounded in constructivism. In this regard, Railsback (2002: 6) maintains that "Problem - based instruction strategies have their roots in the constructivist approach". Moreover, PBL borrows its principles from pragmatic constructivism, cognitive constructivism and social constructivism, which constitute the main stands of the constructivist learning theory. In other terms, it commonly includes the ideas of Dewey's philosophy, Piaget's cognitive theory, and Vygotsky's social constructivist theory.

I believe that since PBL is potentially Motivating, empowering and challenging to learners, it usually results in building learners’ confidence, self-esteem, and autonomy as well as improving students’ language skills, content learning, and cognitive abilities, so learning becomes fruitful for learners because they exhibit their abilities to plan, manage, and accomplish projects through their content knowledge and skills " Problem -based learning is an instructional method centered on the learner as assured by (Erdem, 2012; Harris & Katz, 2001) "Instead of using a rigid lesson plan that directs a learner down a specific path of learning outcomes or objectives, project-based learning allows in-depth investigation of a topic. "Problem-based learning is a comprehensive approach to classroom

teaching and learning that is designed to engage students in investigation of complex, authentic problems and carefully designed products and tasks (Blumenfeld, et al. 1991; Demirhan, 2002).

Problem-based learning (PBL) is still in the developmental stage. There is not sufficient research or empirical data to be able to state with certainty that problem-based learning is a proven alternative to other forms of learning, especially in the Arab countries. Based on evidence gathered over the past years, problem-based learning appears to be an effective model for producing gains in academic achievement. However, only a few of them have focused on problem-based learning in Electrical Engineering. Analogue electronic components and circuits are building blocks for any electronic device used in industries or in daily life. It is therefore necessary for electronics engineers to understand clearly the principles and functioning of the basic analogue components and circuits. This course will enable the students to understand the basics of construction, working, and applications of various types of electronic components such as Diodes, BJT, JFET, MOSJFET and circuits such as Small Signal amplifier, oscillators, power amplifiers, operational amplifier, and timers using linear ICs. Practical exercises of this course would enable students to maintain such circuits and in turn maintain equipment having such circuits. This course is therefore one of the basic core courses which is must for every electronic engineer and hence should be taken very sincerely by students.

The need for this study arises from three main things: the personal experience of the researcher in teaching field, the literature review on problem-based approach and the roles of the teacher and real needs of teachers of Electronics. First, the researcher noticed that students' achievement level in Electronics courses is decreasing as they practice learning Electronics almost only inside the class or to study for the exams. As a result, the researcher tried to find a useful strategy to facilitate learning Electronics. Second, having reviewed the current literature, the researcher has figured out that the field of Electronics teaching and learning is poor in studies concerning the roles of the teacher and learners in light of the problem-based learning approach to teaching Electronics in Arab countries. Third, the unexpected low rate of success in these courses is a problem which deserves to be studied.

Eagly and Chaiken (1993) define attitude as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor ". In problem-based learning (PBL) activities students work in a group to solve challenging problems which are authentic; students create an end product through intellectual inquiry and involving meaningful tasks. Moreover, because project work activities address the different learning styles of students, Problem-based learning takes individual differences into consideration by giving students a chance to select their own topics. Therefore, PBL is not a new method and it has connection with many old approaches as their contributions to concepts such as action-based learning, learning by doing, group dynamics and interpersonal communication have been instrumental in shaping many theories of learning and teaching, and when combined together, reveal the bare bones of PBL.

Student attitudes are considerably related to motivation and success. Having high skills and talents is not enough for students to complete a task successfully and to make them like an activity as they are doing it. In order to sustain students' motivation, a positive opinion about the learning task and an internal stimulus is needed. Attitudes and beliefs are accepted as the pioneers of behavioral objectives. The probability of having willingness about learning tasks and sustainability of efforts is higher in students with a positive attitude. It is believed that a positive attitude toward science classes is directly proportional to success. Therefore, it is important to find answers to questions asking what can be done to increase student interest toward science classes and to turn science classrooms into more enjoyable places. This study also aims to identify the effect of PBL on the attitudes of 3rd-year undergraduate students toward Electronics.

Problem Based vs. Traditional Instruction

PBL is generally less structured than traditional, teacher-led classroom activities; in a problem-based class, students often must organize their own work and manage their own time. Within the problem-based learning framework students collaborate, working together to make sense of what is going on. Problem-based instruction differs from inquiry-based activity by its emphasis on collaborative

learning. Additionally, Problem-based instruction differs from traditional inquiry by its emphasis on students' own artifact construction to represent what is being learned.

Both traditional and problem-based instruction may have the same course goals, objectives, and outcomes. Both have the same dilemma of getting students to learn the “need to know material” in a restricted time frame. Yet, there are several ways to distinguish between Traditional Instruction and PBL as tabulated in table 1:

Table 1: Differences between Traditional Instruction and PBL

PBL	Traditional
Student-centered, students help each other and teacher just facilitates the learning Problem based and independent learning	Teacher-Centered and teacher responsible for the learning Problem solving and dependent learning
Constructing individual's knowledge through searching solutions for real life problem	Transmitting knowledge to a group through lectures
Focusing on understanding of content and integrate previous knowledge	Focusing on memorization of material
Deep and active Learning	Surface learning
Group Learning	Individual learning
Performance-based assessment	Traditional Assessment

Advantages of Problem-Based Learning

The problem-based approach can be applied in almost all areas of curriculum as it is useful because:

1- Projects have a ‘real world’ orientation and promote meaningful learning by connecting new information to students’ past experiences and prior knowledge.

2- Students learn valuable processes and skills for gathering and analyzing data.

3- Students are responsible for their own learning, thus increasing self-direction and motivation.

4- The learning process encourages various modes of communication and representation.

5- The approach encourages use of higher-order thinking as well as acquisition of facts.

6- The approach develops deeper knowledge of subject matter.

7- The approach also increases team-working and cooperative learning skills.

Methodology

Attitude is an internal state that influences student's choices or decisions to act under certain conditions. Attitudes represent a tendency to respond in a particular way. In order to find out the students’ attitudes toward the PBL approach, I have designed a 30 term questionnaire. The questionnaire shown in appendix (1) contains terms concerning:

- Using Computer and Internet in Education

- Cooperative Learning Style
- Self-Directed Learning
- Practical Skills in Electronics

The Likert technique was used. The technique presents a set of attitudes statements. Students are asked to express agreement or disagreement of a five-point scale. Each degree of agreement is given a numerical value from one to five. Thus a total numerical value can be calculated from all the responses i.e. the final score for the respondent on the scale is the sum of their ratings for all the items. In the case of reversal items the scale will be reversed.

Also, the questionnaire includes data questions about gender and it includes information about ownership of PC and Internet access.

To ensure content validity, the questionnaire was checked out by an expert in the field of education and for validity test it was run on a group of students whose attitudes are known and the result is positive ensuring questionnaire validity.

Analysis of Students' Attitudes toward PBL:

The analysis of terms for the attitudes of students toward PBL was carried out using the five-point Likert scale consisting of (1) strongly disagree, (2) disagree, (3) Neutral, (4) agree, (5) strongly agree was used in the items that measure attitudes. For statistical analysis, the descriptive procedures in SPSS (version 15) were used. The Cronbach's Alpha equals 0.731 which is suitable for the research. The results are shown in the tables in the appendix (2).

Results

Computer Infrastructure

From (Table 3), all students have access to a privately owned PC they can use for their studies.

Internet Access

From (Table 4), all students have access to the Internet via ADSL.

Using Computer and Internet in Education:

From (Table 5), most of the students are familiar with office applications and they enjoy using computer daily to perform educational tasks, and most of them agree that computer should play more important roles in Engineering education (item2, with mean equals 3.42 and SD equals 0. 9).

Also, from (Table 5), most of the students are familiar with e-mail, chat, and discussions. Most of the students can search the Internet for scientific information (item 5 with mean equals 4.42 and SD equals 0.669). From item 7, it is clear that students are interesting with computer simulation.

Cooperative Learning Style:

From (Table 6), it is clear that most of the students prefer learning with friends and like working on projects in a group (item 8 with mean equals 4.17 and SD equals 0.718) and item 10 with mean equals 3.83 and SD equals 0.835). From (Table 6), most of the students prefer learning collaboratively with friends and enjoy discussion scientific projects with their classmates (item 11 with mean equals 4.08 and SD equals 0.669).

Self Directed Learning:

An important part of PBL is Self Directed Learning. It has been described as a process in which students take the initiative with or without help of teachers to formulate learning goals and choosing resources for learning.
From (Table 7), most of the students agree that they can take the initiative to diagnose their learning needs (item 19 with mean equals 4.17 and SD equals 0.937), identify the resources to achieve required objects of learning, select and implement certain application by searching the manufacturer Data Sheet of electronic components (item 17 with mean equals 4.33 and SD equals 0.492).

Practical Skills in Electronics:

From (Table 8), most of the students prefer practical work. They agree that practical skills in Electronics enrich their creativity (item 26 with mean equals 3.33 and SD equals 0.778), develop their self assessment (item 27 with mean equals 3.08 and SD equals 1.165), increase their sense of responsibility (item 25 with mean equals 4.00 and SD equals 0.853), and enhance their self-confidence as future engineers (item 30 with mean equals 4.00 and SD equals 0.603).

Discussion and Conclusion

The survey was very revealing of the attitudes of students for PBL and educational technologies. As can be seen from tables (5 up to 9), the overall mean for most of the items is greater than (3) on a five-point Likert scale, which means that the general student attitude toward PBL was quite positive. The Cronbach's Alpha was run and determined to be 0.731 (Table 1) which is acceptable for this research.

The need for PBL policies is today vital for our universities, because of the potential of educational technologies and the magnitude of changes they may provoke in education. The introduction and development of PBL requires the involvement and collaboration of many different units within the university. The Institution should provide to students support and training in PBL, to enhance the positive attitudes. It should be clear that students have a key role in the success of any transformation in education and the attempt to introduce PBL practices into the curriculum will unquestionably fail unless students get persuaded for the benefits. Hybrid approach should be used in our universities.

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Appendix (1)

Questionnaire for Analog Electronics Students' Attitudes toward Problem-Based Learning (PBL) approach.

This questionnaire aims at exploring the **Analog Electronics** students' attitudes toward the **Problem-Based Learning (PBL)** approach. Your cooperation in answering this questionnaire is highly appreciated and will be only and strictly used for research purposes, and only summary results will be reported. By answering the questionnaire, you are contributing greatly to the general efforts of introducing the right **PBL** setting in Palestine Polytechnic University.

Gender: M / F

Do you have **a computer** and an **Internet Access:** Yes / No

Please **tick the appropriate answer** for each statement by choosing:
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

I. Using Computer and Internet in Education:

1- I am interesting using office applications (like MS-Word, Excel).
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

2- In Electrical Engineering, the computer should play more important roles.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

3- I enjoy sending e-mail and I like chatting.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

4- I can search the internet for scientific information.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

5- I believe that the internet will facilitate education.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

6- Using Multimedia facilitates the education of Engineering.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

7- I am interesting with computer simulation.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

II. Cooperative Learning Style:

8- I prefer learning with peers in a group.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

9- I don't prefer the individual study.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

10- I enjoy discussion scientific projects with friends.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

11- It is interesting to work collaboratively with other students to finish project work.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

12- Studying with peers means time loosing.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

13- I like to compute with others to solve a problem.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

14- I like working on projects alone.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

III. Self Directed Learning:

15- I can not select the topic in accordance with my interest.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

16- I can find the appropriate resources to achieve required objects.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

17- I can search the manufacturer Data Sheet of electronic components easily.

a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

18- I can't learn without help of my facilitator.

a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

19- I can learn new subjects by myself.

a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

20- I can easily ask my peer about what I do not understand about project work.

a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

21- I can select the required resistor or capacitor for certain application.

a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

IV. Practical Skills in Electronics:

22- I prefer soldering an electronic circuit instead of breadboard wiring.

a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

23- I enjoy troubleshooting electronic systems.

a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

24- Project work increases my interest in Electronic Courses.

a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

25- Project work helps me enhance the sense of responsibility

a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

26- Project work helps me use my creativity and enrich my practical skills.

a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

27- Projects encourage students to develop self assessment skills.

a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

28- Project work helps me to identify different types of transistors and diodes.

a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

29- I can easily use Op-Amps ICs to construct practical applications.

a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

30- Project work helps me enhance my self confidence as future engineer.

a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

Thanks for participation

Dr. Abdallah Arman

Appendix (2)

Results of the Questionnaire for Students' Attitudes toward PBL

Table 1: Cronbach Alpha

Group	N	Alpha
1	7	.366
2	7	.488
3	7	.455
4	9	.510
All	30	.731

Table 2: Gender

		Frequency	Percent
Valid	Male	35	58.3
	Female	23	41.7
	Total	58	100.0

Table 3: Do you have a computer?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	58	100.0	100.0	100.0

Table 4: Do you have an internet access?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	58	100.0	100.0	100.0

Table 5: Using Computer and Internet in Education

Item	Strongly agree %	Agree %	Neutral %	Disagree %	Strongly disagree %	Mean	SD
1	10.34	43.10	36.20	10.34	0	3.67	.778
2	15.51	55.17	22.41	6.89	0	3.42	.900
3	29.31	32.75	20.68	12.06	5.17	4.08	.669

4	27.58	43.10	20.68	8.62	0	3.83	1.267
5	31.03	44.82	17.24	3.44	3.44	4.42	.669
6	22.41	44.82	25.86	5.17	1.72	3.92	.793
7	24.13	44.82	24.13	5.17	1.72	3.50	1.446

Table 6: Cooperative Learning Style

Item	Strongly agree %	Agree %	Neutral %	Disagree %	Strongly disagree %	Mean	SD
8	12.06	44.82	17.24	24.13	1.72	4.17	.718
9	6.89	46.55	24.13	17.24	5.17	3.08	1.084
10	20.68	53.44	17.24	8.62	0	3.83	.835
11	20.68	51.72	18.96	6.89	1.72	4.08	.669
12	15.51	10.34	36.20	29.31	8.62	3.92	.900
13	3.44	18.96	29.31	32.75	15.51	4.33	.651
14	1.72	8.62	12.06	44.82	32.75	2.83	1.467

Table 7: Self Directed Learning

Item	Strongly agree %	Agree %	Neutral %	Disagree %	Strongly disagree %	Mean	SD
15	3.44	39.65	48.27	6.89	0	2.50	1.243
16	12.06	27.58	27.58	25.86	5.17	4.08	.669
17	10.34	37.93	41.37	10.34	0	4.33	.492
18	32.75	39.65	20.68	6.89	0	3.42	.996
19	25.86	56.89	15.51	1.72	0	4.17	.937
20	25.86	53.44	18.96	1.72	0	3.92	.793
21	22.41	53.44	17.24	5.17	0	2.83	1.337

Table 8: Practical Skills in Electronics

Item	Strongly agree %	Agree %	Neutral %	Disagree %	Strongly disagree %	Mean	SD

22	22.41	36.20	32.75	6.89	0	3.17	1.030
23	3.44	22.41	41.37	25.86	6.89	1.83	. 718
24	29.31	53.44	17.24	0	0	3.42	.669
25	12.06	27.58	27.58	25.86	5.17	4.00	.853
26	10.34	37.93	41.37	10.34	0	3.33	.778
27	32.75	39.65	20.68	6.89	0	3.08	1.165
28	25.86	56.89	15.51	1.72	0	3.25	.866
29	25.86	53.44	18.96	1.72	0	3.08	.793
30	22.41	53.44	17.24	5.17	0	3.42	.3128

Table9: Summery of Students Attitudes toward e-learning

Items	**Mean**	**SD**
I. **Using Computer and Internet in Education** :		
1- I am interesting using office applications (like MS-Word, Excel).	3.67	.778
2- In Electrical Engineering, the computer should play more important roles	3.42	.900
3- I enjoy sending e-mail and I like chatting	4.08	.669
4- I can search the internet for scientific information.	3.83	1.267
5- I believe that the internet will facilitate education	4.42	.669
6- Using Multimedia facilitates the education of Engineering	3.92	.793
7- I am interesting with computer simulation .	3.50	1.446
II. **Cooperative Learning Style** :		
8- I prefer learning with peers in a group .	4.17	.718
9- I don't prefer the individual study .	3.08	1.084
10- I enjoy discussion scientific projects with friends.	3.83	.835
11- It is interesting to work collaboratively with other students to finish project work.	4.08	.669
12- Studying with peers means time loosing.	3.92	.900
13- I like to compute with others to solve a problem.	4.33	.651
14- I like working on projects alone.	2.83	1.467
III. **Self Directed Learning** :		

15- I can not select the topic in accordance with my interest.	2.50	1.243
16- I can find the appropriate resources to achieve required objects.	4.08	.669
17- I can search the manufacturer Data Sheet of electronic components easily	4.33	.492
18- I can't learn without help of my facilitator at all.	3.42	.996
19- I can learn new subjects by myself..	4.17	.937
20- I can easily ask my peer about what I do not understand about project work.	3.92	.793
21- I can select the required resistor or capacitor for certain application.	2.83	1.337
IV. **Practical Skills in Electronics** :		
22- I prefer soldering an electronic circuit instead of breadboard wiring.	3.17	1.030
23- I enjoy troubleshooting electronic systems	1.83	. 718
24- Project work increases my interest in Electronic Courses	3.42	.669
25- Project work helps me enhance the sense of responsibility	4.00	.853
26- Project work helps me use my creativity and enrich my practical skills.	3.33	.778
27- Projects encourage students to develop self assessment skills.	3.08	1.165
28- Project work helps me to identify different types of transistors and diodes.	3.25	.866
29 I can easily use Op-Amps ICs to construct practical applications	3.08	.793
30- Project work helps me enhance my self confidence as future engineer.	4.00	.603

Marketing Strategy for Effective Customer Relationship Management

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Abstract

This paper aims to analyse differential approaches to the Customer Relationship Management theory. The main strategies for the CRM concern the customers as the core value to the company. From establishing, developing, finishing and evaluation customer relations, with the help of technology, obtain, analyse and valuably use of the customer information and exchange at the aim of establishing a long-term relationship for profitability and competitive advantage. CRM, in some aspects, takes the customer as business partner and this concept helps the company act more effectively, efficiently and productively. The research question is: what is the proper effective strategy for customer relationship management. Several methodological approaches are examined and applied.

Keywords: CRM, marketing strategy, customer, efficiency, competitive advantage

Introduction

There are many ways how to understand Customer Relationship Management (CRM) and how to define its main pillars. Generally we can recognize it as a strategy but there are some differences and it is necessary to know how to implement CRM correctly (Solarová, 2015).

Aim and metodology

This paper aims to analyse and compare various approaches to Customer Relationship Management. It treates with different streams of CRM theory.

What to understand by CRM

The term “customer relationship management” emerged in the information technology (IT) vendor community and practitioner community in the mid-1990s. It is often used to describe technology-based customer solutions, such as sales force automation (SFA). In the academic community, the terms “relationship marketing” and CRM are often used interchangeably (Payne, Frow, 2005). It is a strategy used to learn more about customers' needs and behaviours in order to develop stronger relationships with them. There are many technological components to CRM, but thinking about CRM in primarily technological terms is a mistake. The more useful way to think about CRM is as a process that will help bring together lots of pieces of information about customers, sales, marketing effectiveness, responsiveness and market trends.

CRM is a company-wide business strategy designed to reduce costs and increase profitability by solidifying customer loyalty. True CRM brings together information from all data sources within an organization (and where appropriate, from outside the organization) to give one, holistic view of each customer in real time (Storbacka, Lechtinen, 2009).

Many CRM initiatives are motivated and measured by cost reduction. Although successful CRM programs may reduce costs, cost savings alone should never be what justifies a CRM initiative. Instead,

CRM should focus on building customer loyalty and increasing profits over time through business processes that are well-aligned with customer strategies.

Traditional CRM approach

In the first few generations of CRM we saw the basic three pillars (sales, marketing, and customer service), a common data model, and common integration points to the existing systems in the organization: ERP, legacy, and databases.

These implementations collected data across all functions in the front office, store it in a central location and use it. That data was all operational: who did what when, for how long, and what were the results. The promise of a "holistic customer representation" or "360 view of the customer" did not materialize since we were missing the most important item in the equation: what the customer wanted when they came to see us, why did they need that, and what was the result of the interaction. In other words, we had the content but we were missing the context and intent of those interaction.

Social CRM (SCRM)

In this stage organizations start to listen to customers. They acknowledge there is a lot of data about their business but don't know how to find it or tap into it. Companies feel empowered by what they are discovering — but there is still no framework to take advantage of this. The tools give some guidelines and insights as to how to proceed, but nothing really in the sense of strategy or what to do with it.

That is why one more pillar was added – Feedback Management. It becomes the fourth pillar for CRM. This is the quintessential integration that makes CRM work in a social environment. Most of what we capture from the communities must be considered feedback. The limited operational data we obtain can be easily separated by the business rules and stored in the appropriate places (Greenberg, 2009).

The IDIC model

In the mid-1990s CRM was described as the four necessary components of a succesful CRM strategy: (Peppers, Rogers, 2011)

1. Identify
2. Differentiate
3. Interact
4. Customize

The IDIC concept became famous within the CRM community. Some declared that its simplicity was misleading; others argued that it made a simple idea seem overly complex. But most disciples of CRM conceded that IDIC was a handy template for designing practical customer relationship management programs.

Interact was considered the least controversial of the four components. Perhaps that's why many customer-centric organizations are only beginning to embrace and address the various challenges of interaction management.

A well-conceived interaction strategy enables the organization to view each individual customer's behavior over time and to act on noticeable changes swiftly, at the moment when a meaningful response by the organization is likely to have the most impact.

As customer relationships become more complex, interaction management becomes a more difficult task. In addition to outbound channels such as email, direct mail and catalogs, organizations must coordinate inbound, outbound and event- and behavior-based communications (Freeland, 2003). This means tracking and responding to customers across all touch points, including traditional brick and mortar stores, call centers, and the Web. Above, all, the organization must be capable of providing a consistent face across each communication channel (Kumar, 2012).

Far-sighted customer-centric organizations now track customer behavior across multiple sources, recognizing opportunities and engaging individual customers in real time. These organizations invest in technologies enabling the kind of highly personalized customer interactions that create fresh sales opportunities and ensure loyalty over time (Slaba, 2015). Offers can be uniquely constructed based upon a customer's total history, not broader demographic data.

The four pillars of Insight Transformation

1. Relevancy

How do we use customer intelligence in our dialogue with the customer so products, services, messages, and offers are presented in such a way that is truly relevant to the customer? This means going beyond looking at the last transaction or information from constrained data fields. Take for example a customer service rep from a catalog company who made notations about a customer's purchase for their daughter's 12th birthday the previous year. This year's call in the same time period allowed the support and cross-sale initiatives to be highly relevant to the customer.

2. Context

How does our view of the customer intelligence change when we learn more about why the customer has exhibited previous behaviors and what their true underlying needs are today? Take our same example and think about how differently the rep's conversation is based on knowing the customer is gift shopping instead of personally shopping. The context of a repeat birthday shopper should also set a trigger for future contacts.

3. Timing

How do we connect customer intelligence with the critical aspect of timing to benefit from reaching customers in the right window of opportunity, creating an appropriate sense of urgency, making contact at the right point in the decision-making process, or factoring in the seasonality and cycles of customer needs? Besides the obvious timing of the birthday purchase we've established for our example, we can also factor in the daughter's age and the season of each purchase to make specific recommendations for the customer.

4. Emotive Factors

How do we enhance our customer intelligence to understand and benefit from the underlying emotive factors that lead to what the data would determine are irrational or unanticipated decisions? Knowing the importance of a birthday purchase for a close family member is valuable insight. Through the rep's dialogue with the customer, it may also be possible to capture additional emotive factors such as how comfortable the customer is making purchases for someone in this age group. The interaction is different once it is known that this is a stressful purchase where the parent depends on the helpful guidance of the rep.

Customer insight often exists in true one-on-one relationships, such as those that observant sales people, advisors, and small business owners have with their customers, because the information is typically received a dialogue that provides relevancy, context, timing and some indication of the emotive factors. In

our high-volume, high-tech environments, we must make a more significant effort to understand and apply these four components to the knowledge we gain. CRM must go beyond the minimal personalization of direct marketing letters that insert a piece of knowledge or are dependent on some basic data-driven segmentation. (Lenskold, 2003).

Other approaches

The Four Pillars of CRM Excellence are approaches to segmenting and then manage customers either directly, through channel partners or with loyalty programs:

- Customer segmentation: Understanding customer value, loyalty and needs
- Direct marketing/CRM: Setting up targeted one-to-one strategies
- Channel-based CRM: Managing customers through channel partners
- Loyalty programs: Developing effective customer loyalty programs

Factors for an Effective Customer Relationship Management

Managing relationship with customers is not a static process. For different business ventures, the ramifications, dimensions and vertices of customer relationship management are different. As the importance of managing relationship with customers is increasing at a whooping rate, both business owners and academicians are now more interested into the various strata of the CRM potential. More efficient and advanced CRM software packages are now added to the IT platform of business ventures.

According to Rust (Rust at all, 2000) the customer relationship management aims at formulating a strategic approach for the development of customer centric business approach. Understanding the demands of customers, value addition to the customer service and creation of a loyal customer base are the three important pillars of customer relationship management. To have the best customer relationship, enterprices need to allocate resource to enhance customer value, introduce reward/point system to motivate employees for a better customer service, track and analyse information related to your customers and adding customer expectations to the operational base.

Adopting a set of ideal CRM practices enables the enterprice to automate sales force, lead generation, customer interaction and surveys. Along with it, there is also a posibility to install call centre and help desk CRM software for a better customer service. All leading software manufacturers are specialising in producing CRM software packages. But the enterprice needs to pay due importance to factors like needs and nature of your business, the budget and customization capacity of the software package.

Conclusion

Whatever approach is chosen the most important is to understand CRM as a strategy. In some enterprises there is CRM approach limited only for a software solution, instead of applying customer-centric management and using all the CRM tools. It would be a great mistake to adopt the approach that Customer Relationship Management as a technology rather than a management issue. But CRM is fundamentally a business philosophy that places the customer at the heart of all organizational activity, while the technology component is no more than a supporting tool. By refocusing on the business rather than technology drivers, organizations improve their chances of meeting their real customer management needs.

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Methodological Approaches to Customer Satisfaction Measurement

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Abstract

This research deals with evaluation of outputs gained by five different methods of quantitative research and they were compared with those outputs gained by individual interviews and moderated discussion. The customer satisfaction methods were adopted for their usage in academic sphere. As all the tools are based on different methodology the final outputs were standardized to a joint base in three clusters (meeting the general satisfaction, willingness to apply for the same university again and the quality of education evaluation). As to results - the Kano model was the closest one to the qualitative research. Because in current time the students satisfaction evaluation creates an obligatory part of university management activity the impact to a proper methodology of students satisfaction measurement should become a very up-to-day item.

Keywords: customer satisfaction, satisfaction measurement, academic sphere

Introduction

One possible approach to the relationship of university-student relationship is provider- customer. The research presented in this post and come out of this concept, students considered for customers in terms of Czech standards. For example, standard ISO 9000 defines the term "customer" as an organization or person that receives a product (the same service).

Currently, as one of the respected principles of modern quality management the principle of customer focus, which is also contained in the standards ISO 9000. Furthermore this standard states: "Organizations depend on their customers and therefore should understand current and future customer needs, should meet customer requirements and strive to exceed customer expectations "(ISO Standrards, 2006). The last of these processes is known as measuring and monitoring customer satisfaction, which is not always completely methodically worked out and adjusted to the conditions of a particular organization (Staes, Thijs, 2010). Therefore, the research was conducted, which should propose the most suitable method for measuring student satisfaction.

Methodology

The aim of this research was to compare the results that can be achieved using qualitative methods (Cheikh, 2015) here with the usage of a structured interview and subsequent controlled discussion with other possible tools for measuring student satisfaction. Such methods were taken into account that are not personalized for student issues, but they are engaged in measuring customer satisfaction in general, as reccommended by some researchers (Zikmund, 2013, Kamf, Ližbětinová, 2015). The subject of research have already been pre-selected methods, it is not a complete list of possible approaches.

For interview and subsequent discussion four groups of students undergraduate program were chosen in order to ensure the greatest possible heterogeneity of the group. Each group consisted of 10 students with proportional representation gain (average grade for the previous academic year), proportional representation taught degree courses and the gender issue was dealt with according to the total proportion of men / women, ie. 40/60.

The survey was conducted in two stages. First, qualitative research was performed with a minimum of one week apart was a quantitative survey where students filled five questionnaires were compiled in keeping with the tools to measure student satisfaction (resp. Customers), ie. on the basis of five different methods.

When evaluating the results of the survey main purpose was to compare the outputs of different ways to measure satisfaction with the outcomes of a qualitative survey and draw conclusions - ie. to evaluate which method of evaluating student satisfaction showed similar results to the nearest resulting from qualitative research.

For final comparisons there were identified as the common denominator the three main indicators:

- Meeting the expectations overall (average rate meet expectations in%)

- I would apply this university again (% of respondents)

- Perceived Quality of education gained (the average perceived level of quality in%)

When evaluating, all four groups were merged into one file, because their own investigation was not relevant. Separately it was only necessary to conduct a survey - interviews and facilitated discussions.

It should be clarified still the basis for this research:

Standard DIN EN ISO 9000 and gives the definition of satisfaction: "customer perception of the degree of fulfillment of the requirements" (ISO Standards, 2006). The practical effect of the low level of customer satisfaction are their grievances and complaints. However, the scope of complaints are not considered to be the only and decisive indicator of student´s satisfaction. Customer satisfaction measurement should be in this concept based on the rate provided positive perception of the product / service, ie. education. Specific remains a matter of values, which in case of students could be positively perceived the low demand studies (and therefore the preferred page of the product offered). It is, however, in this survey minimized by selecting such a structure of respondents with proportional representation based on results of studies, which can be expected to ease study is not the main objective and that the criterion of satisfaction of the entire sample of students.

Analysis of potentioal tools

As mentioned above, this research does not aspired to perform a complete comparison of all available methods for the evaluation of customer satisfaction. Only some of the methods were selected and tested. Such methods where it was estimated that their informative value could be as close to those results obtained from interviews and facilitated discussions.

Net Promoter Score

Applying the Net Promoter Score (NPS) for managing customer satisfaction and loyalty offers a wide range of applications. Among the basic advantages of this method ease of implementation and direct linkage of data on the company's ability to retain important profitable customers as well as acquire the new ones belongs (Riecheld, 2006). In terms of "business community", this method ensures high correlation with future shopping behavior of customers, which in case of academic environment means that satisfied students are ready for higher performance while providing great reference value.

The principle of this method lies in the research, based on a simple question asked customers who use the product / service, in the form: "How likely is it that you would recommend on a scale of 0-10 (and) our company / service colleagues or friends?" Customers 0-6 respond, are classified as "critics" who are not satisfied with the services, respondents with values of 9-10 are classified as "supporters", ie. as loyal clients to support growth, while 7-8 are classified as "Passive" who are from the

perspective of methods NPS neutral, and with them the need to work and to ensure that from them ideally become "fans" instead of "critics".

The resulting index NPS is then easily calculated as the difference between percent of respondents-fans and the percentage of respondents-critics.

CAF – Common Assesment Framework

The CAF is a quality management tool, which was created specifically for the conditions of public sector organizations. It is the result of cooperation of EU Ministers responsible for public administration and from r. 2000, when it was rebuilt its first version and it is by the European Institute of Public Administration (EIPA) further developed. The CAF model is based on self-esteem, which helps the organization to identify its strengths and also get an overview of the activities leading to the continuous improvement of the performance of the organization (Goler, 2010).

The goal of this method is to facilitate a self-assessment of public sector organizations and get an overview and analysis of the organization's activities aimed at improving the organization, to serve as the interconnection of the various instruments used in quality control while facilitating benchlearning between public sector organizations.

Using the CAF in comparison with other models TQM is relatively easy, so it is especially suitable for organizations with quality management begin. The CAF is a universally usable tool. To the organization, it is possible to CAF, and in particular the method of its application to edit - while preserving the basic elements of the model: 9 criteria, 28 sub-criteria and evaluation panels.

Customer Satisfaction Index

The results of the measurement of customer satisfaction are often expressed in the so-called. indexes, eg. American Customer Satisfaction Index (ASCI since 1994) or the European Customer Satisfaction ESCI index since 1995 (Kozel, 2006).

The ECSI method (European Customer Satisfaction Index) tracks the seven areas that have a decisive impact on customer satisfaction:

- Image
- Expectations
- Perception of Quality
- Perception of Value
- Customer satisfaction
- Customer complaints
- Customer loyalty

Customer Satisfaction Index have several modifications. UKCS (UK index) consists of 20 areas of perceived customer preferences, which biannually adjusted according to the actual situation.

Research using a satisfaction index is based on proven and sophisticated methodology and the results are clearly measurable and comparable. (Liu, et all, 2011). The value and significance of these findings increases with the length of the time series, after which the entity performs customer satisfaction measurement is conducted.

Evaluating customer satisfaction with these indexes very well serve as a benchmarking within the fields of activity of the companies.

Note for application in academic sphere: a comprehensive questionnaire would not identify just satisfaction with a particular teacher, but it can reflect such characteristics as confidence in an educational institution, fulfilling expectations before entering college or selecting a specific object, pleasant environment and facilities, availability of resources, satisfaction with accompanying services (Canteens), possibility to solve their problems (study department academic Senate), belonging to the school, department and others.

KANO method

In the early seventies Professor Kano worked on the project of improving services and products, and used Herzberg's two-factor theory of motivation. His method is based on the fact that customers perceive various parameters of products and services very differently and not always linear.

This method identifies and distinguishes three types of product parameters:

- Parameters that must be complied with at all times. These are also called passive quality or expected quality because most of their customers meet the expected automatically to describe their requirements, these factors therefore does not even mention. If they are fulfilled, customers are not enthusiastic, but if not, they are dissatisfied.

- Parameters expressed by the customer - these are the parameters that the customer wished to have a significant impact on the evaluation of performance and satisfaction.

- Parameters that are "something more" - an active quality, quality that inspires enthusiasm. Meeting these parameters is for the customer unexpected. When it is delivered, the customer is excited, surprised. Quality parameters of this function work only if they are also satisfied expected quality parameters (Willemsen, 2010).

Satisfaction survey method involves two issues: Rate your satisfaction if the product has this attribute, and Rate your satisfaction if the product hasn´t this attribute.

The results are recorded in quadrants according to the four possible answers: satisfied, neutral, dissatisfied, do not care.

ServQual Method

Method for measuring the quality of services developed in the 80s in the US and gradually developed and revised. Its cornerstone is called paradigm of conflict between the ideas of customers and what kind of service they receive. Research using SERVQUAL method is based on the so-called GAP model - Model gaps. The methodology therefore works with gaps between different components of the process of providing services that the customer perceives. The authors of the method A. Parasuraman, W. A. Zeithaml and L. L. Berry, on the basis of qualitative research found these five gaps (Zeithaml et all,1990).

GAP model shows five gaps that exist regardless of the type of services, namely:

A space no. 1 - between the perception of customer expectations and the company´s management, what is the real customer expectations

A space no. 2 - between the perception of customer expectations by management of a company and between the organization set characteristics of services

A space no. 3 - between what the company has set as standards of service and what the service is actually provided

A space no. 4 - between what service customers receive, and between what is given by media sservices presented to public.

A space no. 5 - service between customer expectations and experience of its existing service.

Among these five sections is divided another 21 properties that describe various aspects of the described levels from two perspectives of the customer, expectations and perceptions. The resulting system consists of 42 questions and allegations that customer then evaluates the questionnaire on a scale from 1 to 9 points (from full consent to the full disagreement). The greater the difference between the expected and perceived quality represented by the average mark point is, the higher the level of service is. Respondents also assessed the relative importance of all five dimensions and their order.

Advantage of methodology SERVQUAL is a general purpose, eg. for comparison of the level of services to other companies in the industry. The method seeks to understand the service area as fully and to obtain the most reliable data. Using this method it is possible to determine not only how the service is percieved by customers, but also by its employees. While questioning individual traits satisfaction it is possible to get clear information on how customer satisfaction is influenced by its expectation.

Current approach in satasfaction measurement

Conducting regular evaluation of every university in the Czech Republic (and its activities and publish their results) is ordered by the highest standard of the Ministry of Education, Youth and Sports of the Czech Republic for Higher Education - Higher Education Act no. 111/98 Coll. as amended.

Nowadays, the term "student quality assessment - SHK" hiding all sorts of questionnaires in which students evaluate their teachers, if necessary learning process on a larger scale. Questionnaires somewhere prepare themselves teachers, students or a group of selected experts. Very often, however, the questioning is conducted without the knowledge of methodical process of research, with a low communication between the organizers and students, which ultimately leads to the collection of the low number of completed questionnaires or unrepresentative representation of respondents. Improper interpretation of the data thus obtained is in addition to a significant distortion outputs.

If achieved some answers, which are analyzed and interpreted, then it depends on the attitude of management that allows to publish the results, respectively if the measured data lead to some axles.

Comparison of examined methods

For the final comparison three main indicators were defined:

- Meeting the expectations overall (averagae rate of meeting expectations in %)
- Would apply again for the same University (% of all respondents)
- Perceived quality of education gained (average percieved rate of quality in %)

Table 1 – comparison of results obtained by examined methods

Methods	Meeting expectations	Would apply again	Quality of education
NPS	76%	85%	46%
CAF	62%	88%	35%
ECSI	79%	73%	51%
KANO	77%	78%	62%
SERVQUAL	58%	62%	56%
INTERVIEW	61%	78%	62%

Source: own processing

Conclusion and discussion

The results of each method show some differences that can be identified as statistically significant. Partly it may caused by not quite perfectly tailored methodology for applying to universities, but it also may be due to the ability of each method to capture the phenomena.

For this survey the investigation carried out through interviews and facilitated discussions was established as an authoritative guide - outcomes from other methods are measured and compared with it. From this perspective, the closest result was achieved through the method of KANO model, which according to investigations carried out, seems to be most suitable for development in terms of academic field.

Anyway, we can state that uniquely valuable satisfaction ratings were obtained by means of qualitative research, which is currently discussed cause of dissatisfaction, easily record the sensitivity of a respondent on the phenomenon (as important to him) and can also record some very productive and constructive suggestions for improvement.

Although it is obviously not realistic to enforce this attitude survey of student´s satisfaction across the board, as each focus group, these groups individually processed respondents are able to detect what can not always be completely describe in structured questionnaires.

Limits and reccommendations

Although in the context of the research the used methodswere not in detail adapted to the conditions in academic sphere (it would be a matter of individual projects) and therefore it is necessary to apply certain leeway in interpreting their results, we can state that the outputs of the various methods applied to the satisfaction of the students exhibit significant volatility and interpretation resulting from their usage can not be considered as definite.

In combination with the fact how little students involved in Student's evaluation of the quality seems to be the most reliable qualitative investigation, ie interviews with these students who appear for the quality evaluation interest, show a proactive approach to this issue and also their composition conforms to the profile structure of the students of the high school.

As one of the tools for measuring student satisfaction can also be used the so-called Trendence Graduate Barometer (formerly the European Student Barometer), which is an annual online student survey which allows students to express their views on topics related to careers and education. Since its launch in 2003, steadily increasing the number of participating students.

In the last year involved more than 195,000 students, making it the biggest trend Graduate Barometer survey targeting a career in Europe. Trendence Graduate Barometer provides universities and companies valuable insight into the preferences and expectations of students, and in addition facilitates their entry into the labor market because it is actively pursuing and employers.

This survey was attended by 775 involved universities from 22 European countries. The methodology of this survey is developed enough - it is an internationally certified ESOMAR methodology.

Despite the facts, current and new methods for customer satisfaction measurement should be developer for the specific environment of academic sphere.

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Main Aspects of Company's Success: an Effective Leadership or the Ability to Manage Employees' Emotions

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Abstract

Nowadays in our fast-moving world companies are looking for new ways how to be competitive on the market. Some companies pay a great attention to the tangible assets and technical capacity; others prefer to use innovative technologies and know-how. But modern market conditions allow us to use all things mentioned above. Over the past 2 decades scientists have gained new insights about human behavior, which influence straight to company's success.
Brain scientists find out that to reach the best performance it is necessary to pay great attention to employees behavior, emotions and motivation stimulus. Neuromanagement is quite new scientific sphere of studying the capacity of the brain, but the results of this study are very perspective. New methods, methodologies and programs are established and can be used in real business sphere. Golden circle" by S. Sinek is one of such new methods; it touches on the question of organizing the work not only separate managers but the whole company. And this model is a real confirmation of triune brain.

Keywords: effective leadership; neuromanagement; golden circle; neuroleadership.

Introduction

The company success depends on human resources and the next aspects are tangible assets, technical capacity and available cash assets, which company is ready to use for strategic development.

Nowadays you can face the myth "great manager or top-manager is a person, who is ready to work all day long 7 days per week, and he or she succeed in everything". It is hard to imagine the manager's brain activity and how exhausting it is: phone calls, answering letters, tactical tasks, and managing employees. But at the same time he or she doesn't have time for hard projects, for example, strategic projects or strategic development. Such behavior model isn't effective nowadays and it is necessary to find new ways how to organize work process and feel comfortable at your work place. Making changes in the existing work team is a long, difficult task; moreover if you face the resistance of the proposed changes, and you can't find the understanding among employees, you can say that the chances of success tend to zero. Many scientific works mention that employee's behavior in the workplace is not the same as many managers think. This misunderstanding can be the reason of unsuccessful attempts of changing process, because initiatives of the head are not supported by the staff.

The main body of the paper

Over the past 2 decades scientists have gained new insights about human behavior as a result of the integration of such sciences as psychology (the study of human consciousness and behavior) and neuroscience (the study of anatomy and physiology of the brain). At the junction of two sciences appears a new direction - neuroscience, which includes: neuromanagement,

neuroleadership, neurobiology, neurotechnology. Neuroscience has been researching what parts of the brain respond to different types of stimuli associated with social interaction.

Modern business is developing in the conditions of innovation-driven economy in which science and technology are the basis of competitive ability and a productive force. Most of the managerial decisions are taken in the context of limited resources and high uncertainty, because they depend on many factors, the dynamics of which is not always possible to estimate with reasonable accuracy. Therefore, many companies are looking for new ways of development. In Russia companies only now start thinking about personnel as the major part of development and prosperity. This research is based on study foreign works about innovative ways of managing human resources. And one of the main results that authors of this paperwork could find – neuromanagement is well-known among international specialist and companies but in Russia the term “neuro” is unknown.

The term “neuromanagement” in the international literature

The term of neuromanagement was formed in 2006 by Qingguo Ma, a professor and director of the neuromanagement laboratory at Zhejiang University. The first mention of the term neuromanagement and the study of the brain with the help of medical research were made in the conference by David Rock, the founding president of the NeuroLeadership Institute [5].

Neuromanagement is a new science, created at the intersection of neuroscience, psychology and management. Scientists use magnetic resonance and computed tomography study of communication and the structure of the brain, the mental processes of a man when he is faced with the typical problems in economics and management. This study provides insight into the decision-making and human behavior in society. [7]

Neuroleadership is an area of leadership research and improve company performance through understanding how the human brain works. The main aim of neuroleadership is helping organizations realize their potential through the understanding of the processes of the brain and mental activity of the person at the individual, team and organizational level. The term neuroleadership was proposed in 2006 by David Rock (David Rock) [5,6].

The main idea, which is headed by neuromanagement, is triune brain model, which is actively involved in all spheres of human life. The first part - the brain of a lizard - a primary brain and is responsible for the survival instincts: food, water, sleep and procreate. The second part - it is the limbic system - it is responsible for emotions and meanings. It is here that all that belongs to the category of the irrational. The limbic system is not capable of language and perception, is engaged in a "new" layer of the brain - the neocortex. The third part - neocortex - is part of the brain associated with the conduct of intelligence, language, abstraction, planning.

Nowadays you can find many good examples of successful work in the company, which effectively organize the work of their staff in view of the theory of human behavior, the structure of the brain and the understanding of the basic principles of neuromanagement. One of the main principles is understanding that in our fast-changing world it is not so important to have external motivation of employees. Doing business under the laws of neurobiology is much more complicated because we have to consider what others think. In the brain, there is a special kind of nerve cells, called mirror neurons. These are the cells that are responsible for empathy and allow people not just copy the actions of other people, but also their emotions and mental state. The discovery of these cells shows that we can feel other people, and with some accuracy to predict their wishes, intentions and goals. Moreover team members can mimic their leader’s actions,

emotions and intentions. We can see the world through the eyes of others. This helps to cooperate more effectively with the world in which we live [5].

One issue that is now set in the field of personnel management - "can a man be happy in the workplace"? Neuroscientists say that happy people are much better than those who feel unhappy at work. Staff keen for his work, do the job better and more immersed in it. If you have negative emotions, thoughts, a person primarily would focus on the source of the "pain", and these will lead for stopping to process information, think creatively and make decisions.

David Rock in his work "The Brain. Instructions for use" studied the “threat-reward" scheme, which accompanies and governs human behavior. A "threat" is meant not only physical dangers and threats, but under this concept can be interpreted social situations, the working moments and our environment [5]. "Labels" of the threats or potential rewards are stored in the amygdala in the limbic system, which is responsible for the entire encoding process and storing information. Every time a person encounters something that was coded as a threat or as a reward brain will automatically react to this event and neurological reactions are run. Recently, neuroscientists conducted a series of studies using MRI and they provided evidence of what happens when the brain begins to perceive the potential "threat-reward" scheme.

The most interesting discovery was turned out that neural responses in the "threat-reward" scheme are identical to those that are activated when a person starts to social interaction with other people. This means that the human brain responds to social situations (friendship, dating, conflicts) in the same way as on the physical interaction (pain, food). It also means that the brain perceives the workplace as a social environment that can be one of the categories "threat" or "reward". Some managers have noticed that a new approach casts doubt on Maslow's famous pyramid in which it is assumed that people will begin to meet their needs, starting with the physical survival and moving step by step up the stairs to the top. In this pyramid the social needs are in the middle, and self-actualization is at the top. Some current researches in neuroscience show that the brain equates social needs and survival, for example, be hungry and be rejected by society as the same, and causes the same reaction nerve [6].

The "threats" are an obstacle to people’s development, improvement and promotion, and they concern both - people and the organization in whole. This is due to the fact that when the limbic system begins to respond to possible threats the prefrontal cortex is in the possession of the little oxygen and glucose, but the prefrontal cortex is the basic place where all thought processes are going. Thus the "threat" inhibits our ability to understand and make decisions, remember, plan, solve problems, communicate. In other words, when people need more brain resources and brainpower available resources will be temporarily limited by the prefrontal cortex. This impact is easily tracked in the organizations. When leaders create an unstable atmosphere in the team, the brains of employees work less efficiently.

But it is quite the opposite situation, if the organization offers a friendly working atmosphere: employees feel comfortable and can express their proposals, the leader gives the freedom to make decisions, supports the contribution of employees to the development of strong relationships. All these simple things create a reaction of "reward" scheme, and the work becomes more productive, organization becomes open to new ideas, innovation and creativity. It was noted that the information that was passed to employees during stressful situations, was not perceived by staff.

“Golden Circle” by Sinek

Simon Sinek, as well as John Lesinski (the author of the theory of "zero moment of truth") say that people do a lot of things unconsciously, guided by the principles which were incorporated in

human evolution. Sinek S. argues that people do not always respond to the language, but are good at understanding the treatment at the level of emotions and images. He suffered the basic idea on his model of the "Golden Circle", which is not only reflects the resources available to the organization, but also shows that what should be done for the effective management of the organization. He found the confirmation of his model in the study of large successful companies, e.x. Apple, Dell, Google and working with influential leaders. Sinek noticed one feature that thinking, which is characteristic of successful managers, is the exact opposite of what how most people are thinking, acting and communicating [4].

According to the "golden circle" the majority of people and organizations know that they need to do for living. Most of them also know how to do it. But only a small group of elected people know exactly why they do what they do[3]. In the book “Start with why’’, written by Simon Sinek, he mentioned that it is always necessary to start with the question "why" - the goals, the reasons of your own beliefs, which will lead eventually to the finished result - the "what". The idea of the final result may vary, but awareness of why it is intended and what is - no. Also, under the "why" Simon Sinek means the ways to encourage inspiration and the people that they should do something from which they enjoy. Go to last into a modern enterprise system include personnel motivation. Sinek Simon argues that the concept of the "golden circle" explains why not many people and organizations can lead others, but few know why they do what they do. Under the question "why" does not refer to profit or money, because this is the final result. Under the "why" Sinek understands why your organization exists, what it believes, what are its values.

Simon Sinek in the model calls for change thinking and to move from a well-established system of work "What-How-Why" to the more effective "Why-What-How", to change mind and start from the center and go to the outside of the circle. It is expected that most companies spend all their energies to the story of "what" they are doing, they refer only to the neocortex. A man only information about the "what" should be done or "what" is the company, the product is very small. "People do not buy what you are doing. They buy the "why" you do it. " The report on the benefits of a product falls directly in the neocortex and remains there. To get a person to buy a product, run an errand, you should immediately refer to the section of the senses, that is, to make a person believe in the idea, believe what you believe is you and your company.

This model shows that the focus of the company shifted to a simple possession of material resources to competent and effective corporate governance component of the organization - corporate culture, style, values and attitudes, which adheres to the company's management. Implementation of the changes, the introduction of a corporate constituent - a long process that requires hard work, both from the management (managers, opinion leaders), as well as on the part of employees. One of the possible levers of influence on personnel - motivation program [1,10].

One of the tenets of modern management - focus on internal rather than external motivation. Numerous studies have shown that external criticism or financial incentives human almost no effect on its performance. Work with maximum commitment is possible only when we are motivated internally. In this case, people do not need external commendable because they already operate at full capacity [9].

Modern science management understands that people do not want their every move watched. You must provide the employee a maximum of responsibility, and not to follow his every move. To achieve this you can use the Socratic Method - the method of proper questioning. In order to set employee goals should ask themselves to determine their colleagues. To give feedback, it is necessary to ask the opinion of his subordinate about their work. Rather than tell the algorithm to solve the problem, ask the employee how he is going to do it. When people solve the problem by you, then there is a surge of adrenalin, which activates neuronal cells in the brain. Socratic Method

underlies the practice of coaching, when instead of lectures and provides a turnkey solution, coachers ask relevant questions and encourage their clients to seek and develop solutions on their own [8].

Conclusions

It is much faster and easier to give the employee a direct order and use strategy issues requires more time and effort, but in this case the employees take responsibility and become managers themselves. Employees do not work for the manager - he is working for them. Managers need to stop thinking that they can control someone's behavior through incentives or penalties. The best thing that can make a manager - is to create an environment in which employees choose their own behavior they need. When a person believes in the idea, it is lit, fade into the background vacation, money, because faith makes sense of moving forward, it encourages action.

Business - it is a sphere of human activity. Strategies are created and implemented by people, competitors and customers, as well as managers - the people. When we use the knowledge gained through research of the brain, it becomes easier to understand every aspect of the business. Discoveries in neuromanagement will help us to benefit not only business, but also learn to evaluate situations that occur in life, and as a result to make effective decisions. "The indicator of management quality - ordinary people doing extraordinary things," - said Peter Drucker, management theorist.

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Implementing Strategic Trade Act 2010 for Academic Researchers in Malaysia

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Abstract

The Strategic Trade Act of 2010 (STA) implementation in Malaysia is to fulfil Malaysia's obligations under UN Security Council (UNSC) adopted Resolution 1540 (UNSCR 1540). The Act came into force in 2011, the STA has been pertinent in addressing several major areas of concern in regional and global trade security and academic researchers' are indirectly involved in this area of concern. The STA 2010 was established as a "mechanism to address the issues of a lack of monitoring and control of exports, imports, transshipment, and brokering of strategic items" (STA 2010). The STA particularly addresses re-exports and dual-use controlled items such as weapons of mass destruction (WMD). The STA involves academic, researchers, students, employees, scientific research and development committee. The objective of this research is to explore best practices that can be turned into an ethical code of conduct for academic researchers in Malaysia, guiding them to prevent biological agents from being proliferated for bioterrorism in their academic research. The methodology for this study is doctrinal research based on the current analysis of STA 2010 legislation. This study indicated that universities ought to incorporate envisioned ethical code of conduct such as compliance with STA 2010. This paper analyses the impact and consequences of the implementation of the STA on the current academic, researchers, students and also scientific research and development committees. The researchers here concluded that the current implementation is still at an incubating stage for many academic researchers in that many researchers both in public and private universities are still unaware of the existence of STA 2010. The researchers recommended

solutions and activities to create awareness of STA 2010 for academic researchers both in public and private universities.

Keywords : Strategic Trade Act 2010, Academic Researchers, Code of Conduct, Best Practices

Introduction

Strategic Trade Act 2010 (Act 708) (STA)

In Malaysia, implementation of the STA (1) has involved collaboration among several government agencies. Licensing is coordinated by the Ministry of International Trade and Industry, the Malaysian Communications and Multimedia Commission, the Pharmaceutical Services Division, and the Atomic Licensing Board. Enforcement is done by the Royal Malaysian Customs, the Royal Malaysian Police, the Malaysian Maritime Enforcement Agency, and the Malaysian Communications and Multimedia Commission. The Attorney General's Chambers and the Royal Malaysian Police are responsible for prosecution of violators. Meanwhile, the Strategic Trade Secretariat acts as the focal point for implementation and is responsible for overall strategic trade management. It maintains an online system, issues licensing guidelines, conducts outreach to industry, and leads audit and interdiction team. There are challenges associated with a multi-agency approach to strategic trade management. It is difficult to foster understanding of the role and work of other agencies, and perhaps even more challenging to ensure effective communication and information exchange among these agencies and academic researchers hence, developing effective implementation or system to solve these problems, is pivotal especially among the researchers, academic especially on scientific research which may involves work of indirect controlled items.

The written laws related to STA 2010 are:

"1. Animals Act 1953 (Act 647)

2. Atomic Energy Licnsing Act 1984 (Act 304)

3. Chemical Weapons Convention Act 2005 (Act 641)

4. Customs Act 1967 (Act 235)

5. Pesticides Act 1974 (Act 149)

6. Plant Quarantine Act 1976 (Act 167)

7. Prevention and Control of Infectious Diseases Act 1988 (Act 342)

8. Protection of New Plant Varieties Act 2004 (Act 634)

9. Poisons Act 1952 [Act 366]

10. Malaysian Communications and Multimedia Commission Act 1998 [Act 589]"

"If there is any conflict or inconsistency between the provision of this Act and those of any written laws (in relation to the prevention of the proliferation of WMD and its delivery system), including the related laws, the provision of this Act shall prevail and the conflicting or inconsistent provisions of the other written laws shall, to the extent of the conflict or inconsistency, be deemed to be superseded as per section 3(2) STA 2010" (2).

The Process of STA 2010

The criteria for compliance requires the academic researchers of strategic items, must register with the relevant authority this is to follow practice whereby governments are taking steps to promote compliance with export controls and risk management. "Throughout Southeast Asia, attempts to implement the UNSCR 1540 have met resistance or lukewarm interest",(3) possibly due to insufficient financial and technical resources".

The Act defines "strategic items" as "goods and technology that are controlled under the Act, leaving a comprehensive list reflecting the items currently required to be controlled under the global export regimes as well as the UNSCR 1540 to be prescribed in subsidiary legislation, beginning with the Strategic Trade (Strategic Items) Order 2010". As at 3rd January 2011, the strategic items prescribed fall within the following categories (4)

"(a) military items;

(b) nuclear materials, facilities and equipment;

(c) special materials and related equipment;

(d) materials processing;

(e) electronics;

(f) computers;

(g) telecommunications and information security;

(h) sensors and lasers;

(i) navigation and avionics;

(j) marine; and

(k) aerospace and propulsion".

The above legislations are prescribed as strategic items under STA 2010.

The Act will be implemented through an online system, the Strategic Trade Secretariat is working closely with "DagangNet" as the service provider to develop the online system for registration and application of permits. A few government agencies (5) have been authorised to issue export permits, the "DagangNet" online system is the only conduit for those seeking an export permit under the Act.

Application of Online Permit

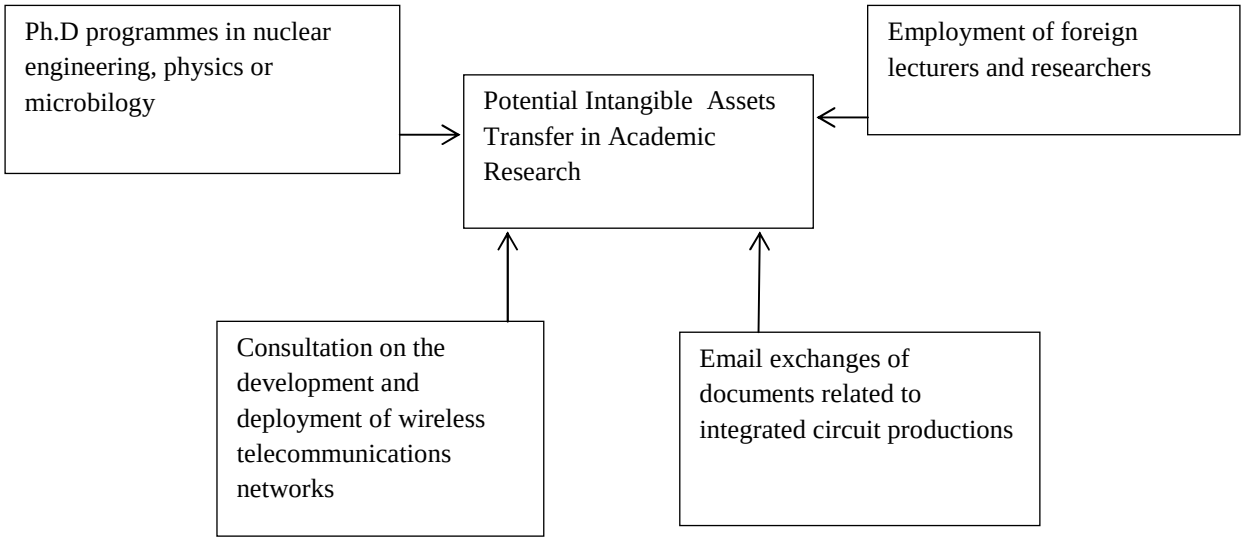
Online application needs to address all types of potential information transfer, including post-graduate teaching, papers at conferences, seminars, workshops, collaboration with academics in other countries. Audit operation will be conducted by the University and any licence which has been granted the University shall keep a record of the audited licence. The Universities can apply online permit application through the appointed agent from the Ministry of Trade and Industry Malaysia (MITI).

4. Implications

Universities, can be made legally responsible if employees breach the STA 2010, in view of this, universities need to consider how to ensure these controls so that its employees, researchers and students comprehend the controls and do not fall into liability.

Undergraduate teaching is usually outside the scope of WMD for several reasons. This is because the teaching objectives does not normally address controlled technology. Material used for education is generally in the public domain and teaching often disseminates 'basic scientific research'. Whereas, for post-graduate teaching which may involve translational research rather than fundamental study. In case the postgraduate teaching is the area of a listed technology, a licence is required if it involves export (i.e. sending material from Malaysia) of unpublished information which would be required and necessary for the use, development or production of strategic items. The principles and rationale on Strategic Items in STA 2010 is catered to assist universities to understand how the legislation applies to their activities. Universities need to work with researchers, employees and students where there is a potential adverse risk to understand and risk manage the implications and impact on STA 2010 on their research and teaching activities.

Chart A : Potential Intangible Assets Transfer in Academic Research



Source : Developed by researchers

The above chart indicates the potential intangible assets transfer in academic research and hence the University involved ought to take cognizance of such potential intangible transfer which may be listed as strategic items under STA 2010.

Conclusions

Nobody likes to be caught for criminal activities intentionally or unintentionally especially in the academic research fields therefore, it is suggested that the government of Malaysia should create more awareness of the STA 2010 through academic institutions and increased man powers to assist the universities to set up a monitoring department to process the Strategic items /indirect controlled items as stipulated in STA 2010. The researcher suggest the following recommendations :-

1. Create and furnish awareness by training students, researchers, employees and administrators.
2. Furnish, leaflets, brochures, online and literature about threats.
3. Act as a resource for questions and concerns (such as matters involving export controls).
4. State examples of specific threat information, if required.

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Strategic Trade Act 2010 (Act 708), Malaysia

Determination of Adoption Success Factors for Cloud Systems in Innovative Supply Chain Firms in Qatar

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Abstract

This papers Identified the variables which are applicable to the accomplishment of the usage of Cloud Systems in inventive Supply Chain settings in Qatar. The paper discover answers of examination inquiries; What are the components which could encourage and maybe ensures the achievement of the execution of Cloud Systems in imaginative Supply Chain settings in Qatar?. In this study, it is recommended that the seven arrangements of speculations that are liable to effect on achievement or generally of Cloud Systems execution in Qatari firms been distinguished. The study embraced the both quantitative and subjective strategies to inspected the proposed speculation. Suppliers of business and framework joining administrations require suitable stages for creating and introducing the applications. They are confronting the test of incorporating innovation situated framework with business forms. This study is proposed to give both hypothetical and down to earth new bits of knowledge into the execution of a Cloud System as a vital information administration device. The study inferred that a Cloud System execution is unpredictable and includes various diverse equipment, programming and foundation setup. It is expected this study pointed various variables that added to the accomplishment of a Cloud Systems execution as a vital learning administration device in the chose creative inventory network as well as in different associations in Qatar. It is trusted that the structure displayed in this study and the discoveries exhibited could shape a base central hypothesis that can help advance improvement in Cloud System research in Qatar.

Keywords: *Innovation, Cloud Systems, Supply Chain Firms, Technology-oriented System*

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1.0 Introduction

The power of developing rivalry fuelled by the quality of rising globalization has introduced new weight on production network firms to be more imaginative than some time recently. Development might happen at any or all the three advancement levels; a) specifically development in item including making of new items and/or alteration to existing items; b) development in the administration to clients and c) or advancement in the administrative parts of the firm undertaking the advancement including inventive firm structure and approaches as well as methods of the firm (Soliman, 2011a, 2011b, 2012a, 2013a, 2013b).

1.1 Objectives

The aims and objectives of this project are to:

1. Identify those factors which are relevant to the success of the implementation of Cloud Systems in innovative Supply Chain settings in Qatar.
2. Present a methodology for appraisal of the Cloud Systems' ability to transfer knowledge for innovation purposes.
3. Assess the various knowledge characteristics required by the innovative supply chain firm in Qatar.

1.2 Research Problem

Evidence points to: a) increased growth in the implementation of Cloud Systems particularly in Supply Chain firms, and b) the size and magnitude of the investments in Could System implementation represent a substantial and significant part of organisational resources. Therefore, it would be imperative that a study of the implementation of Cloud Systems is conducted with the aims of ensuring that the implementation could deliver the anticipated outcomes. Otherwise, Qatari firms could be at risk of negative impact and poorer performance should implementation of Could System fail to deliver anticipated results. Accordingly, the research problem is to find answers to the following research questions to:

1. What are the factors which could facilitate and perhaps guarantees the success of the implementation of Cloud Systems in innovative Supply Chain settings in Qatar?

2. Could those factors lead to development of a method for assessment and perhaps measuring the Cloud Systems' ability to transfer knowledge for innovation purposes?

3. In doing so, would it be possible to identify the knowledge characteristics required by the innovative supply chain firm in Qatar as part of the effort to transfer knowledge?

2.0 Literature Review

Advancement is somewhat in light of realizing which thus is subject to learning and in that capacity there are five stages during the process of Innovation Knowledge Transfer (Soliman, 2012a):

- ***Knowledge Transfer***: The inventive inventory network firm seek after the vital information for the development by distinguishing and exchanging the information from inward and outside sources to the production network firm.

- ***Scanning***: The innovative supply network firm seek after the fundamental identifying of knowledge the development and exchanging the information from inside and outer sources to the inventory network firm.

- ***Decision***: Decision by the innovative supply chain firm whether to adopt or reject the scanned knowledge based on measuring the favourable circumstances and the weaknesses of utilizing that knowledge as a part of its present structure.

- ***Implementation***: During this stage, the innovative supply chain employs the selected knowledge in accordance with already determined implementation strategy.

- ***Confirmation***: Decision by the innovative supply chain firm whether the implementation has produced the desired outcome and ultimately a confirmation on whether the implementation has been successful.

Despite the kind of innovation, the innovative supply chain firm should avoid any poor or undesired outcome from implementation of the knowledge transferred. Accordingly, the supply chain need to rapidly innovate use an effective and efficient implementation strategy to ensure the desired outcome of the implementation is achieved (Soliman and Youssef, 1998, 2001, 2003a, 2003b).

A key factor in the complex process of knowledge transfer is knowledge itself. This means, getting the right information in the right development process at the opportune time will be one of the many challenges facing the innovation leaders (Soliman, 2013a, 2013b). Those challenges have led many organisations to search for tools and systems that could facilitate the transfer of knowledge though the innovation processes. In this regards, many innovative supply chain firms have considered Cloud Systems to support their innovation efforts as well as satisfying other organisational needs including efficient and effective knowledge transfer. However, many enterprises are also turning to Cloud Systems for fast and less costs (Bartoletti and Reichman, 2012).

2.1 Cloud Systems for Knowledge Transfer through the innovation Chain:

Soliman (2011a, 2011b, 2012a) has shown that the development chains comprise of three basic stages in particular, information based stage, learning association stage and the advancement stage. Besides, Knowledge Transfer is demonstrated be a typical basic action all through the three stages (Soliman, 2011a, 2011b, 2012a, Senge, 1990 and 2006; Pedler et. al., 1991, Garvin, 1993). The most widely used Could Systems implementation is the implementation of the software components known as Software-as-a-service (SaaS) components. This is due to the following reasons:

1. SaaS is the biggest and most unequivocally developing distributed computing market.
2. SaaS comprises of a wide range of sub-parts, for example, client relationship administration (CRM), human capital administration (HCM) and eProcurement.
3. SaaS furnishes combination with big business asset arranging (ERP) frameworks.

The greatest test confronting the creative production network firm is thusly the choice of the Could System that backings the association needs including Knowledge Transfer. Furthermore the integrity of the knowledge has risen to be one of the innovative supply chain firms' key concern. Therefore, proper process management techniques need to be followed for identifying the characteristics of the knowledge.

2.2 Characteristics and integrity of innovation knowledge:

Soliman (2012a, 2011a, 2011b) has shown that they integrity of knowledge must be based on sound knowledge Characteristics. The nine essential knowledge Characteristics are:

1. Appropriateness of information;
2. Currency of information;
3. Significance of information;
4. Authority for gaining information;
5. Goal of information;
6. Importance of information;
7. Approachability of staff to information;
8. Applicability of information, and
9. Fittingness of information to the application.

At the period of advancement of Cloud System, it is fundamental that the respectability of the framework be intended to guarantee a suitable level of inner control. The frameworks trustworthiness part should be centered around building up a hearty situation in which the advancement procedures will work. The advancement of the honesty environment ought to relieve the authoritative dangers of the development, and ought to guarantee that the controls actualized in the framework don't burden the business forms. In like manner the procedure trustworthiness part ought to be as control networks which address the accompanying framework traits, for example, Effectiveness; Efficiency;

Confidentiality; Relevance; Availability; Compliance; and Reliability (Soliman and Youssef, 2003a and 2003b). What's more the frameworks trustworthiness segment ought to be comprising of a segment for screening the learning exchanged. Numerous creators bolster the pattern of the developing ERP SaaS selection, noticing that it is anticipated that development to quicken as more organizations enter the advancement race to reinforce their upper hands. This implies development will advance quicken as ERP SaaS market develops. The test will be to guarantee that the cloud framework is centered around serving the development endeavors and in addition fulfilling other creative production network needs. This might be accomplished through the accompanying components:

1. Security while exchanging and saving information
2. Authenticating clients and administering access rights
3. Checking and confirming information exchanges
4. Reporting of use and information exchange measurements
5. Response times (e.g. to convey an information inquiry reaction or post an exchange)
6. Frequency, convenience and point of interest of execution reporting
7. Integration capacities for association with information suppliers inside and remotely.

In spite of the fact that confidences in Could Systems for inventive supply chain is developing there will even now the dangers that the cloud framework may not meet their association's norms in various territories:

- **Compliance:** Most endeavors have models set up for the security and uprightness of information, IT administration …etc. A gauge necessity is an acceptable those prerequisites.
- **Availability and performance:** Security of the information exchange ought to be additionally considered as demonstrative of the framework execution.
- **Functional richness and adaptability:** The cloud framework must offer the full broadness of usefulness that is fitting to the business.

2.3 Innovative Supply Chain firm willingness for Cloud System:

Research has found that in many companies, they are not prepared for adaption of Cloud System arrangement unless the accompanying key capacities are fulfilled:

- Integrated examination and adaptable reporting choices
- Flexibility to extend the application with a specific end goal to suit your necessities
- The on-interest arrangement implies that it requires no redesigns, upkeep or in advance capital expenses

- It is rapidly and effortlessly configurable, taking into consideration setup in as meager as 3 weeks
- Automate routine exercises and assignments so as to free up your staff's opportunity
- Simplify your IT operation with inherent administrations and backing
- Adapt to changes in your industry and business sector
- Support your endeavors to conform to moving national and universal regulations

Moreover a complete arrangement by coordinates the majority of the key business capacities, for example, HR, CRM, inventory network and acquisition through to cross-useful business procedures, is required keeping in mind the end goal to empower advancement learning to stream continuous over the development process. The incorporated investigation and reporting choices guarantee that you can exploit opportune and precise data conveyed in the right setting to each client, in view of their part. This gives the clients the data required to improve, very much educated business choices - and also expanding profitability and adequacy.

2.4 Important Factors for the Success of Cloud System Implementation:

Rockart (1979a, 1979b) defined CSFs as "for any business, the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organisation". They are the few key areas where "things must go right for the business to flourish". According to Rockart (1979a and 1997b), "*Critical success factors are the factors that constitute the critical or fundamental components of the system*". They are the key areas where *things must go right*; in other words, if these components fail, the system fails (Soliman et. al., 2001).

The thought of distinguishing CSFs as a premise for deciding the data needs of administrators was proposed by Daniel (1961) however advanced by Rockart (1979a and 1979b). This implies in any association certain variables will be basic to the accomplishment of that association, as in if targets connected with the elements are not accomplished, the association will come up short. Rockart (1979 and 1979b) alluded to Daniel (1961), who gives the accompanying as a sample of the CSFs: "*new product development, good distribution, and effective advertising for the food processing industry - factors that remain relevant today for many firms*". Other scholars have used the CSF approach to optimize the operations of the implemented systems (Jamoo, 2008, Hong, 2001; Gide, 1999, Bergeron and Begin, 1989; Boyton and Zmud, 1984; Croteau and Li, 2003; Goldsmith, 1991; Leidecker and Bruno, 1984; Pollalis and Frieze, 1993). Different specialists have considered basic achievement variables of CRM mechanical activities, (Hong, 2001). Soliman et al. (2001) utilized basic achievement elements of execution of CAD/CAM in ERP environment and Nelson and Somers

(2001) gave a standout amongst the most broad surveys of basic achievement variable in ERP usage that as of now exists to date.

3.0 Theoretical framework

3.1 Current Management Problems with Cloud Implementation:

It is trusted that organizations set out on usage of Information Technology to encourage change. After the Cloud System execution and after work has been finished, the imaginative production network firm ought to look fundamentally the same to the Drucker's (1992) thought of data based associations. In this manner business techniques ought to be framed in view of Cloud System execution, and that Cloud System ought to be spoken to in the business procedures (King, 1994). Cloud System usage without innovative utilization of information exchange could be hard to execute and might fall flat. Appropriately, Scott (1995) contended that creative inventory network firms might require noteworthy changes to forms, as well as to the essential way chain is overseen. It ought to be noticed that Hall et al (1993) found that keeping in mind the end goal to take care of the issues that emerge from execution work, it is important to utilize demonstrated techniques to manage particular issues. These issues can extend from abnormal state key wanting to the point by point improvement of new sets of responsibilities. Certain instruments, for example, stream graphing or prepare mapping will probably repress as opposed to energize the inventive parts of re-building as noted by Vacca and Andrews (1994) and Soliman (1998). Likewise complex and steady executions of Cloud Systems should be produced.

3.2 Benefits from using Cloud Systems in Supply Chain firms:

In today's business atmosphere, the inventory network firm need a very versatile data framework and they should have the capacity to change or grow their frameworks rapidly and effectively, in light of new business and clients' requests. They likewise require programming and equipment that can work in conjunction with other programming and equipment in their association or augmented store network. These frameworks must have the capacity to develop with the production network firm and in the same time encourage an abnormal state of combination among information sources, (inward and outside) and business applications. It vital to say here that numerous associations have turned out to be more worried with the more extensive issues of gaining driving edge data frameworks and innovation which are adaptable and modest and the same time can deal with the undertaking business procedures and capacities. As a rule organizations that executed Cloud System did as such after broad and fruitful Business Process Re-Engineering exertion. Appropriately there is an expanding move toward corporate methodologies that incorporate the utilization of exhaustive specialized and arrangement situated frameworks.

Cloud System usage makes drastically distinctive working techniques to accomplish the request of greatness enhancements required. Moreover Cloud System execution encourages the change in corporate administration's impression of innovation. It is likewise affirming a substitute channel through which Information Technology arrangements are being examined and chose (Soliman, 1997).

While numerous researchers, for example, Jih et al (1995) recommended that administration ought to be taking a more all-encompassing way to deal with the upgrade and bundling of business procedures and their connection with Information Technology. The methodology created by the Cloud framework could be on a very basic level not the same as past methodologies where incremental enhancements were looked for. The explanation behind this is the conviction that radical upgrades in execution are both fundamental and achievable. This conviction is a driver for most inventive inventory network firms who looked to execute Cloud Systems. Executing non cloud frameworks applications is generally gone for computerizing the prior procedures in an association. Be that as it may, the could framework is methodology is meant to definitely enhancing the utilization of Information Technology and encouraging the rise of profitability, and augmenting the advantages of the present advances in Information Technology environment. As indicated by Soliman, (1997), it is to administration's greatest advantage to assess a few execution situations and see with their own eyes the benefits, inadequacies, usage issues and the expenses connected with each. In a perfect world, what is required is a monetary investigation of business procedures, and a quantitative assessment of the execution of the organization's business forms. Some type of defense to bolster business choices to upgrade and put resources into Information Technology is important to create certainty and eagerness in Information Technology venture choices (Soliman, 1997). It is significant that, numerous production network firms found that Cloud System execution is giving them the adaptability to take control of the business circumstance and offer clients a more extensive scope of administrations while streamlining forms, and controlling cost (Soliman, 2012b). Suppliers of business and framework joining administrations require suitable stages for creating and introducing the applications. They are confronting the test of incorporating innovation situated framework with business forms. The mapping of the proposed seven exploration theories and the related composite arrangements of components (CSFs) could turn out to be critical for upgrading the operations of the inventive store network firms.

4.0 Methodology and Research Model

Since there has been no distributed work found on CSF investigation of Cloud implementation in the writing at the season of this study, the proposed research model uses a percentage of the essential, surely understood and globally perceived past CSF contemplates in data frameworks (IS). Papers on CSFs study which have been counselled are those of Rockart (1979a, 1979b), Martin (1982), Miller

et al. (1987), McCredie and Updegrove (1999), Kuang et al., (2001) and Nelson and Somers (2001), Soliman et al. (2001), Jamoo, (2008) and Hong, (2001) and Gide, (1999).

The population will be the supply chain firms in Qatar. Self-administered questionnaire will be used in this study to collect primary data. The questionnaire consists of six sections which will collect the necessary information pertaining to this study. Most of the questions were closed with rating scales. This means that respondents will provide with a range of multiple answers for each question. Descriptive analysis (frequencies, percentages, and means) and inferential analysis (factor analysis, correlation, one-way ANOVA, independent sample t-test and multiple regressions) will be employed to analyse the data using the latest SPSS version. Prior to the study, a pilot test was conducted to ascertain the validity and reliability of the measurement used. The pilot test was conducted a mong 10 firms who were adopting the system. The overall pilot test showed that there was no major change or revision needed.

4.1 Hypothesis

In this study, it is proposed that the five sets of hypotheses that are likely to impact on success or otherwise of Cloud Systems implementation in Qatari firms will be identified. The variables are tentatively selected from various IT/IS related literature. Those factors will need to be verified by a panel of Focus groups. The five potential factors are follows:

1. Selection of the Cloud framework (equipment, programming and system);
2. Management responsibility and backing;
3. Implementation's viability;
4. Users' preparation; and
5. Technological skill.

After check from the Focus Group, it is conceivable to recommended that the provisional applied examination model will comprises of five hypothesis for this exploration are as planned underneath:

H1: **The determination of the Cloud System for implementation** is emphatically identified with Cloud System usage achievement.

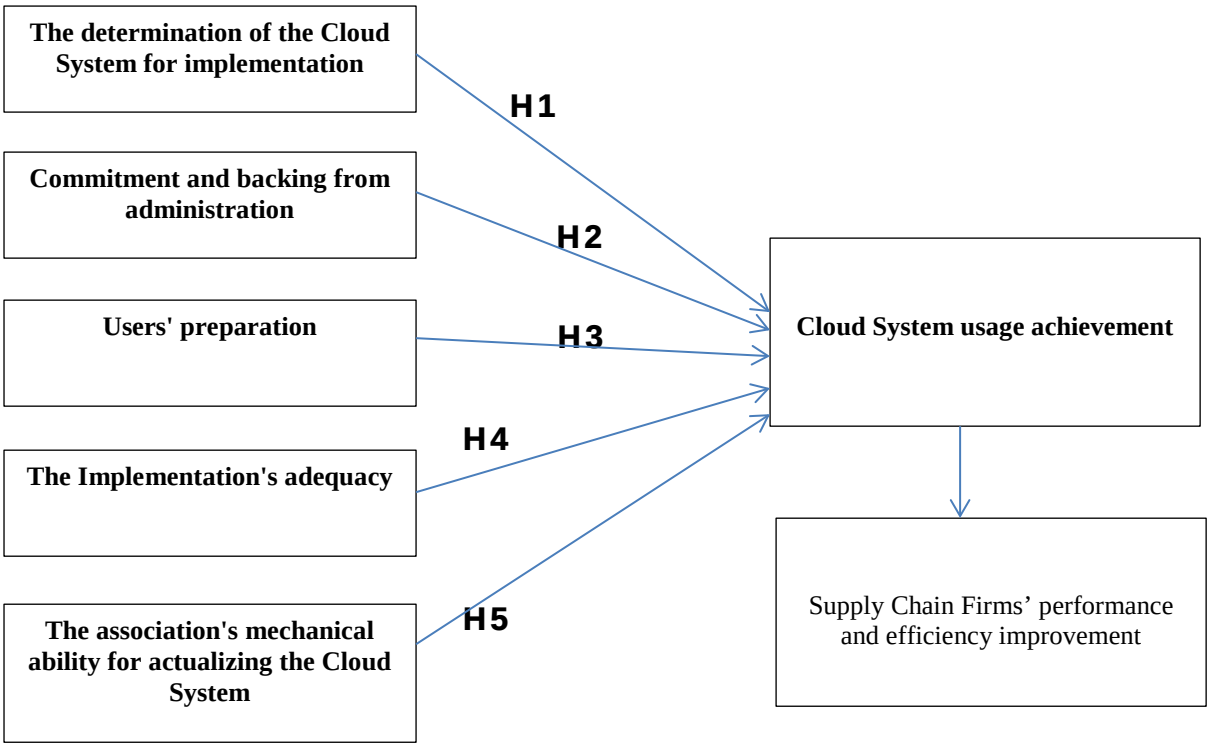
H2: **Commitment and backing from administration** are identified with Cloud **system** usage achievement.

H3: **Users' preparation** is emphatically identified with Cloud System **usage** achievement.

H4: **The Implementation's adequacy** is absolutely identified with Cloud **s**ystem usage achievement.

H5: **The association's mechanical ability for actualizing the Cloud System** is absolutely identified with Cloud System usage achievement.

4.2 Research proposed Model



Indeed, this study is proposed to give both hypothetical and pragmatic new bits of knowledge into the execution of a Cloud System as a vital information administration apparatus. A Cloud System usage is intricate and includes various diverse equipment, programming and foundation setup. It is foreseen this examination will indicate various variables that can add to the accomplishment of a Cloud Systems usage as a key information administration instrument in the chose creative inventory network as well as in different associations. It is trusted that the structure introduced in this examination and the discoveries displayed could frame a base essential hypothesis that can help facilitate improvement in Cloud System research. It is foreseen this study could convey significant bits of knowledge to help associations that are considering the execution of a Cloud System.

5.0 Findings and Discussion

Case Processing Summary

		N	%
Cases	Valid	44	100.0
	Excluded	0	.0
	Total	44	100.0

a. Leastwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.907	20

Correlations

		The determination of the Cloud System for implementation	Commitment and backing from administration	Users' preparation	The Implementation's adequacy	The association's mechanical ability for actualizing the Cloud System	Cloud System usage achievement
The determination of the Cloud System for implementation	Pearson Correlation	1	.273**	.465**	.404**	.575**	.517**
	Sig. (2-tailed)		.001	.000	.000	.000	.000
	N	44	44	44	44	44	44
Commitment and backing from administration	Pearson Correlation	.273**	1	.537**	.302**	.496**	.577**
	Sig. (2-tailed)	.001		.000	.000	.000	.000
	N	44	44	44	44	44	44
Users' preparation	Pearson Correlation	.465**	.537**	1	.272**	.528**	.312**
	Sig. (2-tailed)	.000	.000		.001	.000	.000
	N	44	44	44	44	44	44
The Implementation's	Pearson Correlation	.404**	.302**	.272**	1	.383**	.231**

adequacy	Sig. (2-tailed)	.000	.000	.001		.001	.000
	N	44	44	44	44	44	44
The association's mechanical ability for actualizing the Cloud System	Pearson Correlation	.273**	.301**	.537**	.302**	1	.262**
	Sig. (2-tailed)	.001	.001	.000	.000		.000
	N	44	44	44	44	44	44
Cloud System usage achievement	Pearson Correlation	.455**	.539**	.537**	.252**	.627**	1
	Sig. (2-tailed)	.001	.001	.000	.000	.001	.
	N	44	44	44	44	44	44

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation coefficient for each pair of variables appears at the intersection of one variable's row and the other variable's column. Each variable correlates perfectly with itself, as evidenced by the coefficients of +1.00 at the intersection of a particular variables' row and column. The association's mechanical ability for actualizing the Cloud System correlates strongly with the Cloud System usage achievement (rXY = +.627). A moderate correlation exists between the Commitment and backing from administration and the Cloud System usage achievement (rXZ = +.539) as well as between the Users' preparation and the Cloud System usage achievement (rYZ= +.537). The fact that all of these correlation coefficients have positive values indicates that increases in one variable correspond to increases in the other.

Likert Scale

Opinion	Weight mean	Opinion
Strongly disagree	From 1.00 to 1.85	Very low
Disagree	From 1.86 to 2.71	Low
Slightly disagree	From 2.72 to 3.57	Slightly low
Neither disagree nor agree	From 3.58 to 4.43	Moderate
Slightly agree	From 4.44 to 5.29	Slightly high
Agree	From 5.30 to 6.15	High
Strongly agree	From 6.16 to 7.00	Very high

		Levene's Test for Equality of Variances							
		F	Sig.	t	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
The determination of the Cloud System for implementation	Equal variances assumed	.152	.697	.092-	.927	.01170-	.12772	.26417-	.24078
	Equal variances not assumed			.093-	.926	.01170-	.12620	.26308-	.23969
Commitment and backing from administration	Equal variances assumed	.081	.776	.757-	.450	.09490-	.12529	.34257-	.15278
	Equal variances not assumed			.762-	.448	.09490-	.12449	.34292-	.15313
Users' preparation	Equal variances assumed	.866	.354	2.563-	.011	.28989-	.11311	.51349-	.06628-
	Equal variances not assumed			2.494-	.015	.28989-	.11623	.52172-	.05805-
The Implementation's adequacy	Equal variances assumed	.908	.342	.207	.837	.03173	.15353	.27177-	.33523
	Equal variances not assumed			.213	.832	.03173	.14909	-.26506-	.32852
The association's mechanical ability for actualizing the Cloud System	Equal variances assumed	.081	.776	.757-	.450	.09490-	.12529	.34257-	.15278
	Equal variances not assumed			.762-	.448	.09490-	.12449	.34292-	.15313

5.1 Hypothesis testing

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
The determination of the Cloud System for implementation	Between Groups	.091	2	.045	.094	.910
	Within Groups	67.842	41	.481		
Commitment and backing from administration	Total	67.933	43			
Users' preparation	Between Groups	2.785	2	1.392	3.123	.047
	Within Groups	62.850	41	.446		
	Total	65.635	43			
The Implementation's adequacy The association's mechanical ability for actualizing the Cloud System	Between Groups	.347	2	.173	.442	.644
	Within Groups	55.399	41	.393		
	Total	55.746	43			
The determination of the Cloud System for implementation	Between Groups	5.660	2	2.830	4.313	.015
	Within Groups	92.531	41	.656		
	Total	98.191	43			
Commitment and backing from administration	Between Groups	.093	2	.055	.093	.920
	Within Groups	66.731	41	.491		
	Total	65.823	43			

6.0 Conclusions

This study contributes to the literature and the practice of supply chain firms' managers in Qatar by presenting the following conclusions:

1. The cloud system adoption by supply chain firms in Qatar has a positive influence on performance and efficiency improvement.
2. The selected factors such as The association's mechanical ability for actualizing the Cloud System , the Commitment and backing from administration and the Users' preparation to be more important to adopt cloud systems by supply chains firms in Qatar than other factors.
3. Some of the factors in cloud system adoption, appear to be more important to success than other factors.

4. The findings suggest that the effect of cloud system adoption on supply chain firms' profitability is indirect, mediated by other factors.
5. The cloud system adoption can remove many of the competitive advantages of larger enterprises in Qatari market and provide opportunities for supply chain firms.
6. Top management in supply chain firms realized the importance of cloud system adoption form, hence, supply chains in Qatar are forced to adopt cloud systems.
7. Results conclude that it is very believable that the cloud system adoption will condition minimal expenses (costs reduction) e.g. acquisition of simple technological equipment and employees training to use the system, etc.
8. The benefits of cloud system adoption in supply chain firms include the effective way for supply chain firms in Qatar to sell and advertise their products and services, improve communications with their TPs identify potential TPs.
9. Results that have been discussed and presented earlier conclude that the cloud system adoption is important for the ongoing survival of supply chain firm and innovation in Qatar.

This study clarifies the literature through four contributions: The main contribution is to extend previous research by being the first study to develop a continuous scale or model specifically measuring the cloud system adoption and usage by supply chain firms in the services and industrial sectors in Qatar, which resulted in a strong positive influence and correlation in supply chain firms' performance and efficiency improvements.

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Assessing User Engagement in Digital Library Context

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Abstract

The aim of this study is to examine the user engagement in the context of digital libraries. The assessment is based on six interrelated constructs which are endureability, perceived usefulness, focus attention, felt involvement, aesthetics and novelty. Adopting a survey research method and a paper-based questionnaire as the instrument for data collection, a total of 299 participated in the study. Using the Structural Equation Modeling approach as the data analysis technique, the results showed that, endurability is jointly determined by perceived usability, felt involvement, and focused attention. The esthetic and novel is also found to have a significant effect on felt involvement and focused attention.

Keywords: user assessment, user engagement, usability, digital library

Introduction

As library collections are increasingly dominated by online content, the concepts of 'digital libraries' and 'libraries' are less distinguishable than they were in the 1990s, when digital libraries began to emerge (Calhoun, 2014). Since its inception, the digital library have led to the rapid growth in the availability of open, freely available digital content. Smith (2001) defined a digital library as an organized and focused collection of digital objects, including text, images, video and audio, with the methods of access and retrieval and for the selection, creation, organization, maintenance and sharing of collection.

Research on the assessment of the digital library has been mainly revolving around adoption and usability, giving less attention on user engagement. While engagement, to a certain extent, can be equated to usage, it is however, goes beyond that, and can include multiple dimensions focusing on affective, cognitive and behavioral (O'Brien & Toms, 2010). User engagement is also attributed to users' attitudes toward systems (e.g., usability, aesthetic appeal) and focuses on individual users' thoughts, feelings and their degree of activity during system use (O'Brien & Toms, 2013). According to Green et al., (2015) user engagement is increasingly acknowledged to be critical to the value of digital collections.

Dervin (1998) stated that user engagement in information searching is not only a process of retrieval, but also a process of sense or meaning construction, in which users make sense their current situation with knowledge, ideas, opinions, or effective interactions. Xu (2015) opined that it is necessary to explore the concept user engagement for the better understanding of users' information search process and sense making. This is also essential for the better understanding on the interaction between information users and digital library designer. Given the dearth of studies on user engagement in the context of digital library, this study was an attempt to fill this gap.

Theoretical Framework

Figure 1 depicts the research model used in the study. It was developed by O'Brien and Toms (2010) based on the user engagement with on-line shopping. The model consists of six interrelated constructs, namely, endurability, perceived usefulness, felt involvement, focused attention, aesthetics and novelty. The operational definition of the constructs is given in Table 1. According to O'Brien and Toms (2010), the model consists of distinct stages characterized by the presence of specific attributes. The point of engagement occurs when the user decides to invest in the interaction and it is precipitated by the aesthetic or novel aspects of the interface that work to capture users' attention and interest.

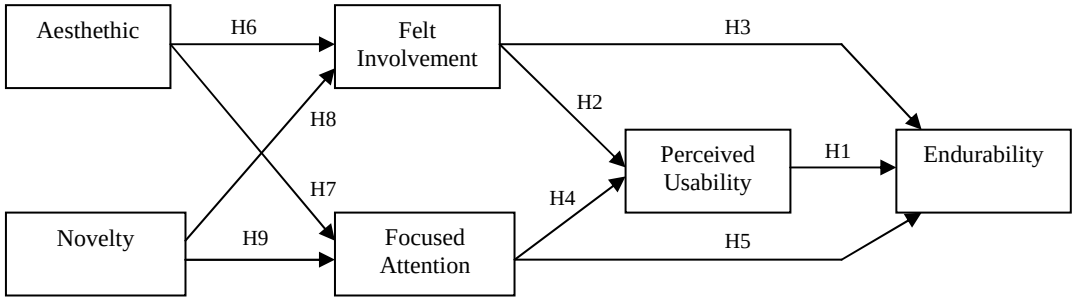

Fig. 1. Theoretical Framework adopted from O'Brien & Toms (2013).

Table 1. Operational definition of ISCM constructs

Constructs in ISCM	Operational Definition	Corresponding Hypotheses
Endurability	The assessment of users' perception of success with a task, and their willingness to use an application in the future or recommend it to others	-
Perceived Usability	Users' affective (e.g., frustration) and cognitive (e.g., effort) responses to the digital library.	*H1: Perceived Usability significantly predicts endurability*
Felt Involvement	Users' feelings of being drawn in, interested, and having fun during the interaction with the digital library	*H2: Felt involvement significantly predicts perceived usability* *H3: Felt involvement significantly predicts endurability*
Focused Attention	The concentration of mental activity contained some elements of flow, specifically focused concentration, absorption, and temporal dissociation	*H4: Focused attention significantly predicts perceived usability* *H5: Focused attention significantly predicts endurability*
Aesthetic	The assessment of user's perception regarding the interface, such as the screen layout and graphics/images. It also measures users' overall aesthetic impressions of the digital library attractiveness and sensory appeal	*H6: Aesthethic significantly predicts felt involvement* *H7:Aesthethic significantly predicts focused attention*
Novelty	The assessment of the user's perception of the extent that the digital library stimulates curiosity. It also gauges experience in the form of surprises, unexpected, or new information at various points in time.	*H8: Novelty significantly predicts felt involvement* *H9:Novelty significantly predicts focused attention*

Research Methods

The study used a survey research method with a paper-based questionnaire as the instrument for data collection. The questionnaire was designed based on the instruments used by previous studies. Perceptual measures in the form of statements were used for measuring each construct with a corresponding Likert scale anchored as 1 for "Strongly Disagree"; 2 for "Disagree"; 3 for "Neither Agree Nor Disagree"; 4 for "Agree" and 5 for "Strongly Agree". The questionnaire was pre-tested with several experts and prospective respondents. Consequently, it was pilot test was carried out with 30 students. The results of the pilot indicated that the questionnaire was acceptably reliable because the Cronbach Alpha for all construct surpassed the 0.7 mark. The population of the study was students of the Faculty of Information Management, Universiti Teknologi MARA, Malaysia. Using the simple random sampling technique, a total of 400 questionnaires distributed to targeted students. A total of 352 questionnaires was returned, and upon further scrutiny, 53 had to be dropped from further analysis because more than 20% of the questionnaire were not answered. Statistical software named SPSS and AMOS version 22 were used for the data analysis. The SPSS were used for data entering (coding), descriptive analysis and common method bias analysis. The AMOS version 22 was used for Structural Equation Modelling (SEM).

Findings

Demographic Profile

Out of 299 respondents who participated in the study, 75.6% equivalent to 226 respondents were female. A total of 230 equivalent to 76.9% stated as pursuing undergraduate programs while the remainder were postgraduate programs, either at Masters or Phd.

Common Method Bias and Normality Assessment

As this research used single respondent to answer all questions in the questionnaire, therefore, the presence of common method bias is inevitable. To examine whether such threat is really presence, the Harman's single factor test was executed. The result showed that that the total cumulative variance is 30.261% which is less that the suggested score of not more than 50%. The results implied that the questionnaire use in the study is free from common method bias. Given that SEM requires that the data need to be univariately and multivariately normal, the skewness and kurtosis for all items were therefore examined. The results showed that all items scored are not more than the suggested value of 3 and 10 respectively. The multivariate normality test was executed by comparing the Mardia's score with p (p+2), where p is the observed variable, and in this study it is 20. The Mardia's score obtained in the study is 32.95 which is less than 440 suggesting that multivariate normality can be assumed.

Measurement Model (Confirmatory Factor Analysis)

Prior to testing the formulated hypotheses, a measurement model was developed as assessed. The diagram used in the analysis is presented in Figure 2. Table 2 shows the factors loading for item measuring construct. The majority of the factors loading is above 0.7 marks. Only five items has factor loading less than 0.7. One item has factor loading above 0.8.

Table 2. Factors Loadings of Items Measuring Constructs

Constructs	Item code	Item	Loading
Endureability	EN1	Resource finding in the digital library website is very rewarding	0.724
	EN2	Resource finding in the digital library website has always been successful	0.703
	EN3	I will always use the digital library website to find academic resources	0.724
	EN4	I will always recommend to my colleague to use the digital library website	0.722
Perceived Usability	PU1	The digital library website is well designed to find what I want	0.739
	PU2	I can complete a resource-finding task quickly using the digital library website	0.738
	PU3	The digital library website is easy to use to perform my search tasks	0.714
	PU4	Using the digital library wesbite has never been frustrating for me	0.641
Felt Involvement	FE1	When using the digital library website, I was really drawn to my resource finding task	0.773
	FE2	I felt fully involved in resource finding when using the digital library website	0.752
	FE3	Resource finding task using the digital library website was fun	0.694
Focused attention	FO1	I forgot about my immediate surroundings while using the digital library websites	0.679
	FO2	I lost track of time while using the digital library website	0.737
	FO3	I was so involved in using the digital library website that I ignored everything around me.	0.748
Aesthetic	AE1	The digital library website was attractive	0.690
	AE2	The digital library website was visually appealing	0.814
	AE3	I liked the graphics and images used in the digital library websites	0.735
Novelty	NO1	I continued using the digital library websites out of curiosity	0.691
	NO2	The content of the digital library website incites my curiosity	0.710
	NO3	I felt more interested with my resource finding when using the digital library website	0.721

SEM requires the assessment of convergent validity and discriminant validity. To fulfill this requirement, the Composite Reliability (CR), Average Variance Extracted (AVE), Maximum Shared Variance (MSV), and Average Shared Variance (ASV) were measured. The reliability assessment requires that the Composite Reliability (CR) is above 0.7. The convergent validity requires that the Average Variance Extracted (AVE) is above 0.5. The discriminant validity is achieved when the Maximum Shared Variance (MSV) is less than Average Variance Extracted (AVE); the Average Shared Variance (ASV) is less than Average Variance Extracted (AVE) and the square root of AVE greater than inter-construct correlations. Table 3 shows the results of the convergent validity test while Table 4 presents the results of the discriminant validity test.

Table 3. Factor Loadings of Items Measuring Constructs

	Composite Reliability (CR)	Average Variance Extracted (AVE)	Maximum Shared Variance (MSV)	Average Shared Variance (ASV)
Focused Attention (FO)	0.765	0.521	0.278	0.193
Aesthetic (AE)	0.791	0.560	0.206	0.104
Novelty (NO)	0.750	0.500	0.304	0.211
Perceived Usefulness (PU)	0.801	0.503	0.318	0.176
Felt Involvement (FE)	0.784	0.548	0.304	0.191
Endureability (EN)	0.810	0.516	0.318	0.268

Table 4. Results of Discriminant Validity Assessment

	FO	AE	NO	PU	FE	EN
Focused Attention (FO)	**0.722**					
Aesthetic (AE)	0.309	**0.748**				
Novelty (NO)	0.492	0.249	**0.707**			
Perceived Usefulness (PU)	0.428	0.265	0.418	**0.709**		
Felt Involvement (FE)	0.406	0.295	0.551	0.365	**0.740**	
Endureability (EN)	0.527	0.454	0.521	0.564	0.517	**0.718**

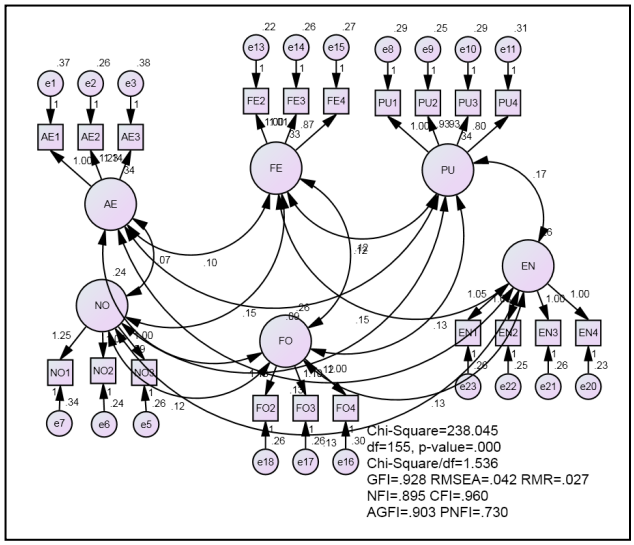

Fig. 2. Measurement Model

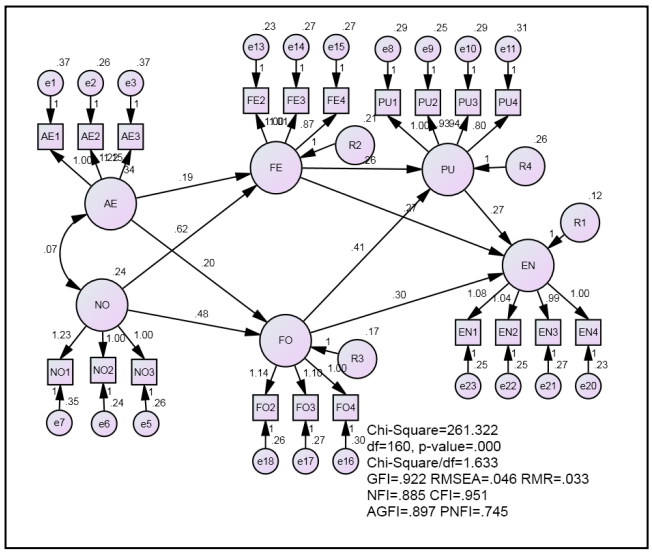

Fig. 3. Structural Model

SEM analysis requires that the measurement model being developed fulfilled the fit criteria. In other words, the measurement model that has been developed must meet several fit criteria as stated by Hair et al. (2010).. The measurement model is regarded as acceptable when p-value of the Chi-square is above 0.05; the discrepancy divided by the degrees of freedom is less than 3.00; the Goodness of Fit Index (GFI), the Normed Fit Index (NFI) and the Comparative Fit Index (CFI) are above 0.9; the Root Mean Square Error of Approximation (RMSEA) and Root Mean Square Residual (RMR) are less than 0.05; the Adjusted Goodness of Fit Index (AGFI) is above 0.8 and Parsimonious Normed Fit Index (PNFI) is above 0.5. As illustrated in Table 5, most of the fit criteria are fulfilled in the measurement model.

Table 5. Fit Indices of Measurement and Structural Model

Fit Index	Fit Criteria	Measurement Model
Chi Square ($\chi^{2)}$		261.322
Degrees of freedom		160
P-value (probability)	≥ 0.5	0.000
Absolute fit measures		
CMIN (χ^2)/DF	3	1.633
GFI (Goodness of Fit Index)	≥ 0.9	0.922
RMSEA (Root Mean Square Error of Approximation)	≤ 0.05	0.046
RMR (Root Mean Square Residual)	≤ 0.05	0.033
Incremental fit measures		
NFI (Normed Fit Index)	≥ 0.9	0.885
CFI (Comparative Fit Index)	≥ 0.9	0.951
Parsimony Fit Measures		
AGFI (Adjusted Goodness of Fit Index)	≥ 0.8	0.897
PNFI (*Parsimonious Normed Fit Index)*	≥ 0.5	0.745

Structural Model (Hypotheses Testing)

In order to test the hypotheses, structural model was developed and assessed as shown in Figure 3. Table 6 presents the results of the analysis. As shown in the table, the p-values are significant either 0.01 or 0.001 level, hence suggesting that all established hypotheses in the study are fully supported.

Table 6. Results of Hypothesis Testing

	Estimate	S.E.	C.R.	P	Hypotheses supported?
H1: PU → EN	.270	0.064	4.206	0.000	Yes
H2 :FE → PU	.255	0.080	3.188	0.001	Yes
H3: FE → EN	.272	0.064	4.236	0.000	Yes
H4: FO → PU	.410	0.095	4.306	0.000	Yes
H5: FO → EN	.296	0.079	3.762	0.000	Yes
H6: AE → FE	.193	0.070	2.771	0.006	Yes
H7: AE → FO	.197	0.064	3.053	0.002	Yes
H8: NO → FE	.619	0.100	6.219	0.000	Yes
H9: NO → FO	.483	0.084	5.713	0.000	Yes

Discussion

The main aim of the study has been to examine user engagement in the content of web digital library. To achieve this aim, a model developed by O'Brien and Toms (2010) was adopted. The results showed that perceived usability ($\beta = 0.270$, $p < 0.05$), felt involvement ($\beta = 0.272$, $p < 0.05$), and focused attention ($\beta = 0.296$, $p < 0.05$), are a significant predictor of endurability. The presence and an increased in these three factors will sparingly increase the endurability. Felt involvement ($\beta = 0.255$, $p < 0.05$), and focused attention ($\beta = 0.410$, $p < 0.05$), are also found to have significant effect on perceived usability. As the users feel that their involvement and attention to the digital library increases, their perception of the usability of the digital library will also increase. Both aesthetic and novel jointly predict felt involvement and focused attention. The finding reveals that the relationship between the novel and other constructs scored the highest reading as compared to other relationships in the model. The finding signifies the importance of novelty in a digital library content.

Conclusion

The purpose of this article has been to examine the user engagement in the context of digital. To achieve this purpose, an empirical based framework drawn from the work of O'Brien and Toms (2010) has been developed. The model consists of six interrelated constructs which are endureability, perceived usefulness, focus attention, felt involvement, aesthetics and novelty. The results of the analyses, fully support all the established hypotheses connecting these constructs.

There are several limitations associated with the conduct of this study. Firstly, is the sample who participated in the study were students confined to one university only. Future study, should consider extending the scope of the population by engaging students from other universities. Another limitation of this study is that it examined one digital library only. Hence, although statistically significant relationships are reported, caution is recommended in generalizing these results to other contexts.

Acknowledgement

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Customer Reactions to Service Failure and Recovery in the Restaurant Industry: A Covariance-Based SEM Approach

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Abstract

The current study examines the antecedents of recovery satisfaction among 338 customers who experienced service failures at casual restaurants in Malaysia. Data was analyzed using Covariance-Based Structural Equation Modelling (CB-SEM) technique via the utilization of Analysis of Moments Structures (AMOS). Findings indicate that distributive justice, procedural justice, and interactional justice were significantly related to customers' post-recovery satisfaction. Interactional justice demonstrates the strongest effect on recovery satisfaction compared to the other two dimensions. The study has enhanced the understanding of the antecedents of recovery satisfaction and has implications for marketing researchers and restaurateurs. It also confirms the appropriateness of justice theory in examining service recovery efforts performed by the restaurateurs. Further suggestions for future research are offered.

Keywords: service recovery, satisfaction, restaurant industry, structural equation modelling

Introduction

Customers and service providers are unable to anticipate service failure during the exchange process. Service failure could occur anytime and the service provider's manner in handling it will determine the subsequent behaviour of the customers. Thus, it is vital for the service provider to minimize the occurrence of service failure as this negative incident may tarnish the reputation of the company. A proper response plan is crucial to recover from service failure (Vázquez-Casielles, Suárez Álvarez, & Díaz Martín, 2010). Immediate service recovery can save the upset customers from switching to the competitors. Recent trend in marketing research demonstrates that focus has been directed to variety of conceptual models, methodological approaches, and industry settings pertaining to service recovery studies. However, the researchers believe that there is room for further service recovery research and the restaurant industry was selected for this study due to several reasons. Zulhan, Mohd Salehuddin, and Salleh (2013) highlighted that service failure was one of the main problem faced by most restaurateurs in Malaysia. The nature of restaurant industry that involved a high degree of interaction between the customers and the employees make service failure susceptible to happen. As the current study focuses on casual restaurant in Malaysia, it was claimed that this type of restaurant continues to be one of the most popular choices of foodservice providers in Malaysia (Salim, Rahmat, Chinna, & Kumar, 2009). Malaysian restaurant industry also has experienced a great development with the mushrooming of restaurants for the past ten years (Zulhan et al., 2013). Additionally, the family friendly atmosphere and reasonable prices offered by the casual restaurant (Hwang & Ok, 2013; Parpal, 2013) has attracted customers to dine at this type of restaurant compared to others.

Service recovery

Service recovery is an immediate action taken by the service provider to reduce the level of dissatisfaction following a service failure (Andreassen, 2000; Waqas, Ali, & Khan, 2014). Service recovery is designed to effectively rectify the problem experienced by the customers. As a result, the

customers can be returned to the state of satisfaction and it will lead to positive behavioral intentions (Miller, Craighead, & Karwan, 2000). Service recovery should be a part of restaurant's customer service culture as extant studies claimed that it is one of the critical success factors for any service organizations (Keeffe, Russell-Bennett, & Tombs, 2007). Service recovery strategies should be carefully designed as it may lead to positive or negative consequences. Service recovery paradox (Smith & Bolton, 1998) is a term used to describe positive consequences of service recovery. According to service recovery paradox, the level of customer satisfaction will be higher after their problem is taken care of compared to those who never encountered problem with the service provider (Michel & Meuter, 2008). Service recovery paradox exists whenever the level of customer satisfaction, repurchase intentions, and positive word of mouth are higher than those who never experienced service failure (McCollough & Bharadwaj, 1992). The existence of service recovery paradox has been proved in the studies conducted by Maxham and Netemeyer (2002), Boshoff (1997), and Smith and Bolton (1998). On the contrary, double deviation (Smith & Bolton, 1998) is a term used to describe the negative consequences of poor service recovery. Double deviation occurs whenever customers experienced a service failure and followed by a poor service recovery (Casado-Díaz, Más-Ruiz, & Kasper, 2007). Double deviation is a serious threat as the frustrated customers will become more dissatisfied and it can lead to customer defection (Smith & Bolton, 1998; Tax & Brown, 1998).

In this study, service recovery was examined based on three dimensions of justice theory namely distributive justice, procedural justice, and interactional justice. Previous research claimed that justice theory has been regarded as one of the main point of references in service recovery studies (Lin, 2012; Prasongsukarn & Patterson, 2012; Wen & Chi, 2013). Justice theory emerged from the combination of equity theory (Adams, 1965) and social exchange theory (Homans, 1961). According to equity and social exchange theories (Adams, 1965; Bagozzi, 1975; Homans, 1961), the amount of input should be equal to the outcome to be considered as a fair exchange. An unfair exchange will occur if the customers perceived that the outcomes that they received is not equal to what they have paid to the service providers. Additionally, mutual relationship can only be established if both parties perceived that the exchange is fair.

Distributive justice

Distributive justice is defined as the outcomes that the customer received as a result of service recovery (McColl-Kennedy & Sparks, 2003). The outcomes may consist of providing a replacement for an incorrect meal, discount for a slow service, cash refund for a defect product, or voucher for the next visit. The purpose of distributive justice is to reduce customer dissatisfaction by providing a something that is equal to the amount of loss. Distributive justice is also considered as a tangible replacement or monetary rewards that the customer should receive due to service failure (Río-Lanza, Vázquez-Casielles, & Díaz-Martín, 2009). Distributive justice is one of the critical aspects that should be focused in performing service recovery as it can lead to recovery satisfaction and future behavioral intentions (such as repeat purchase, positive word of mouth and loyalty). Preceding studies by Nikbin, Ismail, Marimuthu, and Jalalkamali (2010), Prasongsukarn and Patterson (2012), Ha and Jang (2009), and Ok (2004) found that distributive justice positively influences recovery satisfaction in various industry settings. Therefore, the following hypothesis is proposed based on the aforementioned discussion:

H1: Distributive justice positively influences recovery satisfaction.

Procedural justice

Procedural justice is described as the processes, procedures or functions that involved during the attempt to recover from the service failure (Dong, Evans, & Zou, 2008; Mattila, 2001). It may also concern with the amount of time taken to solve the problem (Smith, Bolton, & Wagner, 1999; Wirtz & Mattila, 2004), follow-up process (Patterson, Cowley, & Prasongsukarn, 2006), and flexibility of the complaint procedures (Smith et al., 1999). Procedural justice is essential in service recovery as dissatisfied customers expect their problem to be resolved immediately with less-hassle procedures. Therefore, the service provider needs to ensure that their service recovery procedures are flexible as

each customer's problem is unique. Extant studies demonstrate that upset customers can be remedied if the service providers are able to react to their problem in a timely manner. Consistent with the studies conducted by Chang and Chang (2010), Wirtz and Mattila (2004), Maxham and Netemeyer (2002), and Lii, Pant, and Lee (2012), it was found that a higher level of procedural justice can lead to an increase in customer's post recovery satisfaction. Based on the preceding discussion, the following hypothesis is derived:

H2: Procedural justice will positively influences recovery satisfaction.

Interactional justice

Interactional justice concerns with the interaction process that takes place during service recovery (Sparks & McColl-Kennedy, 2001). It includes the act of politeness, empathy, and respect by the service providers in resolving the problem (Goodwin & Ross, 1992; Ha & Jang, 2009; Smith et al., 1999). Service providers should be more vigilant when dealing with frustrated customers as poor service recovery may lead to a more serious problem (or double deviation). A courteous or polite reply to customer's complaint may calm the customers and previous studies postulate that such manners can lead to positive consequences. Studies performed by Wirtz and Mattila (2004), Andreassen (2000), Lii et al. (2012), and Nikbin et al. (2010) found that interactional justice was an antecedent to recovery satisfaction. Due to this notion, the following hypothesis is proposed:

H3: Interactional justice positively influences recovery satisfaction.

Based on the aforementioned discussion on distributive justice, procedural justice, and interactional justice, the following conceptual framework (Figure 1) is proposed to be examined for the current study:

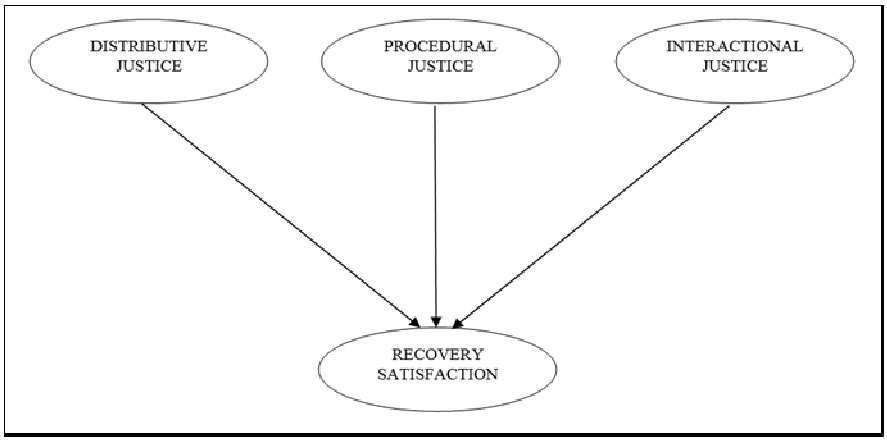

Figure 1: Conceptual framework of the study

Methodology

A total of 400 questionnaires were distributed to respondents in the metropolitan areas of Kuala Lumpur, Selangor, Penang, and Johor in Malaysia. These areas were selected due to the rapid establishment of restaurant premises in recent years as reported by Euromonitor International (2013). A non-probability purposive sampling technique was used for data collection due to the notion that the occurrence of service failure cannot be anticipated and the utilization of probability sampling will only result in small number of sample size (Schoefer & Ennew, 2005). Out of 400 distributed questionnaires, 62 questionnaires were discarded due to problems such as outliers, missing values, and straight-linings (Hair, Black, Babin, & Anderson, 2010; Hair, Hult, Ringle, & Sarstedt, 2014; Sekaran & Bougie, 2010). The respondents were only eligible to answer the questionnaire if they have experienced service failure and recovery within the past one year (to avoid memory bias). A few

screening questions were asked in the questionnaire to ensure the eligibility of the respondents. The items for the questionnaire were adapted from previous research with minor modifications to cater for the current study context. The items for distributive justice, procedural justice, interactional justice, and recovery satisfaction were adapted from Blodgett, Hill, and Tax (1997), Maxham and Netemeyer (2002); Smith et al. (1999); Vázquez-Casielles, Suárez Álvarez, and Díaz Martín (2010), and Río-Lanza et al. (2009). A 5 point Likert scale anchored at 1 = strongly disagree and 5 = strongly agree was used in the questionnaire. The data was later analyzed using Covariance-Based Structural Equation Modelling (CB-SEM) approach via the utilization of Analysis of Moment Structures (AMOS) version 21. AMOS was employed due to its capability to analyze the hypothesized relationship simultaneously and the software is appropriate for theory confirmation (Byrne, 2010; Hair et al., 2010).

Results

The model was empirically tested using AMOS version 21. Generally, the SEM model can be decomposed into two sub-models: a measurement model, and a structural model (Byrne, 2010). The measurement model was first tested before the structural model. The following sub-sections will further discuss the assessment of both sub-models.

Measurement model

The measurement model should be assessed before the researcher can proceed to examine the relations among the unobserved variables (latent constructs). The purpose of analyzing the measurement model is to provide support for the issues of dimensionality (the relations between observed and unobserved variables), convergent, and discriminant validity (Byrne, 2010; Hair et al., 2010). Table 1 summarizes the results of internal reliability and convergent validity for all the constructs. The purpose of convergent validity is to demonstrate that the indicators of a specific construct should share a high proportion of variance in common (Hair et al., 2010). Thus, convergent validity was examined based on factor loadings, average variance extracted (AVE), and composite reliability (CR) (Fornell & Larcker, 1981; Hair et al., 2010).

The assessment of modification indices were also performed. It was revealed that the fit of the model could be further improved by eliminating several cross-loading items. Accordingly, cross-loading items were eliminated one at a time, starting with the one displaying the highest modification index. As a result, 1 item was dropped from both distributive and interactional justice, and 2 items were dropped from recovery satisfaction. A significant improvement in fit was noted with the value for Chi-square = 280.290; Chi-square /*df* =2.480; GFI (good-fit-index) = 0.910; AGFI (adjusted good-fit-index) = 0.878; CFI (comparative-fit-index) = 0.965; RMSEA (root mean square error of approximation) = 0.066. Additionally, the factor loading for all items in this study exceeded the recommended level of 0.7 (Hair et al., 2010) and the CR values were above 0.7 (Gefen, Straub, & Boudreau, 2000). The AVE for all constructs exceeded the suggested value of 0.5 and the values for Cronbach's Alpha were all more than 0.7 (Hair et al., 2010; Nunally, 1978). Thus, it can be concluded that the measurement model fitted the data well based on the guidelines recommended by Hair et al. (2010).

Table 1: Convergent validity

Construct	Factor Loadings	AVE	CR	Cronbach's Alpha
Distributive justice		0.70	0.921	0.922
The restaurant compensated me adequately to solve the problem.	0.79			
The restaurant put proper effort into offering a satisfactory compensation.	0.81			
I think the restaurant was fair when compensating me for the problem that occurred.	0.84			

In resolving the problem, the restaurant gave me what I deserved.	0.86			
The compensation I received was right.	0.88			
Procedural justice		0.621	0.868	0.867
I think the restaurant has good policies and practices for dealing with problems.	0.77			
Despite the hassle caused by the problem, the restaurant was able to respond in a timely manner.	0.84			
The restaurant tried to solve the problem as quickly as possible.	0.76			
I believe the restaurant's complaint handling procedure was adequate.	0.78			
Interactional justice		0.681	0.914	0.915
The restaurant employees were appropriately concerned in my problem.	0.85			
The restaurant employees did everything possible to solve my problem.	0.89			
The restaurant employees were honest when dealing with my problem.	0.83			
The restaurant employees showed enough authority to solve the problem.	0.80			
The restaurant employee's communication with me were acceptable when solving the problem.	0.75			
Recovery satisfaction		0.812	0.968	0.927
I am satisfied with the way my problem was dealt with.	0.93			
I am happy with the way my problem was solved.	0.94			
In my opinion, the restaurant provided a satisfactory solution to this particular problem.	0.83			

Consequently, discriminant validity was performed to examine the degree to which the construct is truly different from other constructs (Hair et al., 2010). Discriminant validity can be assessed by comparing the correlations between constructs and square root of the AVE for a construct (Fornell & Larcker, 1981). The results in Table 2 indicate that the correlations for each construct was smaller than the square root of the AVE. Diagonals represent the square root of the AVE while the other entries represent the correlations. Thus, discriminant validity was achieved. Overall, the measurement model demonstrated adequate reliability, convergent validity, and discriminant validity.

Table 2: Discriminant validity of constructs

Construct	1	2	3	4
1. Distributive justice	**0.837**			
2. Procedural justice	0.755	**0.788**		
3. Interactional justice	0.604	0.780	**0.825**	
4. Recovery satisfaction	0.704	0.784	0.761	**0.901**

Structural model

The structural model was analyzed using AMOS through path analysis. All the fit indices were above the recommended values. The value of Chi-Square = 280.290; Chi-Square/*df* = 2.480; AGFI = 0.878, GFI = 0.910, CFI = 0.965, TLI = 0.958, RMSEA = 0.066. According to Table 3, H1 demonstrates a significant positive relationship between distributive justice and recovery satisfaction. Hypothesis 1 was therefore supported. Path analysis between procedural justice and recovery satisfaction demonstrates a positive significant relationship. Hypothesis 2 was therefore supported. Hypothesis 3 suggested that interactional justice is positively related to recovery satisfaction. Path analysis provided empirical support for the significant positive relationship between the two constructs. Hypothesis 3 was therefore supported. The R^2 value for the relationship between the independent variables and recovery satisfaction was 0.70 which indicates that 70% of the variance in recovery satisfaction can be explained by all three dimensions of service recovery.

Table 3: Summary of the structural model

Path	**Hypothesis**	**Path coefficient**	***t*-Value**	**Decision**
Distributive justice -> Recovery satisfaction	H1	0.248	3.990***	Supported
Procedural justice -> Recovery satisfaction	H2	0.307	3.497***	Supported
Interactional justice -> Recovery satisfaction	H3	0.371	5.466***	Supported
$R^2 = 0.70$				

**p < 0.05, **p < 0.01, *** p < 0.001*

Discussion and conclusion

The results obtained from the structural model indicate that the current study has a relatively good model fit with an R^2 of 0.70. The empirical results demonstrate that distributive, procedural, and interactional justice were positively related to recovery satisfaction. Thus, all the hypothesized relationships were supported. The results are consistent with preceding studies conducted by Lii et al. (2012), Wirtz and Mattila (2004), and Patterson et al. (2006). The results indicate the critical role of service recovery in ensuring customer satisfaction as it can lead to positive behavioral intentions. Service recovery is indeed a remedy to save upset customers and if properly executed, the customer's level of satisfaction could be higher compared to those who never experienced service failure. According to Smith and Bolton (1998), such phenomenon is called as service recovery paradox. As this study was conducted in casual restaurant setting, restaurateurs should consider service recovery as part of their customer service strategies due to the mushrooming of restaurants in Malaysia.

The effect of interactional justice on recovery satisfaction appears to be stronger than procedural justice and distributive justice. This results indicate the importance of demonstrating empathy and being courteous when interacting with the customers when solving their problems. The empirical results are in line with the studies conducted by Tax, Brown, and Chandrashekaran (1998) and Spreng, Harrell, and Mackoy (1995) as they found that interactional justice was the most important aspect to restore customer satisfaction. Therefore, restaurant employees should display appropriate attitudes during service recovery as poor employees' manner may be disastrous as customers may spread negative word-of mouth and never come back. (Siu, Zhang, & Yau, 2013).

Overall, the present study demonstrates the need to perform service recovery by considering monetary and non-monetary compensations in the context of casual restaurant. This study helps to better understand the three dimensions of service recovery that should be considered by academicians and practitioners. Future researchers are suggested to replicate the same study in other service environment and the empirical results could be compared to see the difference.

Acknowledgement

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Dynamics of Investment of Mandatory Private Pension Funds from Romania during May 2008 - March 2015

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Abstract

Since 1990, the public pension system in Romania has started to deal with special problems, in particular demographic problems. To these were added and problems due to reduced funds for pension payments. In this context were introduced in 2007 the private pensions. It can be said that basically that was the moment when the new system of Romanian pension, came into being, structured around three pillars, one state and two private piers. In this article we propose an analysis of how it has evolved Pillar II of mandatory private pensions in Romania in May 2008 - March 2015 in terms of investment. We took into account the dynamics of the most important financial investment instruments found in Pillar II pension funds.

Keywords: mandatory private pensions, investments, Pillar II, bank deposits, corporate bonds

JEL: E26, E31

General considerations regarding the investments of private pension funds

The principles that must comply with pension companies to invest assets of pension funds are as follows: [3]

1. The investment must be made solely in the interests of participants in a way that ensures the security, quality, liquidity and profitability;

2. The investments must be made primarily in instruments traded on a regulated market, investing in instruments that are not traded on a regulated market may not exceed prudential quotas;

3. investments in derivatives are permitted only to the extent that contribute to lower investment risks or facilitate efficient portfolio management;

4. assets in which are invested must be diversified properly so as to avoid excessive reliance on any particular asset, issuer or group of undertakings and accumulations of risk in the pool of assets. Thus, the pension company may invest up to 5% of the assets of a pension fund in one company or in each category of assets thereof and a maximum of 10% of the assets of a pension fund may be invested in assets of a group of issuers (companies) and their affiliated persons.

Pension company may invest in [8]:

1. *money market instruments*, including accounts and deposits in lei at a bank, Romanian legal entity, or a branch of a foreign credit institution authorized to operate in Romania and which is not in the procedure of special supervision or special administration or whose approval is not withdrawn without exceeding a 20% share;

2. *bonds* issued by the Ministry of Public Finance of Romania, the EU Member States or belonging to EEA, a percentage up to 70% of total pension fund assets;

3. *bonds and other securities* issued by local government authorities in Romania and EU Member States or belonging to EEA, a percentage up to 30% of total pension fund assets;

4. *securities traded on regulated and supervised markets* in Romania, belonging to EU Member States or EEA, a percentage up to 50% of its total assets;

5. *bonds and other securities* issued by third countries, the percentage of up to 15% of total pension fund assets;

6. *bonds and other securities traded on regulated and supervised markets,* issued by local government authorities in third countries, the percentage of up to 10% of total pension fund assets;

7. *bonds and other securities of foreign bodies*, if such instruments are listed on recognized stock exchange and meet rating requirements as a percentage of up to 5% of the total pension fund assets;

8. *equity securities* issued by collective investment in transferable securities from Romania and other countries, the rate of up to 5% of the total pension fund assets;

9. other forms of investment laid down by the rules of the Financial Supervisory Authority (FSA).

There may not be invested pension fund assets in particular categories of assets as assets that, by law, cannot be alienated, assets whose valuation is uncertain, as well as antiques, artwork, vehicles, real estate, stocks, bonds and other securities issued by the company or any other assets of the pension rules established by (FSA) [2].

Pension company produces **a statement of investment policy** that is revised whenever a significant change occurs in the investment policy, or at least every three years, with the agreement (FSA) and informing participants.

Investment assets of private pension funds and the results of the investments are tax free. [5]

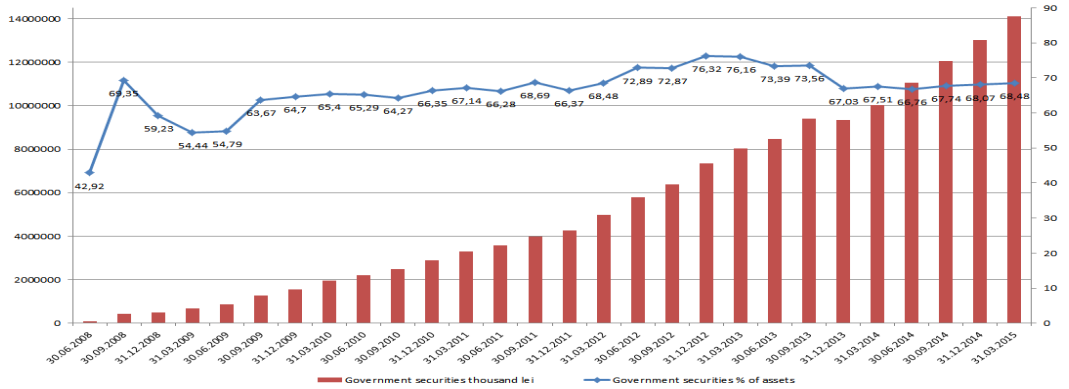
Company pension exercises in the name and the exclusive interest of the participants the right to vote at general meetings of shareholders of the companies in whose capital was invested pension fund assets [8].

Under penalty of nullity, *pension fund assets shall not constitute guarantees* and may not be used for credits. In addition, pension fund assets cannot be alienated from pension company / special administrator, auditor, depository members and (FSA) staff, individuals related to those mentioned above and any other person covered by the rules of (FSA).

The evolution of investments in government securities as main investment tool for Pillar II

In the context of a market still at the beginning of road in terms of restrictive legislation and the imposition of a very careful monitoring by (FSA), managers invested assets of private pension funds *prudently*.

In Figure 1 is described the evolution of the main tool in the investment portfolio included in Pillar II pension funds, ie government securities. It should be noted that most government securities were issued by the Romanian state (in excess of 98%). Apart from the Romanian government securities, private pension funds were invested in government bonds issued by Italy, Poland, Hungary or Croatia [6].



Data source: [4], [7]

Figure no. 1 The evolution of the value of government securities and their share in the total asset of Pillar II

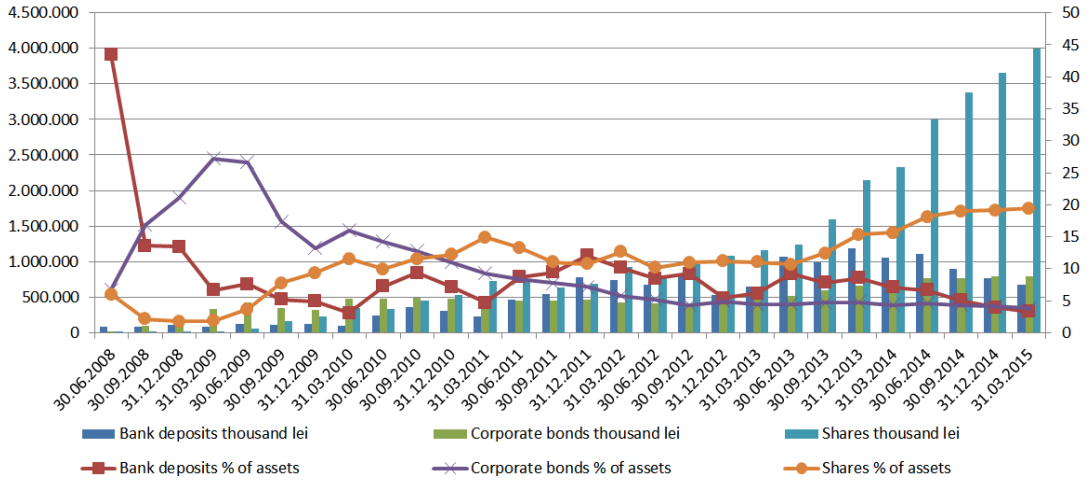
The government securities, with one exception (the first month that were reported investments - June 2008) were the instrument of investment preferred by private pension fund managers. It was also the only instrument whose value has risen almost continuously from 80 348 thousand at June 30, 2008 to 14,103,315 thousand at March 31, 2015 ie an increase of over 175 times. The very accelerated pace of increase in the value of government securities slowed from the beginning of each year, ranging from an increase of 513.6% in 2008 (from 80 348 thousand to 493 017 thousand) to the increase of 27.04% in 2013 (from 7,358,506 thousand to 9,348,514 thousand), followed in 2014 by a larger increase of 39.28%. [1]

As *a share of total assets*, government securities accounted for more than half of the investments in Pillar II, the only month when they fell below 50% being the month of June 2008, when they accounted for 42.92%, this being the only month when they were surpassed in value of another investment instrument - bank deposits. Overall, their share in Pillar II's investment portfolio increased by 25.56% from 42.92% on 30 June 2008 to 68.48% at 31 March 2015. The value of government securities shares followed the same trend of rapid growth in the beginning, their share increased most with 16.31% in 2008 (from 42.92% to 59.23%), while the lowest annual increase they had in 2011, of only 0.02% (from 66.35% to 66.37%). 2013 was the only year that saw a decrease in their share in total assets of -12.17% from 76.32%, which represented the peak of the entire period at 67.03%.

The evolution of investments in corporate bonds, bank deposits and shares in Pillar II

In Figure no. 2 we represented the evolution of the value of the other three tools commonly used by investors in Pillar II, bank deposits, corporate bonds and shares, as well as their share in total assets.

Corporate bonds occupied the second position in the investment options for two years in the third quarter of 2008 to third quarter of 2010, when they were exceeded as a share of shares. Their value increased over the period of more than 63 times from 12 520 thousand at June 30 2008 to 798 006 thousand at March 31, 2015. The year with the highest increase was in 2008 and was of 1303.96% from 12 520 thousand lei to 175 776 thousand lei, while the only year that represented a decrease was in 2011, from 476 774 thousand lei to 457 650 thousand lei (-4.01%). [1]



Data source: [4], [7]

Figure no. 2 The evolution of value of bank deposits, corporate bonds, shares and their share in the investment portfolio of Pillar II

If we look at the entire period of operation of Pillar II under review, the *share* in total corporate bonds fell by -2.86% from 6.69% in June 2008 to 3.83% in March 2015. Its evolution can be divided in two distinct periods: before the end of the first quarter of 2009 their share has grown constantly, at March 31, 2009 reaching a peak of 27.23%, after which the trend has been declining almost permanently, on 31 March 2015 reaching a nadir of 3.83%. The only year of increasing the share of corporate bonds was 2008, when it increased by 14.43% (from 6.69% to 21.12%), the developments being negative in other years. Mostly, the share declined in 2009 by -7.89%, from 21.12% to 13.23%. The main issuer of bonds to which was directed investment (over 20%) was the most commonly Romanian Commercial Bank [6].

A major feature of the mandatory pension market was that at the start of the system, pension fund managers have made large investments in bank deposits. Subsequently, following the increase in amounts collected monthly, they have diversified portfolios of investments in order to achieve the target. The main banks preferred by investors were BRD Groupe Societe Generale, Garanti Bank, Raiffeisen Bank, the Romanian Commercial Bank and Unicredit Tiriac Bank. The majority consisted of bank deposits in national currency (70%), to which were added the euro, US dollar, the Polish zloty [6].

The amount of **bank deposits** had the most irregular evolution of the main instruments of investment, the only trend that has formed is the increasing one of the year 2011. Overall, their value rose almost 9 times from 79 459 thousand lei from start to 679 088 thousand lei in March 2015. The highest annual percentage growth was registered in 2010, of 166.22%, from 116 838 thousand to 311 046 thousand, whereas in 2014 it was recorded the biggest annual fall of - 36.26% from 1,192,516 thousand lei to 760.109 thousand lei. [1]

And *the share* of bank deposits in total assets was still fluctuated in total decreasing by -40.14%, from 43.44% on 30 June 2008 to 3.3% at 31 March 2015. The year with the highest decrease in the share of bank deposits in total assets was 2008, from 43.44% to 13.43% (-30.01%), while the largest increase was recorded in 2011 and was 4.9 %, from 7.18% to 12.08%. During the period under consideration, the share of this investment tool was between 3.08% at 31 March 2010 to 43.44% at 30 June 2008.

Except for the four quarters, the value of investments in **shares** increased constantly over the period. Throughout, it has increased more than 356 times, from 11 219 thousand lei at June 30, 2008, up to 3 995 090 thousand lei in March 2015. Each year the value of shares increased, the maximum increase

being of 1433.09% in 2009 (from 14 542 thousand lei to 222 942 thousand lei) and the lowest increase of 29.62% was in 2008 (from 11 219 thousand lei to 14 542 thousand). [1]

As *a share* of total assets, shares have fared somewhat opposite bank deposits, starting with weights modest but increasing in the second half of the review period. As a global trend, the share of this instrument in total increased by 13.41% from 5.99% on 30 June 2008 to 19.4% at 31 March 2015. On an annual basis, in 2008 and 2011, the share has decreased, the largest decrease being of -4.24% in 2008 from 5.99% to 1.75%. In the other two years were recorded increase, the biggest jump was in 2009, from 1.75% to 9.34% (7.59%). The highest share was reached on 31 March 2015 of 19.4% of total assets and e the smallest share of just 1.75%, was recorded on 31.12.2008.

Over 70% of the equity investments targeted Romanian issuers among the most preferred Property Fund, Petrom, Banca Transilvania and SIF 2 Moldova. Among foreign issuers were found companies in Poland, Hungary, Germany, France and Austria. [6]

The evolution of investments in municipal bonds, bonds of foreign and nongovernmental bodies, Equity UCITS, hedging instruments and commodities and their share in the portfolio of Pillar II

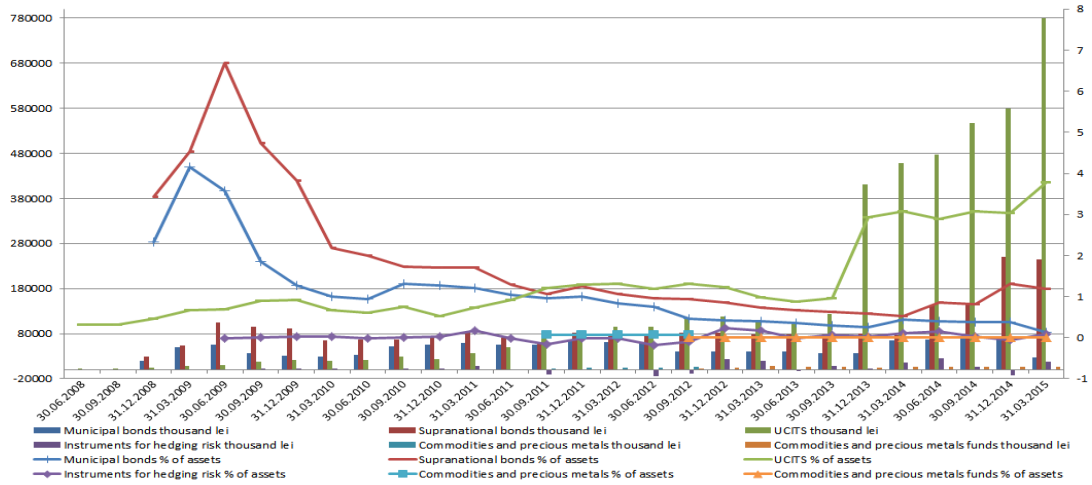
In Figure no. 3 we represented the evolution of the share and value of the less used instruments by investors in Pillar II.

It should be noted that, if we consider *municipal bonds*, first investment values appear until the first of December 31, 2008, because until then they were reported by companies with government securities. The respective aggregate values were assigned to government securities, which however had a much higher total. The evolution of the value of municipal bonds was one irregular, increasing overall by 36.88%, from 19 377 thousand lei at 31 December 2008 to 26 523 thousand lei at March 31, 2015. In four of the six years the value of municipal bonds increased, the strongest growth of 92.83% being in 2014 (from 36 438 thousand lei to 70 265 thousand lei), while the largest decrease was recorded in 2012 of -37.85% (from 64 469 thousand lei to 40 069 thousand lei) . [1]

Except for four quarters, the *share* of municipal bonds in total assets declined continuously, the overall decreasing being of -2.2% (from 2.33% to 0.13% in March 2015). On an annual basis, with the exception of 2014, every year decreases of the share were recorded, the highest decreases being in 2009 with -1.05%, from 2.33% to 1.28%. In 2014 the only growth was recorded of 0.11% (from 0.26% to 0.37%). Municipal bonds had the highest rate, 4.15% of total assets of Pillar II in March 31, 2009, and the lowest, of only 0.13% at March 31, 2015.

Investment in municipal bonds mainly targeted municipalities in Romania (in excess of 75%), but also from Finland, Sweden and Spain [6].

Foreign bodies bonds, after they have been avoided at the beginning, they had an oscillating evolution. On the whole, their amount has increased almost 9 times between December 31, 2008 and March 31, 2015 from 28 668 thousand lei to 245 444 thousand lei. From annual perspective, their value rose in four years (2009, 2011, 2012 and 2014), with higher growth in 2009 of 217.72%, from 28 668 thousand lei to 91 083 thousand lei. In 2010 the value of these investments has declined the most with -19.07%, from 91 083 thousand lei to 73 718 thousand lei. The highest level achieved by these instruments was 249 633 thousand lei at 31 December 2014 and the lowest 28 668 thousand lei at December 31, 2008. [1]



Data source: [3], [6]

Figure no. 3 The evolution of value of municipal bonds, bonds of foreign and nongovernmental bodies, Equity UCITS, hedging instruments and commodities and their share in the portfolio of Pillar II

Except for the beginning, the *share* of investments in bonds of foreign bodies fell almost continuously, with a total decrease of -2.25%, from 3.44% in December 2008 to 1.19% in March 2015. The only years growth was recorded were 2009 and 2014 with higher growth in 2014 of 0.73%, from 0.58% to 1.31%. In other years the shares fell, the most with -2.12% in 2010 from 3.82% to 1.7%. The share of this instrument investment was 0.52% at 31 March 2014 and 6.69% at 30 June 2009. The portfolio of foreign bodies bonds composed primarily of securities issued by the European Investment Bank, European Bank for Reconstruction and Development and the World Bank [6].

Although regulations establish a share of up to 5% of the total assets of a pension fund, investments in *securities issued by collective investment in transferable securities (UCITS unit)* had low weights and values at the beginning, only after 2012 managing to cross the threshold of 1%. On the whole they increased between 30 June 2008 and March 31, 2015 over 1,287 times, from 605 thousand lei to 778 815 thousand lei. Every year the level has increased, the maximum increase of 539.01% in 2008 (from 605 thousand lei to 3866 thousand lei, while the minimum of 4.57%, from 21 669 thousand lei to 22 660 thousand lei. [1]

Between 30 June 2008 - March 31, 2015, the share of the UCITS increased by 3.46%, from 0.32% to 3.78%. The largest annual increase in weight was 1.72% in 2013 (from 1.22% to 2.94%), while the largest decrease was recorded in 2011 of -0.39% (from 0.91% to 0.52%). The largest share of this instrument reached was 3.78% at March 31, 2015 and the lowest of 0.32% was recorded on 30 September 2008.

Hedging instruments and commodities, and precious metals recorded from their occurrence extremely small shares and values in total asset. Only the first category of investment overcame a one-time share of 0.2% on 31 December 2012.

If we consider the investment allocation of Pillar II country, on December 31, 2014 the situation was as follows: 93.24% investment in Romania; 1.31% bonds issued by the European Investment Bank, European Bank for Reconstruction and Development and the World Bank; 5.45% investment in EU countries, out of which 2.49% shares, 1.47% of EU corporate bonds, 0.8% EU Equity UCITS, 0.46% EU bonds and 0.23% municipal EU bonds [5].

Conclusions

On December 31, 2014 the privately managed pension system (Pillars II and III) reached 20.2 billion RON (4.5 billion Euros), representing 3.03% of GDP compared to 2.31% in December 2013. In the private pension funds (Pillar II), representing at 31 December last year 95% of the total system, it was maintained an annual growth rate higher, characteristic to seven years of operation of 37.15% .

93.2% of assets were placed in Romania, 5.5% invested in instruments of European Union and 1.3% were bonds issued by EBRD and EIB. Private pension funds continue to be a financier of the Romanian state by investing primarily in securities issued by the Finance Ministry.

Given the evolution of internal and external financial environment, the strategic asset allocation of private pension funds has changed quite high lately. The share of bank deposits was halved, while the share of fixed income instruments, shares and investment funds have increased. The largest increase in 2014 was that of shares.

Administrators have continued the general trend of reducing investments denominated in lei. At the end of 2014, 13.53% of assets reflected foreign currencies, of which 11.24% were denominated in euro. The weights investments in US dollar and Polish zloty fell, while administrators have opted Turkish lira portfolios, volatile currency, but which may bring short-term gains.

Currency risk was partially covered for the euro, the Hungarian forint, Polish zloty and US dollar using forward contracts concluded with banks. Coverage by hedging was reduced compared to previous years, especially for the US dollar. Private pension funds investments in government securities were percentage of 99.34% in instruments issued by the Romanian RON, EUR and USD. The rest consisted of securities issued by Italy, Poland and Slovenia, their cumulative share of less than 1% of total investments in government securities.

Corporate bonds represent 4.19% of the assets of the private pension system, down slightly from 2013. Romanian corporate bonds have increased as share from 59.48% to 64.62% of the total corporate bonds. Supranational bonds accounted for 1.33% of the total assets of private pension funds, while municipal bonds had a share of 0.37%. Administrators have continued to increase equity exposure in 2014 compared to 2013 from 15.56% to 19.25%, focusing mainly by Romanian issuers and increased liquidity. Of these, the top 10 issuers listed on the BSE after liquidity (Property Fund, Romgaz, Transilvania Bank, Petrom, Electrica, Transgaz, Transelectrica, BRD, SIF Oltenia and SIF Moldova) accounted for 89.53% of Romanian stock portfolio and 22.2 % of total assets of private pension funds.

Due to their long-term investors, pension funds have accumulated significant holdings in companies that are top liquidity on BSE. Apart from the issuers that are in the top 10, pension funds have accumulated 10.47% of SIF Transilvania, SIF Banat Crisana of 8.77% and 13.07% of BSE.

Investments in shares of foreign issuers were diversified, the largest contributors being that of Erste Bank with 9.51% of total shares and 0.24% of the total foreign assets of private pension funds.

And in 2014, pension funds have constituted deposits at banks in Romania, 90.78% of which is denominated in lei, 7.06% in US dollars and the rest in Polish zloty, Hungarian forint and euro. The trend to reduce interest rates offered, due to expansionary monetary policy led administrators to halve the share of amounts invested in bank deposits, opting for other types of assets, mainly shares. At the end of 2014, deposits represented only 4.01% compared to 8.59% in 2013.

And in 2014, BRD was the preferred bank of administrators for setting up deposits. Second place belonged to BCR and third place the Garanti Bank. Together, the three banks mentioned cumulated 71.28% of total deposits in the system, up to 2013, when the first three banks had 50.7% of the total.

The share of investment funds in total assets rose slightly, Romanian administrators preferring UCITS that invest in bonds and UCITS of shares of European Union and Romania. The investment

portfolio structure and diversification, reflecting the risk diversification plays an important role in ensuring adequacy of income from private pensions.

The international financial crisis that began to manifest mainly in the second half of 2008, influenced to a certain extent the private pensions in Romania, but not in the proportion of other countries with private pension systems more developed (in Romania pension funds were only in the early months of operation). Moreover, the private pension system in Romania emphasizes *the safety of participants* and the most important security features of the system derived from the protection that the law gives the participant. By way of organizing the system by separating pension fund assets from the administrators, participants' contributions are being sheltered from the difficulties that can pass at a time, administrators of private pension funds or their shareholders.

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Negative Interest in IFRS

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Abstract

Since September 2012, IRFS Interpretation Committee has held several meetings, where the issues of negative interest rates and their impact on IFRS accounting system were discussed. The results of these meetings are following: negative interest rate on financial assets is expense, but other than interest expense and negative interest rate on financial liabilities is revenue, but also other than interest yield. Companies such as KPMG or Deloitte expressed their disagreement with this solution in 2013 and 2015. Current analysis of negative interest and its influence on accounting is the topic of this article.

Keywords: negative interest, interest yield, interest expense, IFRS

Introduction

The main objective of the European Central Bank in a research study by Nováčková and Sysákova (2015), besides supporting of the banking sector, is to maintain the price stability by keeping the annual inflation rate close to 2 %. Šlahor et al (2015) mentioned when the inflation is higher than 2 %, the European Central Bank will raise the interest rates. Consequently, loans become more expensive and to generate savings becomes more interesting for clients. When the inflation is much lower than 2 %, central bank will decrease the interest rates. Then the loans are cheaper and population begin to more spend, which helps following development of European region and economy growth. Pawera et al (2015)

Inflation in Eurozone is much lower than 2% in the long term. Thus, the Governing Council adopted the decision to reduce interest rates determined by the ECB e.g. marginal lending facility, main refinancing operations and the deposit facility, in summer of 2014. Money market will function correctly, if sufficient margin is between mentioned rates. Because the deposit facility rate had been close to 0 % before the decision of the Governing Council and main refinancing operations had been around 0.25 %, after the decrease of marginal lending facility to 0.15 %, the deposit facility decreased to minus 0.1 %. European Central Bank (2014)

Since the mid of 2014, commercial banks on the European interbank market have hold their excess deposits at the central bank for negative interest rates more frequently. Meanwhile, negative interest rates have extended to other interbank market operations such as EONIA (Euro Overnight Index Average) or EURIBOR (Euro Interbank Offered Rate), which are used for the valuation of financial products such as bond with variable coupon or derivatives.

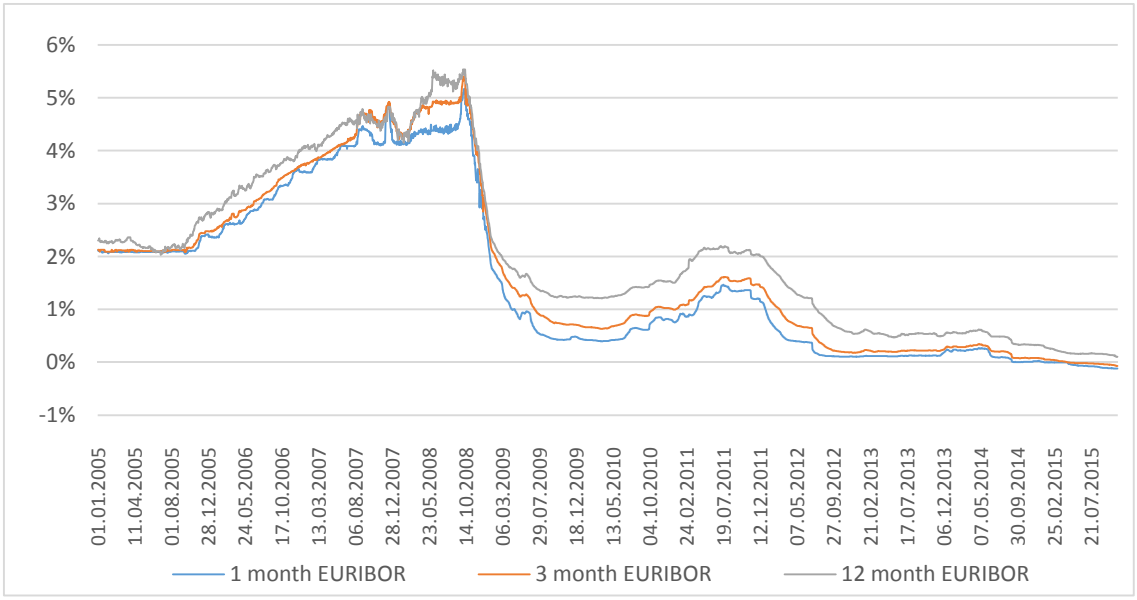

Fig 1: 1 month, 3 month and 12 month interest rates of EURIBOR

Historically, the negative interest rates were a rare phenomenon. Nowadays, economic crisis and investors' desire to safely store their assets rather than their consumption have signed under their existence. In Europe, this phenomenon is typical for interbank market, where the main reason for negative interest rate is the aim to decrease holding excess deposits at the central bank by commercial banks. European central bank is trying to reduce excess liquidity from commercial banks thanks to negative interest rates. Paškrtová and Stoličná (2014) They are also trying to encourage commercial banks to further distribute excess liquidity in form of loans to non-financial entities.

In Denmark, negative interest rates have not occurred only in the interbank market, but also in the commercial banking sector. Some commercial banks started to charge negative interest deposits and mortgages of selected clients. Except Denmark, the negative interest rates have been introduced also in other European countries such as Sweden or Switzerland. National Bank of Slovakia (2013)

The Aim of the Article

The aim of the research is to interpret the concept of negative interest. Because of the interpretation of this term is ambiguous and there are multiple views on it, the task of this article is to highlight the differences in the interpretations arising from the international accounting standard IFRS. The outcomes of this research are formulating recommendations useful for further research of this topic and analysis of influence of negative interest rates on the accounting in accordance with the international accounting standard IFRS.

Methodology

The issue of negative interest rates hasn’t been fully known yet. This is the reason, why it was necessary to define basic terms from the perspective of authors and from that of international accounting standard IFRS as well. Examining the issue was carried out by the means of analysis of international accounting standards and IFRS Interpretations Committee Meeting staff papers.

Current Interpretation of Negative Interest

Negative interest rate is not an issue, which is typical only for financial sector. In a period of very low inflation and consumption, this issue has the potential to affect the deposits and loans of ordinary

population. The phenomenon of negative interest rates affects different departments of companies, such as the risk management, payable and accounting.

For a proper understanding of their impact on record interest in accounting, it is necessary to correctly interpret the term of negative interest rates and logically classify it.

"The assets of an entity are a result of past events which increase economic benefits of an entity in the future and can be reliably recognized in the financial statements on the balance sheet." Olvecká (2014) Conversely, the liabilities of an entity are a result of past events which decrease economic benefits of an entity in the future. Mariak (2014) "The Act on Accounting 431/2002 in Slovakia defines revenues as increases in economic benefits during an entity's financial year, which can be measured reliably." Kajanová (2014)

According to IAS 18, revenues include those activities that result in the gross inflow of economic benefits (cash, receivables, other assets) arising from the ordinary operating activities of an entity (such as sales of goods, sales of services, interest, royalties, and dividends).

Positive interest rate arising from assets (e.g. from the provided deposit) is therefore considered as income, because these operations increase the economic benefit of the entity. The lender receives income from its capital which is lent to the debtor. If it is an interest arising from liabilities (e.g. received loan) that reduce the economic benefits of an entity, we will consider the interest as an expense. International Accounting Standards (2009)

Since the interest, a lender bank pays for its assets corresponds to the interest a borrower bank receives for its liabilities, it is not necessary to analyze the emerging interest (positive or negative) in the assets and liabilities separately.

There is not quite obvious economic explanation for the negative interest phenomenon and the description of entire transmission mechanism in the economy is not very clear. The basic interpretation of negative interest sees it as custodian fee for safeguarding the holder's money, which lender pays the debtor. International Accounting Standards (2014) Next explanation of the negative interest concept may be seen from the perspective of the taxation of savings. Ifhannoun (2015) The income of a saver, who is unable to spend it over a certain time period, will be cut by tax corresponding to a negative interest rate.

Different interpretations of the phenomenon raise questions concerning the possibility of presenting a negative rate in the income statement. Their existence is not defined by any adjustment under IFRS. Due to this situation, in September 2012 and January 2013 there were IFRS Interpretations Committee Meetings. One of the peripheral issues discussed there was also negative interest arising from financial assets.

Conclusions of IFRS Interpretations Committee were:

a) Interest on a financial asset does not fit the definition of interest yield in IAS 18 Revenue because it reflects a gross outflow, instead of a gross inflow of economic benefits.

b) Interest on a financial assets cannot be regarded as interest expenses because interest expenses can arise only from the financial liabilities of the entity. But it can be fit some other appropriate expense classification. For example fee for custody. IFRS Interpretations Committee Meeting (2013)

Since the IFRS Interpretations Committee considered further defining of negative interest unnecessary in 2013, it was not involved in agenda for next meetings.

Gaps in Current Interpretation of Negative Interest

To interpret negative interest as other expenses or as expenses for safekeeping, is economically understandable for customers' deposits in commercial banks or commercial banks' excess liquidity deposit to the central bank.

Clarity of interpretation of negative interest begins to fade at the moment of their application to other financial products than deposits. In case of high-quality government bond with a floating three-month coupon bound to interest rates EURIBOR with a negative risk premium, the following situation may arise:

a) In case of buying such bond at the beginning of 2014 with an interest rate fixation from January of 2014 to January of 2015, and without a risk premium, these coupons would acquire a positive value. Accrued interest from this coupon would be classified as revenue (period 0 to 1.25 at figure 2.).

b) In the fixed interest rate environment of three-month EURIBOR in April of 2015, this coupon would acquire a negative value. Accrued interest from this coupon would consequently be accounted as other expense, eventually as custody fee (period 1.5, figure 2).

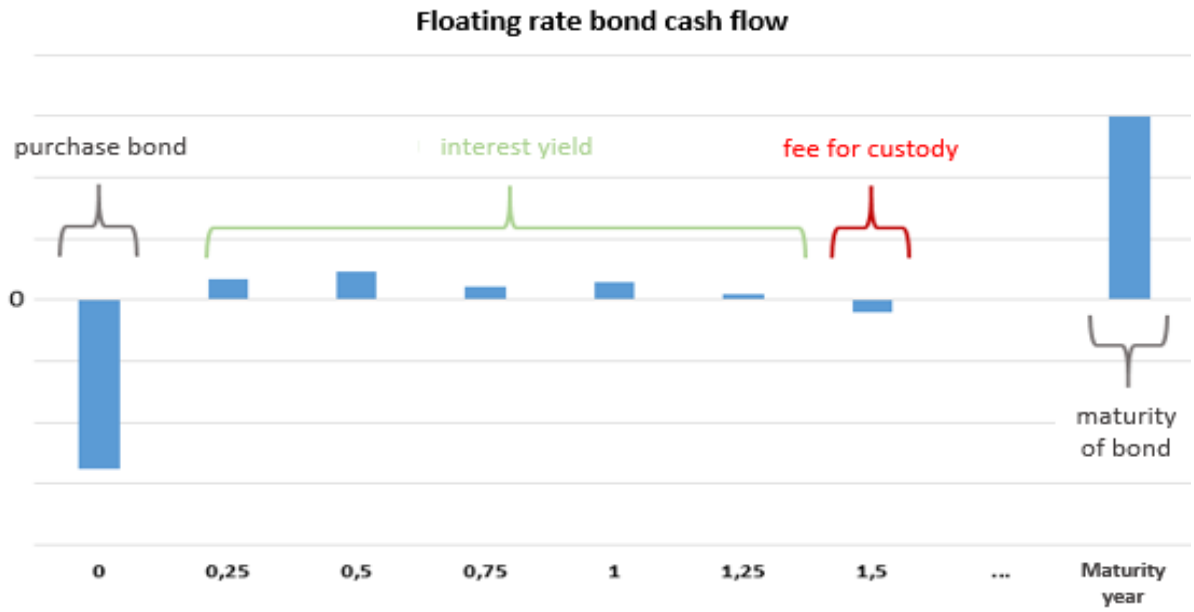

Fig 2 Floating rate bond cash flow

Cash flows from the assets held this way would consist of two main parts, namely interest yield and custodian fees (expenses). Each of these financial flows would arise in different periods.

Purchased bond would accumulate an interest yield in the first quarter. But in the second quarter, the coupon of the same bond would be considered as custody fee. Considering negative interest as fee for custody or eventually as other expenses is confusing, since in both cases, the coupon has the same origin.

The second gap occurs in evidence of these expenses as custodian fees, because in case of debt securities, this operation is unclear, as opposed to provided deposits.

Officials of KPMG and Deloitte pointed out similar shortcomings in interpretation of negative interest IFRS Interpretations Committee. They see a major gap in recording negative interest as decided by the Committee in 2013. This recording is distorting and insufficiently intuitive. The basic arguments were expressed by KPMG as follows:

a) The interest yield of a financial asset can contain several components, some of which can be negative,
b) Interest cash flows with a negative yield component or even a total negative yield, are, intuitively and economically, still considered a part of (net) interest income,
c) Interest cash flows from a financial asset can be negative as a temporary and exceptional phenomenon – but are still interest yield,
d) Adding positive to negative yield components of the same origin (same instrument) is not a matter of offsetting but of aggregation. IFRS Interpretations Committee Meeting (2013)

Based also on these objections, the IFRS Interpretations Committee decided to re-include the issue of negative interest to its agenda in January 2015. The IFRS Interpretations Committee insists on the classification, which classifies negative interest of financial assets among other expenses or fees for safekeeping, because the current definition of revenues by IAS cannot include it to the interest yield (does not increase the economic benefits of financial assets) as well as to the interest expense (which may be formed only on financial liabilities). IFRS Interpretations Committee Meeting (2015)

Although the committee did not place solving the uncertainties of negative interest among its priorities, the final report of the meeting held in January 2015 includes the possibility of further analysis of the issue.

Thanks to the reformulation of the definition of revenues in IAS18, it would be possible to look at negative interest on financial assets as a negative yield. This solution would bring clarity as possible records negative interest in the IFRS accounts because now, the entities could reported negative interest only as other expenses or as fee for custody. In case of assets the interest rate of which is bound to the interest rate of the interbank market, the financial flows of these assets should always have two components: interest yield and expense for the custody, which would need to be recorded separately. If negative interest is classified as revenue, it would enable to record positive as well as negative interest produced by financial assets clearer.

Conclusion

The Financial Times estimated the value of assets with negative interest rate by 8 January 2015 in Europe, at about EUR 1.2 billion and according to JPMorgan it is EUR 1.5 billion. Clinch (2015)

If the inflation rate in Europe does not increase in the near future, it is very likely that such interest will be more common, and that negative interest rates will occur in the interbank market and commercial banking very frequently. That is the reason why it is needed to further analyze the issue of negative interest rate and to clearly define its meaning and interpretation. This interpretation should not be purposeless, but should be helping in other related fields such as risk management, reporting or accounting.

An unclear interpretation of the negative interest on one hand and a strict definition of other terms on the other hand make it complicated to properly record negative interest in accounting. Current approach to the phenomenon of negative interest that understands it as an expense different from interest expense has still gaps which are needed to be fixed. The IFRS Interpretations Committee should take into consideration claims of big audit and accounting firms and consider a redefinition of terms in international accounting standards, so they would be adaptable to the situation in economy.

When the ECB has reduced the interest rate of deposit facilities to 0 % in 2014, it was a signal to financial institutions that they should implement negative interest into their accounting systems. Since later interpretation of terms from this field can make the expenses for such implementation expensive, it is needed to address this issue.

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The Relationship between Knowledge Characteristics and Innovative Work Behavior in Malaysian Federal Government

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Abstract

While studies on innovation capabilities have been quite extensively reported in the literature, very few have attempted to examine the relationship between knowledge characteristics and innovation capabilities at the individual level perspective. Inspired by this research gap, this study examined knowledge characteristics, which are part of work design, on innovative work behavior (IWB). The research model along with hypotheses are developed from the literature and tested based on the data collected through a survey of officers working with the Malaysian federal government. The results suggest that three out of five knowledge characteristics, namely, job complexity, information processing and problem solving are significant predictors of innovative work behavior. The study did not find any support on the relationship between skill variety, specialization and innovative work behavior. This study has contributed to the body of knowledge from both theoretical and practical perspectives and should capture the interest of the researchers and practitioners.

Keywords : Work design, knowledge characteristics, innovation capability, knowledge management

Introduction

Innovation has been considered as the key factors for the survival, growth, and development of an organization. According to Mulgan & Albury (2003), in the private sector, the main motivation for innovation is "the need to maintain or increase profitability, which in turn provides an incentive to innovate to cut costs, improve market share and to create new products and services". In contrast, innovation in the public sector is equally because: (i) innovation will develop better ways of meeting needs, solving problems, and using resources and technologies, (ii) without innovation the inevitable pressures to contain costs can only be met by forcing already stretched staff to work even harder. Hence, innovation in the public sector will help increase the responsiveness of government services and keeping up with public needs and expectations (Mulgan & Albury, 2003).

Casebourne (2014) explained that innovation in the public sector is challenging because public services deal with complex problems and have contradictory and multifarious demands; and they need to respond quickly, whilst balancing the need for security and continuity, and must be transparent and accountable. Nonetheless, Borin (2001) found that 50% of the innovation in the public sector was initiated by front line staffs and managers**.** Innovation that is carried within the capacity of an individual employee is termed as innovative work behavior (IWB). The extant literature on IWB has paid much interest in the private sector. Even in the context of Malaysia, studies such as Kheng et al., (2013); Leong & Rasli (2013) and June & Kheng (2014) were mainly conducted involving employees of private companies.

Given this background, the situation of IWB among civil servants of the Malaysian government is still unknown. Driven by this gap, a study was undertaken with the aim of examining the relationship between knowledge characteristics as one of the components of job design, and IWB among officers of Malaysian federal government.

Literature Review

O'Sullivan & Doley (2009) defines innovation as the application of practical tools and techniques that make changes, large and small, to products, processes, and services that results in the introduction of something new for the organization that adds value to customers and contributes to the knowledge store of the organization. The Department of Innovation, Industry and Research of the Australian Government (2011) defined innovation as "the implementation of a significant change in the way an entity operates or in the products it provides. Innovations comprise new or significant changes to products, operational processes, organizational methods, or the way the entity communicates with users." Innovation can take place at various levels: individual, teams, departments or organization. An employee, within his individual capacity, can also involve in innovation activities aimed to improving his work performance. The innovative behavior, which is normally voluntary, can appear in the form of new methods or approach to execute tasks. In the context of public sector, Bartos (2002) defined innovation as a change in policy or management practice that leads to a lasting improvement in the level of service or quantity or quality of output by an organization.

De Spiegelaere et al., (2012) defined IWB as "all employees' behavior directed at the generation, introduction and/or application (within a role, group, or organization) of ideas, processes, products or procedures, new to the relevant unit of adoption that supposedly significant benefit the relevant unit of adoption". Individual characteristics, organizational characteristics and external characteristics have been found to have a bearing on the IWB. External characteristics, in the form of competitive pressures and socio-political pressures will create and increase the incentives towards organizational managers to make sure that their organizations are conducive for innovation to take place (Nijenhuis, 2015). Denti (2013) identified from a review, the individual characteristics that have an effect on IWB are personality; cognitive ability and style; intrinsic motivation; self efficacy; and task characteristics. Within the task characteristics, job complexity, information processing, problem solving, skill variety is among the factors that have shown to have a significant effect of IWB.

Theoretical Framework

Figure 1 presents the theoretical framework used in the study. The dependent variable is an IWB while the independent variable is the knowledge characteristics. Mulgan & Albury (2003) found that the majority of innovations in the UK public sector is incremental in nature, involving relatively minor changes to existing processes and services. Given the difficulty in measuring innovations in the public sector, Halvorsen et al (2005) suggests that when studying innovation in the public sector, 'one has by the outset removed oneself from the narrowest interpretations of innovation'. Hence, following Mulgan & Albury (2003), this study operationalized IWB as consisting of process innovation and service innovation.

According to Morgeson & Humphrey (2006), knowledge characteristics of work design "reflect the kinds of knowledge, skill, and ability demands that are placed on an individual as a function of what is done on the job". Accordingly, the authors categorized knowledge characteristics as comprising of job complexity, information processing, problem solving, skill variety and specialization.

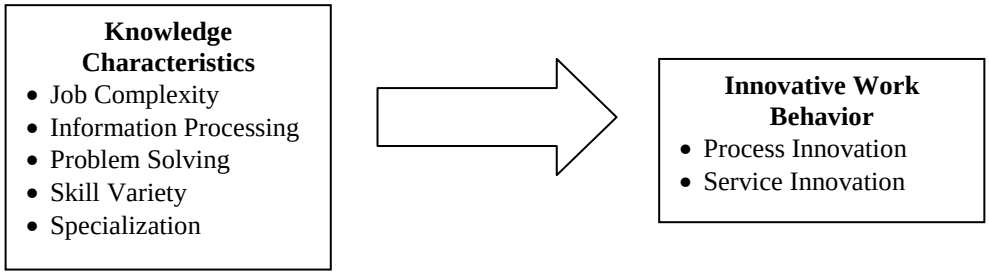

Fig 1. Theoretical Framework

Innovative Work Behavior

Nijenhuis (2015) defined IWB as all individual actions directed at the generation, processing and application/implementation of new ideas regarding ways of doing things, including new product ideas, technologies, procedures or work processes with the goal of increasing the effectiveness and success of the organization. Following Dorenbosch et al., (2005), IWB is conceived as a complex behavior comprising of four interrelated sets of behavioral activities, which are (i) problem recognition, (ii) idea generation, (iii) idea promotion and (iv) idea realization. The first two activities is also known as creativity oriented behavior while the last two activities are called implementation work oriented behavior. In the context of public sector organizations, the focus of innovation is on the process and service delivery.

A process innovation is the implementation of a new or significantly improved production or delivery method which includes significant changes in techniques, equipment and/or software (Tiwari, 2008). Process innovations "can be intended to decrease unit costs of production or delivery, to increase quality, or to produce or deliver new or significantly improved products" (Tiwari, 2008). Innovation in services involves transformation in a variety of aspects ranging from how the service is designed and developed to how it is delivered and managed (Miles, 2005). Service innovation can also be categorized based on the type of service that is innovated, namely, physical services, human services, and information services (Miles, 1993). Innovation in physical services involves physical transformation often through the adoption of new technologies, for example, radio-frequency identification (RFID) and refrigeration equipment. Innovation in human services takes the form of improvements in administrative data processing in public sector services and customized IT systems in medical services. Information services are mainly characterized by innovations in IT such as online banking in financial services and interactive digital media in entertainment (Miles, 2005).

Job Complexity

Job complexity refers to the extent to which the tasks on a job are complex and difficult to perform (Morgeson & Humphrey, 2006). A work that involves complex tasks and requires the use of numerous high-level skills will generally foster creativity because it develops self-efficacy of the employee. Oldham & Cumming (1996) asserted that, a complex task will reinforce employee's interest in the job, and the employee will be more motivated to be creative to achieve high performance. Russo (1986) discovered that job complexity may expose workers to new challenges and thus foster learning and skills development. Olhy & Fritz (2009) found that chronic time pressure and chronic job control, as well as daily time pressure are significantly correlated with daily creativity and proactive behavior, which are two important ingredients of an individual innovation capability. A meta-analysis by Hammond et al. (2011) shows that job complexity relates strongly to innovation capability. On the basis of the preceding discussion, the following hypothesis is put forward: H1: Job complexity is a significant predictor of innovation capability.

Information Processing

Information processing is the extent to which "a job necessitates an incumbent to focus on and manage information" (Humphrey et al., 2007). It also relates to the degree to which a job poses cognitive demands on employees in terms of monitoring and processing data or other information. In the knowledge management research "the personnel who specialize in strategic information processing" is called knowledge worker (Drucker, 1999). A study by Grant & Berry (2011) found that information processing skills are an important predictor of employee creativity. Tan et al., (2014) identified three important information capabilities that will drive digital social innovation as information literacy, information immediacy and information liberty. According to Smith (2000), innovation can be better understood as a process in which organization creates and defines problems and actively develops new knowledge to solve them. This will involve a lot of information procession activities where information is collected, analyzed and converted into pertinent knowledge. Vieites & Calvo (2011) showed that information management, which also include information processing, is a significant predictor of a firm's innovation capability. To this effect, the following hypothesis is established: H2: Information processing has a significant relationship with IWB.

Problem Solving

Problem solving is the extent to which a job requires the production of unique solutions or ideas (Humphrey et al., 2007). According to Humprey et al., (2007), problem solving is conceptually identical to creativity as it involves innovating, solving non-routine problems, and preventing errors. A review study by Griffin & Guez (2014) discovered that problem solving is determined by the same underpinning mechanisms, and is influenced by the same factors, as those predicted to underpin, and to influence, innovation. Jabri (1991) categorized two types of problem solving styles, namely, associative and bisociative thinking. Associative thinking represents a systematic problem-solving style, based on the following of habit or a set of routines, adherence to rules and the adoption of disciplinary boundaries while using rationality and logic. On the other hand, bisociative thinking represents intuitive problem-solving style, is characterized by "a tendency to combine separate domains of thought at the same time, a low attention to existing rules and disciplinary boundaries and a tendency towards imagination and intuition". It is believed that between systematic and intuitive problem solving style, the former will tend to inhibit innovative behavior (Scott & Bruce, 1994). Livotov (2013) and Triyono et al., (2015) found that innovative skills can be trained and developed through problem solving skills. Against this backdrop, the following hypothesis is developed: H3: Problem solving has a significant relationship with IWB.

Skill Variety

Skill variety relates to "the extent to which a job requires an individual to use a variety of different skills to complete the work" (Hackman & Oldham, 1980). The authors further stressed that high level of skill variety is expected to support and encourage higher levels of motivation and creativity than are relatively simple and routine jobs. The theory behind providing skill variety in job design is that it will reduce boredom, thereby increasing job satisfaction and motivation. According to Lunenburg (2011), jobs that are high in skill variety are seen by employees as "more challenging because of the range of skills involved; relieve monotony that results from repetitive activity; and gives employees a greater sense of competence". Kassem & Sarhan (2013) discovered that skill variety is significantly related to job performance. Hessels et al., (2014) showed entrepreneurs with skill variety are better positioned to introduce innovations that have technical and commercial values. In another study involving managers, Deegahawature (2014) found that skill variety is a significant predictor of manager's inclination towards open innovation. Drawing upon these justifications, the following hypothesis is established: H4: Skill variety has a significant relationship with IWB.

Specialization

While skill and skill variety relates to the breadth of behaviors and skills involved in a job, specialization represents the depth of knowledge and skills necessary (Humprey et al., 2007). It is also defined as the "extent to which a job involves performing specialized tasks or possessing specialized knowledge and skill" (Morgeson & Humphrey, 2006). Job specialization increases output because workers do not lose time shifting among different tasks and workers with specialties are more likely to be creative and innovative in making their tasks more efficient. According to Adeyoyin et al., (2015), when an organization uses job specialization, every worker is an expert to some degree and employees are able to refine the task for which they are responsible, resulting in increased efficiency and increased production. Their study in the context of a library found that specialization is associated with job satisfaction. In an earlier study, Stats & Gino (2010), found that specialization is correlated with job productivity among employees in Japanese banks. Given the aforementioned arguments, the researcher hypothesized the following: H5: Specialization has a significant relationship with IWB.

Research Methodology

This study used a quantitative approach with a survey research method. The instrument used for collecting the data was a questionnaire, adapted from Morgeson & Humphrey (2006) and Easa (2012). Perceptual measures in the forms of items or statements with corresponding Likert scale were used to measure each construct or variable. For each statement, the respondents were requested to indicate on a seven point scale, the extent they agree or disagree with the statement. The process of developing the questionnaire involved pre-testing and pilot testing. The pre-testing were executed with several experts from the academia and senior officers working with the federal government. The aim of the pre-testing exercise was to assess the content validity and face validity of the questionnaires. Feedbacks obtained during a face-to-face meeting in the pre-testing exercise was used to revise and refine the questionnaire. Accordingly, the questionnaire was pilot tested with 36 officers working with deferral government. Based on their responses the Cronbach's alpha of each construct in the framework was examined. The results as shown in Table 1 suggest that the instrument was highly reliable because the Cronbach's alpha are well above 0.7.

The population of the study was the Administrative and Diplomatic Officers or better known as "Pegawai Tadbir dan Diplomatik" (PTD), working with the ministries of the federal government located in Putrajaya Malaysia. They were chosen because the nature of their jobs which mainly focused on structuring, implementing and managing the country's public policies, including strengthening the administrative functions, social infrastructures and also the performance of economic growths (Pegawai Tadbir dan Diplomatik, 1999). As the main policy makers of the Malaysian government, the PTDs are expected to continually re-invent and innovate the government processes and services, so as to meet with the current challenges faced by the country.

Using the stratified random sampling, a total of 548 questionnaires was distributed to targeted respondents. Several representatives were appointed to distribute and collect the questionnaires in each ministry. A total of 421 questionnaires was returned, giving a response rate of 76.8 %. However, out of this number, 116 questionnaires had to be removed as more than 20% of the questions were not answered, leaving a total usable rate of 72.45% (305). The total number is considered reasonable and in accordance with Sekaran (2003), who suggested that the response rate need to be at least 15% of the total population. The usable questionnaires were then analyzed statistically using IBM SPSS Version 20 and SmartPLS Version 3.0. The IBM SPSS was used for descriptive analysis while SmartPLS was used for measurement model or confirmatory factor analysis (CFA) and hypothesis testing. SmartPLS is a professional statistical software package that enables users to do Structural Equation Modeling (SEM) or PLS path modeling.

Findings

Common Method Bias

Given that this study used common rater (i.e. the same respondent answering all questions in the questionnaire), the need to examine the possibility of the problem of common method bias is therefore crucial. Podsakoff et al., (2003) suggested the use of Harman's single factor test, which requires that the total variance explained for all items when constrained to single construct should not exceed 50%. The results of the Harman's single factor test indicate that the total variance is about 33.3%, which met the recommended value. Thus, it can be concluded that the questionnaire used in the study is free from the problem of common method bias.

Demographic Profiles of Respondents

Out of 305 respondents, 51.1% were female and the remaining 48.9% were male. The breakdown of the respondents' age is as follows: 30 to 34 years (35.7%), 35 to 39 years (18.4%), 40 to 44 years (6.6%), 45 to 49 years (3.3%), 50 years and above (3.3%) and less than 25 years (1.0%).

Hypothesis Testing

Prior to testing the research hypothesis, the path model needs to be assessed in terms of its convergent validity and discriminant validity. According to Anderson & Gerbing (1988), convergent validity is the degree to which different methods used to measure the same construct produce similar results. Convergent validity is used to check the loading of each observed indicator on their underlying latent construct. The convergent validity is normally assessed through composite or construct reliability (CR) and average variance extracted (AVE). Construct reliability measures the internal consistency of a set of measures rather than the reliability of a single variable. The average variance extracted (AVE) measures the total amount of variance in the indicators accounted for by the latent variable. The value of composite reliability (CR) above 0.70 or higher suggests good reliability and values between 0.60 and 0.70 is considered acceptable (Hair et al., 2010). The average variance extracted (AVE) of less than 0.50 or higher is a good rule of thumb, suggesting adequate co-variance (Hair et al., 2006). In this study, both CR and AVE were assessed to address the convergent validity of measures.

Another aspect of validity that needs assessment is discriminant validity, defined as the extent to which a construct is truly distinct from other constructs (Hair et al., 2010). According to Hair et al., (2010) the best approach to assessing the discriminant validity is to compare the square root of each construct AVE to its correlation with other variables. This approach requires that the value of the square root of each construct AVE should be higher than the correlation values among constructs. If this requirement is met, discriminant validity can be assumed. This study also used this approach for assessing the discriminant validity. Figure 2 and Table 1 presents the results of the assessment of the measurement model. The factor loadings for all items surpassed the recommended value or 0.7; the AVE for all construct surpassed the recommended value of 0.5; and the CR for all constructs exceeds the recommended value of 0.7. Table 2 shows that the square root of each construct AVE is higher than the correlation with other variables.Given these results, a convergent validity and discriminant validity of the instrument can be assumed.

Table 1: Assessment of Convergent Validity

Construct	Items	Factor Loading	Average Variance Extracted (AVE)	Composite Reliability (CR)	Cronbach's Alpha
Information Processing	MC_IP1	0.999	0.999	0.999	0.999
	MC_IP2	0.999			
	MC_IP3	0.999			
	MC_IP4	0.999			
Job Complexity	MC_JC1	0.929	0.899	0.947	0.891
	MC_JC2	0.967			
Problem Solving	MC_PS1	0.999	0.996	0.999	0.999
	MC_PS2	0.999			
	MC_PS3	0.998			
	MC_PS4	0.996			
Specialization	MC_S1	0.973	0.940	0.984	0.980
	MC_S2	0.979			
	MC_S3	0.980			
	MC_S4	0.945			
Skill variety	MC_SV1	0.999	0.998	0.999	0.999
	MC_SV2	0.999			
	MC_SV3	0.999			
	MC_SV4	0.999			

Innovation	PI3	0.824	0.709	0.924	0.897
	PI4	0.855			
	SI1	0.852			
	SI2	0.875			
	SI4	0.800			

Table 2: Assessment of Discriminant Validity

	[1]	[2]	[3]	[4]	[5]	[6]
[1] Information Processing	**0.999**					
[2] Innovation	0.038	**0.842**				
[3] Job Complexity	0.004	0.242	0.948			
[4] Problem Solving	0.998	0.050	0.003			
[5] Skill Variety	0.998	0.044	0.008	0.022	0.999	
[6] Specialization	-0.012	0.078	0.077	0.083	-0.012	0.969

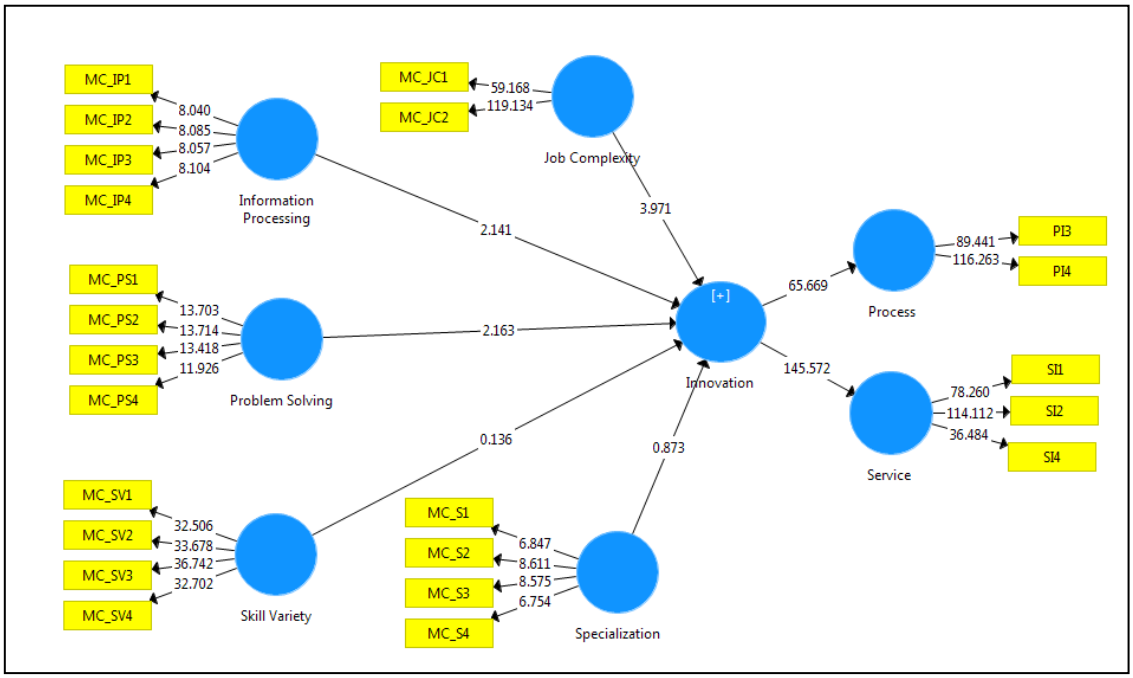

Fig 2. SmartPLS outputs of Bootstraping

Table 3 presents the results of the path analysis or the structural model. Hair et al., (2014) suggested that assessing the structural model involves evaluating the R^2, beta (β) and corresponding t-values. To obtain the t-value, a bootstrapping procedure with 5,000 resamples were executed. The result of the bootstrapping procedure is shown in Table 3. According to hair et al., (2014), the t-statistic value should be greater than 1.96 for the path to be significant. Out of the five analyzed paths, three paths are significant while the other two are not significant ($p > 0.05$). The significant paths are: between

information processing and IWB; between job complexity and IWB; between problem solving and IWB. The insignificant paths are: between skill variety and IWB; between specialization and IWB. With these results, H1, H2 and H3 are supported while H4 and H5 are not supported. The explanatory power of the estimated model can be assessed by observing the R^2 of the endogenous construct i.e. the IWB. For a substantial model, Cohen (1988) suggests that R^2 should be about 0.35 or greater, while Falk & Miller (1992) recommended 0.10 or above. In this study, the R^2 is 0.104, indicating that the estimated model is substantial.

Table 3: Path Coefficients

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Information Processing →IWB	-3.015	-2.644	1.378	2.187	0.029
Job Complexity → IWB	0.242	0.237	0.062	3.895	0.00
Problem Solving → IWB	3.213	2.861	1.351	2.379	0.018
Skill Variety → IWB	-0.155	-0.172	1.028	0.151	0.880
Specialization → IWB	0.051	0.069	0.066	0.771	0.441

Effect size refers to whether the latent independent variable has a considerable effect on the dependent variable. Using the formula $f^2 = R^2/(1-R^2)$ by Cohen (1988), the effect size is computed and the results showed that the effect is either none or small (Table 4). To interpret the impact of f^2 at the structural level, it has been suggested that the effect is large when f^2 is 0.35 or above, medium when f^2 is between 0.15 and 0.349, and small when f^2 is 0.03 or less (Cohen 1988).

Table 4. Assessment of effect size

Model	Variables Included	Variables Excluded	R Square	Effect size (f^2)	Interpretation
1	Job complexity, problem solving, skill variety, specialization	Information processing	0.075	0.0324	Small
2	Information processing, problem solving, skill variety, specialization	Job complexity	0.069	0.0391	Small
3	Information processing, job complexity, skill variety, specialization	Problem solving	0.085	0.0212	Small

Discussion

The objective of the study was to examine the relationship between knowledge characteristics and IWB among officers of Malaysian federal government. Drawing upon the job design framework, knowledge characteristics were classified into five dimensions: job complexity, information processing, problem solving, skill variety and specialization. From the results of the analysis, it was shown that job complexity, information processing and problem solving does have a significant relationship with an IWB. The combination of these three constructs accounts for 10.4% variance in IWB.

As shown by the results of the analysis, negative relationship could be observed between information processing and IWB, which suggests an increased in the information processing will result in reduced IWB. By definition, information processing is the extent to which “a job necessitates an incumbent to focus on and manage information”. Clarke & O’Brien (2012) the government relies on information to

provide services to citizens and in today's digital world, the aggressive data growth has resulted in a problem known as information overload. Spira (2011) stated that individual workers, teams, and entire organizations suffer diminished productivity and the loss of the ability to make sound decisions, process information, and prioritize tasks because of information overload. It was also found that 58 percent of government workers spend half the workday filing, deleting, or sorting information, at a cost of almost $31 billion dollars (Spira, 2011). It could be because of this reason, a negative and significant relationship could be observed between information processing and IWB.
Consistent with Russo (1986), Oldham & Cumming (1996) and Olhy & Fritz (2009), this study found a positive and significant relationship between task complexity and IWB. As explained by Russo (1986), a complex task will normally provide a better learning opportunity. Dealing with complex tasks will require creativity and strategy. In the process, an employee will explore all possibilities that will make the job done efficiently and effectively. As explained by Mulgan & Albury (2003), individuals can generate possibilities for innovation by observing and reflecting on what others are doing and thinking, and by benchmarking themselves against good practice.

Today's working environment requires that all individuals in an organization need to be prepared and equipped to meet the problem-solving challenges. As shown in this study, a positive and significant relationship was also found between problem solving and IWB. This finding further strengthens the findings of Livotov (2013) and Triyono et al., (2015) that innovative skills can be developed through problem solving skills. This finding suggests that as the problems that need to be solved increases in the job, the tendency to innovate will also increase sparingly.

Contrary to our expectations, the results of the analysis showed that, no significant relationship could be detected between skill variety and IWB; and between specialization and IWB. An increased or decreased in skill variety as well as specialization will give no effect to IWB. Upon further scrutiny, it was found that skill variety and specialization had a relatively higher mean score compared to innovation constructs. The interpretation of this could be that, because the respondents perceived that their job nature already requires high skill variety and high specialization, the need to innovate does not apply.

Conclusion

This study has contributed to the body of knowledge from both theoretical and practical perspectives. From the theoretical viewpoint, it has developed an empirical based framework connecting job design with IWB. The framework can be used in other studies involving different professions such as teachers, doctors or engineers. It would be equally appealing to also make a comparative study involving various knowledge workers. From the practical viewpoint, the study has provided empirical evidence on the contribution of job complexity, information processing and problem solving towards IWB. Given the findings, human resource managers, could identify the appropriate training required by the PTDs so as to increase their IWB.

Just like in any other study, there are several limitations associated with this study. Firstly, is in terms of the coverage of variables in work design. As shown in the instrument developed by Morgeson & Humphrey (2006), besides knowledge characteristics, there are other job design characteristics such as task characteristics, social characteristics, work context and equipment use. This study limit its scope to knowledge characteristics only, leaving other characteristics unexplored. Future studies should consider integrating these characteristics when studying IWB.

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The Relationship between Knowledge Characteristics and Innovative Work Behavior in Malaysian Federal Government

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Abstract

While studies on innovation capabilities have been quite extensively reported in the literature, very few have attempted to examine the relationship between knowledge characteristics and innovation capabilities at the individual level perspective. Inspired by this research gap, this study examined knowledge characteristics, which are part of work design, on innovative work behavior (IWB). The research model along with hypotheses are developed from the literature and tested based on the data collected through a survey of officers working with the Malaysian federal government. The results suggest that three out of five knowledge characteristics, namely, job complexity, information processing and problem solving are significant predictors of innovative work behavior. The study did not find any support on the relationship between skill variety, specialization and innovative work behavior. This study has contributed to the body of knowledge from both theoretical and practical perspectives and should capture the interest of the researchers and practitioners.

Keywords : Work design, knowledge characteristics, innovation capability, knowledge management

Introduction

Innovation has been considered as the key factors for the survival, growth, and development of an organization. According to Mulgan & Albury (2003), in the private sector, the main motivation for innovation is "the need to maintain or increase profitability, which in turn provides an incentive to innovate to cut costs, improve market share and to create new products and services". In contrast, innovation in the public sector is equally because: (i) innovation will develop better ways of meeting needs, solving problems, and using resources and technologies, (ii) without innovation the inevitable pressures to contain costs can only be met by forcing already stretched staff to work even harder. Hence, innovation in the public sector will help increase the responsiveness of government services and keeping up with public needs and expectations (Mulgan & Albury, 2003).

Casebourne (2014) explained that innovation in the public sector is challenging because public services deal with complex problems and have contradictory and multifarious demands; and they need to respond quickly, whilst balancing the need for security and continuity, and must be transparent and accountable. Nonetheless, Borin (2001) found that 50% of the innovation in the public sector was initiated by front line staffs and managers**.** Innovation that is carried within the capacity of an individual employee is termed as innovative work behavior (IWB). The extant literature on IWB has paid much interest in the private sector. Even in the context of Malaysia, studies such as Kheng et al., (2013); Leong & Rasli (2013) and June & Kheng (2014) were mainly conducted involving employees of private companies.

Given this background, the situation of IWB among civil servants of the Malaysian government is still unknown. Driven by this gap, a study was undertaken with the aim of examining the relationship between knowledge characteristics as one of the components of job design, and IWB among officers of Malaysian federal government.

Literature Review

O'Sullivan & Doley (2009) defines innovation as the application of practical tools and techniques that make changes, large and small, to products, processes, and services that results in the introduction of something new for the organization that adds value to customers and contributes to the knowledge store of the organization. The Department of Innovation, Industry and Research of the Australian Government (2011) defined innovation as "the implementation of a significant change in the way an entity operates or in the products it provides. Innovations comprise new or significant changes to products, operational processes, organizational methods, or the way the entity communicates with users." Innovation can take place at various levels: individual, teams, departments or organization. An employee, within his individual capacity, can also involve in innovation activities aimed to improving his work performance. The innovative behavior, which is normally voluntary, can appear in the form of new methods or approach to execute tasks. In the context of public sector, Bartos (2002) defined innovation as a change in policy or management practice that leads to a lasting improvement in the level of service or quantity or quality of output by an organization.

De Spiegelaere et al., (2012) defined IWB as "all employees' behavior directed at the generation, introduction and/or application (within a role, group, or organization) of ideas, processes, products or procedures, new to the relevant unit of adoption that supposedly significant benefit the relevant unit of adoption". Individual characteristics, organizational characteristics and external characteristics have been found to have a bearing on the IWB. External characteristics, in the form of competitive pressures and socio-political pressures will create and increase the incentives towards organizational managers to make sure that their organizations are conducive for innovation to take place (Nijenhuis, 2015). Denti (2013) identified from a review, the individual characteristics that have an effect on IWB are personality; cognitive ability and style; intrinsic motivation; self efficacy; and task characteristics. Within the task characteristics, job complexity, information processing, problem solving, skill variety is among the factors that have shown to have a significant effect of IWB.

Theoretical Framework

Figure 1 presents the theoretical framework used in the study. The dependent variable is an IWB while the independent variable is the knowledge characteristics. Mulgan & Albury (2003) found that the majority of innovations in the UK public sector is incremental in nature, involving relatively minor changes to existing processes and services. Given the difficulty in measuring innovations in the public sector, Halvorsen et al (2005) suggests that when studying innovation in the public sector, 'one has by the outset removed oneself from the narrowest interpretations of innovation'. Hence, following Mulgan & Albury (2003), this study operationalized IWB as consisting of process innovation and service innovation.

According to Morgeson & Humphrey (2006), knowledge characteristics of work design "reflect the kinds of knowledge, skill, and ability demands that are placed on an individual as a function of what is done on the job". Accordingly, the authors categorized knowledge characteristics as comprising of job complexity, information processing, problem solving, skill variety and specialization.

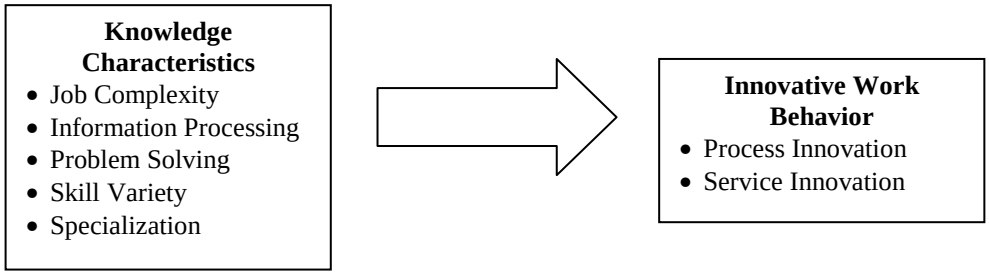

Fig 1. Theoretical Framework

Innovative Work Behavior

Nijenhuis (2015) defined IWB as all individual actions directed at the generation, processing and application/implementation of new ideas regarding ways of doing things, including new product ideas, technologies, procedures or work processes with the goal of increasing the effectiveness and success of the organization. Following Dorenbosch et al., (2005), IWB is conceived as a complex behavior comprising of four interrelated sets of behavioral activities, which are (i) problem recognition, (ii) idea generation, (iii) idea promotion and (iv) idea realization. The first two activities is also known as creativity oriented behavior while the last two activities are called implementation work oriented behavior. In the context of public sector organizations, the focus of innovation is on the process and service delivery.

A process innovation is the implementation of a new or significantly improved production or delivery method which includes significant changes in techniques, equipment and/or software (Tiwari, 2008). Process innovations "can be intended to decrease unit costs of production or delivery, to increase quality, or to produce or deliver new or significantly improved products" (Tiwari, 2008). Innovation in services involves transformation in a variety of aspects ranging from how the service is designed and developed to how it is delivered and managed (Miles, 2005). Service innovation can also be categorized based on the type of service that is innovated, namely, physical services, human services, and information services (Miles, 1993). Innovation in physical services involves physical transformation often through the adoption of new technologies, for example, radio-frequency identification (RFID) and refrigeration equipment. Innovation in human services takes the form of improvements in administrative data processing in public sector services and customized IT systems in medical services. Information services are mainly characterized by innovations in IT such as online banking in financial services and interactive digital media in entertainment (Miles, 2005).

Job Complexity

Job complexity refers to the extent to which the tasks on a job are complex and difficult to perform (Morgeson & Humphrey, 2006). A work that involves complex tasks and requires the use of numerous high-level skills will generally foster creativity because it develops self-efficacy of the employee. Oldham & Cumming (1996) asserted that, a complex task will reinforce employee's interest in the job, and the employee will be more motivated to be creative to achieve high performance. Russo (1986) discovered that job complexity may expose workers to new challenges and thus foster learning and skills development. Olhy & Fritz (2009) found that chronic time pressure and chronic job control, as well as daily time pressure are significantly correlated with daily creativity and proactive behavior, which are two important ingredients of an individual innovation capability. A meta-analysis by Hammond et al. (2011) shows that job complexity relates strongly to innovation capability. On the basis of the preceding discussion, the following hypothesis is put forward: H1: Job complexity is a significant predictor of innovation capability.

Information Processing

Information processing is the extent to which "a job necessitates an incumbent to focus on and manage information" (Humphrey et al., 2007). It also relates to the degree to which a job poses cognitive demands on employees in terms of monitoring and processing data or other information. In the knowledge management research "the personnel who specialize in strategic information processing" is called knowledge worker (Drucker, 1999). A study by Grant & Berry (2011) found that information processing skills are an important predictor of employee creativity. Tan et al., (2014) identified three important information capabilities that will drive digital social innovation as information literacy, information immediacy and information liberty. According to Smith (2000), innovation can be better understood as a process in which organization creates and defines problems and actively develops new knowledge to solve them. This will involve a lot of information procession activities where information is collected, analyzed and converted into pertinent knowledge. Vieites & Calvo (2011) showed that information management, which also include information processing, is a significant predictor of a firm's innovation capability. To this effect, the following hypothesis is established: H2: Information processing has a significant relationship with IWB.

Problem Solving

Problem solving is the extent to which a job requires the production of unique solutions or ideas (Humphrey et al., 2007). According to Humprey et al., (2007), problem solving is conceptually identical to creativity as it involves innovating, solving non-routine problems, and preventing errors. A review study by Griffin & Guez (2014) discovered that problem solving is determined by the same underpinning mechanisms, and is influenced by the same factors, as those predicted to underpin, and to influence, innovation. Jabri (1991) categorized two types of problem solving styles, namely, associative and bisociative thinking. Associative thinking represents a systematic problem-solving style, based on the following of habit or a set of routines, adherence to rules and the adoption of disciplinary boundaries while using rationality and logic. On the other hand, bisociative thinking represents intuitive problem-solving style, is characterized by "a tendency to combine separate domains of thought at the same time, a low attention to existing rules and disciplinary boundaries and a tendency towards imagination and intuition". It is believed that between systematic and intuitive problem solving style, the former will tend to inhibit innovative behavior (Scott & Bruce, 1994). Livotov (2013) and Triyono et al., (2015) found that innovative skills can be trained and developed through problem solving skills. Against this backdrop, the following hypothesis is developed: H3: Problem solving has a significant relationship with IWB.

Skill Variety

Skill variety relates to "the extent to which a job requires an individual to use a variety of different skills to complete the work" (Hackman & Oldham, 1980). The authors further stressed that high level of skill variety is expected to support and encourage higher levels of motivation and creativity than are relatively simple and routine jobs. The theory behind providing skill variety in job design is that it will reduce boredom, thereby increasing job satisfaction and motivation. According to Lunenburg (2011), jobs that are high in skill variety are seen by employees as "more challenging because of the range of skills involved; relieve monotony that results from repetitive activity; and gives employees a greater sense of competence". Kassem & Sarhan (2013) discovered that skill variety is significantly related to job performance. Hessels et al., (2014) showed entrepreneurs with skill variety are better positioned to introduce innovations that have technical and commercial values. In another study involving managers, Deegahawature (2014) found that skill variety is a significant predictor of manager's inclination towards open innovation. Drawing upon these justifications, the following hypothesis is established: H4: Skill variety has a significant relationship with IWB.

Specialization

While skill and skill variety relates to the breadth of behaviors and skills involved in a job, specialization represents the depth of knowledge and skills necessary (Humprey et al., 2007). It is also defined as the "extent to which a job involves performing specialized tasks or possessing specialized knowledge and skill" (Morgeson & Humphrey, 2006). Job specialization increases output because workers do not lose time shifting among different tasks and workers with specialties are more likely to be creative and innovative in making their tasks more efficient. According to Adeyoyin et al., (2015), when an organization uses job specialization, every worker is an expert to some degree and employees are able to refine the task for which they are responsible, resulting in increased efficiency and increased production. Their study in the context of a library found that specialization is associated with job satisfaction. In an earlier study, Stats & Gino (2010), found that specialization is correlated with job productivity among employees in Japanese banks. Given the aforementioned arguments, the researcher hypothesized the following: H5: Specialization has a significant relationship with IWB.

Research Methodology

This study used a quantitative approach with a survey research method. The instrument used for collecting the data was a questionnaire, adapted from Morgeson & Humphrey (2006) and Easa (2012). Perceptual measures in the forms of items or statements with corresponding Likert scale were used to measure each construct or variable. For each statement, the respondents were requested to indicate on a seven point scale, the extent they agree or disagree with the statement. The process of developing the questionnaire involved pre-testing and pilot testing. The pre-testing were executed with several experts from the academia and senior officers working with the federal government. The aim of the pre-testing exercise was to assess the content validity and face validity of the questionnaires. Feedbacks obtained during a face-to-face meeting in the pre-testing exercise was used to revise and refine the questionnaire. Accordingly, the questionnaire was pilot tested with 36 officers working with deferral government. Based on their responses the Cronbach's alpha of each construct in the framework was examined. The results as shown in Table 1 suggest that the instrument was highly reliable because the Cronbach's alpha are well above 0.7.

The population of the study was the Administrative and Diplomatic Officers or better known as "Pegawai Tadbir dan Diplomatik" (PTD), working with the ministries of the federal government located in Putrajaya Malaysia. They were chosen because the nature of their jobs which mainly focused on structuring, implementing and managing the country's public policies, including strengthening the administrative functions, social infrastructures and also the performance of economic growths (Pegawai Tadbir dan Diplomatik, 1999). As the main policy makers of the Malaysian government, the PTDs are expected to continually re-invent and innovate the government processes and services, so as to meet with the current challenges faced by the country.

Using the stratified random sampling, a total of 548 questionnaires was distributed to targeted respondents. Several representatives were appointed to distribute and collect the questionnaires in each ministry. A total of 421 questionnaires was returned, giving a response rate of 76.8 %. However, out of this number, 116 questionnaires had to be removed as more than 20% of the questions were not answered, leaving a total usable rate of 72.45% (305). The total number is considered reasonable and in accordance with Sekaran (2003), who suggested that the response rate need to be at least 15% of the total population. The usable questionnaires were then analyzed statistically using IBM SPSS Version 20 and SmartPLS Version 3.0. The IBM SPSS was used for descriptive analysis while SmartPLS was used for measurement model or confirmatory factor analysis (CFA) and hypothesis testing. SmartPLS is a professional statistical software package that enables users to do Structural Equation Modeling (SEM) or PLS path modeling.

Findings

Common Method Bias

Given that this study used common rater (i.e. the same respondent answering all questions in the questionnaire), the need to examine the possibility of the problem of common method bias is therefore crucial. Podsakoff et al., (2003) suggested the use of Harman's single factor test, which requires that the total variance explained for all items when constrained to single construct should not exceed 50%. The results of the Harman's single factor test indicate that the total variance is about 33.3%, which met the recommended value. Thus, it can be concluded that the questionnaire used in the study is free from the problem of common method bias.

Demographic Profiles of Respondents

Out of 305 respondents, 51.1% were female and the remaining 48.9% were male. The breakdown of the respondents' age is as follows: 30 to 34 years (35.7%), 35 to 39 years (18.4%), 40 to 44 years (6.6%), 45 to 49 years (3.3%), 50 years and above (3.3%) and less than 25 years (1.0%).

Hypothesis Testing

Prior to testing the research hypothesis, the path model needs to be assessed in terms of its convergent validity and discriminant validity. According to Anderson & Gerbing (1988), convergent validity is the degree to which different methods used to measure the same construct produce similar results. Convergent validity is used to check the loading of each observed indicator on their underlying latent construct. The convergent validity is normally assessed through composite or construct reliability (CR) and average variance extracted (AVE). Construct reliability measures the internal consistency of a set of measures rather than the reliability of a single variable. The average variance extracted (AVE) measures the total amount of variance in the indicators accounted for by the latent variable. The value of composite reliability (CR) above 0.70 or higher suggests good reliability and values between 0.60 and 0.70 is considered acceptable (Hair et al., 2010). The average variance extracted (AVE) of less than 0.50 or higher is a good rule of thumb, suggesting adequate co-variance (Hair et al., 2006). In this study, both CR and AVE were assessed to address the convergent validity of measures.

Another aspect of validity that needs assessment is discriminant validity, defined as the extent to which a construct is truly distinct from other constructs (Hair et al., 2010). According to Hair et al., (2010) the best approach to assessing the discriminant validity is to compare the square root of each construct AVE to its correlation with other variables. This approach requires that the value of the square root of each construct AVE should be higher than the correlation values among constructs. If this requirement is met, discriminant validity can be assumed. This study also used this approach for assessing the discriminant validity. Figure 2 and Table 1 presents the results of the assessment of the measurement model. The factor loadings for all items surpassed the recommended value or 0.7; the AVE for all construct surpassed the recommended value of 0.5; and the CR for all constructs exceeds the recommended value of 0.7. Table 2 shows that the square root of each construct AVE is higher than the correlation with other variables.Given these results, a convergent validity and discriminant validity of the instrument can be assumed.

Table 1: Assessment of Convergent Validity

Construct	Items	Factor Loading	Average Variance Extracted (AVE)	Composite Reliability (CR)	Cronbach's Alpha
Information Processing	MC_IP1	0.999	0.999	0.999	0.999
	MC_IP2	0.999			
	MC_IP3	0.999			
	MC_IP4	0.999			
Job Complexity	MC_JC1	0.929	0.899	0.947	0.891
	MC_JC2	0.967			
Problem Solving	MC_PS1	0.999	0.996	0.999	0.999
	MC_PS2	0.999			
	MC_PS3	0.998			
	MC_PS4	0.996			
Specialization	MC_S1	0.973	0.940	0.984	0.980
	MC_S2	0.979			
	MC_S3	0.980			
	MC_S4	0.945			
Skill variety	MC_SV1	0.999	0.998	0.999	0.999
	MC_SV2	0.999			
	MC_SV3	0.999			
	MC_SV4	0.999			

Innovation	PI3	0.824	0.709	0.924	0.897
	PI4	0.855			
	SI1	0.852			
	SI2	0.875			
	SI4	0.800			

Table 2: Assessment of Discriminant Validity

	[1]	[2]	[3]	[4]	[5]	[6]
[1] Information Processing	**0.999**					
[2] Innovation	0.038	**0.842**				
[3] Job Complexity	0.004	0.242	0.948			
[4] Problem Solving	0.998	0.050	0.003			
[5] Skill Variety	0.998	0.044	0.008	0.022	0.999	
[6] Specialization	-0.012	0.078	0.077	0.083	-0.012	0.969

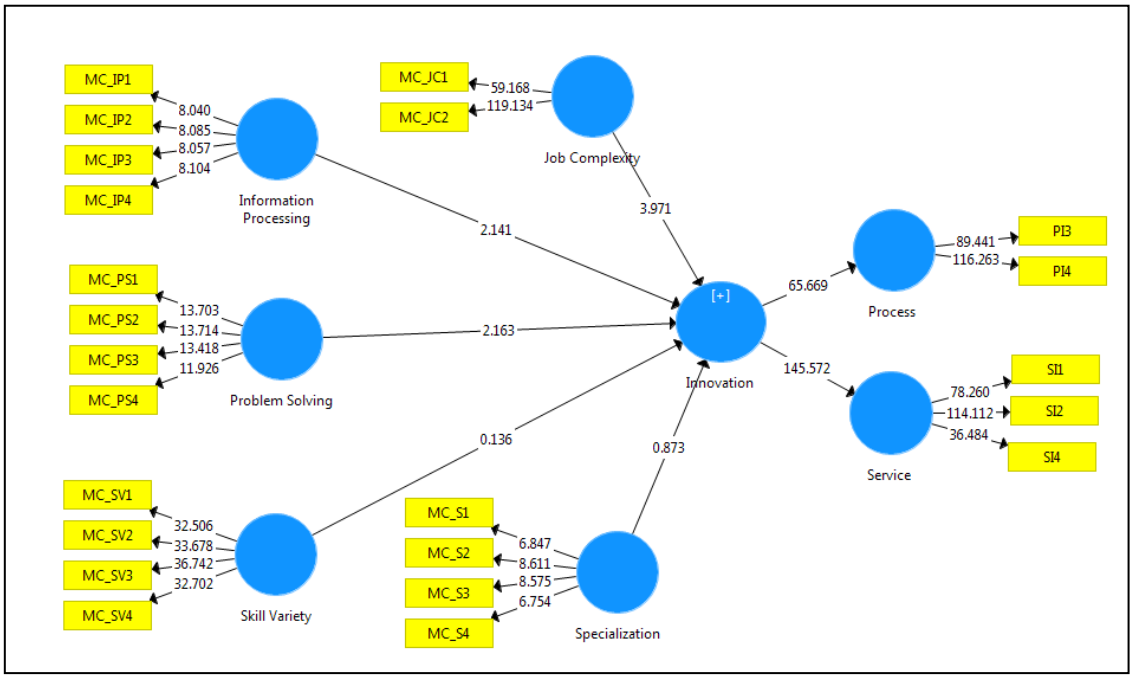

Fig 2. SmartPLS outputs of Bootstraping

Table 3 presents the results of the path analysis or the structural model. Hair et al., (2014) suggested that assessing the structural model involves evaluating the R^2, beta (β) and corresponding t-values. To obtain the t-value, a bootstrapping procedure with 5,000 resamples were executed. The result of the bootstrapping procedure is shown in Table 3. According to hair et al., (2014), the t-statistic value should be greater than 1.96 for the path to be significant. Out of the five analyzed paths, three paths are significant while the other two are not significant ($p > 0.05$). The significant paths are: between

information processing and IWB; between job complexity and IWB; between problem solving and IWB. The insignificant paths are: between skill variety and IWB; between specialization and IWB. With these results, H1, H2 and H3 are supported while H4 and H5 are not supported. The explanatory power of the estimated model can be assessed by observing the R^2 of the endogenous construct i.e. the IWB. For a substantial model, Cohen (1988) suggests that R^2 should be about 0.35 or greater, while Falk & Miller (1992) recommended 0.10 or above. In this study, the R^2 is 0.104, indicating that the estimated model is substantial.

Table 3: Path Coefficients

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Information Processing →IWB	-3.015	-2.644	1.378	2.187	0.029
Job Complexity → IWB	0.242	0.237	0.062	3.895	0.00
Problem Solving → IWB	3.213	2.861	1.351	2.379	0.018
Skill Variety → IWB	-0.155	-0.172	1.028	0.151	0.880
Specialization → IWB	0.051	0.069	0.066	0.771	0.441

Effect size refers to whether the latent independent variable has a considerable effect on the dependent variable. Using the formula $f^2 = R^2/(1-R^2)$ by Cohen (1988), the effect size is computed and the results showed that the effect is either none or small (Table 4). To interpret the impact of f^2 at the structural level, it has been suggested that the effect is large when f^2 is 0.35 or above, medium when f^2 is between 0.15 and 0.349, and small when f^2 is 0.03 or less (Cohen 1988).

Table 4. Assessment of effect size

Model	Variables Included	Variables Excluded	R Square	Effect size (f^2)	Interpretation
1	Job complexity, problem solving, skill variety, specialization	Information processing	0.075	0.0324	Small
2	Information processing, problem solving, skill variety, specialization	Job complexity	0.069	0.0391	Small
3	Information processing, job complexity, skill variety, specialization	Problem solving	0.085	0.0212	Small

Discussion

The objective of the study was to examine the relationship between knowledge characteristics and IWB among officers of Malaysian federal government. Drawing upon the job design framework, knowledge characteristics were classified into five dimensions: job complexity, information processing, problem solving, skill variety and specialization. From the results of the analysis, it was shown that job complexity, information processing and problem solving does have a significant relationship with an IWB. The combination of these three constructs accounts for 10.4% variance in IWB.

As shown by the results of the analysis, negative relationship could be observed between information processing and IWB, which suggests an increased in the information processing will result in reduced IWB. By definition, information processing is the extent to which “a job necessitates an incumbent to focus on and manage information”. Clarke & O’Brien (2012) the government relies on information to

provide services to citizens and in today's digital world, the aggressive data growth has resulted in a problem known as information overload. Spira (2011) stated that individual workers, teams, and entire organizations suffer diminished productivity and the loss of the ability to make sound decisions, process information, and prioritize tasks because of information overload. It was also found that 58 percent of government workers spend half the workday filing, deleting, or sorting information, at a cost of almost $31 billion dollars (Spira, 2011). It could be because of this reason, a negative and significant relationship could be observed between information processing and IWB.
Consistent with Russo (1986), Oldham & Cumming (1996) and Olhy & Fritz (2009), this study found a positive and significant relationship between task complexity and IWB. As explained by Russo (1986), a complex task will normally provide a better learning opportunity. Dealing with complex tasks will require creativity and strategy. In the process, an employee will explore all possibilities that will make the job done efficiently and effectively. As explained by Mulgan & Albury (2003), individuals can generate possibilities for innovation by observing and reflecting on what others are doing and thinking, and by benchmarking themselves against good practice.

Today's working environment requires that all individuals in an organization need to be prepared and equipped to meet the problem-solving challenges. As shown in this study, a positive and significant relationship was also found between problem solving and IWB. This finding further strengthens the findings of Livotov (2013) and Triyono et al., (2015) that innovative skills can be developed through problem solving skills. This finding suggests that as the problems that need to be solved increases in the job, the tendency to innovate will also increase sparingly.

Contrary to our expectations, the results of the analysis showed that, no significant relationship could be detected between skill variety and IWB; and between specialization and IWB. An increased or decreased in skill variety as well as specialization will give no effect to IWB. Upon further scrutiny, it was found that skill variety and specialization had a relatively higher mean score compared to innovation constructs. The interpretation of this could be that, because the respondents perceived that their job nature already requires high skill variety and high specialization, the need to innovate does not apply.

Conclusion

This study has contributed to the body of knowledge from both theoretical and practical perspectives. From the theoretical viewpoint, it has developed an empirical based framework connecting job design with IWB. The framework can be used in other studies involving different professions such as teachers, doctors or engineers. It would be equally appealing to also make a comparative study involving various knowledge workers. From the practical viewpoint, the study has provided empirical evidence on the contribution of job complexity, information processing and problem solving towards IWB. Given the findings, human resource managers, could identify the appropriate training required by the PTDs so as to increase their IWB.

Just like in any other study, there are several limitations associated with this study. Firstly, is in terms of the coverage of variables in work design. As shown in the instrument developed by Morgeson & Humphrey (2006), besides knowledge characteristics, there are other job design characteristics such as task characteristics, social characteristics, work context and equipment use. This study limit its scope to knowledge characteristics only, leaving other characteristics unexplored. Future studies should consider integrating these characteristics when studying IWB.

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Green Management Implementation on an Example of Luxury Class Hotels in Slovakia

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Abstract

Knowledge based economy forces companies to reconsider strategic impact of different components of internal capital on their performance. Traditional extensive value drivers, based mainly on structural capital, are gradually extended with more intensive utilization of relational and human-resources oriented alternatives also in hospitality industry. Applying the elements of green management and sustainable development principles are characteristic trends in accommodation services. The current approach to hotel management is mostly revenue-oriented, i.e. strives to generate profit from temporally and locationally specific combinations of internal, technical and social capabilities, including, e.g. market segmentation, pricing, capacity allocation, aligned incentives, organizational structure or vocational training. Accordingly, present managers maximize metrics like occupancy (OCC), average daily rate (ADR), revenue per available room (RevPAR), revenue per available customer (RevPAC), gross operating profit per available room (GOPPAR) and many others. The paper deals with an application of green management elements in luxury class hotels in Slovakia. We used the methods of scientific work; and i.e.; the analysis method, a generalization method, mathematical, and statistical methods. Surveyed accommodation facilities reached the best results with compact fluorescent lamps and LED lamps (98 %) and sorting containers (90 %). Based on the ascertained facts, we state that accommodation facilities in Slovakia should definitely invest in the green initiatives.

Keywords: Eco-friendly accommodation facility, green management, hotel industry.

Introduction

Sustainability is currently one of the major priorities of tourism all over the world. One part of sustainable tourism is green management. Stakeholders in tourism are increasingly aware of their impact on the environment. Therefore they get involved in various voluntary programs, where they seek appropriate measures by which to contribute to improving the environment at the local and national level. A lot of accommodation facilities are turning green at an increasing rate due to an unprecedented reason, which is not directly based on profitability, longevity, or sustainability.

Environmental issues of the world have become the key topic of everyday conversation. There has recently been much discussion about the question if business in Western society can be transformed into environmentally responsible accommodation facilities (Rojšek, 2001). Applying the elements of green management is one of the characteristic trends in accommodation services. We can find them particularly in large hotel chains but accommodation facilities with small capacity are also interested in this green way. These accommodation facilities are aware that the importance of environmental protection is necessary; moreover they use this concept as a useful marketing tool for distinguishing from other accommodation facilities (Scholz, 2015a). Great pressure is directed mostly towards the hospitality which is considered to be one of the main sources of pollution (Rojšek, 2001; Graci, 2010).

Green management in accommodation facilities

Nowadays we can hear or read that green is in. Green is in vogue. A lot of consumers are asking for it. Organizations are requesting it. The future of business is being built on green and social responsible organizations. The green bandwagon is overloaded with posers and images of green without the true understanding of what green means, the methodologies of achieving green, and the applicability of green management (Tran, 2009). Despite the opportunity, some hotel managers remain hesitant to invest in green initiatives because they are not convinced whether or not such investments are financially beneficial. That is, while implementation of some new green practices and elements requires significant initial investments, quantifying returns is often difficult for investments which produce less tangible results such as improvement to a firm's reputation for being conservation oriented (Bird et al., 2007).

On the other hand, the laws or regulations of most countries do not have a legal or a universally accepted definition of what is a "green accommodation facility or eco-friendly hotel". It means that the practice of using "green or eco-friendly" as a marketing ploy is still widespread in many cities and towns around the world. A lot of hotel managers are claiming that they are "green or environmentally friendly" by simply hanging a sign and declaring themselves to be green (Pizam, 2008). Other accommodation facilities are claiming to be green also by the simple practices like changing the linens less frequently, reducing the flow of water saving perlators or shower heads, usage of the compact fluorescent lamps and LED lamps etc. But these activities we cannot signify for entirely correct statements of eco-friendly accommodation facility. In our opinion, the basic definition of this eco-friendly accommodation facility is an environmentally responsible accommodation for that follows the practices of sustainable living and has the certification of the European Union - The Flower or other ecological certificate.

A number of measures to protect the environment is focused on reducing energy (Chan and Lam, 2003; Khemiri and Hassairi, 2005; Ali et al., 2008, Scholz, 2014), water (Deng and Burnett, 2002; Gössling et al., 2015; Reddy and Wilkes, 2015), chemicals, office supplies, reduction of waste (Wie and Shanklin, 2001; Chan and Lam, 2001), increasing the proportion of natural materials, aestheticisation environment, reducing noise and emissions (especially carbon emissions), etc. (Patúš and Gúčik, 2004; Hillary, 2004; Bohdanowicz, 2005; Mensah, 2006; Chen and Hsieh, 2011; Scholz, 2015b). Global Carbon Atlas shows that world produced 35.890 billion tons of carbon emissions in 2014. We can state that China´s total emissions lead the world but when diluted by its huge population, its ranking drops down the per capita list. The United States is No. 2 for total emissions but Americans shrink down to a respectable rank in line with other industrialized citizens. On the other hand, Gibraltar tops per capita list due to its need to import most manufactured good – a reality also seen in many small island nations. The largest emitters worldwide by country: China 9.681 billion tons of carbon emissions, United States 5.561; India 2.597; Russia 1.595; Japan 1.232; Germany 0.641; Iran 0.616, and Saudi Arabia 0.602. In comparison Slovakia has value of carbon dioxide only 0.032.

It is necessary to focus on waste separation and reuse of recycled material, energy and water savings (table 1).

Table 1: Green management elements

Area	*Elements*
Economic and social activities	- purchase of raw materials and products in the region, - support local infrastructure, - use of public transport and bicycles, - employment of local population.
Communication and education of employees and guests	- workflows and their control, - promotion of ecological program to the public, - compliance with environmental principles by guests and employees.
	- implementation of ISO 14001, Eco-Management and Audit Scheme, - purchase larger volumes and minimizing packaging,

Management	- purchase products that really need accommodation facilities, - purchase products from suppliers in the region, - purchase quality and truly useful products, - purchasing of environmentally friendly products, - measuring guests´ satisfaction.
Waste management	- waste separation in the background of hotels, - sorting bins for plastic, paper, etc. in each room, - reuse recycled materials, - composting organic waste.
Energy savings	- utilization of geothermal energy and waste heat, - regulating heating and air conditioning, - compact fluorescent lamps, - appliances min. class A (A +, A ++), - low energy technologies, - thermal insulation of buildings.
Water savings	- installation of single-lever mixers and perlators - installation of energy-saving shower heads, - installation of two-stage flush toilets, - gray-water reuse, - rainwater harvesting.

Source: Processed under Belešová, 2014; Scholz, 2014.

Accommodation facilities tend to apply differently in the selection of saving measure. Some hotels and guest houses are decided according to what is currently the most urgent; others focus on measures that will bring the biggest savings at the lowest cost. A lot of accommodation facilities invest financial resources into the lighting, where they can attain significant savings. Incandescent bulbs are most often replaced with the compact fluorescent lamps. They reach about 80 % less energy consumption compared to the incandescent lamp for the same light flux and also significantly lower power dissipation.

Another advantage of the compact fluorescent lamps is that they have a considerably longer service life, which reaches an average of 6,000 hours of lighting. However, they are currently increasingly coming to the forefront of LED technology (Light Emitting Diode). Compared to the common light sources, their durability is much higher. However, it should not be installed at the places where there is frequent switching off lights. What is more, the lifetime of LED lamps is in the range 30,000 to 100,000 hours of lighting, but the product which promises life of 100,000 hours are often not very reliable. The usual lifetime of LED lamps is around 30,000 hours, but it also may be lower or higher.

Accommodation facilities in the Tourist class and Economy class are not so much interested in applying elements of green management. We state that situation is different by accommodation facilities which offer higher quality and more additional services. Accommodation facilities in the Standard class and First Class begin or have already begun to implement environmental management which results from the moral, social and political reasons. For accommodation facilities, it is not easy to implement environmental management. Managers even though start to be creative of the utilization of existing materials and convert to efficient and environmentally friendly. We can see economics advantages in eco-friendly accommodation facilities, too (Scholz, Voráček, 2015).

In Slovakia, there is only one accommodation facility which is certified by The Flower system. In the European Union, there is also utilization of the certification of Environmental Management System, in the United States of America there is well-known LEED certification (Leadership in Energy & Environmental Design).

The hotel sector is comprised of both independent and chain hotels (Scholz, Voráček, 2015). Mainly chain hotels are also increasingly subscribing to eco-labelling and certification schemes (Hamele, 2004 in Mensah, 2013). In Europe, there are over 600 accredited facilities. We state that France is the country with the highest number of accommodation facilities (352) with ecological certificate in

2015. Especially, Region of Brittany, Provence-Alps-Côte d'Azur, Aquitaine, and Poitou-Charentes there is the highest number of accommodation facilities with ecological certificate of the European Union - The Flower. If we focus on some selected European countries, we can see in several countries between the years 2007-2014 a significant increase in the accommodation facilities which have the ecological certificate of the European Union (table 2)

Table 2: Number of eco-friendly accommodation facilities in selected European countries

No.	*Country*	*2014*	*2007*	*Index in %*
1	Italy	124	25	496
2	France	104	2	5,200
3	Switzerland	37	6	617
4	Austria	17	7	243
5	Spain	15	3	500
6	Ireland	7	11	64
7	Czech Republic	6	2	300
8	Great Britain	5	5	-
9	Netherlands	4	6	67
10	Sweden	2	0	100
	Finland	2	0	100
	Greece	2	2	-
13	Belgium	1	0	100
	Slovakia	1	0	100
	Slovenia	1	0	100
	Germany	1	1	-
	Malta	1	1	-
	Hungary	1	1	-
	Cyprus	1	1	-
	Denmark	1	5	20
	Portugal	1	2	50
22	Poland	0	2	0
	Latvia	0	2	0
	Norway	0	2	0

Source: Processed under European Commission, 2016.

We note that in 2007, there is the biggest number of the eco-friendly accommodation facilities in Italy (25), Ireland (11), Austria (7), Switzerland (6), Netherlands (6), and Denmark (5). It is remarkable that countries that are more environmentally friendly have a minimum of these eco-friendly accommodation facilities - Germany (2), Finland (0), Sweden (0), and Norway (0). Comparing the countries in 2014 (data from all mentioned countries are still not available in 2015), it was Italy in the first place, which increased the number of eco-friendly accommodation facilities by almost 100 accommodation facilities, i.e. an increase of 496 %. The most striking development was recorded by France with 104 environmentally friendly accommodation facilities. Compared to 2007, there were only 2 eco-friendly accommodation facilities; it means the increase of 5,200 %. Switzerland recorded the increase of 617 %, Spain the increase of 500 %, the Czech Republic increased by 300 % and Austria by 243 %. We also noticed some declines e. g. Ireland and Denmark. Norway, which is considered as a leader in connection of ecology, there is no accommodation facility certified by The European Union. But we have to state that in the figure 2, there are only collected accommodation facilities with a European Ecolabel. Therefore, e.g. countries of the Scandinavian Peninsula of northern Europe did not reach better results.

We assume that these countries have a national certificate for accommodation facilities with an eco-friendly approach to the environment. In Norway, Sweden and Finland, the measures for supporting the environment are basically implemented automatically and it is not necessary to own an environmental certificate. Several accommodation facilities in the Czech Republic and Slovakia are in line with this philosophy. They use some measures and elements of the green management but do not own a certificate due to its high financial expenses. In the countries of the Western and Northern

Europe, the guests are different, because they are interested and seek eco-friendly accommodation facilities, whereas for Czech or Slovak guests the most decisive factor is predominately the price.

But green management is not the repackaging, the reinventing approaches to business, nor business management. Green management is not a concept describing new business management style. Green management is simply the rethinking, or more accurately, being more mindful of how accommodation facilities are operating (or a lack thereof) with respect to the environment (Tran, 2009).

Objectives and methodology of the research

The aim of this paper is to analyze the implementation of the green management elements in luxury class hotels in Slovakia. There were used primary data collected by questionnaire survey and secondary data. The questionnaire survey consisted of twelve questions. They were mostly closed and some were half open questions. At the end of the questionnaire there were three segmentation questions and respondents had space for their views and comments. The primary survey was conducted in Slovakia. We used PAPI, CAPI, and CAWI methods. Paper and pencil interviewing (PAPI), data obtained from the interview is filled in on a paper form using a pencil. Computer-assisted personal interviewing (CAPI), this method is very much similar to the PAPI method, but the data is directly entered into a computer program instead of first using paper forms. CAPI was developed to reduce the time needed to collect and process survey data, to improve the quality of the information collected, to reduce survey costs, and to implement more complex questionnaire designs than are possible with paper and pencil (Baker, 1992). Computer-assisted web interviewing (CAWI) is an Internet surveying technique in which the interviewee follows a script provided in a website. The questionnaires are made online for creating web interviews (e.g. google). The website is able to customize the flow of the questionnaire based on the answers provided, as well as information already known about the respondent. It is considered to be a cheaper way of surveying since one does not need to use respondents to hold surveys unlike computer-assisted telephone interviewing (Reips, 2000). The survey was conducted since September 2014 until August 2015. In Slovakia, there are located 10 accommodation facilities in Luxury class. We contacted these 10 luxury class hotels; 100 % of them answered willingly. We used the methods of scientific work; and i.e. the analysis method, a method of generalization, mathematical, and statistical methods. In Slovakia, there are over 3,100 accommodation facilities; 10 Luxury class hotels, 130 First Class hotels, 278 hotels in the Standard class, 106 hotels in the Economy class, and 89 hotels in the Tourist class. Furthermore, in Slovakia, there are located 749 guest houses, 295 hostels, 56 hostels dwellings, 63 campings and encampments, 591 accommodation facilities in private, and 778 other (*Statistical Office of the Slovak Republic).*

Results and discussion

Accommodation facilities that utilize elements of the green management have a certain competitive advantage. Their goal is to apply the different elements of green management and contribute to the environmental protection. The highest representations of accommodation facilities in our sample were noted in the accommodation facilities located in towns (7), rural areas (1), mountains (1), and spa (1). The results of the research can be summarized as follows:

- 98 % of luxury class hotels use compact fluorescent and LED lamps,
- 90 % of luxury class hotels have sorting containers,
- 89 % of luxury class hotels reduce the flow of water saving perlators or shower heads,
- 87 % of luxury class hotels have their own heating control in each room,
- 82 % of luxury class hotels have windows thermal insulation,
- 72 % of luxury class hotels minimize the use of disposable products,
- 67 % of luxury class hotels use cleaning products and laundry detergents friendly to the environment,
- 62 % of luxury class hotels educate employees to green management,
- 53 % of luxury class hotels inform guests about environmental efforts, and

- 45 % of luxury class hotels have implemented environmental housekeeping.

Surveyed accommodation facilities in luxury class have the best results with compact fluorescent lamps and LED lamps (98 %), sorting containers (90 %), and reducing the flow of water saving perlators or shower heads (89 %). We are surprised that 87 % of luxury class hotels had individual heating control installed in the rooms. If the room is not occupied by the hotel guests, it is not environmentally friendly to use the air conditioning or heating in the room. It is completely sufficient if the heating or air conditioning is turned on a few hours before the expected arrival of the guests. Over three quarters of luxury class hotels (82 %) use windows thermal insulation.

Rather worse results were found in the environmental housekeeping (45 %), informing of guests about environmental efforts (53 %), education of employees to the green management (62 %), and the friendly cleaning products and laundry detergents (67 %). But these results are still at a good level.

Generally, we state that the surveyed accommodation facilities reached very good results, sometimes there were found even outstanding results. In comparison with the research performed by Scholz (2015), who dealt with the same issues in the accommodation facilities (Luxury class) in the Czech Republic, we expected similar results.

Accommodation facilities in the Czech Republic reached better values with the following environmental measures: compact fluorescent lamps and LED lamps (100 % x 98 %), sorting containers (100 % x 90 %), windows thermal insulation (100 % x 82 %), green management employees education (82 % x 62 %), and implementation of environmental housekeeping (66 % x 45 %). With cleaning products and laundry detergents friendly to the environment we marked similar results. The biggest difference we can note with reducing the flow of water saving perlators or shower heads. Almost 9/10 of luxury class hotels (89 %) in Slovakia reduce the flow. In the Czech Republic there is only one third of luxury class hotels which reduce the flow of water saving perlators or shower heads (fig. 1).

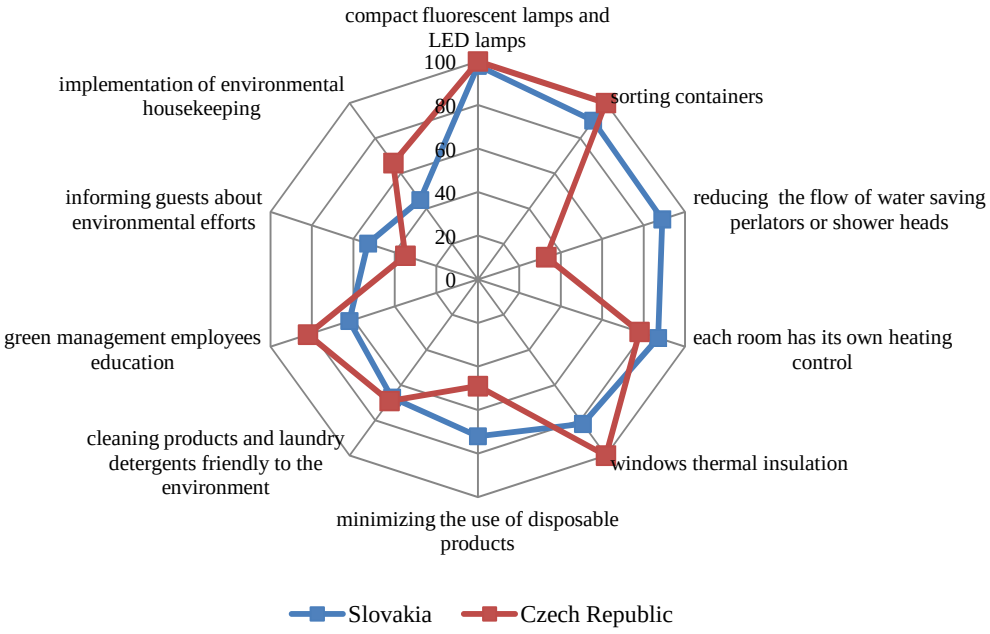

Figure 1: Environmental measures used in accommodation facilities in Slovakia in percentage

Source: Own elaboration, 2015.

Water saving perlator can save up to 70 % reduction in water consumption sinks and kitchen sinks without sacrificing user comfort. Water saving shower head reduces the consumption by 40 % i.e. at 12 to 15 liters per minute compared to classic traditional shower head, in which is the water consumption about 20 liters per minute. Funds in these facilities is not high, the costs are altogether approximately 20 €.

Conclusion

Based on the ascertained facts, surveyed accommodation facilities reached very good results, sometimes there were found even excellent results, especially with compact fluorescent lamps and LED lamps (98 %), sorting containers (90 %), and reducing the flow of water saving perlators or shower heads (89 %). Accommodation facilities should prefer Slovak products and local specialties while purchasing raw materials and products; try to support local infrastructure, promote ecological program to the public and green management implementation. Green management extends the portfolio of services in the accommodation facilities. We can state that a greener workplace can mean a lighter ecological footprint, a healthier and more productive place to work, and finally better conditions for employers, employees, and guests. Moreover, eco-friendly accommodation facility, managed in such way is internally stable and robust, which support its planning and improvement processes. We can state that accommodation facilities in Slovakia should definitely invest in the green initiatives. Generally, it may be a complementary service of a hotel, which serves to satisfaction of the customer's beliefs or values such as respect. But environmental protection is not definitely running for a short distance.

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Succession Planning and Capital Structure of Family-Owned Businesses in the UAE

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Abstract

This short paper presents the preliminary results of a study aiming to examine how effectively the United Arab Emirates' (UAE) family-owned businesses plan and manage the succession of their historic founders. In addition to analysing the transfer of knowledge and skills from the incumbent manager-owner to the new generation, we also examine the major factors affecting the decision of current and future capital structure of the company. For this purpose we plan to perform several case studies of family-owned businesses established in the UAE. Our preliminary findings show important influence of the local culture on the succession planning. The preferred successor is involved quite early in the management of the business in order to facilitate the transfer of knowledge and skills. However, the capital of the firm is rarely opened outside the immediate heirs.

Keywords: family ownership, succession, culture, capital structure

1. Introduction

The government of the United Arab Emirates (UAE) has pledged a strategic shift from a fossil energy-based to a "sustainable and diversified economy", "driven by entrepreneurs" (UAE, 2010). An important factor for the success of this vision is the further development of the multitude of local family-owned businesses (FOB) which are expected to constitute a major pillar of the future diversified economy. Indeed, some professional sources claim that around 75% of the private businesses in the countries of the Gulf Cooperation Council (GCC) are family-owned (Garbois et al., 2011; Wilkinson, 2015). Other sources estimate that this share in the UAE is close to 90% (Bodolica et al., 2015).

More importantly, many of the FOBs in the UAE are going to face succession challenges in the end of the current or the beginning of the next decade (Swan, 2013). This intergenerational transfer is extremely important because the federal government places grate hopes in the FOBs for the diversification of the economy. On the other hand, on the international scene, empirical studies have shown that only a third of the FOBs are transferred to the second generation, and less than 10% survive to the third generation (Le Bretton-Miller et al. 2004).

To face this succession challenge, the UAE government has made significant efforts in developing the financial markets and institutions of the country, essential in securing financing for the local businesses. However, the successful succession of FOBs usually requires more than just funding. It is important to prepare the family and the successor through careful planning, education and involvement in the business. It is also crucial to consider how the cultural and legal context of the country can affect the execution of the succession plan (Le Bretton-Miller et al. 2004).

Given the specific cultural, legal and economic context of the UAE, this study aims to examine to what extent the major drivers for an effective succession of family-owned businesses in the country are similar to or different from those found in other international studies. Moreover, the study will examine the conditions leading to the introduction of a non-family chief executive and those leading to changes in the capital structure of the family-owned firm after succession. To the best of our knowledge, this would be the first study analysing thoroughly this topic in the case of the UAE. Therefore we expect our conclusions to be useful not only for the numerous FOBs facing a succession challenge in the near future, but also for the policymakers in the country who need to adapt the financial, legal and educational infrastructure to face these challenges.

2. Literature review

The question of the determinants of an effective succession planning has attracted significant amount of academic interest in the last three decades (Le Breton-Miller et al., 2004). This literature has established several best practices which would allow the incumbent manager-owner to effectively transfer the managerial knowledge and skills along with the ownership rights, while avoiding conflicts within the family. Nevertheless most of this research relates to the succession planning in western economies.

An important question for FOBs facing generational change is the financing of this process (Koropp et al., 2013) as well as the future capital structure of the family firm (Molly et al., 2010; Amore et al., 2011). The agency theory predicts that agency conflicts are reduced when the managers is also owner of the firm. Hence, opening the capital to external shareholders would happen only if the corporate governance environment in the country allows for strong investor protection, especially for minority shareholders (Burkart et al., 2003). In the same vein, the change of CEO with a non-family professional is expected to increase the agency conflicts and the corresponding costs. Empirical studies show that the transfer of management to a professional CEO leads to higher use of debt financing, especially in firms with a high level of investment, and where the controlling family maintains a dominant representation on the board of directors (Amore et al., 2011). On the other hand, the transfer of management to the second generation family member leads to lower use of debt financing but hampers the growth rate of the firm (Molly et al., 2010).

In western countries, when the control over the firm is passed to the next generation, the capital is often opened to non-family members. However, family members maintain significant interest in the capital (Aguilera and Crespi-Cladera, 2012). It is estimated that the percentage interest of family voting rights after succession is even higher in the developing countries where the managerial positions in the business is also frequently maintained within the family (Aguilera and Crespi-Cladera, 2012). Aguilera and Crespi-Cladera (2012) argue that this is not necessary a drawback as long as the successor, member of the family, has acquired from the incumbent the necessary knowledge, skills and human capital which has made the family management more effective during the first generation.

Nevertheless, most of the empirical research about the impact of succession on financial structure was conducted on European or North American family firms. Very little is known about the succession planning challenges faced by FOBs in the emerging economies and the Middle East (Fahed-Sreih and Djoundourian, 2006; Ismail and Mahfodz, 2009; Chaimahawong and Sakulsriprasert, 2013).

3. Legal and cultural context of succession in the UAE

When examining the current succession planning practices in UAE family-owned businesses it is essential to consider the impact of the local cultural and legal environment. Especially because it differs in many aspect from the context where most the existent literature was developed. The social context (culture, social norms, religion…) is expected to play a crucial role in the succession of FOBs (Le Bretton-Miller et al. 2004).

The inheritance rules in the UAE are regulated by the Islamic Chari'a rules which are formally codified in the national legal system via the Civil Transactions Las (Federal Law No. 5 of 1985, as amended) and the Personal Status Law (Federal Law No. 28 of 2005) (see Chiniara and Rosa, 2009). On the other hand, the Shari'a rules and the national laws are largely influenced by and should be understood together with by the pre-Islamic Arabian tribal inheritance system. This tribe and family-centred social system still exerts significant impact on the current days' management and succession practices of the local FOBs, although a slow shift of boundaries towards a more western-style management and succession is under way (Bodolica et al., 2015).

The pre-Islamic tribal rules prohibit the transmission of the wealth to any female heir. Moreover, these rules regulate the intergenerational transfer of property as a unit (co-ownership) considering that the management of this property should be delegated to the elder son (Chiniara and Rosa, 2009). Moreover, pre-Islamic tribal rules do not allow for transfer of property outside the family, which has ensured strong family and tribal bonds (Chiniara and Rosa, 2009). The Islamic Shari'a rules, integrated in the UAE laws, have changed some of these limitations. Notably, under a forced heirship (or reserved shares) system, female heirs are allocated part of the wealth equal to half the share of the male heirs. Transfer of property to a non-family member is allowed for up to one third of the total wealth. This transfer can be applied either as a testamentary gift or as a donation during the life of the person. Nevertheless, if the beneficiary of a testamentary gift is a member of the circle of forced heirs, then it cannot be executed unless the other heirs unanimously agree with it. Moreover, the UAE law "sharply circumscribe both the rights of individual members to require that their shares be bought out and the ability of a third party to become a co-owner without the unanimous consent of the family members" (Chiniara and Rosa, 2009: 786). However, despite the restriction of this co-ownership status of the heirs, there is no requirement for the wealth to be administrated by the oldest male heir. Instead, if the heirs disagree on the future of an inherited business property, the UAE law (Civil Transaction Law, Article 304) provides for that business property to be appropriated by the heir deemed best qualified to run the business, while the value of the business is to be offset against the share of this heir in the total wealth.

In summary, the provisions of the current UAE laws and the ancestral tribal traditions pose significant limitation for local family businesses to open their capital. On the other hand, these rules somewhat force the early planning of the transition by involvement in the business of the next generation in order to train them and develop their skills in order to identify the most qualified heir. They also forces an early effort to achieve agreement between siblings, since all decisions should be taken unanimously in the co-ownership post-succession environment (irrespective of the interest share in the wealth).

4. Research design and method

Thorough understanding of the succession planning process in the UAE-based FOBs is needed in order to answer the research questions of this study. Moreover, because of the private nature of the family-owned firms, previous studies have acknowledged significant difficulties to access reliable large scale data on their succession planning and performance. Therefore, the current study will be based on primary data collected through a small number of case studies.

The FOBs in the UAE comprise a large number of small and medium-sized firms, as well as certain number of very large conglomerates and groups of companies. These businesses are present in all economic sectors: agriculture, manufacturing, construction, trade, services and financial sector. In order to be able to draw generalizable conclusions we are planning to conduct from 6 to 10 case studies, where at least two case studies will cover each size range: small companies (up to $1 million revenue), medium-sized companies (from $10 million to 100 million revenue), and large companies (more than 100 million revenue). Moreover, we are expecting to have in each size range one company in the manufacturing/construction and one company in the service/trade sector.

We have collected at this stage secondary data for two large family groups (one in the financial and one in the construction sector) and two medium-sized firms (one in the service and one in the manufacturing sector).

5. Preliminary findings

The preliminary results of the study show that the management of knowledge and capital succession in the UAE family-owned businesses is largely influenced by the local culture and traditions. Indeed, the preferred successor is often the oldest male heir, who is usually provided with high quality education and is involved in the management of the business since an early period. This facilitates the transfer of knowledge and skills. Nevertheless, despite the governmental efforts to develop the local

stock market, many FOBs prefer to maintain their capital within the boundaries of the immediate family or to seek funding in the close circle of personal relationships, instead of opening the company capital to the public and exposing the business to a greater accountability and transparency. The bank borrowing is another preferred way of funding which allows to avoid the dilution of family capital. On the other hand, many FOBs aspiring to grow internationally are opened to recruiting professional managers since the first generation, yet keeping the ownership as well as the major strategic decision within the family. This approach seems to support a heathy financial performance of the businesses examined in the study.

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The impact of regional disparities in economic and social regional development process in Romania

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Abstract

Regional development has become a necessity and thus a particular interest to policy makers in national and international institutions. In Romania, regional development has experienced various sizes due to the development of each region, thereby creating regional disparities. Attempts to reduce these disparities have existed since the communist period, but their outcome was one with serious consequences, the investments made in urban centers causing destabilizing migration of rural population balance. Regional disparities appearance represents one of the key issues found by the European Union Agenda 2020, amplifying concerns that aims to reduce disparities between regions regarding social exclusion or even the welfare of society.
This paper presents the need for regional development phenomenon in Romania at the economic and social level compared to the effects they have on its regional disparities. Negative externalities are presented as a case study to highlight the process of reducing disparities between development regions.

Keywords: Regional disparities, regional policy, regional development

Introduction

In order to ensure economic growth and social development to effectively use the regional and local potential of each development area there has been created the regional development policy which promotes a series of measures that should be adapted by the local and national authorities on the specific of the area. They can have two different goals depending on the desired purpose. The measures can be prevention policies or to eliminate de discrepancies by the removal of the lagging behind effects of development regions.

The main goal of regional development policy consists in reducing disparities to enhance economic and social cohesion at European Union member states.

Regional policy is manifested in the objective of reducing disparities in the distribution of industrial objectives, current workforce and infrastructure (Molle W., 1990), resources rationally. Depending on the measures, development of an area can affect also the migration of population to more prosperous areas.

The industrialization, infrastructure, and the migration phenomenon of rural population to urban areas has led to a differentiation of population distribution, economic activities and areas of regional development.

1. Disparities Analysis at European Level

European Union, seen as a conglomerate of countries is a unit with a higher level of incomes per capita, but not all regions have the same degree of regional economic and social development.

At the member states of the European Union the GDP / capita characterizing the regional disparity can be observed in Figure 1 below.

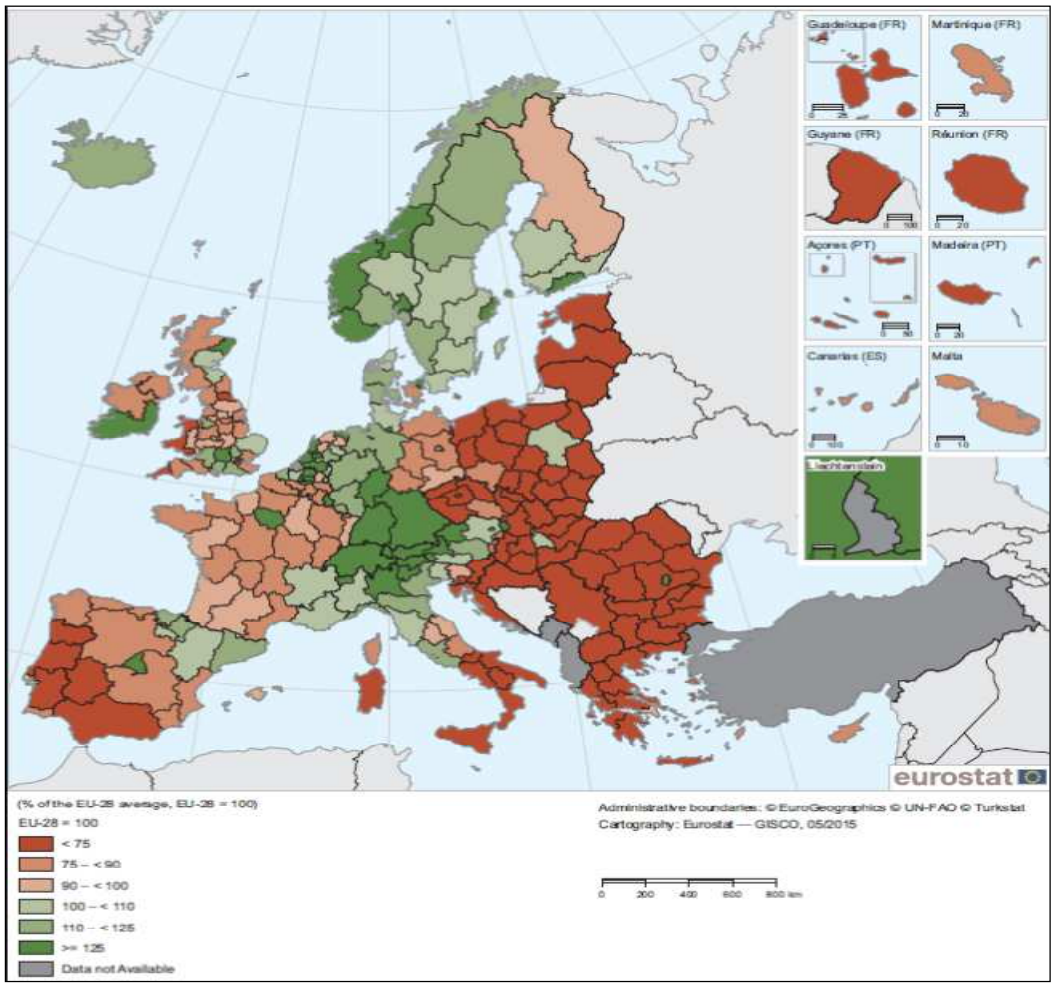

Fig. 1 Disparity index- GDP per capita, 2013 (% of average UE-28)

(Source: EUROSTAT, Statistical Atlas, Regional Yearbook 2015, Economy and Finance, Chapter 6: Economy, 6.1 Gross domestic product GDP per inhabitant, in purchasing power standard PPS, http://ec.europa.eu/eurostat/statistical-atlas/gis/viewer/?year=2015&chapter=06#)

As shown in Figure no. 1, we can see that Central and Eastern Europe show low levels of GDP / capita, Romania being part of this category.

In order to compare the development regions, or at European level or at national level, in the scientific literature are present analyzes of indicators characterizing the supply and the regional activities. These can include: from the supply side: indicators of wellbeing, concentration of infrastructure, unemployment, education level (these are prerequisites of wellfare) and regional activity indicators such as GDP per capita or the number of people experiencing the phenomenon of poverty.

Correcting the disparities at the European level can bring advantages for certain member states, but also can bring disadvantages for the already developed member countries due to the phenomenon of transfer of existing resources from the developed states to the less developed regions. The new member states is both an opportunity and a challenge for the European Union to maintain the gaps at a significantly reduced level.

2. Regional Disparities Analysis in Romania

Unlike the European Union, Romania has a GDP / capita well below the European Union average. The differences in regional development in Romania have changed over time.

Once with the introduction of the classification by the Statistical Office of the Nomenclature of Territorial Units for Statistics (NUTS), Romania has been divided into 8 development regions, type NUTS 2.

The development of the 8 regions (Table no. 1) is comparing with the European Union member states, a different one, because of the political implications, economic, and social.

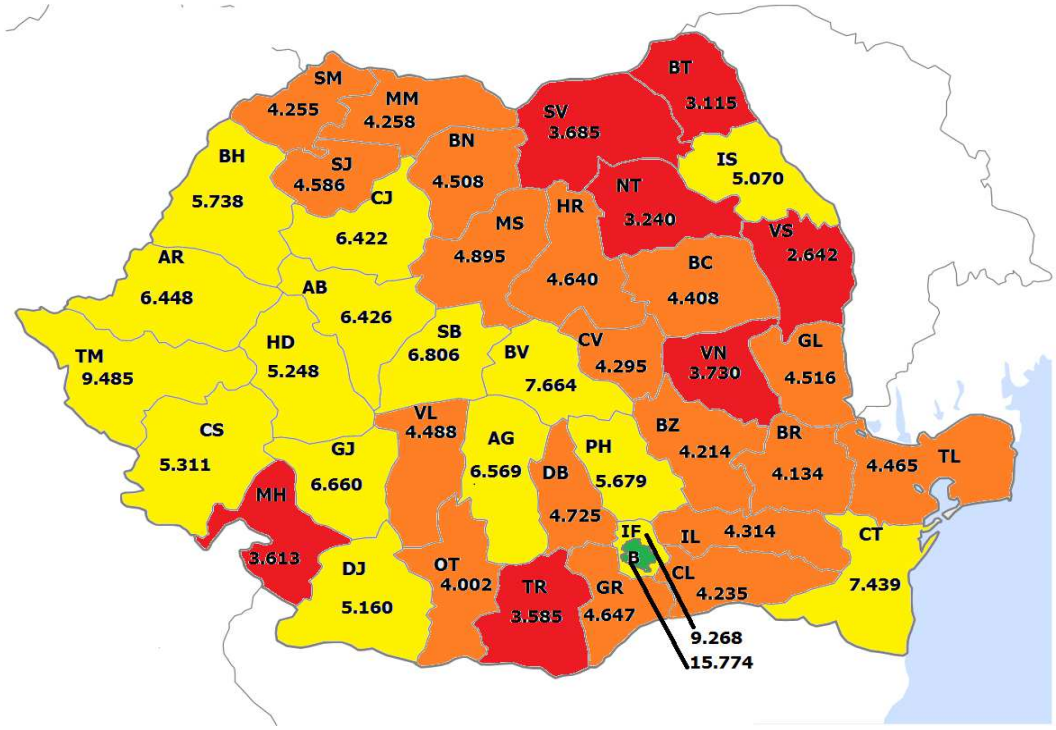

Fig. 2 GDP per capita, 2012 (in Euro)

(Source: The projection of the main territorial socio- economic indicators on 2015, National Commission of Prognosis, June 2012).

All Romanian regions have a low level of development compared to the average of European Union member states, but five of the eight are included in the list of the least developed in the European Union in terms of GDP per capita.

The rural areas show a low level of infrastructure development, the remaining population being aged and dependent on the revenues from the activities in subsistence farming, living standards being much lower than those in urban areas.

In Figure no. 2 is presented the GDP per capita (in Euro) for 2012. It can be seen as the North-East region includes counties with very low levels of GDP per capita compared to Bucharest-Ilfov development region, or the west, which are more developed on economic activities.

In a research study by Csorba (2006), the analysis of economic disparities between the regions includes a complex comparison of net average earnings per month of the population in each region.

The gaps between the developing regions in Romania increased with the transition to a market economy, the big cities and the country's capital receiving a wave of foreign direct investments and skilled labor, unlike other cities, according to studies by Zaman and Georgescu (2009) and Robson (1987). Ailenei (2012) mentions in a study that at the same time, the recent crisis that Romania passed, has left fingerprints on regional issues, emphasizing them in the next period.

Table 1 Disparity Index -Average net monthly earnings

%

Average net monthly earnings	2014	2015	2016	2017	2018
North- East	84,7	84,5	84,3	83,6	83,4
South East	86,8	86,8	86,7	86,5	86,4
Muntenia South	93,2	93,2	93,3	93,5	93,5
Oltenia South-West	90,6	90.0	89,6	89,4	89,6
West	94,3	94,8	95.0	95,1	95,1
North- West	87,3	87,7	88,1	88,1	88,1
Center	88,5	88,4	88,4	88,4	88,5
Bucharest - Ilfov	141,4	141,4	141,5	142,1	142,4

(Source: The projection of the main territorial socio- economic indicators on 2018, National Commission of Prognosis, December 2015).

In Table no. 1 from above, it can be observed the average net monthly earnings of Romania's population divided by the 8 development regions. Bucharest-Ilfov region is the most developed region in this aspect, and the North East the least developed. North-East region has undergone significant industrial changes, the foreign direct investments received have a small amount, and thus, the existing economic activities bringing not significant gains to the population.

These changes have significantly influenced regional social and economic structure. Thus, arose the economic and social disparities. The economic profile is characterized by the active population in the economic sectors.

Regional disparities at the european level have multiple causes, but the main causes are constituted by the ongoing expansion of the European Union and the contribution to poverty that came with each new integrated member state that accentuated the disparities.

Conclusions

European Union grants financial help to the member states with regions with reduced development posibilities, with a low degree of wellbeing, in order to support investment and job creation, to shape a sustainable economy.

In the category of less developed regions were included the regions with industrial areas from the communist period, many of them severely affected during the regionalization. Currently, the main priorities that national and international authorities should consider for reducing the negative impact of regional disparities on development at the local level are: investments to create new jobs, allocation of foreign funds (international), regional infrastructure development, using the local

knowledge resources, involving the human resources, retraining the human resources in new professions, usage of alternative resources, green energy, tourism promotion, investing in education with a focus on youth specialization in specific industries area.

The analysis of the fundamental imbalances between the regions of Romania is increasingly necessary given the increasing gaps between them.

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Emotional Labour and the Job Satisfaction of Bank Tellers in Sri Lanka

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Abstract

This study focuses on to identify surface acting and deep acting of bank tellers in commercial bank in Colombo. Study Sample size is sixty-six and random sampling technique used to select sample units and gathered data questionnaire. Data was collected through a structured questionnaire. Correlation was used to test the research hypothesis. Surface acting has not been found to be significantly associated with job satisfaction and deep acting found significantly associated with job satisfaction. So it is recommended to the bank to give more training to develop necessary skills to performing deep acting. In order to increase performing deep acting and surface acting, so as to obtain the benefits of emotional labour it is recommended to use emotional labour as selection criteria in the front office employees' selection process. Finally this study identifies that,there is significant relationship between surface acting and job satisfaction in tellers in Sri Lanka.

Keywords: Emotional labour, Surface Acting, Deep Acting and Job satisfaction

Background of the study

The Sri Lankan banking industry was changed with the introduction of private banking corporations and few foreign bank operations. Present condition of banking sector in Sri Lanka is very competitive and it is a growing industry in Sri Lankan service sector (Hemachandra, 2012) As competitive service organizations tellers in Sri Lankan banks also have to play significant role to satisfying their customers (Domingo, 2003). Customer perception about quality of service highly depends on the performance of tellers in the bank, Therefore, bank tailors require to manage his emotions on the job. Bank tailors require face-to-face or voice-to-voice contact with the public, especially with customers (Hochschild, 1983), Then those require to produce an emotional state in another person. So this type of behavior simply recognize as the "emotional labor" and it can be defined as the degree of manipulation of one's inner feelings or outward behavior to display the appropriate emotions response to display rules or occupational norms (Chu, 2002).

In present consideration about the emotional labour become increasingly popular because economies of developing countries are shifting from manufacturing to service sector. The spirit of service industry is not only "getting a job done", but also involve getting the job done with right attitude (Chu, 2002).Morris and Feldman (1996) defined emotional labor as the ''effort, planning, and control needed to express organizationally desired emotions during interpersonal transactions.'' The concept of emotional labour is mostly applicable in the service industry where there is direct interaction between the customers and the service provider. The successful service depends much on emotional labour.

A small number of researchers have examined theemotional labour of bank tailors; there has been nocritical analysis of the relationships between emotional labour and job satisfaction of bank tailors

using both quantitative and qualitative methods of inquiry. This study,therefore, addresses a substantive gap in the research literature by critically examining theserelationships.

The study of Job satisfaction is very significant because as employee spend a major time of their life at the work place. According to Luthans (2005) Job satisfaction is often described as the relationship between employees' expectation from the job and the extent to which the job fulfills the employees' expectation. It is outcome of an employee's judgment of how well the job ensures those aspects which are considered important by him or her. Herzberg (1959) identified two set of factors contributing to job satisfaction and dissatisfaction. Job satisfaction describes how comfortable an individual is with own jobs.

When we concern about bank employees job satisfaction can review various kind of literature. According to Baker (2009) found that the bank employees were as a whole satisfied with their job, supervision, people at work, and opportunities for promotion. Hanif and Yasir (2009) opined that changes in organizational variables, such as, pay scales, work environment, promotion opportunities, rewards, relation with boss and co-workers could make an effort to increase organizational commitment which, in turn, will lead to bank employees' satisfaction. Relationship with peers, subordinates, superiors were found to be capable of influencing job satisfaction. They further observed that authority to take decisions; achievements, welfare schemes and organizational policy regarding security of service, promotion, transfer and working conditions play a significant role in determine bank employees' level of job satisfaction. But Deshpande (2012) opened that interpersonal relations among the officers and clerical staff, training and development working conditions and salary have direct effect on job satisfaction of employees.

This study aims to find the relationship between emotional works and job satisfaction of bank tellers in Sri Lanka. There are less number of researches done in the banking sector regarding the emotional labor. Most researchers identify job satisfaction as an outcome of emotional labor, and some consider emotional labor as an antecedent of job satisfaction (Torland, 2013 : Grandey, 2000) . Job satisfaction is frequently point out result of emotional labor. But less considerable amount of researches has been conducted in the area of emotional labor and job satisfaction.

Researchers on emotional labor do not have permanent conclusion whether performing emotional labor increased or decreased job satisfaction (Chu, 2002). The relationship between emotional labor and job satisfaction has found both positive and negative relationship (Johnson, 2004). However relationship between managing emotions and job satisfaction has been contradictory due to different dimensions of emotional labor (Grandey, 2000).In general researchers has shown that customer service employees with high level of emotional regulation tend to be less satisfied with their jobs, but there has been some researchers that may contradict this findings (Johnson ,2004; Torland, 2013).

This study mainly focuses to examine the job satisfaction of tellers as who manage their feelings to tally with organizational norms and display some emotions for commercial purpose. They are considered the "front line" in the banking business, as they promote the financial products of the institution they work for. Thus they deal directly with customers and have to "service with a smile"(Lorga et al , 2010).

Problem Statement

Tellers are the employees who directly contact with the customers in banks. As competitive service organizations tellers in Sri Lankan banks also have to play significant role to satisfying their customers to protect and enhance their market share. Customer perception about quality of service highly depends on the performance of tellers in the bank. So it is important to examine the job satisfaction of tellers who perform emotional labour. Under this background the study research problem is **"How emotional labour of tellers in banking sector Sri Lanka effect on job satisfaction?"**

Objectives of the study

- To examine the potential effects of the two dimensions of emotional labour, surface acting and deep acting, on the job satisfaction of bank tellers in banking sector Sri Lanka..

Significance of the study

As we mention above Sri Lankan banking industry is growing day by day in their volume and the variety of service they provide. Also increasing with the number of local banks and emerges of foreign banks the competitiveness of the banking sector has increased. So it is necessary to satisfy the customer to repeat the transactions.So consideration about the emotional labour is significant.

Job satisfaction is mainly relating with job stress and turnover so this study give guideline for Human Resource (HR) managers to proper use of emotional labour. Also this study checks the effects of job satisfaction of performing emotional labour in Sri Lankan context. This study is useful to each individual to identify the effects of performing emotions to their satisfaction and to get action to job dissatisfaction through performing emotions at work.

Literature review

In past emotions were ignored in the study of work place phenomenon. But present researches highly consider that how can be the emotions impact to the employees. Emotions can be simply defined as the way people behave or the things people feel in different kind of situations. According to the past researches emotion can be defined in several ways. Erdogan (2007) said that emotions composed of individuals' positive or negative response to their social interactions.

Research has shown that positive emotions display in service sector such as smiling and showing friendliness are positively affect to the customer outcomes (Grandey, 2003). Emotions are feelings that people experience, interpret, reflect on, express and manage. They attend through social, cultural, interpersonal relationships (Chu, 2002).

Emotional labour can be defined as a "regulating some ones emotions to comply with social norm". According to the Ashforth and Humphrey (1993) emotional labor is a sense of demonstrating behaviors. In the research regarding emotional labor Morris and Feldman (1996) talked about four dimensions related to the emotional labor. Those dimensions are, Attention of emotional labor, Frequency of emotional labor, Emotional dissonance and Kind of emotional labor. While their research, researchers have discussed about various kinds of dimensions in various quantities regarding the emotional labor. Kruml and Geddes (2000) proposed dimensions of emotional labor as two factors. Those are deep acting and surface acting.When considering about the majority researchers they mainly used these two dimensions to define the emotional labour concept. In the research done about service sector employee emotions it's stated "the service person must deliberately involve his or her feelings in the situation.

Emotional labor may involve enhancing, Faking or Suppressing emotions to modify the emotional expressions. Emotions are manage in response to the display rules for the organization or job (Hochschild, 1983)

Past research has proposed that emotional labour is stressful and may result in burnout. Hochschild's emotional management perspective of emotional labor is based on the "acting" service providers perform according to his theory service is a "show" where the service provider is an "actor" the customer is the "audience" and the work setting is the stage.

Hochschild (1983) proposed that employee perform emotional behavior through three types of acting mechanism. Those are surface acting, deep acting and genuine acting.

Emotions are feelings that people experience, interpret, reflect on, express and manage" (Chu, 2002). They attend through social interaction and are influenced by social, cultural, interpersonal relationships (Chu, 2002). Social influence cause to displaying more socially accepted emotion (Chu, 2002). In work life some jobs

simply cannot be done, if emotions are not deal with first. Most service providing jobs expect for an ability to deal with people rather than with things, or in other words some jobs required more interpersonal skills and fewer mechanical skills.

Four basic emotional models can be mention according to the past researches. These models developed by Hochschild (1983), by Morris and Feldmal (1996) and by Grandey (2000).

Emotional labor is managing the emotions in-order to create physical impression and gestures that observable by anyone. (Hochschild,1983). According to his model there are two types of emotional control strategies under the rules of behavior. First one is surface acting and second one is deep acting. And also because of these strategies he mentions that the burnout, job stress, emotive dissonance and emotive efforts can be happen.

According to the Ashforth and Humphrey (1993) emotional labor is act of expressing desired emotions. He criticized about the two ways Hochschild discussed under his theory (surface acting and deep acting) does not completely capture the issue of emotional labor. Because of that Ashforth and Humphrey (1993) suggested another strategy called genuine acting.
According to this model emotional labor is planning, control and effort essential for displaying appropriate emotion during service interaction. Through Morris and Feldman's model Morris and Feldman (1996) introduce organizational and individual factors affecting emotional labor. Instead of examine surface acting and deep acting in this model they examine emotional labour with the dimensions of emotional labour process.

Emotional regulation theory was applied to emotional labor concept under the Grandey's model (1999). According to this model other three models does not completely capture the concept of emotional labor.

Employee exhibiting fake emotions that required for the specific position can be defines as a surface acting. It involve in stimulating employee emotions that are not actually felt by changing their outward appearances when exhibiting required emotions (Ashforth and Humphrey, 1993). People alter the outward expression of emotion in the service of altering their inner feelings (Hochschild, 1993).

Surface acting means the emotional dissonance exist between the inner feelings and the outer expression which persists during the interaction. This strategy sometimes can be a problematic strategy because it always different from the real feeling or the emotions.

Grandey (2000), Brotheridge and Lee (2011) and identified two sub dimensions of surface acting as faking and suppression. Surface acting can perform according to those two methods. First method is expressing false emotions and second is cover up or suppress the true feelings. The suppression condition resulted in decreased observable sign of emotions. In other word if people are capable of suppressing emotions so others cannot see how they truly feel (Grandey, 2000). When suppressing, emotional inducing stimuli of a person is lower than non-suppressing condition (Grandey, 2000). But when service provider performs surface acting through faking and they still had a state of emotional arousal (Grandey, 2000). So faking can observed and measure through body language, facial expression, mood changes or changes in the behavior.

And also one of the researches on disgust, Gross and Levension (1993) found that people were quite good in hiding emotions. However because of the surface acting people face emotive dissonance or inauthenticity.

Deep acting is a one of the dimension related with the emotional labour. According to the past researches deep acting occur when employees feeling do not fit with the existing situation. They then use their training or past experience to work up appropriate emotions. By practicing deep acting emotions are actively induced, suppressed or shaped.

According to the Hochschild (1983) deep acting active when individuals try to influence what they feel in order to become the role they are asked to display. Active deep acting refers to the case where an employee has to spend effort to regulate emotions (Hochschild, 1983).

Deep acting may be required when surface acting appears too mechanical to satisfy customer expectations of genuine interpersonal relationship.

Job satisfaction remains as one of the most researchers' popular topics within organizational behavior. Different authors have different approaches towards job satisfaction. It can be define as a negative or positive emotion resulting from appraisal of the job. Researches historically infer that emotional labourleads to job satisfaction (Hochschild, 1983). But they have not definitive conclusion about how performing emotional labour increases or decrease job satisfaction.

Weiss (2002) job satisfaction is Pleasurable or positive emotional state resulting from an appraisal of one's job or job experiences. It considers satisfaction as attitude. But some scholars had seen satisfaction as affective. Crany, Smith and Stone (1992) define job satisfaction is an affective (that is emotional) reaction to one's job resulting from the incumbent's comparison of actual outcomes with those that are desired (cited in Weiss, 2002). Job satisfaction is complex and multi-dimensional concept which can generate different things to different people (Aziri, 2011).

Job satisfaction is main factor when it comes to efficacy and effectiveness of business organization and when analyzing satisfaction, the logic is that the satisfied employee is a happy employee and in return happy employee is a successful employee (Aziri, 2011).

Many authors identified that concept of job satisfaction is closely related to what motivates and de-motivates employees (Aziri, 2011; Torland, 2013; Worrell, 2004; Lather, 2005). Hence job satisfaction is usually linked with motivation (Aziri, 2011; Torland, 2013; Worrell, 2004; Lather, 2005).But nature of this relationship is not clear. Satisfaction is not the same as motivation (Aziri, 2011).

Hochschild (1983) indicated that working to manage something as personal as emotions for commercial purposes would be inherently unsatisfying. In this case employees who are required to regulate their emotions will experience a lower level of job satisfaction.

Morris and Feldman (1997) found that an increase in emotive dissonance was negatively related to job satisfaction. When employees adapt for the surface acting their satisfaction level decreased.

Ashforth and Humphrey (1993) suggested that it may be the false feeling caused by surface acting that leads to lowered satisfaction. Therefore it is predicted that an increase in emotive dissonance will decrease job satisfaction.

When considering about relationship between deep acting and job satisfaction their seems to be less empirical support and Grandey (1999) found a negative relationship between job satisfaction and deep acting.

Whereas a considerable amount of research has been conducted within the discrete areas of emotional labour and job satisfaction, less attention has been given to exploring the relationships between these two areas (Torland, 2013).

There are less number of researches done in the banking sector regarding the emotional labour with compared to health care sector, educational sector and hospitality sector. Only Schmutte (1999), conducted a study call emotional work and its consequences on employees in the banking sector (cited in Zapf, 2002).Most researchers identify job satisfaction as an outcome of emotional labor, and some consider emotional labor as an antecedent of job satisfaction (: Grandey, 2000,Torland, 2013). Job satisfaction is frequently point out result of emotional labour. But less considerable amount of researches has been conducted in the area of emotional labour and job satisfaction.

Researchers on emotional labor do not have permanent conclusion whether performing emotional labor increased or decreased job satisfaction (Chu, 2002). The relationship between emotional labor and job satisfaction has found both positive and negative relationship (Johnson, 2004). However relationship between managing emotions and job satisfaction has been contradictory due to different dimensions of emotional labor (Grandey, 2000).

In general researchers has shown that customer service employees with high level of emotional regulation tend to be less satisfied with their jobs, but there has been some researchers that may contradict this findings (Johnson ,2004; Torland, 2013). According to Grendy (2003) job satisfaction is less in service sector and she state that job satisfaction has negative relationship with faking expression to the customers. Also Grandey (2003) hypothesis that surface acting negatively correlated with job satisfaction and those employees who acquire higher satisfaction level tend to be less act in a bat faith. Grandey (2000) suppressing true emotions was cause to lower job satisfaction and source of stress. One of the few studies has found a positive relationship between emotional labor and job satisfaction (Johnson, 2004). Typically, the researchers shows that there is negative relationship between emotional labor and job satisfaction of employees that engaged in surface acting and consequently experienced emotional dissonance (Johnson, 2004 ; Torland, 2013;Chu, 2002). While historically researchers like Hochschild (1983) and Morris and Feldman (1996) revels that emotional labor leads to job dissatisfaction (cited in Chu, 2002). Some researchers identify different personality traits as the main cause for the job dissatisfaction of emotional workers. Grandey (1999) therefore hypothesized that surface acting and deep acting both related to job satisfaction negatively(cited in Chu,2002). It means when an employee order or required to regulate their emotions in work life, they will experience job dissatisfaction regardless what type of acting techniques they involved.

Most of the previous studies conduct in international level considers about the relationship between emotional labor and job satisfaction distinguishes between deep acting and surface acting. Available data from two studies (Abraham 1998, Morris and Feldman 1997) supported that experience of emotional dissonance (which is conceptually similar to surface acting) was negatively correlated to job satisfaction (Grandey, 2000; Zapf, 2002; Chu 2002). In other words all above studies shows when employees adopt surface acting their satisfaction level is decreases. But in the other hand Morris and Feldman (1997) found a positive correlation between the frequency of emotion work and job satisfaction (cited in Zapf, 2002). According to Kruml and Geddes (2000) findings explained that surface acting may leads to feelings of job dissatisfaction (Johnson, 2004). Adelmann (1995) reported that the workers who expressed real emotions had more satisfaction than who reported faking emotions and on the other hand Kruml and Geddes (2000) again explained that employees engage in deep acting may leads to feeling of job satisfaction

But according to Hochschild (1983) there should be negative relationship between deep acting and job satisfaction, the argument she made was working to manage something as personal as emotions for organizational purpose would be inherently unsatisfied (Grandey, 2000).When considering about job satisfaction and emotional labor it is very important to consider about impact of both type of acting to the job satisfaction.

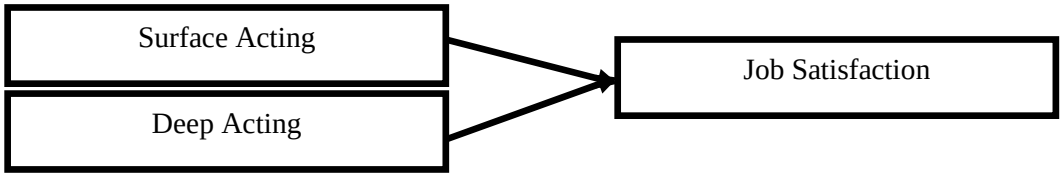
According to the Ashforth and Humphrey (1993) surface acting has associated with negative impacts as such in-authenticity of self, emotional exhaustion and frustration in emotional workers. On the other had deep acting associated with a sense of authenticity of self and reduce or completely eliminated emotional dissonance. Also some researchers show that deep acting could have positive effects on workers' job satisfaction (Ibanez-Rafuse , 2010; Sheetal 2010 cited in Torland, 2013).While surface acting predominantly had a negative effects on workers job satisfaction (Grandy ,2000 ; Hochschild,1983). Normally previous researches show that deep acting has greater impact on job satisfaction than surface acting.

Research methodology

Conceptual Framework

As stated in the above research objectives, the present study is attempt to assess the impact of emotional labour on job satisfaction of Sri Lankan bank tellers. Drawn from the literature on

emotional labour and job satisfaction, this study proposes a conceptual framework. Conceptual model developed to prove that there is relationship between emotional labour(surface acting and deep acting) and job satisfaction. In the first conceptual model emotional labour remains as independent variable, job satisfaction as dependent variable.



Independent VariableDependent variable

Figure : Conceptual Framework of the Relationships between Emotional Labour and Job Satisfaction

Operationalization of Variables

The technique of handling one's inner feelings or outward behavior to display the adequate emotions in response to display rules or occupational norms (Chu, 2002).This operational definition intimate different degree of effort employees engage to direct or manipulate their emotional state and behavior. Two types of acting styles which consider in this study require different degree of effort. It causes to change the state of satisfaction employee feel from their job. This study treats emotional labour as the main concept and surface acting and deep acting concern as two dimensions of the emotional labour.

Surface Acting refers to the management of external emotional expression and behavior without any changes in inner feelings (Kim et al, 2012). So surface acting refers to hiding ones true feelings and faking expressed emotions.Considering the above operational definition and by reviewing the literature this study identify two main dimensions of surface acting. Those are faking and suppression (Grandey, 2000; Kim et al 2012; Brotheridge and Lee 2011). This study defines faking as express of false emotions. Body language, facial expression, mood changes, emotional arousal and changers in the behavior consider as its indicators (Hochschild, 1983; Zapf, 2002; Grandey, 2000). According to this study suppression refers to hiding of the true feelings. Cover up true feelings and lower emotional inducing stimuli consider as indicators of suppression (Grandey, 2000).

Deep acting requires the modification of an employee's inner feelings to express organizationally desired emotions (Kim et al, 2012). Individuals attempt to modify how they perceive or interpret a situation to adjust their emotional response.

According to Hochschild (1983) and Torland (2013) this study identifies two dimensions in deep acting as self-prompting and method acting. Imagery (self-talking) and repeating mantra identifies as indicators in self-prompting. According to Grandey (2000) attention deployment, cognitive change and rationalization identifies as indicators of method acting.

Job satisfaction is a pleasurable or positive emotional states resulting from examine the one's job or job experience (Chu, 2002). According to the nature of the study, job satisfaction treat as multi-dimensional approach and use job satisfaction index which often referred to as the overall job satisfaction. This study measure the job satisfaction as only as perception.

Operationalization

In this research emotional labor can measure by emotional labor scales presented by Brotheredge and Lee (2003) and Kruml and Geddes (2000). Emotional labor can measure as deep acting and surface acting separately. Hackman and Oldham (1975) job satisfaction scale and Brayfield and Rothe's (1951) job satisfaction index (JSI) use to measure the dependent variable of this study. All the three variables are measured by direct questions.

Table 3.2: Operationalization of variables

Concept	Dimensions	Indicators	Measurement	Source
Surface acting	Faking	Change in the behaviour	5 point likert scale	Brotheredge and Lee (2003) and Kruml and Geddes (2000)
		Emotional arousal		
		Facial expression		
	Suppression	Emotional inducing stimuli		
		Cover up true feelings		
Deep Acting	Method Acting	Cognitive change		Brotheredge and Lee (2003) and Kruml and Geddes (2000)
		Attentional deployment		
		Rationalization		
	Self-Prompting	Self-Talking (Imagery)		
		Repeating Mantra		
Job Satisfaction	Uni dimensional			Hackman and Oldham (1975) job satisfaction scale and Brayfield and Rothe's (1951)

Sample Design and Data Collection Design

Sri Lankan banking sector have twenty five licensed banks. All the Bank tellers in Colombo are population of this study. The instruments used for assessing the two constructs were administered on a sample consisting of 66 bank tellers, of which 40 were females and 26 were males. The questionnaires were administered to 66 employees selected through clustered and random sampling method. Further sample size was calculated by using G* power.

Data Collection Design

Content of Questionnaire

The questionnaire for bank tellers was divided into three sections.

Section A : The first section, question no 1 and 2 required personal information with regards to gender and marital status them.

Section B : Questions 1 to 10 were included to determine the surface acting of bank tellers. Respondents were required to make a choice from the surface acting elements listed. And also question 11 to 20 was included to determine the deep acting of bank tellers. Response alternative of Strongly Disagree, Disagree, Moderate, Agree, Strongly Agree were applicable for all these 20 questions.

Section C : Questions 1 to 10 were included to determine job satisfaction level of bank tellers. Respondents were required to make a choice from the job satisfaction elements listed. The Likert Five point scale with Strongly Disagree, Disagree, Moderate, Agree, and Strongly Agree were applicable for all these 10 questions.

Data Analysis and Interpretation

Descriptive statistics that include frequencies and percentages were used for analysis of the data. All analyses are performed with IBM SPSS (Statistical Package for Social Science) English version 20.0.

Identifying the relationship between independent variable and the dependent variable (Hypothesis 1) . To measure of the degree of relationship among variables Pearson Product Moment Correlation Coefficient was applied in this study.

Reliability and Validity

Pilot Study

A pilot study was carried out with bank tellers. These respondents were not involved in the major study. Pilot study is important to utilize time and efficiency in conducting survey.They took 10 – 15 minutes to completion of questionnaire. However, when completing the questionnaire they investigating careful consideration and thinking. The necessary amendments were made to those questions before printing the questionnaires.

Table 2: Reliability and validity of Pilot study

	Reliability (Cronbach's Alpha)	**Validity** (Extraction Sums of Squared Loadings Cumulative %)
Surface acting	.713	87.651
Deep Acting	.732	90.979
Job Satisfaction	.849	87.467

Source: Survey Data, 2015

Findings

Correlation analysis was done to identify the relationship between surface acting and job satisfaction. According to above figures The Correlation between surface acting and job satisfaction is - 0.133 which indicates that there is insignificant negative relationship between surface acting and job satisfaction and that relationship is insignificant.

Table 3: Correlation

		Deed Acting	Surface Acting
Job Satisfaction	Pearson Correlation	.459**	-.133
	Sig. (2-tailed)	.000	.289
	N	66	66

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Survey Data, 2015

There is an approximately linear relationship between deep acting and job satisfaction. So Pearson correlation can be used to analysis the strength of the relationship.

Correlation analysis was done to identify the relationship between deep acting and job satisfaction. According to above figures The Correlation between deep acting and job satisfaction is 0.459 at a significant level of 0.01 which indicates that there is a positive strong relationship between deep acting and job satisfaction and that relationship is significant.

Discussion

This study aims to identify relationship between surface acting and job satisfaction and relationship between deep acting and job satisfaction. That there is a negative relationship between surface acting and job satisfaction. According to the literature previous researches proved that there is a negative relationship between surface acting and job satisfaction (Grandey 2003: Seery and Corrigall, 2009). It is applicable to this selected organization.Then ascertain whether there is a significant relationship between deep acting and job satisfaction. Statistical analysis showed that there is a significant strong positive relationship between deep acting and job satisfaction. This research finding is in line with previous literature. (Seery & Corrigall, 2009: Johnson, 2004)

Hypothesis two established to ascertain whether gender moderates the relationship between emotional labour and job satisfaction. Multiple regression analysis used to measure the impact on relationship between emotional labour and job satisfaction. Female workers moderate the relationship and it impact affected to relationship by 19.1 %. .But male workers had not significant moderate effect on relationship.

Matching with international evidence, bank also has more female workers in the front office than male workers. Normally there is an idea that female workers perform emotions in the work place than male workers. Gender distribution in the sample is 61% female workers and 39% male workers and tally with the above idea. Hochschild (1983) mentions, in general women can manage and express feelings more than men.

Conclusion

Deep acting has positive relationship with job satisfaction and surface acting has negative relationship with job satisfaction. Comparing the surface acting and deep acting it can conclude that Sri Lankan bank tellers perform deep acting more than surface acting. Considering the combine effect of deep acting and surface acting on job satisfaction, surface acting has greater impact on job satisfaction.

Recommendations

According to descriptive statistics mean value of the emotional labour is 3.48 and that close to agree level. It implies that however important the concept of emotional labour selected bank have more than moderate consideration but not high consideration about it.

Tellers perform surface acting technique more than deep acting. So it is recommended to the bank to give more training to develop necessary skills to performing deep acting. It is special to mention that training to develop necessary skills is not enough and better to have training evaluation to measure the effectiveness of the training and include emotional labour criteria on performance evaluation process.

In order to increase performing deep acting and surface acting, so as to obtain the benefits of emotional labour it is recommended to use emotional labour as selection criteria in the front office employees' selection process. Further it is prescribe to use orientation program to convey appropriate attitude and display rules to the new employees. According to Chu (2002) Front line employees not only responsible for performing emotional labour at work place, but managers also may know how to inspired, motivate and appreciate front line workers for it. Thus this study suggested to training managers also about emotional labour.

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Accessible Tourism Services on an Example of Accommodation Facilities in Prague

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Abstract

Accessibility in tourism is one of the most discussed topics in the European Union. The number of disabled visitors increases also due to ageing population. In this context, the paper deals with accessible tourism and also it informs about requirements of disabled visitors on accommodation facilities. The paper focuses on accessible accommodation facilities in Prague and it shows possibilities for disabled visitors to travel there and enjoy their leisure time activities.

The aim of the article is to detect the readiness of the accommodation facilities to the providing services for disabled visitors in Prague. It compares a share of barrier-free accommodation facilities in Prague and other regions in the Czech Republic. We used primary and secondary research and from the methods of scientific work the analysis was used.

Keywords: Accessibility, accommodation facility, disability, universal design.

Introduction

Tourism is an important part of regional economy with numerous economic and also socio-cultural impacts. The share of Tourism on GDP in the world is 9 % (UNWTO Highlights 2015), in the Czech Republic 2.9 % (Czech Statistical Office).

In context of ageing the world population is still more important orientation on social tourism. The European Union uses for social tourism a term “tourism for all”. This term often refers to very different aspects. Sometimes, in particular in social policy context, it is used to underline the need to facilitate holidays for lower income groups, sometimes to take into account the needs of disabled visitors (Leidner, 2006).

Each person should have possibility to travel and discover beauties of Earth. According the Global Code of Ethics for Tourism (UNWTO, 2001) all tourism activities should respect the equality of men and women. They should promote human rights and, more particularly, the individual rights of the most vulnerable groups, notably children, the elderly, the handicapped, ethnic minorities and indigenous peoples (art. 2). The prospect of direct and personal access to the discovery and enjoyment of the planet’s resources constitutes a right equally open to all the world’s inhabitants. The increasingly extensive participation in national and international tourism should be regarded as one of the best possible expressions of the sustained growth of free time, and obstacles should not be placed in its way (art. 7). Really important is, that social tourism, and in particular associative tourism, which facilitates widespread access to leisure, travel and holidays, should be developed with the support of the public authorities (art. 7, Linderová, 2015b). Global Code of Ethics for Tourism is a framework of reference and a set of principles to guide all the stakeholders in the sector towards responsible and sustainable development of global tourism. One of the Code’s aims was to summarize various documents, codes and declarations (Manila Declaration, Tourism Bill of Rights, Tourist Code) of the same nature or with a similar purpose, which had been adopted by UNWTO throughout the years. On several occasions, the Code expressly mentions the right of all persons to practise tourism. Furthermore, articles 2 and 7 make

explicit reference to the rights of persons with disabilities and the need for all stakeholders to facilitate these persons' travel and tourist movements (UNWTO, 2015).

For accommodation facilities are disabled visitors an interesting target group. Disabled people are loyal customers, often returning to places that provide good accessibility. Other people may also benefit from improved accessibility, for example parents with pushchairs, people with injuries, and tourists with heavy luggage (Office for Official Publications of the European Communities, 2004).

Accessibility in accommodation facilities

Social tourism is one of the most discussed topics in the European Union nowadays. Minnaert (2014) says that social tourism is tourism that specifically encourages the participation in tourism activities of people who are economically weak or otherwise disadvantaged. Cazes (2000) sees social tourism as a complex phenomenon, which allows tourism participation for disadvantaged persons. It respects human rights as right for holiday and right for tourism, it is based on non-profit concept and it accepts social and financial situation of participants. According to Cazes, the aim of the social tourism is active use of leisure time, physical and cultural development of participants.

Various researchers have sought to highlight (McCabe, Johnson, 2013):
a) the transformative social possibilities of tourism (Higgins-Desbiolles, 2006),
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Accessible tourism for all is a form of tourism that involves a collaborative process among stakeholders that enables people with access requirements, including mobility, vision, hearing and cognitive dimensions of access, to function independently and with equity and dignity through the delivery of universally designed tourism products, services and environments (Linderová, 2015a).

In practice, social tourism addresses four main target groups – senior citizens, young people, families with low-income and people with disabilities. Majority of these target groups have special requirements during their travel and holiday. Disabled visitors and seniors are groups with the biggest needs. They have limited mobility and they need special environment.

In the context of traveling of disabled visitors we speak about "accessible tourism for all". It is better to avoid misunderstandings.

People with disabilities are also those who are limited in the work they can do because of a longstanding health problem or a basic activity difficulty (Eurostat, 2014).

Persons with disabilities are diverse and heterogeneous, while stereotypical views of disability emphasize wheelchair users and a few other "classic" groups such as blind people and deaf people. Disability encompasses the child born with a congenital condition such as cerebral palsy or the young soldier who loses his leg to a land-mine, or the middle-aged woman with severe arthritis, or the older person with dementia, among many others. Health conditions can be visible or invisible; temporary or long term; static, episodic, or degenerating; painful or inconsequential (Linderová, 2015b).

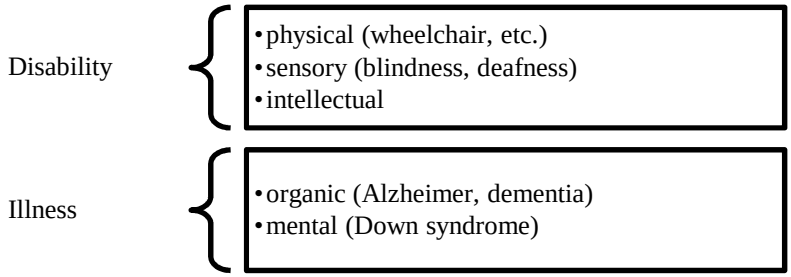

Figure 1: Disability vs. illness

Source: UNWTO, ENAT, ONCE. (2014). Manual sobre Turismo Accesible para Todos: Principios, herramientas y buenas prácticas.

According to the World Health Organization (2011) there are approximately 1 billion persons with disabilities in the world. This equates to approximately 15 % of the world population having a physical, mental or sensory disability. In addition, a rapid ageing of the population is under way. In 2009 there were more than 730 million people over age 60, equivalent to 10 % of the global population, which represented an increase of more than 20 % since 2000. By the year 2050 the number of persons over age 60 is projected to increase up to 20 % of the world population, with one-fifth of this group being over 80 years old. Due to the ageing population in the industrialized countries, the rate of disability among people with the capacity to travel is also increasing, adding to the demand for an accessible environment, transport and services – thereby adding to the market value of the accessible tourism segment (Rahman, 2005).

Accessibility is a central element of any responsible and sustainable tourism policy. It is both a human rights imperative, and an exceptional business opportunity. Above all, we must come to appreciate that accessible tourism does not only benefit persons with disabilities or special needs; it benefits us all (UNWTO, 2013). Accessibility refers to how easy it is for everybody to approach, enter and use buildings, outdoor areas and other facilities, independently, without the need for special arrangements. Providing information on accessibility and improving access benefits a wide range of people who want to travel, but who may find it difficult (Office for Official Publications of the European Communities, 2004).

The tourist service chain, however, begins with information about offers, events, destinations and the possibilities to get there. Accessible information, for example, means that the websites of tourism enterprises (including the transport sector) and destinations must be accessible also for blind and visually impaired users. To achieve better accessibility of the tourism sector would also prerequisite accessible public and private transport facilities and accessible buildings and attractions in destinations (Leidner, 2006; In Linderová, 2015a).

Persons with disabilities have special needs. So it is important to adapt for them (Linderová, 2015a) parking areas, communication tools, horizontal and vertical movements, accommodation and catering facilities, cultural activities, sport facilities, green spaces and natural environment.

It is important to adapt accommodation facilities for disabled visitors when we speak about accommodation facilities market. There should be good access to the building e.g. ramps and also special parking spaces with proper identification for vehicles of persons with reduced mobility close to the hotel. All car parks should have a minimum of one space designated for disabled drivers. Best practice is 6 % of barrier-free parking spaces, it means parking space at least 3.3 metres wide (Linderová, 2015a).

It is important to think about horizontal and vertical movements inside of the accommodation facilities. Horizontal movements mean elevators, vertical movements e.g. stairs. Stairs and other barriers e.g.

threshold should be signed. For disabled visitors are important also communication tools, e.g. the use of sign language, Braille, and augmentative and alternative way, adapted telephone, fax, internet.

Accessible accommodation should be as close as possible and on the ground floor where possible. A reasonable number of rooms in an accommodation establishment should be fully accessible to a person in a wheelchair without assistance (UNWTO, 2005). Such rooms should be designed in such a way as to allow all users to carry out the actions of moving, grasping, locating, and communicating easily and independently. This shall apply also to bathrooms and terraces if the room is so equipped (UNWTO, 2005).

A minimum transfer space for toilets, beds and seating is 750 mm. Best practice is 950 mm or wider. Height of controls for door handles, switches, lifts should be within the minimum range of 900 mm to 1,400 mm from the floor. Best practice is 850 mm to < 1,200 mm. A minimum area of circulation space for all rooms, WCs, bathrooms is 1,200 mm x 1,200 mm (or diameter 1,200 mm). Best practice is 1,800 mm x 1,800 mm (or diameter 1,800 mm). If a person with visual impairments is occupying a room alone, staff should offer to orientate the guest on the position of furniture and facilities in the accommodation (Linderová, 2015a).

To this end, the space and technical aids needed to allow any manoeuvre to be carried out easily and safely shall be taken into account. The needs of persons with impaired dexterity, blind persons, and deaf persons shall be taken into account in the design of all devices and actuators (UNWTO, 2005).
Such rooms in an establishment should be fitted with alarm systems suitable for deaf visitors and a system of communication between the reception desk and the room that is suitable for such persons (UNWTO, 2005). A suitable telephone, alarm or other means of calling for help must be available.
Corridors and passageways should be of a width to allow the passage of two wheelchairs so they are not blocked in normal traffic; otherwise, crossing zones should be provided (UNWTO, 2005).

Also hotel catering possibilities as restaurant, café, lobby bar should by adapted for disabled visitors as well as other services e.g. swimming pool, wellness centre, sauna or garden. Restaurants, cafés and bars in the hotel should provide accessible facilities which take into account ease of exterior access, furniture designed to enable their utilization by users in wheelchairs, bars at different heights, menus in Braille and with easily readable type, accessible bathrooms, etc. Such establishments should be clearly marked to make them easy to find (UNWTO, 2005).

For many people with disabilities affecting mobility, accommodation availability is critical to staying at a destination. Quite simply, if they cannot find barrier-free accommodation then they will not travel to the destination. One travel planning information issue is obtaining information about barrier-free accommodation. Many accommodation operators do not understand what accessible or barrier-free accommodation entails. In many cases, this involves accommodation operators representing their rooms as accessible or barrier-free, but people with disabilities find that the rooms are not suitable (Economic and Social Commission for Asia and the Pacific, 2003).

Barriers to accommodation occur in relation to the surrounding environment of the accommodation (location, proximity to services, public transport, parking and drop-offs), the reception, other facilities and services, and the rooms. The accommodation needs of disabled visitors on the individual, their disability and the level of their support needs (Economic and Social Commission for Asia and the Pacific, 2003).

Table 1: Barriers in accommodation facilities

Access and check-in	- lack of continuous pathways (from parking or drop off throughout all ho facilities and to the room - reception counters are too high - door widths - circulation space in corridor
Room	- rooms are inappropriately located - no steps into rooms - door widths, door stops weight, D type door handles - circulation space in rooms - uncluttered furniture layout - cupboard height and reach - access to balconies - location of cupboards, fridge, TV, clock radio, telephone, ironi equipment, etc. - availability of telephone typewriters and visual signals for deaf people - provision of orientation for people with vision impairments, includi blindness - table heights - bed heights, clearance under beds - switch and handle locations
Bathroom	- hobless roll in showers - hand held shower hose - lever taps - mirror location - hand basin positioning - space under the hand basin - need for adequate shower chair or bench - location of handrails - toilet height - positioning of the toilet (distance from the walls and front clearance)

Source: Economic and Social Commission for Asia and the Pacific. (2003), Barrier-free Tourism for people with disabilities in the Asian and Pacific Region, New York: United Nations.

Research design and methodology

The scientific goal of this paper is to detect the readiness of the accommodation facilities to the providing services for disabled visitors in Prague. We were interested in adapted accommodation facilities.

When searching for the possibilities for disabled visitors, we used primary and secondary (desk) research. Secondary research makes use of information previously researched for other purposes and publicly available. We focused on the documents dealing with barrier-free environment. We were interested in databases of accommodation facilities. Some information we gained from the information centres.

Primary research is a new research, carried out to answer specific issues or questions. It can involve questionnaires, surveys or interviews with individuals or small groups. Primary data were collected during the visit of accommodation facilities, which were not defined as strictly barrier-free. We used questionnaires and we contacted managers in accommodation facilities in three ways: face to face, over the phone or by e-mail. We also contacted municipality and regional office.

Results and discussion

Prague is the capital city of the Czech Republic and also the biggest city with 1,246,780 inhabitants. When speaking about economy level, Prague is the richest region with high life standard and the lowest unemployment.
Prague with its historical centre and monuments is 6th most visiting European city. In year 2000 Prague was the European Capital of Culture.

In the last years, Prague also pays attention to the barrier-free environment. Disabled visitors can there visit the Prague castle and the historical town with churches registered in UNESCO List of Cultural Heritage. It is possible to find there accessible accommodation facilities, adapted restaurants and cafés, suitable museums, galleries, sport facilities and also barrier-free transport.

In this article we were interested in accessible accommodation facilities. We have to say that number of accessible accommodation facilities in Prague increases but there are still not enough possibilities to stay for disabled visitors.

For the purpose of our research accessible accommodation facility means barrier-free access to the building and adapted room include suitable bathroom. Disabled visitors could use also accommodation facilities where is necessary staff or caregiver assistance e.g. access with one or two stairs, a close door etc.

In Prague there are located 621 accommodation facilities with 80.925 beds (2012 data). According to our analysis 114 from them are accessible, some of them with a little help of an assistant. The most full accessible accommodation facilities belong to the hotels in the First Class (46) and hotels in the Standard Class (31).

Table 2: Accessible accommodation facilities (AF) in Prague

Number AF	Accessible AF	Hotel ***	Hotel ****	Hotel ****,	Pension	Other	Share of AF
621	114	37	55	12	6	4	18,4 %

Source: Own research.

Majority of accommodation facilities has only one or two adapted rooms. To the accommodation facilities with more barrier-free rooms belong e.g. Ibis Praha Wenceslas Square***, Mövenpick Hotel Prague****, Top Hotel Praha & Congress Centre, Courtyard Marriott Prague Airport****, Hilton Prague*****, ILF***, Hotel U tří korunek***, Orea Hotel Pyramida****, Dorint Hotel Don Giovanni****.

A lack of information about accessible services is one of the biggest problems in the accommodation facilities in Prague. It is difficult to find information about adapted rooms, parking places etc. Some of accommodation facilities present accessible accommodation through web-portals, but a lot of hotels, hostels, guest houses do not inform about their accessibility. In many cases there is missing information about parking places, hotel restaurant, wellness etc. Majority of adapted accommodation facilities informs about adapted access or room, but more information are inaccessible.

Problem is also a lack of knowledge and ignorance. In many cases website informs about accessibility, but e.g. there is barrier-free access, but not barrier-free public toilet in the hotel hall, not adapted room or rooms are not usable for blind visitors etc. Also unqualified and unskilled staff is a problem. Hotel staff should to know how to behave to disabled visitor. In this area we see a big gap, which has to be reformed. We state that unqualified staff is problem not just in Prague but in other regions and towns of the Czech Republic.

Some of the hotels are also interested in blind and deaf visitors. In 23 hotels there are information boards and panels in Braille font and 26 hotels dispose of special equipment for deaf visitors e.g. light signalization for elevators or phones.

In Prague is also situated a local agency Accessible Prague for disabled visitors. They could find on its website information about barrier-free accommodation and catering facilities and also about monuments, museums, theatres and transport. The website offers a wide range of accommodation facilities, from Tourist class to Luxury Class. It states that a lot of accommodation facilities are situated in Prague historical centre near the Vltava River, which is easily accessible due to flat terrain. It is possible also to find some accommodation facilities in quiet residential locations.

Study limitations

It is significant to mention also about limitations of our research. We were interested in barrier-free accommodation facilities in Prague. The most important for us was accessibility for wheelchair users because they have the most exacting demands and requirements to the space. It is possible to clearly evaluate if accommodation facility is accessible for them or not. The accessibility for deaf visitors does not have clear parameters such as persons with physical disabilities.

In our research we used data from information offices, regional municipality and specialized websites. The problem is that not all barrier-free accommodation facilities present themselves on web-portals or through the information centres. The market also is developing, so we have to say that our results are not exhaustive and exact.

Conclusion

Disabled visitors are increasing market segment also due to ageing population. For accommodation facilities it is interesting the orientation for them, because these people are loyal customers and they often travel with personal assistant during the low season.

They consider as an important barrier-free access to the accommodation facilities, accessible room, suitable parking space, catering facilities etc. We state that in Prague there exist several possibilities to travel for disadvantaged persons.

Based on our research between years 2013 and 2015 we can state that Prague belongs to the region with highest share of barrier-free accommodation facilities. We assumed highest share in Prague but there are other region with higher share of accessible accommodation facilities e.g. Carlsbad.

Table 3: Share of barrier-free accommodation facilities in regions of the Czech Republic

Prague	Central Bohemia	South Bohem	Hradec Králov	Pardubice	Moravian-Silesian	Pilsen
18.40	10.30	9.91	1.36	2.28	7.57	8.55
Carlsbad	Ústí n Labem	Liberec	South Moravia	Vysočina	Olomouc	Zlín
20.10	22.00	22.00	8.70	11.30	11.70	16.30

Source: Own research.

We can say that the most significant failures in Prague are an unqualified staff, accommodation facilities with barrier-free access without suitable public toilets in the hotel hall, accessible rooms with bad spatial solutions, ignorance of requirements of blind and deaf visitors.

We highlight the importance of universal design and adequate approach of the staff. Universal design means the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design (UNWTO, 2013).

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Persons with disabilities are diverse and heterogeneous, while stereotypical views of disability emphasize wheelchair users and a few other "classic" groups such as blind people and deaf people. Disability encompasses the child born with a congenital condition such as cerebral palsy or the young soldier who loses his leg to a land-mine, or the middle-aged woman with severe arthritis, or the older person with dementia, among many others. Health conditions can be visible or invisible; temporary or long term; static, episodic, or degenerating; painful or inconsequential (Linderová, 2015b).

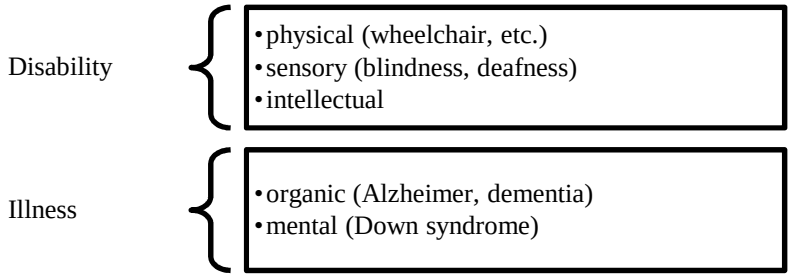

Figure 1: Disability vs. illness

Source: UNWTO, ENAT, ONCE. (2014). Manual sobre Turismo Accesible para Todos: Principios, herramientas y buenas prácticas.

According to the World Health Organization (2011) there are approximately 1 billion persons with disabilities in the world. This equates to approximately 15 % of the world population having a physical, mental or sensory disability. In addition, a rapid ageing of the population is under way. In 2009 there were more than 730 million people over age 60, equivalent to 10 % of the global population, which represented an increase of more than 20 % since 2000. By the year 2050 the number of persons over age 60 is projected to increase up to 20 % of the world population, with one-fifth of this group being over 80 years old. Due to the ageing population in the industrialized countries, the rate of disability among people with the capacity to travel is also increasing, adding to the demand for an accessible environment, transport and services – thereby adding to the market value of the accessible tourism segment (Rahman, 2005).

Accessibility is a central element of any responsible and sustainable tourism policy. It is both a human rights imperative, and an exceptional business opportunity. Above all, we must come to appreciate that accessible tourism does not only benefit persons with disabilities or special needs; it benefits us all (UNWTO, 2013). Accessibility refers to how easy it is for everybody to approach, enter and use buildings, outdoor areas and other facilities, independently, without the need for special arrangements. Providing information on accessibility and improving access benefits a wide range of people who want to travel, but who may find it difficult (Office for Official Publications of the European Communities, 2004).

The tourist service chain, however, begins with information about offers, events, destinations and the possibilities to get there. Accessible information, for example, means that the websites of tourism enterprises (including the transport sector) and destinations must be accessible also for blind and visually impaired users. To achieve better accessibility of the tourism sector would also prerequisite accessible public and private transport facilities and accessible buildings and attractions in destinations (Leidner, 2006; In Linderová, 2015a).

Persons with disabilities have special needs. So it is important to adapt for them (Linderová, 2015a) parking areas, communication tools, horizontal and vertical movements, accommodation and catering facilities, cultural activities, sport facilities, green spaces and natural environment.

It is important to adapt accommodation facilities for disabled visitors when we speak about accommodation facilities market. There should be good access to the building e.g. ramps and also special parking spaces with proper identification for vehicles of persons with reduced mobility close to the hotel. All car parks should have a minimum of one space designated for disabled drivers. Best practice is 6 % of barrier-free parking spaces, it means parking space at least 3.3 metres wide (Linderová, 2015a).

It is important to think about horizontal and vertical movements inside of the accommodation facilities. Horizontal movements mean elevators, vertical movements e.g. stairs. Stairs and other barriers e.g.

threshold should be signed. For disabled visitors are important also communication tools, e.g. the use of sign language, Braille, and augmentative and alternative way, adapted telephone, fax, internet.

Accessible accommodation should be as close as possible and on the ground floor where possible. A reasonable number of rooms in an accommodation establishment should be fully accessible to a person in a wheelchair without assistance (UNWTO, 2005). Such rooms should be designed in such a way as to allow all users to carry out the actions of moving, grasping, locating, and communicating easily and independently. This shall apply also to bathrooms and terraces if the room is so equipped (UNWTO, 2005).

A minimum transfer space for toilets, beds and seating is 750 mm. Best practice is 950 mm or wider. Height of controls for door handles, switches, lifts should be within the minimum range of 900 mm to 1,400 mm from the floor. Best practice is 850 mm to < 1,200 mm. A minimum area of circulation space for all rooms, WCs, bathrooms is 1,200 mm x 1,200 mm (or diameter 1,200 mm). Best practice is 1,800 mm x 1,800 mm (or diameter 1,800 mm). If a person with visual impairments is occupying a room alone, staff should offer to orientate the guest on the position of furniture and facilities in the accommodation (Linderová, 2015a).

To this end, the space and technical aids needed to allow any manoeuvre to be carried out easily and safely shall be taken into account. The needs of persons with impaired dexterity, blind persons, and deaf persons shall be taken into account in the design of all devices and actuators (UNWTO, 2005).
Such rooms in an establishment should be fitted with alarm systems suitable for deaf visitors and a system of communication between the reception desk and the room that is suitable for such persons (UNWTO, 2005). A suitable telephone, alarm or other means of calling for help must be available.
Corridors and passageways should be of a width to allow the passage of two wheelchairs so they are not blocked in normal traffic; otherwise, crossing zones should be provided (UNWTO, 2005).

Also hotel catering possibilities as restaurant, café, lobby bar should by adapted for disabled visitors as well as other services e.g. swimming pool, wellness centre, sauna or garden. Restaurants, cafés and bars in the hotel should provide accessible facilities which take into account ease of exterior access, furniture designed to enable their utilization by users in wheelchairs, bars at different heights, menus in Braille and with easily readable type, accessible bathrooms, etc. Such establishments should be clearly marked to make them easy to find (UNWTO, 2005).

For many people with disabilities affecting mobility, accommodation availability is critical to staying at a destination. Quite simply, if they cannot find barrier-free accommodation then they will not travel to the destination. One travel planning information issue is obtaining information about barrier-free accommodation. Many accommodation operators do not understand what accessible or barrier-free accommodation entails. In many cases, this involves accommodation operators representing their rooms as accessible or barrier-free, but people with disabilities find that the rooms are not suitable (Economic and Social Commission for Asia and the Pacific, 2003).

Barriers to accommodation occur in relation to the surrounding environment of the accommodation (location, proximity to services, public transport, parking and drop-offs), the reception, other facilities and services, and the rooms. The accommodation needs of disabled visitors on the individual, their disability and the level of their support needs (Economic and Social Commission for Asia and the Pacific, 2003).

Table 1: Barriers in accommodation facilities

Access and check-in	- lack of continuous pathways (from parking or drop off throughout all ho facilities and to the room - reception counters are too high - door widths - circulation space in corridor
Room	- rooms are inappropriately located - no steps into rooms - door widths, door stops weight, D type door handles - circulation space in rooms - uncluttered furniture layout - cupboard height and reach - access to balconies - location of cupboards, fridge, TV, clock radio, telephone, ironi equipment, etc. - availability of telephone typewriters and visual signals for deaf people - provision of orientation for people with vision impairments, includi blindness - table heights - bed heights, clearance under beds - switch and handle locations
Bathroom	- hobless roll in showers - hand held shower hose - lever taps - mirror location - hand basin positioning - space under the hand basin - need for adequate shower chair or bench - location of handrails - toilet height - positioning of the toilet (distance from the walls and front clearance)

Source: Economic and Social Commission for Asia and the Pacific. (2003), Barrier-free Tourism for people with disabilities in the Asian and Pacific Region, New York: United Nations.

Research design and methodology

The scientific goal of this paper is to detect the readiness of the accommodation facilities to the providing services for disabled visitors in Prague. We were interested in adapted accommodation facilities.

When searching for the possibilities for disabled visitors, we used primary and secondary (desk) research. Secondary research makes use of information previously researched for other purposes and publicly available. We focused on the documents dealing with barrier-free environment. We were interested in databases of accommodation facilities. Some information we gained from the information centres.

Primary research is a new research, carried out to answer specific issues or questions. It can involve questionnaires, surveys or interviews with individuals or small groups. Primary data were collected during the visit of accommodation facilities, which were not defined as strictly barrier-free. We used questionnaires and we contacted managers in accommodation facilities in three ways: face to face, over the phone or by e-mail. We also contacted municipality and regional office.

Results and discussion

Prague is the capital city of the Czech Republic and also the biggest city with 1,246,780 inhabitants. When speaking about economy level, Prague is the richest region with high life standard and the lowest unemployment.
Prague with its historical centre and monuments is 6th most visiting European city. In year 2000 Prague was the European Capital of Culture.

In the last years, Prague also pays attention to the barrier-free environment. Disabled visitors can there visit the Prague castle and the historical town with churches registered in UNESCO List of Cultural Heritage. It is possible to find there accessible accommodation facilities, adapted restaurants and cafés, suitable museums, galleries, sport facilities and also barrier-free transport.

In this article we were interested in accessible accommodation facilities. We have to say that number of accessible accommodation facilities in Prague increases but there are still not enough possibilities to stay for disabled visitors.

For the purpose of our research accessible accommodation facility means barrier-free access to the building and adapted room include suitable bathroom. Disabled visitors could use also accommodation facilities where is necessary staff or caregiver assistance e.g. access with one or two stairs, a close door etc.

In Prague there are located 621 accommodation facilities with 80.925 beds (2012 data). According to our analysis 114 from them are accessible, some of them with a little help of an assistant. The most full accessible accommodation facilities belong to the hotels in the First Class (46) and hotels in the Standard Class (31).

Table 2: Accessible accommodation facilities (AF) in Prague

Number AF	Accessible AF	Hotel ***	Hotel ****	Hotel ****,	Pension	Other	Share of AF
621	114	37	55	12	6	4	18,4 %

Source: Own research.

Majority of accommodation facilities has only one or two adapted rooms. To the accommodation facilities with more barrier-free rooms belong e.g. Ibis Praha Wenceslas Square***, Mövenpick Hotel Prague****, Top Hotel Praha & Congress Centre, Courtyard Marriott Prague Airport****, Hilton Prague*****, ILF***, Hotel U tří korunek***, Orea Hotel Pyramida****, Dorint Hotel Don Giovanni****.

A lack of information about accessible services is one of the biggest problems in the accommodation facilities in Prague. It is difficult to find information about adapted rooms, parking places etc. Some of accommodation facilities present accessible accommodation through web-portals, but a lot of hotels, hostels, guest houses do not inform about their accessibility. In many cases there is missing information about parking places, hotel restaurant, wellness etc. Majority of adapted accommodation facilities informs about adapted access or room, but more information are inaccessible.

Problem is also a lack of knowledge and ignorance. In many cases website informs about accessibility, but e.g. there is barrier-free access, but not barrier-free public toilet in the hotel hall, not adapted room or rooms are not usable for blind visitors etc. Also unqualified and unskilled staff is a problem. Hotel staff should to know how to behave to disabled visitor. In this area we see a big gap, which has to be reformed. We state that unqualified staff is problem not just in Prague but in other regions and towns of the Czech Republic.

Some of the hotels are also interested in blind and deaf visitors. In 23 hotels there are information boards and panels in Braille font and 26 hotels dispose of special equipment for deaf visitors e.g. light signalization for elevators or phones.

In Prague is also situated a local agency Accessible Prague for disabled visitors. They could find on its website information about barrier-free accommodation and catering facilities and also about monuments, museums, theatres and transport. The website offers a wide range of accommodation facilities, from Tourist class to Luxury Class. It states that a lot of accommodation facilities are situated in Prague historical centre near the Vltava River, which is easily accessible due to flat terrain. It is possible also to find some accommodation facilities in quiet residential locations.

Study limitations

It is significant to mention also about limitations of our research. We were interested in barrier-free accommodation facilities in Prague. The most important for us was accessibility for wheelchair users because they have the most exacting demands and requirements to the space. It is possible to clearly evaluate if accommodation facility is accessible for them or not. The accessibility for deaf visitors does not have clear parameters such as persons with physical disabilities.

In our research we used data from information offices, regional municipality and specialized websites. The problem is that not all barrier-free accommodation facilities present themselves on web-portals or through the information centres. The market also is developing, so we have to say that our results are not exhaustive and exact.

Conclusion

Disabled visitors are increasing market segment also due to ageing population. For accommodation facilities it is interesting the orientation for them, because these people are loyal customers and they often travel with personal assistant during the low season.

They consider as an important barrier-free access to the accommodation facilities, accessible room, suitable parking space, catering facilities etc. We state that in Prague there exist several possibilities to travel for disadvantaged persons.

Based on our research between years 2013 and 2015 we can state that Prague belongs to the region with highest share of barrier-free accommodation facilities. We assumed highest share in Prague but there are other region with higher share of accessible accommodation facilities e.g. Carlsbad.

Table 3: Share of barrier-free accommodation facilities in regions of the Czech Republic

Prague	Central Bohemia	South Bohem	Hradec Králov	Pardubice	Moravian-Silesian	Pilsen
18.40	10.30	9.91	1.36	2.28	7.57	8.55
Carlsbad	Ústí n Labem	Liberec	South Moravia	Vysočina	Olomouc	Zlín
20.10	22.00	22.00	8.70	11.30	11.70	16.30

Source: Own research.

We can say that the most significant failures in Prague are an unqualified staff, accommodation facilities with barrier-free access without suitable public toilets in the hotel hall, accessible rooms with bad spatial solutions, ignorance of requirements of blind and deaf visitors.

We highlight the importance of universal design and adequate approach of the staff. Universal design means the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design (UNWTO, 2013).

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The Planning Process in Contemporary Russian Enterprises

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Abstract

The purpose of this paper is to provide an analysis of current the planning process in Russian enterprises and to find out the main features of the planning process in correspondence with the stages of management evolution. The research was conducted using post-evolutionary and sociological analysis. By analyzing the existing works we have identified the main characteristics of planning process in connection with the management development periods. Following the features of the planning we have defined the period that corresponds to the planning process at Russian enterprises. The results of the research can be used to develop the planning system at Russian enterprises, to make it effective and to predict future problems.

Keywords: contemporary management in Russia, planning process, mission, types of planning.

Introduction

Contemporary management is definitely the most-discussed area of management. A large body of work has studied management in general and contemporary management in particular. Some have concentrated on the new management environment and organizational changes (Druker, 2008) or specific management functions (Ansoff, 2007). More recently, (Stewart, 2009) has examined new practical techniques in management or new management branches, like motivational management (Armstrong & Taylor, 2014), leadership (Miner, 2005), and organization process (Robbins & Coulter, 2012).

Contemporary management is a general term describing modern tendencies in management. This definition refers to the functions of management, management actions and the essence of the managerial work. However, the distinctive features of contemporary management remain unexplained. Contemporary management contains new procedures but little is known about them. So the division into periods in management theory is still unclear.

This paper aims to reveal the main features of the different periods in management on the basis of the analysis of the planning process in an organisation. Using the main features of the planning process as a background, the stage of management development is defined. It is our hypotheses that the shape of the planning process in the organisation can help to identify the relevant stage of management. In attempts to achieve the aim of the paper we define the following objectives:
1) to analyse the main features of the planning process in different periods in the history of management,
2) to highlight the characteristics of the planning process in contemporary enterprises,
3) to compare the features of today's enterprises with historical examples,
4) to predict problems in the development of planning processes.

The applicability of the research is determined by the new forward looking planning system that can be developed knowing the management development stage and features of the planning system of Russian companies. This new system is aimed at preventing organisational problems that are likely to emerge soon.
The main result of the study is the description of the key trends of development of the planning process in the near future. Our estimate is based on the analysis of planning processes that existed at different stages of development management as a science.

Data and Methodological Framework

1. Theoretical Background
The basic assumption of the research is that the form of the planning process can help in identifying the period in the development of management history. This hypothesis was indirectly supported by defining the main specific features of the periods in the evolution of management.
Thus, we assume that the planning process in Russian enterprises shows the attributes of the Classical management in general and Scientific management in particular.
To prove our hypothesis in this paper we have used the following methods:
1) post-evolutionary analysis,
2) sociological analysis.

2. Relevance of post-evolutionary analysis
Traditionally, the history of management consists of three periods:
1) firstly, the Classical management movement, which includes Scientific Management (Taylor, 1911; Gilbreth and Gilbreth, 1917; etc.), the General administrative approach (Fayol, 1949) and the Bureaucratic approach (Weber, 1947),
2) secondly, the Human relations movement or the Behavioral management movement, which includes the researches of E. Mayo, A. Maslow (Maslow, 1943), D. McClelland (McClelland, 1961), F. Herzberg (Herzberg, 1966), etc.,
3) thirdly, the Contemporary management movement, which comprises the process approach, the system approach, the contingency approach (Pindur, Rogers & Pan Suk Kim, 1995).

Each period has its own specific features and characteristics. We use the post evolutionary analysis to reveal the specific features of the planning process at each stage of management evaluation. We are convinced that the period in the evolution of management depends on the practice shown in management style rather than the timeline. This assumption can be shown by the following example. A currently existing enterprise can organize its management process according to the Classical management features, whereas chronologically they should belong to a contemporary organisation. By means of post-evolutionary analysis, we have proved that Russian enterprises organize the planning process by using scientific management tools and methods.

3. Relevance of sociological analysis
The research includes empirical studies of the planning process in actual enterprises. We have analyzed the planning process of one hundred enterprises which are listed as the most significant organisations of Tomsk region (Annual list of significant enterprises of Tomsk region, 2015). Table 1 shows the statistical summary of the enterprises according to their industrial sectors.

Table 1: summary statistic of the research

Industrial sector	Number of enterpris
Manufacturing industries	23
Transport	3
Telecommunication	2
Agriculture	31
Food and Beverage Service Industri	13
Textile fabrication	2
Commercial business	2
Fish processing	4
Building and construction work	8
Housing and public utilities	2
Education and science	10

Source: Self calculation

Research question

Examination of the specific features of the planning process we interpret in connection with the three mentioned periods in the history of management.

1. Features of the Planning Process during Classical Management Movement
Chronologically Classical management movement started from the works of Frederick W. Taylor at the beginning of the 20th century. The studies in this period were primarily focused on the process of manufacturing. The essential concerns were connected with the productivity, efficiency and costs of the manufacturing process. During the Classical management stage the main principles of manufacturing process were developed. Moreover there emerged a necessity of the new approach to management process in general and to planning, organizing motivating and controlling in particular (Pindur, Rogers & Pan Suk Kim, 1995).

To accomplish the aim of this paper the backgrounds of the planning process during the Classical management movement are listed below:
1) Plans of the enterprise are primarily focused on manufacturing and the main questions were planned machine layout and work-flow requirements; production planning; planned site location, etc. (Pollard, 1974). The instruments of the planning process were developing with orientation towards production. For example, the well-known Henry Gantt planning chart (Clark, 1923) or statistics records which were able to calculate cost and profit for each machine manufactured (Pindur, Rogers & Pan Suk Kim, 1995). Therefore it may be suggested that during the Classical management stage manufacturing process was the only one sphere of interest for managers. Thus, the planning process during the Classical management stage was centred on the manufacturing process and almost ignored all the other spheres of the organization.

2) The planning process was manager-centered. Despite Taylor's assumption that 'the primary interest of management and the worker was one and the same' (Pindur, Rogers & Pan Suk Kim, 1995), the goal and objectives setting process was a manager's responsibility. A worker was just a 'child' who needs to be organized and controlled. Hence, the manager should plan a task for the worker and the worker accomplishes the task which was planned for him.

3) Ignoring the external environment. The planning process focuses on internal elements of the organization especially on production and to a lesser extent workers. At the same time the external elements such as customers, competitors or suppliers were left out of the plans.

4) The plans of enterprises were expressed in terms of numbers and figures. Managers paid attention mostly to the quantitative results. The qualitative results were not measured.
Reviewing these key points of the planning process, we would like to highlight that the traditional view of the planning process was formulated in the classical management period. The ultimate question of an enterprise was the production and planning process was focused on the manufacturing process also.

2. Features of the Planning Process during Contemporary Management Movement
Each historical period in the evolution of management has its own specific features in the planning process. The planning process in modern management has completely new understanding in comparison with the classical management planning.
Below we list the differences between the planning process during classical and contemporary management movements:
1) Developing various types of plans. Actual enterprises pay attention to different spheres of organization and establish manufacturing plans, human resource plans, financial plans, and social plans. Moreover, all sorts of plans have equal importance for the organization.
2) The formulation and the implementation of the plan is a task for all personnel. The planning process involves not just top managers but middle, first-line managers and rank-and-file employees as well.
3) The external environment is a starting point for planning process. We believe that in contemporary management almost all the internal elements shift towards the external environment. For example,

organizational goals are developing by customers and clients; organizational charts became so flexible that they lose their structures; personnel are situated outside an organisation by outstaffing services.
4) Contingency approach to planning process.

Thus, as previously mentioned the planning process during the contemporary management movement is significantly distinct from the planning process during Classical management

3. Empirical research of planning process
To accomplish the aim of this paper we have analysed the planning process of one hundred enterprises in the Tomsk region. In the analysis we have focused on the types of planning. A large body of work has proved that the planning process includes four stages: (1) mission statement development, (2) strategic planning, (3) tactical planning, (4) operational planning.

The first step in the research was to reveal the features of the planning process at actual enterprises. We analysed the mission statement of the organisation and the types of planning: strategic, tactical and operational. The results in Table 2 show that just 27 organisations out of one hundred have a mission statement.

Table 2: mission statement statistics in connection with the industrial sector

Industrial sector	No. of organisatio	Percent of tota
Manufacturing industries	7	30.4
Transport	1	33.3
Telecommunication	1	50
Agriculture	2	6.45
Food and Beverage Service Industri	5	38.46
Textile fabrication	1	50
Commercial business	1	50
Fish processing	0	0
Building and construction work	1	12.5
Housing and public utilities	0	0
Education and science	8	80

Note: *Percent of total organisations in the industry

Educational organisations are the only ones to have well-formulated mission statements. The main mistakes in mission statements are as follows:
1) ignoring the internal environment;
2) no connection with clients and consumers;
3) no strategic goals or objectives.

After analysing the mission statements, we need to investigate the types of planning. Table 3 shows the number of organisations with a logically structured tree of objectives.

Table 3: objectives statistics in connection with industrial sector

Industry	No. of organisations wi strategic objectives	No. of organisations with tactical objective	No. of organisations wit operational objectives
Manufacturing industrie	7	7	3
Transport	1	0	0
Telecommunication	1	0	0
Agriculture	2	1	0
Food and Bevera Service Industries	3	1	0
Textile fabrication	1	0	0
Commercial business	1	0	0

Fish processing	0	0	0
Building and constructi work	1	1	0
Housing and pub utilities	0	0	0
Education and science	6	3	3

The data in Table 3 demonstrates that the organisations keenly focus on strategic goals but they almost ignore operational objectives. Manufacturing industries and educational organisations have a well-formed tree of objectives. Empirical results of the research show that the organisations usually set goals in two spheres: manufacturing and staffing.

According to the achieved results, we can conclude that the planning process in Russian enterprises shows the features of the Classical period in management history. This assumption is confirmed by the analysis of mission statements and types of planning. The research findings can be used to develop the planning process in enterprises and predict possible problems in their future development.

Conclusion

The planning process in actual Russian enterprises demonstrates the features of classical management in general and scientific management in particular. We proved that barely 27 per cent of companies have a mission statement and just manufacturing industries and educational organisations have all types of plans.

The results of this research open some directions for future studies. Future works are invited to research potential problems in the planning process. Moreover future discussion about the planning process will help to define the concept of contemporary management.

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Fiscal policy and systemic risk of stock markets in EU countries from Central and Eastern Europe

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Abstract

The aim of this paper is to analyze the relationship between fiscal policy and systemic risk for European Union (EU) countries from the Central and Eastern Europe for period 2004 – 2015. First we will estimate the Granger causality degree, based on Granger causality methodology, which will be used as proxy for systemic risk. Second we will make a regression model between fiscal policy (governmental revenues and governmental expenditures) and systemic risk (Granger causality degree).
The main results of the paper pointed out that during financial crisis period the Granger causality degree increased which affected the probability for triggering the systemic risk.
Our results confirm that fiscal policy has a significant effect on systemic risk for each stock market, positive effect for Bulgaria, Hungary and Poland, and negative effect for Czech Republic, Romania and Slovakia. Similar results are obtain for the effects of systemic risk over the fiscal policy.

Keywords: Stock market, Grange causality, systemic risk, fiscal policy.

Introduction

The interdependency and linkages between fiscal policy and capital markets seem to be more and more discussed as a regulatory in financial markets. But when it comes to analyst this relationship especially in condition of financial crises it becomes more complicated.

First we know that fiscal policy has a strongly influence in economy with a large control over the macroeconomic variables especially in crisis context. But on the other hand, the monetary and fiscal policy failed to prevent the financial crisis and systemic risk. In the same time, they also failed the have control over international capital flows (Blundell-Wignall and Roulet, 2014). For this reason defining the stock market as a provider of funds in long-run for government, banks and corporations is very important to know the risk threatened by stock market, particularly in crisis period.

This represents the innovation of our paper which consist in the idea, including financial crisis, that the fiscal policy is influenced by systemic risk of stock market and the systemic risk is influenced by fiscal policy and it is necessary a continued improvement of the transmission of information between these central authorities decisions and stocks markets. Our analyses will be focused, using the methodology presented by Billio et al. (2012), in Central and Eastern European countries, in only 6 stock markets for the period 2004 – 2015. In the same time, we want to point out the evolution of interconnectedness between fiscal policy and stock markets systemic risk during financial crisis period.

The paper is organized as follows: section 2 reviews the literature regarding to the relationship between fiscal policy and systemic risk of stock market; in section 3 we present the methodology used; section 4 is reporting the main descriptive statistics of used data, while main results are presented in section 5. Finally, in the sixth section, we present the conclusions of our study.

Literature review

The questions "How fiscal policy affects the stock market?" and "How stock market influences the fiscal policy?" have been investigating in many papers. Several approaches on this issue have taken different category of macroeconomic variables in account estimating this interdependency. These researches have major importance in detecting the risk which can be occurred in stock market. Possibility of an initial shock which can affect one or more financial institutions, and the existence of a transmission channel, which facilitate the shock spreading in market is defined as "systemic risk" (Martínez-Jaramillo et al. 2010).

Due to fact that the risk level in stock market directly depends by the interconnectedness between fiscal policy and stock markets, many researchers discussed about the interdependency of macroeconomic variables with an influence in stock markets. For instance, researchers as Jansen et. al. (2008), Schabert (2003), Chatziantoniou et al. (2013), Laopodis (2009), Bekhet and Othman (2012) and Baroian (2014) demonstrated that for accelerating the stock market performance the long run relationship between stock returns and fiscal and monetary measures play an important role. On the other hand Keigo et al. (2014) demonstrated that after the investors' initiatives and the economic activity are demoralized by decrease of business opportunities, the Central Bank intervenes by increasing money supply and decreasing interest rates, which leads to economic growth.

Tavares and Valkanov (2003) provided an overview on the taxes and government spending's impact on stock market, government bonds, and corporate bonds. They found that for given public spending levels, there is no significant effect on stock and bond returns. They also concluded that an increase of tax level has a significant negatively effect which induce lower market returns. According to Alesina et al. (1999, 2002) the tax cutting will have smaller effect on investments compared with cutting the governmental expenditures. Also an increase of tax on labor market induce to lower investments.

As most studies have paid attention to the impact of fiscal policy over stock market, Agnello et al. (2015) pointed out the way how stock market affects the fiscal policy demonstrating that it has impact on fiscal variables when it is occurred an increasing of stock prices: a direct impact which induce a raising of taxes related to capital gains and fiscal revenue and an indirect impact raising householder' income, private consumption and the growth reducing interest rate. Similar results are found by Montasser et al. (2015).

Although when a policy change is accompanied with uncertainty this means a risk in stock market, which will induce to smaller interest rates and lower stock prices (Pastor and Veronesi, 2010). The stock returns become more volatile, which will induce to a cutting of investments. This risk occurred in financial market is the probability that the return of an investment to be less than investor expected return (Moretto, 2000).

Therefore, for an efficient stock market and successfully investors, as Anghel (2015) concluded for Central and Eastern European countries, are very important some technical indicators which provide specific information, as policy changes, to trade on stock markets. He also concluded that CEE investment returns depend on the market in which one investor invests and this seems to be more efficient in developed countries. For instance, in an economy which faces with a fall in GDP (developing countries), borrowing at a high interest rate (increasing the cost of external credit), would be preferred in comparing to cutting public investment and raising the taxes (Karlygash, 2013; Riascos and Vegh, 2003; Cuadra et al., 2010). A budget deficit or an external credit cause increases of interest rates, which leads to

shock in stock prices by reducing the capital investment and slowing the economic and stock market growth (Afonso and Sousa, 2012; Ardagna, 2009). This is considered as the risk of financial transactions from financial markets, which is the risk of price's decrease of a financial instrument (Abdullah and Hayworth, 1993).

Getting started from all these researches is important to highlight how the financial crisis from 2008, in United State of America, was extended by transmissions channels as a result of a higher level of interconnectedness of financial institutions and markets (Eisenberg and Noe, 2001). As Dromel (2007) results pointed out, fiscal policy parameters are able to rule out the crisis regimes circumstances. Göndör and Bresfelean (2011) demonstrated that capital markets performance is strongly influenced by reducing corporate taxes, inflation and interest rates, but in period of financial crises this seems to be more difficult by government policies. For EU countries from Central and Eastern Europe, Oanea (2015), pointed out that financial crises had a significant impact on the connectedness degree between stock markets.

Methodology – the data

Our analysis will be performed in 2 stages: in the first stage we will estimate the interconnectedness of stock markets which will be a proxy for systemic risk, and in the second stage we will apply a multiple regression in order to find the relationship between fiscal policy and the systemic risk, based on estimated proxy in stage 1.

In order to estimate the interconnectedness of stock markets, we will use the Granger causality test (Granger, 1969) through which we highlight the dependences between selected stock markets. If historical value for a series of data i can explain the evolution of a series of data j, and opposite, this means that the series i will Granger cause series j. In our analysis, the data series will be represented by the market indices returns.

For two indices returns, the linear regression will be written as follows:

$$(1) \quad r_t^i = \alpha_0^i + \sum_{k=1}^{l} \alpha_k^i \cdot r_{t-k}^i + \sum_{k=1}^{l} \beta_k^{ij} \cdot r_{t-k}^j + \varepsilon_t^i$$

$$(2) \quad r_t^j = \alpha_0^j + \sum_{k=1}^{l} \alpha_k^j \cdot r_{t-k}^j + \sum_{k=1}^{l} \beta_k^{ji} \cdot r_{t-k}^i + \varepsilon_t^j$$

where ε_t^j and ε_t^i are uncorrelated error term, $\alpha_0^i, \alpha_k^i, \beta_k^{ij}, \alpha_0^j, \alpha_k^j, \beta_k^{ji}$ are the coefficients of linear regression, t – time indicator, and l – is the number of selected lag for applying the test.

If β_k^{ji} is different by 0, the data series i Granger cause data series j and similar if β_k^{ij} is different by 0, the data series j Granger cause data series i. In case that, both β_k^{ji} and β_k^{ij} are different by 0, then we have a bilateral causality relation.

Further we will define the following Ganger causality indicator based on formula (3):

$$(3) \quad I_{(i \to j)} = \begin{cases} 1, & \text{if series } i \text{ Granger cause series } j \\ 0, & \text{if there is no influence} \end{cases}$$

Special situation $I_{(i \to i)}$ and $I_{(j \to j)}$ will be equal to 0.

Final aim of the first stage is to estimate the Granger Causality Degree (GCD) proposed by Billio et al. (2012), which shows the percentage of significant Granger causality relationships from the total possible number for each country. In our case the total possible number of relationships for each country is 10, because each country can affect the other five, but in the same time the other five countries can affect the analyzed country. GCD is computed based on relation (4):

$$(4)\quad GCD_t^y = \frac{\sum_{i=1}^{N}\sum_{j=y} I_{(i\to j)} + \sum_{i=y}\sum_{j=1}^{N} I_{(i\to j)}}{No_{\max}^y} = \frac{1}{10}\left(\sum_{i=1}^{N}\sum_{j=y} I_{(i\to j)} + \sum_{i=y}\sum_{j=1}^{N} I_{(i\to j)}\right)$$

In the second stage of the analysis, we will test the link between fiscal policy and systemic risk of the stock markets. For fiscal policy we will use two proxies: governmental expenditures and governmental revenues. Also, because our sample includes the crisis period, we will extend the model by introducing a dummy variable which will represent the financial crisis period.
First model shows the influence of fiscal policy on systemic risk of selected countries and it is given by equation (5) while second model given by equation (6), emphasizes the systemic risk influence to fiscal policy:

$$(5)\quad GCD_t^y = \alpha_0^y + \alpha_1^y \cdot FisPol_t^y + \alpha_2^y \cdot CRISIS_t^y + \alpha_3^y \cdot R_t^y + \alpha_4^y \cdot GDP_t^y + \varepsilon_t^y$$

$$(6)\quad FisPol_t^y = \beta_o^y + \beta_1^y \cdot GCD_t^y + \beta_2^y \cdot CRISIS_t^y + \beta_3^y \cdot R_t^y + \beta_4^y \cdot GDP_t^y + \omega_t^y$$

where the GCD_t^y is the Granger Causality Degree for country *y* for time *t*; R_t^y is the indices returns for country *y* and time *t*; GDP_t^y - GDP growth rate for country *y* and time *t*; $CRISIS_t^y$ - represent the effect of financial crisis period; $FisPol_t^y$ - fiscal policy represented by government revenue or expenditure for time *t* and country *y* (calculated as percentage from GDP); $\alpha_0^y, \alpha_1^y, \alpha_2^y, \alpha_3^y, \alpha_4^y, \beta_0^y, \beta_1^y, \beta_2^y, \beta_3^y, \beta_4^y$ – represent the model's parameters for country *y* and $\varepsilon_t^y, \omega_t^y$, – error terms of the model for country *y*.

Model estimation using last square method (LS) will be done in two steps, by using both government revenue and government expenditure as proxies for fiscal policy, in order to prevent the multicollinearity in the regression model.

Data and descriptive statistics

Sample used in the analysis is formed by daily data for period 2004 – 2015, for the most important six stock market indices from EU countries located in Central and Eastern Europe, as follows: Bulgaria – SOFIX, Czech Republic – PX, Hungary – BUX, Poland – WIG, Romania – BET and Slovakia – SAX.
Indices values were denominated in EURO based on official exchange rates from European Central Bank.

The quarter data for government revenue (% of GDP), governmental expenditure (% of GDP) and GDP growth has been obtained from Eurostat database, and based on linear interpolation were transformed in daily data.

Going on, in table 1 we present the main descriptive statistics for the analyzed indicators.

Table 1. Descriptive statistics for analyzed variables

Variables	Mean	Median	Max	Min	Std. Dev.	Skewness	Kurtosis
Bulgaria							
Granger Causality Degree	6.89%	0.00%	80.00%	0.00%	14.09%	2.2630	7.4397
Expenditures (% GDP)	36.92%	36.43%	54.44%	27.60%	4.90%	0.7891	3.6931
Revenues (% GDP)	36.25%	35.81%	46.75%	29.55%	3.66%	0.3479	2.3874
GDP growth	0.03%	0.08%	1.28%	-1.56%	0.29%	-0.9580	6.0482
SOFIX	-0.01%	0.00%	7.56%	-10.74%	1.22%	-0.7643	13.2288
Czech Republic							
Granger Causality Degree	13.84%	10.00%	80.00%	0.00%	15.24%	1.7273	6.4630
Expenditures (% GDP)	42.08%	42.22%	50.07%	36.16%	2.05%	0.1239	4.3252
Revenues (% GDP)	39.54%	39.67%	42.98%	35.07%	1.46%	-0.3373	2.6729
GDP growth	0.02%	0.03%	0.51%	-0.94%	0.13%	-1.0862	7.9674
PX	0.01%	0.03%	15.34%	-15.83%	1.58%	-0.0453	16.7528
Hungary							
Granger Causality Degree	7.80%	0.00%	60.00%	0.00%	13.70%	2.0479	6.4956
Expenditures (% GDP)	49.60%	49.34%	59.00%	45.59%	2.41%	0.6666	3.4947
Revenues (% GDP)	45.29%	45.41%	49.39%	39.89%	2.13%	-0.3636	2.6490
GDP growth	0.01%	0.05%	0.69%	-1.56%	0.20%	-1.4797	8.0776
BUX	0.03%	0.03%	16.74%	-16.24%	1.94%	0.2430	10.7318
Poland							
Granger Causality Degree	12.01%	10.00%	70.00%	0.00%	12.94%	1.3203	4.9465
Expenditures (% GDP)	43.60%	43.61%	47.76%	41.01%	1.55%	0.2869	2.1402
Revenues (% GDP)	39.50%	39.44%	45.45%	34.10%	1.77%	0.0257	3.5605
GDP growth	0.02%	0.04%	1.07%	-1.40%	0.18%	-0.7310	9.0073
WIG	0.03%	0.04%	9.43%	-10.46%	1.59%	-0.3881	7.3240
Romania							
Granger Causality Degree	12.64%	10.00%	80.00%	0.00%	14.01%	1.1146	3.8402
Expenditures (% GDP)	37.12%	36.53%	49.93%	29.24%	4.46%	0.3951	2.3928
Revenues (% GDP)	33.58%	33.16%	42.32%	25.96%	3.21%	0.3035	2.5583
GDP growth	0.04%	0.16%	1.20%	-3.46%	0.42%	-1.7279	8.3825
BET	0.02%	0.04%	11.67%	-12.98%	1.71%	-0.3325	10.4367
Slovakia							
Granger Causality Degree	5.85%	0.00%	90.00%	0.00%	13.26%	3.2893	14.4887
Expenditures (% GDP)	40.16%	40.59%	49.07%	32.94%	3.07%	-0.1065	2.5534
Revenues (% GDP)	36.29%	36.20%	42.05%	31.43%	2.17%	0.1941	2.3383
GDP growth	0.03%	0.06%	0.48%	-0.62%	0.12%	-0.1255	4.8175
SAX	0.00%	0.00%	16.42%	-27.13%	1.95%	-2.1001	56.1510
CRISIS	0.4735	0.00	1.00	0.00	0.4994	0.1063	1.0113

Based on the information from table 1, we can see that the most profitable stock market is Poland and Hungary, which record a daily performance of 0.03%. In the same time, the lowest performance is obtained in Bulgaria case, for which the daily return of stock index is -0.01%. Going further, for the governmental revenues we are able to see that the highest value is recorded by Hungary (45.29% of GDP), while the lowest one is obtained in Romania (33.58% of GDP). For the governmental expenditures we have the same distribution, so the maximum value is 49.60% for Hungary, while the lowest one is 36.92% for Bulgaria and 37.12% for Romania.

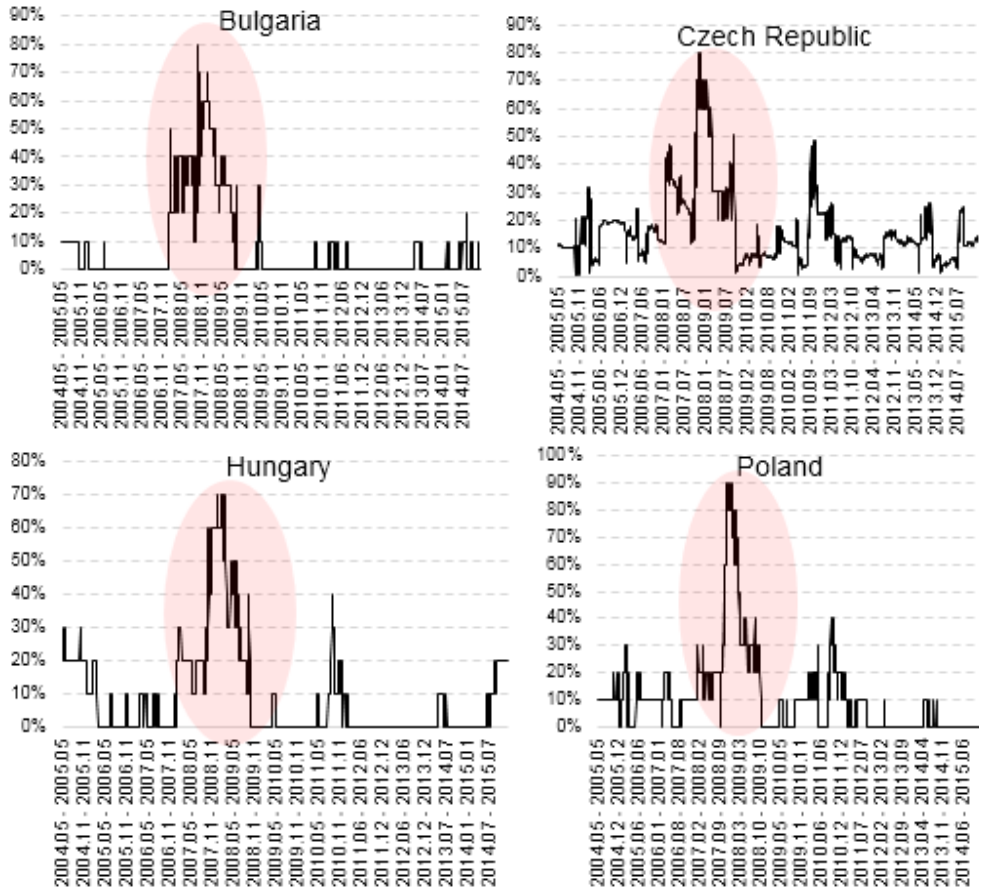
Based on calculated variable, Grange causality degree, we can see that the highest value is recorded for Czech Republic (13.84%) followed very close by Romania (12.64%), while the lowest value is recorded for Bulgaria (6.89%) and Slovakia (5.85%). We will use this variable as a proxy for systemic risk, so as higher is Granger causality degree, the interconnectedness between stock markets is stronger, and the probability for triggering a systemic risk is bigger.

Results

In order to estimate the Grange causality degree for each stock market we apply the Granger causality method based on rolling window approach such that we estimate the test, for windows of 250 observations each, which means one trading year. We are taking into account only Granger causality significant at 1% level.

It is clearly obvious the fact that during financial crisis period the Granger causality degree recorded a significant increase being more than double compared with the previous period. The highest value is recorded for Poland (over 80%), being the most interconnected stock market, so the probability for triggering systemic risk is big, because the probability of triggering systemic risk is directly related with the value of this indicator, such that as higher is Granger causality degree, as higher is probability of systemic risk occurred.

Going further, we are able to see that for the last 2 – 3 years the interconnectedness between stock markets decreased a lot, and the average value for GCD for each country is less than 20%.
In the second stage of our analysis we want to see the relationships between fiscal policy and systemic risk, using as proxy for fiscal policy the governmental expenditures and revenues, as percentage of GDP and as proxy for systemic risk the Granger causality degree estimated in first stage of analysis.



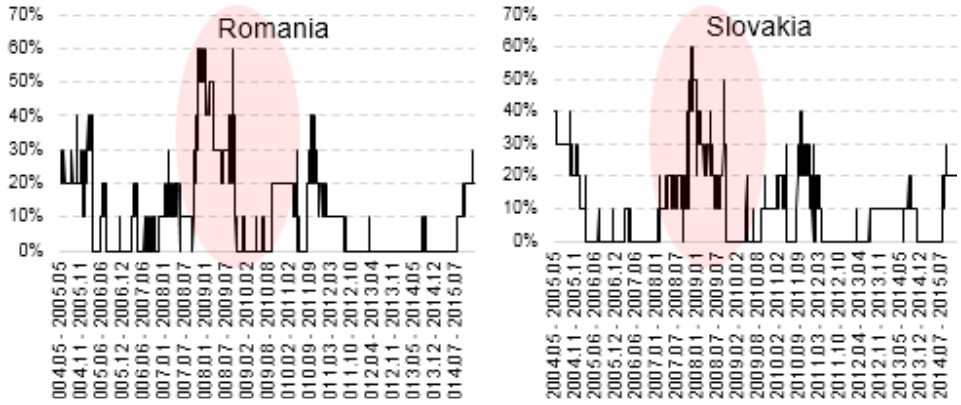


Fig 1. Granger causality degree (significant at 1% level)

First we will try to see if the fiscal policy, GDP growth, stock market return and financial crisis affects the systemic risk of each stock market. The model estimation for each country is presented in table 2.

Table 2: Effect of fiscal policy on systemic risk – regression model estimation

Systemic risk – dependent	Country	Constant	Fiscal policy	Crisis	Index	GDP growth	R-squared
Expenditures model	Bulgaria	-0.2252*** (0.0205)[a]	0.6467*** (0.0543)	0.1138*** (0.0048)	-0.9856*** (0.1965)	5.3004*** (0.9235)	0.2097
	Czech Republic	1.1333*** (0.0570)	-2.4754*** (0.0053)	0.1092*** (0.1649)	0.1829 (2.0540)	-28.816***	0.2074
	Hungary	-0.1846*** (0.0539)	0.4615*** (0.1083)	0.0724*** (0.0050)	0.0290 (0.1290)	-5.5804*** (1.2754)	0.0888
	Poland	-0.3709*** (0.0678)	1.0394*** (0.1573)	0.0838*** (0.0048)	0.0213 (0.1425)	-8.2751*** (1.2287)	0.1698
	Romania	0.1447*** (0.0237)	-0.1806*** (0.0057)	0.1066*** (0.1448)	-0.0420 (0.6084)	-4.8332***	0.1511
	Slovakia	0.2639*** (0.0348)	-0.5320*** (0.0048)	0.0382*** (0.1232)	-0.1450 (2.2605)	-34.527***	0.1036
Revenues models	Bulgaria	-0.5798*** (0.0240)	1.5996*** (0.0639)	0.1461*** (0.0046)	-0.9765*** (0.1817)	-1.5093* (0.7744)	0.3239
	Czech Republic	1.3344*** (0.0760)	-3.0854*** (0.0055)	0.0572*** (0.1666)	0.0154 (1.9924)	-17.795***	0.1902
	Hungary	-0.1157** (0.0538)	0.3543*** (0.1188)	0.0716*** (0.0050)	0.0360 (0.1292)	-6.654*** (1.2358)	0.0857
	Poland	-0.4689*** (0.0526)	1.3648*** (0.1314)	0.1088*** (0.0046)	0.0410 (0.1408)	-7.7908*** (1.2160)	0.1886
	Romania	0.2429*** (0.0260)	-0.4792*** (0.0049)	0.0971*** (0.1439)	-0.0459 (0.5843)	-4.4822***	0.1608
	Slovakia	0.1358*** (0.0484)	-0.2309* (0.1295)	0.0318*** (0.0053)	-0.1446 (0.1240)	-30.327*** (2.2401)	0.0921

[a] – (standard errors in parentheses)
*,**,*** - Indicates significant at the 0.1 level, 0.05 level and 0.01 level

Based on the results, we can see that the fiscal policy has a significant effect on systemic risk for each stock market. The differences appears regarding the sign of the influence. We are able to see that the

fiscal policy affects positively the systemic risk for Bulgaria, Hungary and Poland, while for the other 3 countries, Czech Republic, Romania and Slovakia, the influence is negative.

In the same time, as we expected, the financial crisis has a significant positive effect for all countries, which means that during financial crisis the systemic risk had increased. This results confirm the Granger causality degree estimated in stage one and presented in figure 1.

Going further we can see that the economic growth (GDP growth rate) affect negatively the systemic risk. So if the country has a strong economic power, the systemic risk will not have significant effect on stock market.

Second we estimated the impact of systemic risk, GDP growth, stock market return and financial crisis on fiscal policy of each country. The model estimation by country is presented in table 3.

Table 3: Effect of systemic risk on fiscal policy – regression model estimation

Fiscal policy – dependent variable	Country	Constant	Systemic risk	Crisis	Index	GDP growth	R-squared
Expenditures model	Bulgaria	0.3722*** (0.0011)	0.0762*** (0.0064)	-0.0128*** (0.0018)	-0.0318 (0.0678)	-7.3951*** (0.2859)	0.2287
	Czech Republic	0.4215*** (0.0005)	-0.0434*** (0.0023)	0.0129*** (0.0007)	0.0494** (0.0218)	-5.0329*** (0.2647)	0.2286
	Hungary	0.4960*** (0.0006)	0.0143*** (0.0033)	-0.0019** (0.0009)	0.0266 (0.0227)	-3.1735** (0.2169)	0.0839
	Poland	0.4295*** (0.0004)	0.0151*** (0.0022)	0.0099*** (0.0005)	0.0327* (0.0171)	-0.4125*** (0.1493)	0.1558
	Romania	0.3524*** (0.0010)	-0.0148*** (0.0054)	0.0455*** (0.0015)	0.0605 (0.0414)	-2.4332*** (0.1699)	0.3128
	Slovakia	0.4038*** (0.0007)	-0.0258*** (0.0041)	0.0053*** (0.0010)	0.0021 (0.0271)	-11.456*** (0.4707)	0.1891
Revenues models	Bulgaria	0.3706*** (0.0008)	0.1167*** (0.0046)	-0.0349*** (0.0013)	0.0723 (0.0493)	1.2204*** (0.2080)	0.2697
	Czech Republic	0.4027*** (0.0003)	-0.0285*** (0.0017)	-0.0069*** (0.0005)	-0.0150 (0.0160)	-0.3511* (0.1944)	0.1837
	Hungary	0.4521*** (0.0005)	0.0091*** (0.0031)	0.0003 (0.0008)	0.0152 (0.0207)	-1.1687*** (0.1985)	0.0182
	Poland	0.3976*** (0.0004)	0.0278*** (0.0026)	-0.0123*** (0.0006)	0.0096 (0.0201)	-0.5247*** (0.1747)	0.1138
	Romania	0.3397*** (0.0009)	-0.0294*** (0.0047)	-0.0002 (0.0013)	0.0133 (0.0357)	-0.2899** (0.1463)	0.0168
	Slovakia	0.3733*** (0.0005)	-0.0050* (0.0028)	-0.0174*** (0.0007)	0.0148 (0.0182)	-6.6340*** (0.3173)	0.2586

[a] – (standard errors in parentheses)
*,**,*** - Indicates significant at the 0.1 level, 0.05 level and 0.01 level

Similar to previous results, we obtain that systemic risk has a significant effect on fiscal policy for each country. The differences appears when we consider the sign of the influence. We are able to see that the systemic risk affects positively the fiscal policy for Bulgaria, Hungary and Poland, while for the other 3 countries, Czech Republic, Romania and Slovakia, the influence is negative.

In the same time, as we expected, the financial crisis has a significant and positive effect over the governmental expenditures and a negative one on governmental revenues.

Also we can see that economic growth (GDP growth rate) has similar affect to previous results

Conclusions

The aim of this paper was to analyze the relationship between systemic risk of the main stock markets from the EU countries from the Central and Eastern Europe for period 2004 – 2015, and fiscal policy.
Over the analyzed period, we can see that the most profitable stock market is Poland and Hungary, which record a daily performance of 0.03%, while the stock market from Bulgaria is not performant – the daily return of stock index is -0.01%.

Our analyze confirms that the stock markets are vulnerable during financial crisis period, when the Granger causality degree is higher and systemic risk occurrence is increasing. Based on calculated Grange causality degree, the most interconnected stock market is the one from Czech Republic (13.84%) followed very close by Romania (12.64%), while the less interconnected stock market is the one from Bulgaria (6.89%) and Slovakia (5.85%).

The fiscal policy has a significant effect on systemic risk for each stock market, positive effect for Bulgaria, Hungary and Poland, and negative effect for Czech Republic, Romania and Slovakia. Similar results are obtain for the effects of systemic risk over the fiscal policy.

In the same time financial crisis has a significant positive effect for all countries over systemic risk. Moreover the effect of crisis over the governmental expenditure is positive, while over the governmental revenues is negative.

Further research can take into account to extend number of countries taken in analysis, identifying the impact of stock market systemic risk over the other markets and the interconnectivity between fiscal policy and systemic risk in a large number of different regions.

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Theoretical Framework for Early Warning System in Project Management

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Abstract

The aim of the paper is to present the conceptual framework related to the construction of an early warning system that will be used in later operationalisation of the implementation measures. The paper presents selected issues concerning the project knowledge management, early warning systems, the concept of weak signals, as well as risk analysis. There is a need for their synthesis in order to efficiently recognize the potential opportunities and threats in the project life cycle. The proposed model of an early warning system based on knowledge integrates the elements of the theory and solutions unprecedented in project management. The basic idea is that the system should provide information concerning situations that threaten the implementation of projects, about dangerous phenomena and processes as well as the probability of their development. The system should allow rapid and flexible response to the forthcoming events, which in turn should translate into faster adaptation to adverse situations arising during the implementation of the project. It is proposed to assign prediction of threats with the identification of project risks in the form of a rule-based expert system. The capture of potential opportunities constitutes at this stage of the study only an added value and does not prejudge the functionality of the proposed system.

Keywords: weak signals, early warning system, project management, knowledge management, uncertainty, risks and opportunities.

Introduction

The challenge for today's businesses is speed of the operation. It results, among others, from high volatility environment and functioning conditions for the enterprises. Volatility is induced by the uncertainty of the business environment and the need to respond quickly to unpredictable opportunities and threats. The crisis in recent years, which effects are still felt in a lot of economies, caused that enterprises with even greater attention began to approach the problems of discontinuity, change, environment turbulence and uncertainty. It should be additionally emphasized that the technology development, including information and technical technology as well as the intensifying processes of globalization mean that instability in one part of the world, or in one industry branch, can easily and quickly move to the next areas of the world economy or other industry, adding the same negative effects. In addition, what derives from the economic practice, the effect of the so-called "black swan" is increasingly recognized, which is particularly noticeable in economic sectors with a higher degree of risk, e.g. in the financial sector (Taleb, 2008). The effect of "black swan" is an event, which is difficult to predict, which differs significantly from the average, in turn, has a very negative impact on the given phenomenon. The consequences of the effect can be easily explained after its occurrence. In practice, the events of this type are changing radically the conditions of enterprises' functioning in the market, leading often to the enterprise's bankruptcy, which until now have been reaching certain profits. An example of the "black swan" effect, is among others, the crisis of 2008/2009, or the bankruptcy of Internet enterprises in 2001. The consequences of the phenomena described above are particularly dangerous for the smooth and effective functioning of the enterprise. In business practice, there may be a "domino effect", which occurs as a result of a string of more or less controlled, events that may adversely affect the enterprise and subsequent operators. Effective risks prevention is associated with the problem of observability and predictability. This applies to both observation and prediction of uncontrollable factors as well as monitoring of the relationship between the intended and actual effects of action.

In this context, to elaborate an early warning systems for the occurrence of such type of negative events gains a significant importance. The concept of the early warning systems is an instrument of strategic management (Nikander, Eleoranta, 2001; El Akrouchi, Benbrahim, Kassou, 2015). Until now, this concept has referred exclusively to business management. In the few works (Nikander, Eloranta, 2001; Nikander, 2002; Vanhoucke, 2011; Kappelman, McKemann, Zhang, 2006; Haji-Kazemi, Andersen, 2013, 2014) dealing with project management, one can find a reference to the concept of Ansoff's weak signals (1975). This paper aims to describe and link the concept of weak signals and early warning systems in project management. Posted system model of this type can serve as a tool to identify potential opportunities and threats in the project life cycle. The success of the project accomplishment may depend on, among other things, the ability to respond in advance to potential opportunities and threats, avoiding strategic surprises that disorganize the implementation of the project. The accomplishment of particular projects, completed successfully, influence the improvement of the enterprise's competitiveness, as well as local and regional development. This tool can be a valuable source of knowledge for project managers in decision-making processes.

Project management in the conditions of uncertainty and risk

The economic practice shows that an increasing number of tasks in enterprises are a non-routine activities, often of a significant degree of innovation. These tasks bear features of projects. The project is a set of activities undertaken by the organization as a new, unique and often innovative challenge, so far not have been taken, in order to meet specific objectives. As a result of the project accomplishment, a unique product or service is created. The project has a specific start and end date, a defined range and planned budget (PMI, 2013). The aim of the project is to achieve expected results, aimed towards satisfying customer-mandator's needs, primarily by achieving the following parameters at an assumed level (Kerzner, 2013a): fulfilment of requirements, implementation costs, accomplishment time. The enterprises may at the same time carry out more than one project. In this context, the importance of project management becomes a problem in terms of limited access to resources is significant (Pisz, Banaszak, 2008).

The process of planning, organizing, directing, controlling the corporate resources for the sake of the implementation of a relatively short-term goals that have been set in order to achieve the specific goals of the project is the essence of project management (Kerzner, 2013b). One of the undoubtedly essential features of project management is the growing uncertainty. Project management accompany the unexpected tangles of events, both positive and negative, that are difficult to predict. As follows from the practice of business and published researches, a large part of the projects fail - time transgression, the cost of the project, or part-range accomplishment. Planning and implementation of projects is subject to a degree of risk. Two concepts of risk are mentioned: neutral and negative. According to the concept of the neutral risk it is understood as a threat and an opportunity, which means the possibility to obtain a result different from expected. In turn, the negative concept defines risk as a threat, which means the possibility not to achieve the desired effect (Hillson, 2002). The risk in the project appears especially because the project is an innovative , unique, one-off action and it is not easy to predict the direction of its implementation in uncertain situations. In each of the elements of the closer or further environment projects may be prone to unexpected changes which may affect the project, directly or indirectly, to a greater or lesser extent. The level of risk is growing exponentially depending on the planning horizon. The risk of the project is the greater, the greater the uncertainty about the results of the projects, the danger of failure of assumptions, expectations and formulated goals. An important role is also taken by the probability, extent and manner of the internal as well as external influences on the project, which are potential hazards for the specific project.

Uncertainty and risk of functioning is a consequence of highly turbulent environment. Project management process requires the use of a variety of information about the environment in the project life cycle, to generate new knowledge (project knowledge), raising the level of organizational learning and making decisions accompanying this process. In practice, this implies the need for the kind of information that allows the anticipation of the environment's future states. For this purpose, it is essential

to develop early warning systems, which are a special kind of information systems dedicated to decision-makers, including project managers.

The concept of weak signals in anticipation of temporary changes

The concept of weak signals was established in the 70s of the twentieth century. The pioneer of the analysis was a Russian mathematician and economist Harry Igor Ansoff (1975; 1980; 1984). In the following decades, the concept has been developed, among others, in the work (Coffman, 1997; Uskali, 2005; Ilmola, Kuusi, 2006; Saul, 2006; Hiltunen, 2008; Glassey, 2009; Rossel, 2009). Over the years the literature formulated different definitions of weak signals. Ansoff (1975) defines it as vague early signs of impending significant events, but Coffman (1997) as any information that is difficult to receive or recognize because of noise. Weak signals are slightly noticeable trends that could, in the future, have a major impact on competitive advantage. These kind of signals are early, vague signs of inevitably impending major events, changes that will affect, in a strictly indefinite future, the trajectory of the system development. Weak signals are referred to as something new, surprising, uncertain, irrational, unreliable, difficult to track, far distant in time from the time in which the events, ideas are already mature and dominant (Magruk, 2010).

A weak signal is the message carrier of specified object, process or project parameters. This knowledge, along with time anticipation, allows to identify possible changes in the future. In many cases, weak signals should be clarified, as it depends on the recipient on whether it is possible to read it. The rule is that if the signal is stronger, the information is more clear and complete. It is assumed that the actions taken on the basis of their decisions are more apt. The weakness of the signals has its own internal and external sources (Hiltunen, 2008). Hiltunen, as external weakness of the signal, assumed relatively weak connections between the preceding events and the following events. Events occurring at the moment may, but not necessarily must, precede future discontinuity, as with time, more change confirming signals will appear (these symptoms should be monitored). If the organization does not realise the pre-existing relationship between the preceding and the following events caused by the lack of information or wrong interpretation, It is the sign of the internal weakness of the signal.

A significant problem using the concept of weak signals in the change time anticipation, are errors in the recognition and interpretation. It should be emphasized that the probability of errors of incorrect signals identification is due to rise thanks to the specific characteristics of this type of the signals (see Fig. 1), it means the ambiguity and fragmentation (Knowles, Grove, Keck, 1994). It depends of the sensitivity of the observer whether the received signal is classified as a symptom or noise. In a situation where the noise is treated as a symptom of change, a “mistake” is of little importance. In the process of further interpretation and elimination, the information may be clarified, and the decision about taking action can be changed. Much more serious implications is caused by a mistake, resulting from the treatment of the signal as noise. The result may be the omission of information and exposure to the significant threat posed by surprise. An important property of the weak signals concept is to determine the threshold of response to false alarms. On the one hand, efforts should be made to minimize false alarms, on the other hand we must remember about the efficiency of symptoms detection. If the threshold is lowered it will limit ignored signals. In this case, a number of false alerts will increase, which can lead to interruption of the production process or the accomplishment of the project processes. On the contrary, the reaction will take place at a higher signal strength, there will be less false alerts, but it will result in more omissions. It is a dilemma which is difficult to resolve. The decision is up to the observer whether to bear the cost of false alarms, or allow the organization to be surprised.

The success of the project may depend on, among other things, the ability to respond in advance to potential opportunities and threats, avoiding strategic surprises, that disorganise the project implementation. The strategic surprises may take place in the project, when one fails to recognize the so-called “strategic inflection point” (Cai-Hillon, Hillon, Boje, 2012). The aim should be to capture weak signals that precede strategic surprise. The concept of weak signals is applicable wherever there is ambiguity of the links between the present and the future.

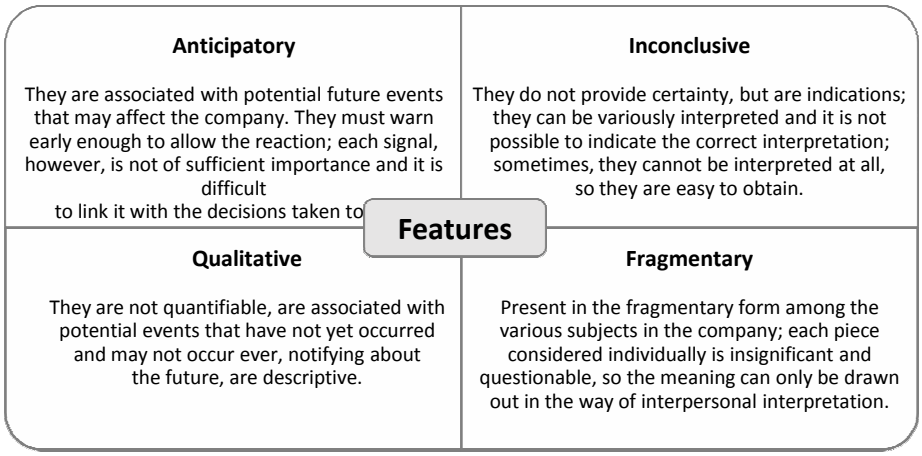

Fig. 1. Basic features of weak signals

Source: elaboration based on (Nalepka, Bąk, 2012)

Linking the concept of weak signals and the project knowledge management

Currently, the most important strategic resource of the enterprise becomes the knowledge, consciously obtained, produced and disseminated by means of different methods, focused on the elaboration of the appropriate employees' behaviour and the development of information and communication technology (ICT), supporting these processes. Prosperous economies of a high level of technological development, create information societies, where information management, its quality, the flow speed rate are essential factors of competitiveness in industry and services, and the degree of development requires the use of new techniques for collecting, processing, transmission and use of information.

Knowledge in the organization's activities, including the implementation of projects for many years has been an area of researchers' interest who have confirmed its essential importance for building enterprises' sustainable competitive advantages. In project management, this subject takes on a new character, as it is transferred to the field of dynamic, time-limited, temporary and collectively accomplished projects. From the nature of the projects a special relationship derives, that is not explicitly described by the standards of project management, however, it is emphasized in the background. The significance of the decision and its impact on the project is generally inversely proportional to the knowledge about the project both at the project beginning and at its final stage. The existence of this relationship has an impact on the entire construction methods and project management processes beginning with the base lining, throughout progressive planning, staging, risk management to post project reports. Projects are characterized by a high level of uncertainty at the beginning of implementation. It results from the key features of each project - providing something innovative, so burdened with a large portion of ignorance. Thus, the project is being implemented progressively by the method of successive approximations. As with so many unknowns, any initial estimates and assumptions may prove to be incorrect, e.g. the task will not one day but a week, the product will cost twice more, the new technology will be much more productive than expected, a new supplier proves to be unreliable.

The carried out research (Wyrozębski, 2014) shows that the projects characteristics distinguishing them from the enterprise's routine activities, makes the project knowledge management so much more difficult than knowledge management in traditional organizations, but also has the potential to bring greater benefits. Two key features of projects assigned primarily with obstacles in the project knowledge management is the time limitation of the of the project and its disposable character. Disposability derives not only from the uniqueness of the objectives pursued through projects, but also for other reasons. Projects are actions of short-term oriented cooperation of interdisciplinary teams which are made up by the organization's internal and/or external experts and thus constitute a unique employees' systems (project teams). Hence definiteness of the projects three main parameters - time, costs and resources, could constitute a serious limitation for the project knowledge management.

Acquisition, collection and processing of the knowledge carried by weak signals is necessary for effective projects implementation, especially those with a high level of innovation. Interpretation of the information, carried by the weak signals, implies making certain decisions that are necessary for carrying out the projects, e.g. the introduction of additional resources units, due to the threat of keeping the project's deadline, a contract with a new supplier because of the imminent risk of poor product quality. It becomes necessary to take specific measures to protect the enterprise from the consequences of the project changes. Reception of weak signals and the use of the information deriving from their interpretation in the processes of knowledge creation, avoid surprises of strategic nature, most of which are predictable astonishments (see Bazerman, Watkins, 2004), as they are indicated before. The integration of knowledge management theory with the concept of weak signals using the ICT tools constitutes the starting point for the construction of a dedicated early warning system of implemented projects.

Early warning system based on the knowledge

Early warning systems are a specific type of information systems of a considered enterprise whose main objective is the steer the implemented processes in the enterprise in the direction of perception and interpretation of weak signals (Nalepka, Bąk, 2012). The main task of the early warning systems is a constant search for the impulse to change the enterprise, both occurring in its environment, as well as inside. Popularized in management science the term "early warning systems" may suggest that the aim is primarily to inform about the risks, while the early warning systems should also allow to capture information about potential opportunities. A broader approach, although in practice rarely used, in accordance with the challenges of the organization's modern approach, especially referring to the postulate of G. Hamel and C. Prahalad, who stated that the purpose of competition among enterprises is no longer to increase market share, but to compete for the participation in opportunities (Hamel, Prahalad, 1999).

In the literature of the subject, there are three categories of the early warning systems around which theoretical considerations and practical tests focus. The first category focuses on large economic systems, such as the economy of the country, region or the world economy. These systems are largely based on the principle of inertia and the change continuity. The second category includes the bankruptcy related early warning systems of economic entities – enterprises, banks or other organizations. In turn, the third category includes the early warning systems for enterprises. Systems of this type were characterized in the eighties of the twentieth century by W. Klausmann, discerning its three generations (Hunek, 1989):

- systems of the first generation, it means the operating early warning systems, focused on the periodic comparing of the actual state (beheld) with their planned or expected values,
- second-generation systems, means the indicative early warning systems, based on observations of an indicators set with a high predictive value and comparing them with the reference values,
- third generation systems associated with the concept of weak signals by Ansoff. Weak signals derive from a distant environment of the enterprise, from the initial links of the cause and effect chain, and may inform about the approach of strategic changes.

A significant idea that could be the beginning of the development of a new, fourth generation of the early warning systems, is to use an in-depth analysis of the cause-and-effect dependences, by the use of e.g. methods of steering and systems theory. The essence of the weak signals concept is a warning well in advance of the risks emerging in the enterprise's distant environment. However, for modern enterprises a greater threat may be numerous, complex interactions and interactions occurring between the enterprise and its close surroundings. In this type of relationship, dangers are created, often provoked by its own activities, which cannot be predicted well in advance (Zoleński, 2010).

Regardless of the detailed solutions, each early warning system should enable the acquisition, analysis and transmission of warning signals, being a particular type of the organization's information system. The basic functions of the early warning systems are presented in Fig. 2.

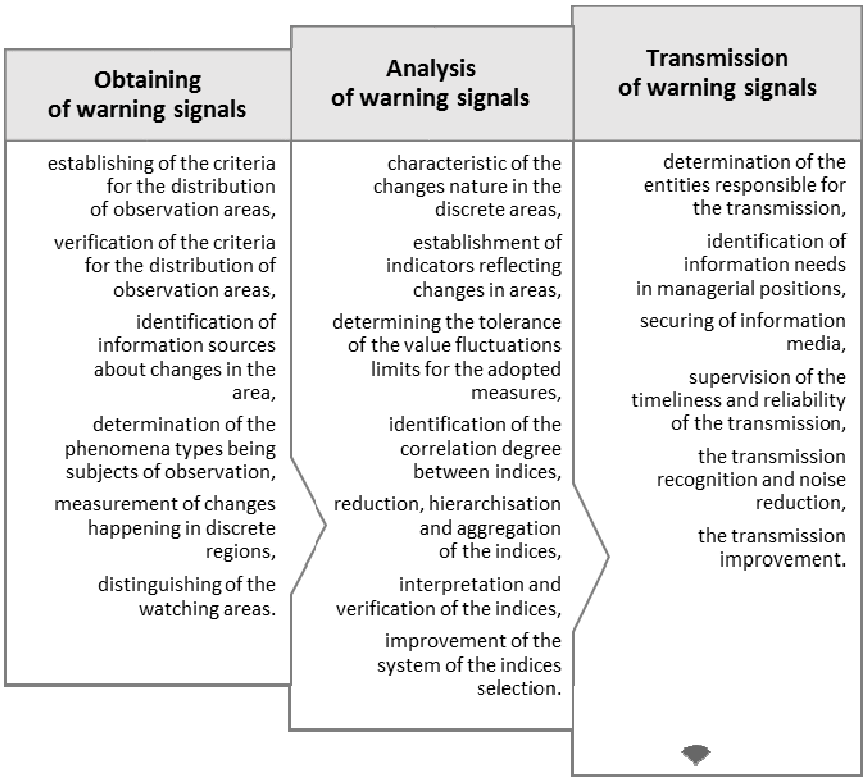

Fig. 2. Functions of warning signals in the early warning systems
Source: elaboration based on (Cabała, 2003)

While designing early warning systems, achievements of the diagnostics theory should be used. Information flowing into such a system would have a post of measurement signals, which are the values of individual numbers or aggregated indicators or images obtained by measuring certain quantities: economic, technical, social, psychological and other (Kerzner, 2013b). The proposed model of such a knowledge based system is shown in Fig. 3.

One of the more important elements of the early warning system is a diagnostic module. It covers the observation area, information gathering and their analysis. The observation zone is a space in which several procedures take place, like: the monitoring and recording of weak signals from the enterprises' internal and proximal external environment, also called the sectoral environment and flowing from the further external environment.

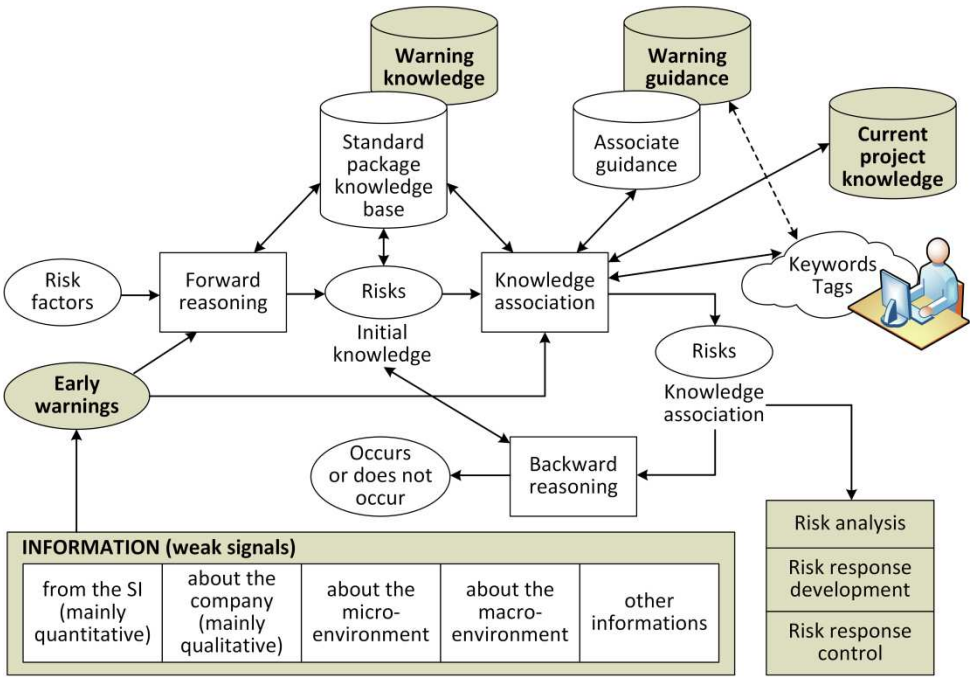

Fig. 3. General model of the early warning system based on the knowledge
Source: elaboration based on (Nikander, 2002; Niwa, 1989)

The challenge for project managers is to create an early warning system, which would allow the enterprise to transform incoming weak signals into useful information used in project knowledge management. The response, of the management to the quality of the flowing information into the early warning systems, may be the use of the weak signals concept, because it is assumed that every event, every change is preceded by a series of information which, even though they are difficult to obtain (weak signals, as unstructured and incomplete) allow to undertake actions securing the enterprise against the consequences of change (or at least give time for the appropriate response). For example the performance indicators in the earned value method EVM (Fleming, Koppelman, 2000) may be considered to assess the risk of the project implementation in terms of budget and schedule. In the early warning system they constitute a kind of weak signals, which transfer information about the work progress, as well as being a valuable source of knowledge about the potential risks and opportunities concerning the project accomplishment. The proposed warning system in the project management takes the form of a specific applicant system, and may have a structure typical of the classical fuzzy system (Pisz, Łapuńka, 2015). During the projects implementation based on the EVM method, the input variables are the indicators (including deviations and forecasts): CV, SV, CPI, SPI, TCPI, ETC, EAC, VAC. At the system output, indicators of the project's risk level, it means the project's budget and project's schedule, are received (Kemps, 2000). In addition, it is proposed to link prediction of threats with the identification of project's risks, so in the addition to EVM, the use of the schedule risk analysis SRA is assumed (Vanhoucke, 2011). In the system used to predict risks and opportunities, alternative methods for tracking the project will be used, such as: "top-down" in case of the SRA method as well as "bottom-up" for the EVM. The information obtained on that basis will constitute a kind of weak signals in the corrective actions undertaken during the project implementation and will provide knowledge about the use of buffers (tolerance) built into the project's base plans.

An effective aid of the early warning systems are computer tools utilizing knowledge. In the processing of qualitative information, poorly structured, knowledge systems are useful. In the problems of the early warning, the knowledge system should help, among others, to integrate various methods and concepts of the early warning, to manage numerous collection of diverse information, to explain and interpret various information. As already mentioned, it is crucial to reduce the mistakes made while identifying weak signals. With regard to the early warning systems in the projects, it is necessary to maximize the correct assessment and minimize incorrect assessment resulting from the analysis of signals.

For example, expert systems can be used to perform logical-algebraic operations and to process relatively well-structured qualitative information. The usefulness of computer tools using the knowledge, such as the knowledge system network, rule-based expert system, a system of interactive paired comparison and a system dynamic simulation research is an issue analysed both theoretically and practically (Matusek, Zoleński, 2013; Łapuńka, Pisz, 2015). Compared to the information resulting from direct observations, experiences and expectations, the information is more comprehensive, more accurate, more detailed, it explains better the nature of the risks and enables the formulation of tasks for individual departments and undertaking of ordered, systematic preventive actions (Zoleński, 2010).

The problem of acquisition of knowledge of potential project risk sources, the structuring and processing of such knowledge is, in the case of project management, a relatively new and not fully researched area of study. In the proposed approach (Łapuńka, Pisz, 2015), we aim at formulating certain rules in the relations between risk probability and its impact on the risk level of a project. The experience and knowledge of experts is required in order to elaborate effective decision rules. The representation of risk parameters in the form of IF-THEN rules constitutes the basis for a knowledge base in the architecture of the proposed expert system, dedicated to project risk assessment. The problem of knowledge representation is an important issue for expert systems dedicated to project risk assessment. Defining the relations between risk factors, the probability of their occurrence, their impact at the input, and the project risk level at the output of the inference model forms the basis for elaborating effective rules in the knowledge base of an expert system. The module of knowledge acquisition in the elaborated expert system is responsible for the process of information obtaining and updating, being stored in the knowledge base. This module implements procedures to support the acquisition of new knowledge obtained, among others, by the transformation of incoming weak signals into useful information.

Conclusions

The complexity and uniqueness of the projects as well as the discontinuity of the effects in the environment, significantly impact the inability to eliminate the risks and subsequently lead to changes during execution. The introduction in the enterprise things such as: principles, methods, mechanisms of knowledge management and project risk, e.g. by implementing into the project management the early warning systems can minimize the impact of unexpected, at the stage of initiation of the project, negative phenomena. The model of the dedicated early warning system should help policy-makers at the stage of the project's planning and implementation, enabling undertaking decisions regarding its accomplishment and elaboration of the response plan in the case of appearance of a particular type of risk and / or opportunity. Early information concerning risks enables to eliminate effectively later problems, in meeting the project's schedule and budget, simultaneously constitutes a potential source of opportunities to accelerate the project implementation and / or project implementation below the assumed budget.

The functioning of modern organizations increasingly depends on the amount of material resources, and increasingly from the intangible assets at their disposal, including intellectual assets as well as the project knowledge. The world has entered an era in which the ability to acquire and process information and knowledge creation becomes the basis for economic success (Toffler, Toffler, 1995). Organizations who obtained the ability to acquire adequate information and skilfully use it at the right time, before it is used by the current or potential competitors, they seem to be better prepared to operate in a turbulent environment. Those, who do not own aforementioned competences, or are not sufficiently developed, must implement and master solutions which enable effective management of strategic information. Implementation and improvement of specific system solutions, however, must be preceded by empirical research, aimed at better understanding of people's activities in the aforementioned processes, identification of strengths and weaknesses of applied solutions and the improvement of their functioning (Bąk, 2005).

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ERP System for Production of World-Renowned Sewing Machines: A Case Study

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Abstract

The case study discusses the application and use of globally provided ERP system in AMF Reece CR, a world-renowned producer of industrial sewing machines. The study describes the process this manufacturing enterprise followed when selecting the supplier and the specific solution as well as the characteristics of the ERP system functionality and technology that were important for the enterprise. The study also focuses on key aspects of the implementation project. It deals with addressing the requirements specific for technology preparation and production of industrial sewing machines. The conclusion of the study reviews the benefits and experience gained by the enterprise in relation to the use of the new system.

Keywords: Information system, Enterprise Resource Planning (ERP), Production Engineering (TPV), Manufacturing Resource Planning II (MRP II), DOP (Dynamic Order Processing), Workflow, Document Management System (DMS), Application Implementation Methodology

1 Introduction

AMF Reece CR is a world-renowned producer of industrial sewing machines, operating mostly in Europe, Asia and North America. In order for the company to be competitive on a global scale, it requires process automation covering the whole life cycle of production, sale and service of sewing machines. For this reason the management of the company decided to implement an information system change that would enable process and operation integration and standardization.

The establishment of AMF Reece CR is closely related to the history of Minerva, a traditional Czech brand. 1961 was a major milestone as in this year the Prostějov enterprise was incorporated in the Minerva state enterprise with headquarters in Boskovice. The Prostějov plant produced clothing buttonhole machines and linen buttonhole machines were manufactured in Boskovice. Between 1976 and 1988, both plants were parts of the Elitex concern.

The current shape of the company started to form in 1991 when the two biggest sewing machine producers in the market, i.e. AMF Sewt Products Inc. and Reece Corporation, merged. The latter bore the name of its founder, John Reece, who developed the first mechanical eyelet buttonhole machine in the United States in 1881, thus starting a revolution in the sewing industry.

The newly established US company, under the name AMF Reece CR, bought Minerva Prostějov in 1995 and thus followed in the tradition of industrial sewing machine production, both Czech and American. The company subsequently underwent significant restructuring that resulted in all production being concentrated in the Czech Republic. In 2009, Czech entrepreneurs bought it from the US owners and since then it has been funded solely by Czech capital.

Presently the company employs 130 workers and its revenues reach nearly 670 000 USD (2014). The greatest proportion of the sales is aimed at the markets of Germany, United States, Japan, India and Hong Kong.

2 Research Methodology

The Center for Investigations into Information Systems performs annual research of the Czech business information system market, which includes compilation of case studies in the form of qualitative interviewing and projection interview with workers responsible for IS/ICT investments in the particular organization. In 2005–2015 the authors executed over 130 case studies in manufacturing, business and service enterprises in the Czech and Slovak Republic.

The following sources formed the theoretical basis for research methodology application: Gill, Johnson, 1991 and Pavlica, 2000. The findings presented in the book Case Study Research (Yin, 2003) were used for case study execution. The practical experience of The Center for Investigations into Information Systems as well as long-term study of the following expert publications serve as the theoretical basis for implementation project realization and evaluation: Voříšek, 1997, Davenport, 1998, Molnár, 2001, Basl, 2002, Olson, 2003, Olson, Chae, Sheu, 2005, Smejkal, Rais, 2006, Laudon, Laudon, 2006, Schwalbe, 2007, Pour, Gála, Šedivá, 2009.

The authors were also inspired and studied theoretical findings on implementation projects presented in the studies of analytical organizations focused on global and Czech market, such as: Deloitte Consulting, 2000, Accenture, 2001, Hestermann, Anderson, Pang (Gartner), 2009.

When processing the case study, the authors also used publications dealing with advanced production and supply chain planning and management by: Fischer, Hammond, 1994, Fischer, 1997, Lee, 2002, Chopra, Meindl, 2004, Vollmann et al., 2005, Stadtler, Kilger, 2008.

3 Basic Characteristics of Investigated Organization

3.1 Main Products, Process Orientation and Business Model

As mentioned above, AMR Reece CR focuses on the production and supply of its own industrial sewing machines. The product portfolio of the company is complemented by selected brands of tried and tested machines manufactured by other producers that it provides service for as well. These additional activities constitute about 15% of total revenue. All products are sold through the company business network and by contractual commercial agents, mostly in Asia and South America.

AMR Reece CR covers the whole life cycle of the sewing machine from its production and sale to service and spare part supply. The manufacturing programme is aimed at special industrial sewing machines including eyelet buttonhole machines, chain stitch sewing machines, decorative hand stitching machines, autojig machines and trouser sewing units and many others. Among other things, the company also manufactures spare parts for its machines, offered presently as well as historically.

AMF Reece CR currently offers 12 basic sewing machines with 80 derived variations. Three new machines are in the development stage. The product bill of materials consists of about a thousand parts, 90% of them being manufactured in the Czech Republic. At the same time the company maintains a portfolio of older sewing machines if they are demanded on the market and therefore is able to manufacture and supply them based on a customer's order. On average, the company produces 27 machines a month while an order may consist of one or more machines.

3.2 Quality as Competitive Advantage

What is the reason of success of a relatively small Czech enterprise in global markets? Romana Plačková, Organization Manager, mentions the following causes: *"The greatest value for our customers is the high production quality, which is also the key competitive advantage of the company. We experienced a period when the market was flooded with cheap Chinese copies; however, the manufacturers were not able to ensure comparable quality. By that I mean mainly the production technology. This shows in the long lifespan and low failure rate as well as the high level of sewing, which is not as trivial as it might look at first sight."*

Quality is closely related to the development of new products, which the company lays great emphasis on. It runs an extensive development department cooperating closely with the technology division and tool factory that focuses on preparing prototype components. The development has to be in line with the customers' requirements as well as with the requisite that a new or innovated machine will be asserted on the market. The development of a new machine takes approximately two years and continuous innovations concerning the existing ones take place. Before a machine is launched, thorough tests are performed with thousands of working cycles to confirm the life spans of respective components.

Provision of service is an important element to the high product quality for the customer. For this reason the company maintains extensive service base that enables specialists to go to customers all over the world and address not only requests communicated in advance but also any issues that might arise on site.

4 Project of New ERP System Selection and Implementation

4.1 Tender

The MFG/Pro information system was in place in the company for many years. However, it was not applied universally to all required processes, some areas were not interconnected and the server performance was inadequate thus restricting comfortable use of the applications. In 2006 the employees in charge started to collect information concerning information system possibilities available on the Czech market. They also accomplished several reference visits to get a more realistic idea of their practical utilization.

From 2007 grants were available within the ICT programme for enterprises and AMF Reece CR was among the applicants. The company adapted the tender to the respective regulations and in summer 2008 the offer of IFS application ERP system by Altec was finally selected as the most suitable one.

The proportion of price/quality/added value of the complete solution was a definite competitive advantage of the winning offer. Besides, the IFS Applications fulfilled all key requirements of the contracting entity. The first set of requirements concerned the functional and technical characteristics of the system.

4.2 Required Functional and Technical Characteristics

IFS Applications is a globally supplied ERP product with legislative and service support available in many countries worldwide. This becomes significant when the company decides to establish a full affiliate outside the Czech Republic. Moreover, worldwide standards and best practice in field and process solutions are available, which cannot be expected from local systems.

There is another advantage – the fact that the IFS Applications are built upon a unified process and data model. That way the users provide data to the system only once from one location and at the same time they get the same version of the truth in all outputs. They utilize unified data and

functional system bases that form one robust and secure unit enabling comfortable use not only at the client work stations but also on all kinds of mobile devices.

IFS Applications can also be connected to Shuttle, a special storage system by Kardex that AMF Reece CR used before the new ERP selection

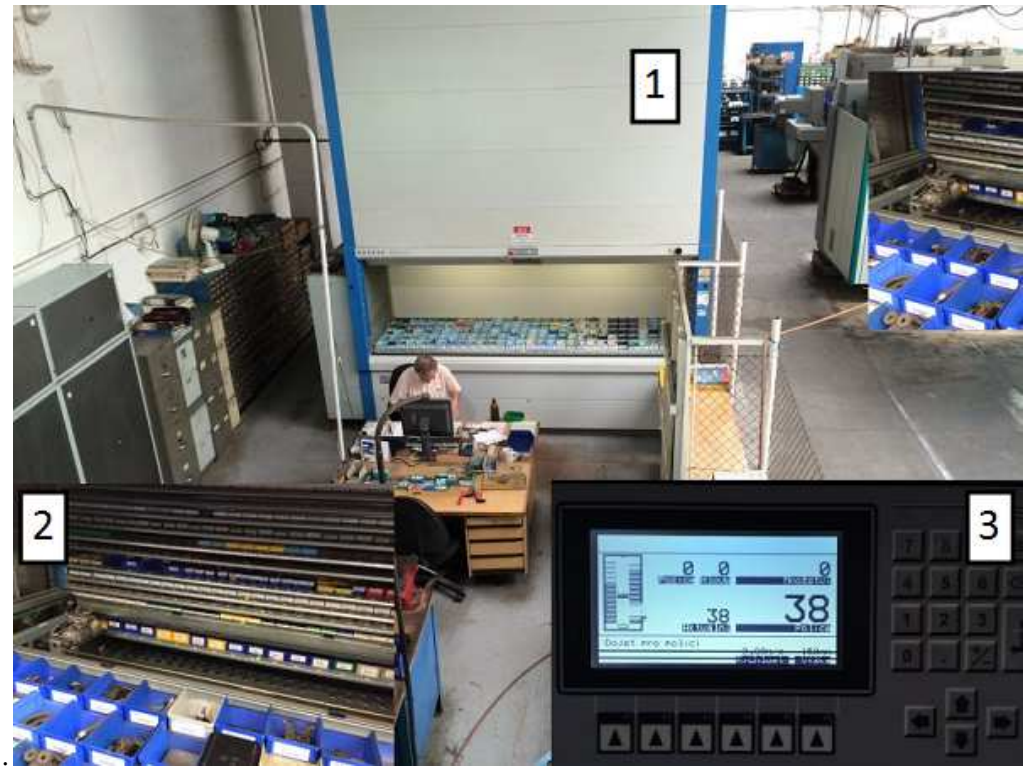

Fig. 1: Shuttle storage system (1), Detail of storage items organization (2) Control panel (3) (prepared by us)

4.3 Implementation Requirements

The second set of requirements concerned the feasibility of the implementation project. Altec offered an experienced team of consultants and comprehensive implementation methodology complying with the IFS standards (Application Implementation Methodology). Thus AMF Reece CR did not have to worry about the project not being successfully completed by the supplier or the users not being lead and trained professionally.

One of the key implementation objectives was to transfer all existing engineering principles to the new ERP system. The users requested the level of comfort provided so far by the TPV application by Sysklass to be maintained, therefore this area was modified to accommodate their needs.

Last but not least, production dispatch based on barcodes, previously implemented by the company, had to be put into operation. For this reason the existing system had to be respected and the relevant inputs of the new ERP had to be modified.

4.4. Project Execution

The implementation project started in the last quarter of 2008. After system application and adaptation in the key functions, data transfer and users training, operation under 3-month supervision was commenced, at the beginning of 2009. After handover for full operation the system was fully functional in accounting and finance, purchase, production and sales. Other processes, mainly quality management, change management, workflow and document management system (DMS), were only fully covered within system upgrade to version 8.

"Due to the tight schedule it was necessary that people adapt to the new system quickly and get used to different work process organization. The lack of time had a positive effect during training as the users were forced to engage thoroughly and with great intensity. As a result the users demonstrated freshly acquired command of all the crucial information and knowledge and operated the system without difficulties," says Romana Plačková.

"A guarantor was appointed for each area as a person responsible not only for its coverage but also for the key users´activities. People were aware of the necessity to possess good system knowledge and operation skills; however, financial motivation was required to complete the implementation successfully," adds Romana Plačková.

Table 1: Principal Data on IFS Application ERP System Implementation (prepared by us)

ERP system	IFS Applications
Version	8
Implementation partner	Altec
Period of implementation	5 months (November 2008 – March 2009) including routine supervised operation started on 1 January 2009
Last Upgrade	5.5 months (September 2013 – February 2014)
Number and type of users	45 named users (after upgrade 70)
Server operation system	Microsoft Windows Server 2008 R2
Database platform	Oracle Database 11g
Architecture	Three-tier client/server, using the thin and thick client technology (in production)
Processes covered by system	Accounting, finance, controlling, purchase, sales, engineering, operative production management, human resources, quality control, change management, workflow, document management

4.5 Entries Modification and Engineering Transfer

The only non-scheduled change that had to be addressed operatively during implementation was the transfer to a different system of accounting entries. Originally this process was set and performed in compliance with stock records. Consultants from Altec proposed accounting by account groups. This proposal was accepted and implemented with the assistance of the experienced partner. The process became more transparent and simplified, which proved to be a significant secondary benefit of the implementation project.

The existing engineering principles were also transferred within project execution. Thus the IFS Applications are able to manufacture several product varieties. This means a machine is manufactured with a component that is also significantly innovated by development or newly designed. The system is able to differentiate which particular products will be manufactured with the original component and which ones will be manufactured with a completely new component. Thus it enables work with different product varieties by following changes in technology and development.

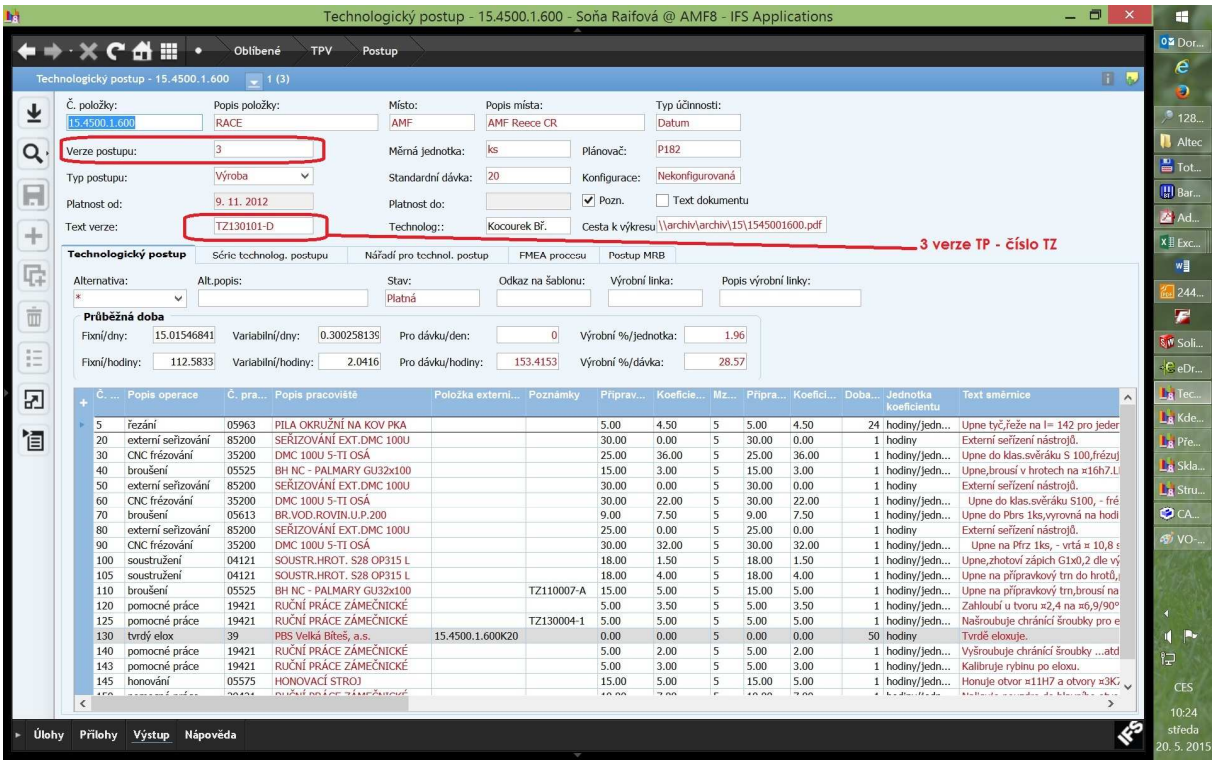

Fig. 2: Work with different technology process versions (prepared by us)

Cost management was organized on the same basis. Costing is performed not only in relation to price of the individual components but also to the changes applied within development. For this reason the system has to be able to differentiate between costs and prices calculated in different periods, e.g. months. Otherwise the worker in charge would have to perform a complex search of the changes by reviewing thousands of items.

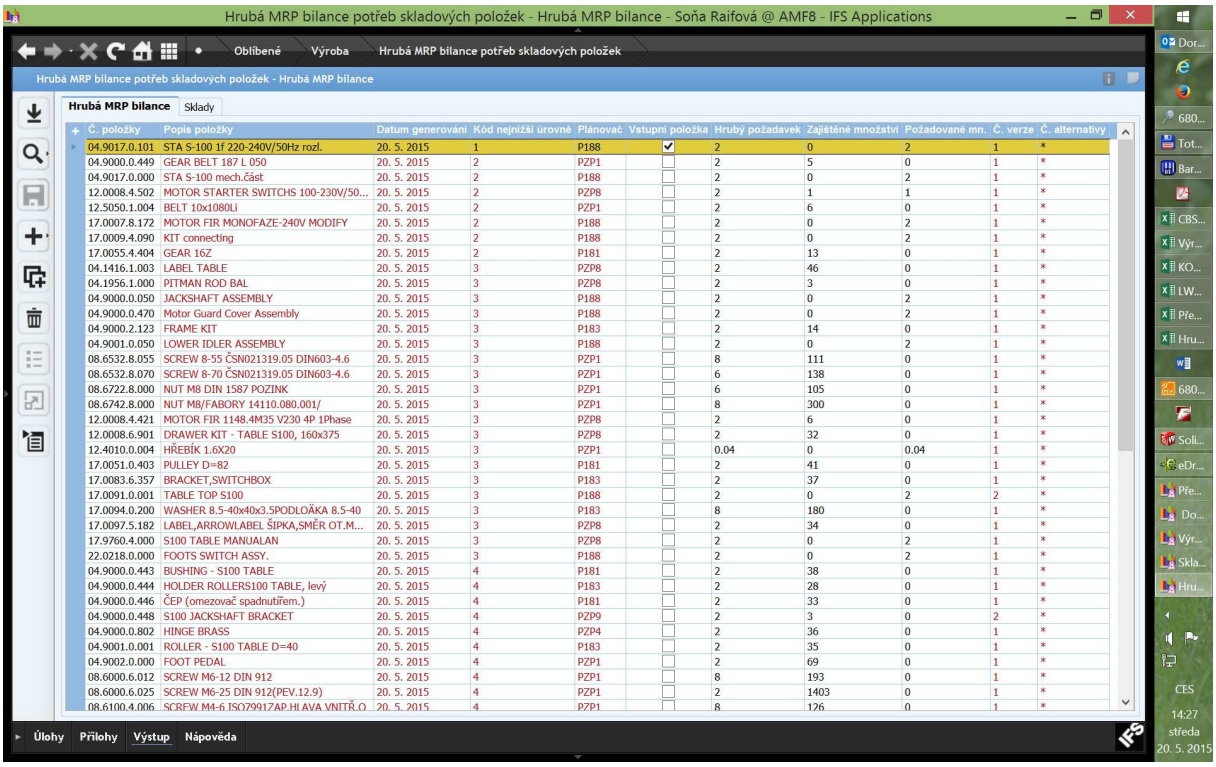

Fig. 3: Stock Item Needs Review within Manufacturing Resource Planning

4.6 Upgrade as an Opportunity to Extend System Functionality

New requirements arose during the routine operation period that could not be met by the originally purchased version without significant programming modifications. However, such modifications would not be efficient or economical. Therefore, at the earliest opportunity to transfer onto the new modern version 8 the decision was made concerning technical innovation as well as functional extension of the system.

The system upgrade took place from September 2013 till February 2014. Document administration, change management and workflow are among the key newly covered functional areas. The number of users increased from the original 45 named ones to the total of 70.

5 Conclusions

The IFS Application ERP System project accomplished the planned benefits on several different levels. The first one may be classified as generally expected benefits, focused on solutions to existing and visible problems. These include particularly the data base and company processes integration throughout the organization, providing a single version of the truth in all system outputs and entering data from a single location.

Another level of benefits runs deeper into the organization management as such. First of all, the processes and operation were standardized, which brings considerable simplification of top and middle management. This basis facilitated the implementation of development management, which requires a great amount of time and financial resources. Production planning and management improved significantly as well.

Considering the nature of market environment, the system had to be used more in operative planning and management based on the MRP II principle (Manufacturing Resource Planning). This means namely focus on efficient stock management so that sufficient amounts of the particular components are available in stock, which sometimes means maintaining safety stock, sometimes the possibility of subcontractor supply in short time by the customer's order.

"IFS Applications truly help us, mostly in the operational area. We need to decompose a product to the individual components, check their time, economic and logistic availability or the stage of production if they are being manufactured within our operation. For this we use DOP (Dynamic Order Processing)," says Romana Plačková.

"I also appreciate the cooperation with Altec. They provide not only high-quality support, which is actually to be expected from a partner representing one of the best ERP systems. I particularly wish to stress the professionalism of the consultants who proactively come up with suitable solutions, which we welcomed for instance in relation to the accounting system transfer. Naturally, such an attitude markedly increases the added value of the solution as a whole," says Romana Plačková.

The benefits of the new ERP system application and operation can be generalized as follows:

- Data base and company process integration throughout organization
- Single version of truth in all system outputs
- Data entering from single location
- Process and operation standardization
- Development management implementation
- Improvement in production planning and management
- Dynamic Order Processing implementation to improve operational contract management
- Support of everyday decision-making at all company levels

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Goodwill Impairment versus Amortization: Research of Practice and the Theoretical Basis

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Abstract

This paper is dedicated to the research of subsequent evaluation of goodwill and is mainly aimed at a comparative analysis of 'amortization approach' and 'impairment-only approach'. Under a lot of criticism concerning goodwill amortization, in 2004 in IFRS the approach of 'goodwill amortization' was replaced by 'impairment–only' approach. In spite of the validity of the 'impairment testing' approach to the subsequent accounting for goodwill, which is based on the essence of treatment of 'goodwill', the application of this method in practice by companies has revealed a number of significant drawbacks. The return to the 'amortization approach' can make the financial reports more transparent and eliminate 'subjective factor'. At the same time, 'impairment of goodwill' approach enables companies to reflect the specific features of their activities and the effect from business combination. The research was carried out to estimate the impact of chosen method subsequent accounting for goodwill (impairment or amortization) through the analysis of sample of companies located in different countries. Besides, it presents 'pros and cons' these methods.

Keywords: accounting for goodwill, impairment, amortization, consolidation financial statements

Introduction

Such specific element of the consolidated financial statements as goodwill has been causing a lot of discussion. In particular, there is an ambiguity of opinions in regard to measurement of goodwill after initial recognition. Thereby, this paper focuses on reviewing of the most controversial aspects in regard to subsequent measurement of goodwill both from theoretical and the practical point of view. There are two main approaches to the subsequent measurement of goodwill: amortization approach and impairment-only approach. These methods also may be used simultaneously.

Under a lot of criticism concerning goodwill amortization this requirement was replaced by 'annual impairment test for goodwill' as part of the cash – generated unit in 2004 in the international standards. The main arguments against goodwill amortization were that it cannot determine the useful life correctly and is in non-compliance to the nature of goodwill.

In spite of the theoretical assertion that the 'impairment testing' approach to the subsequent accounting for goodwill is based on the essence of treatment of 'goodwill', the applying of this method in practice has revealed a number of significant drawbacks. Some companies don't calculate impairment of goodwill according to the requirements of standards or some of them don't disclose information about the assumptions in the measuring of the recoverable amount of the cash-generating units made by managers and about the allocating goodwill to those units. As a result, the information presented in the financial statements has become less transparent and comparable between the companies. It is also because the subjectivity of 'impairment approach' significantly higher than 'amortization approach'.

The research was carried out to estimate the impact of chosen methods subsequent accounting for goodwill (impairment or amortization) through the analysis of such large and long-time operating companies as: Vodafone Group (UK, since 1983), Bosch Group (Germany, since 1886), Philips Group (Netherlands, since 1891), Nestle Group (Switzerland, since 1866), Sberbank Group (Russia, since 1991), VTB Group (Russia, since 1990). This study was conducted in order to identify the main trends of calculating impairment losses of goodwill and disclosing the information about it in the financial

statements. Besides, the research was carried out to assess the possible influence of returning to amortization on the main company performance indicators.

On one hand, the return to the 'amortization approach' will help to make the financial report more transparent and eliminate 'subjective factor', which creates the conditions for veiling in the financial statements. On the other hands, 'impairment of goodwill' approach enables companies to reflect the specific features of their activities and the effect from business combination. In addition, in conditions of preparing financial statements without 'predetermination' of profit results set by managers or company's owners, the 'impairment of goodwill' approach will provide more accurate results than applying of 'amortization method'.

Historical background

The history of legal and professional regulation has a fundamental impact on the accounting methods and principles accepted today, even at the international level. International standards are unusual because they combine the features of the accounting culture and auditing practices of different countries contributing to their emergence. For more details on the impact of each parts of culture see in a research study by Zeff (2007). About the history of development of accounting theory in Russia in XX century see in the book by Mattessich et al (2008, Chapter 15, p. 246-264). The practical application of IFRS in Russia in 90s XX – the early XXI is revealed in a research study by Genaralova et al (2015) and in a research study by Kovalev (2014). In addition, the spread of the accounting profession and improving of education system influence on national and international accounting significantly (see more details in the paper by Chen (2008). The specifics of the development of Russian accounting education are disclosed in a research study by Karelskaia and Zuga (2014, p. 269). The process of formation of professional societies in Russia is described in the paper by Sokolov V. (2015). Moreover, as it is was shown throughout the history, 'pioneers' or initiators have a special influence on the development of international regulators and regulations. Thus, the development of conceptual ideas and accounting in accordance with IFRS has been influenced by the legislative requirements of the countries whose representatives took an active part in the creation of the international standards.

In 1978 the topic of business combinations was placed on the agenda for consideration by IASC with some apprehension due to the understanding that this is a very controversial issue. At that time, amortization was used as a subsequent measurement of goodwill according to national standards of majority of the countries and Fourth EC Directive. The difference was only in the duration of the useful life: according to APB Opinion № 17 (US GAAP) it was 40 years; and in according to Fourth EC Directive it was 5 years. In 1983 IAS 22 "Business combination" has been approved. So, amortization over 5 years was established as a subsequent measurement of goodwill to bring into conformity with existing practice and requirements of Fourth EC Directive (Zeff, book 2007, p. 137). However, despite the approval of IAS 22, the subsequent accounting for goodwill had remained one of the issues that have no absolute decision.

Also, according to quantitative and qualitative analysis of more than two hundred Russian and foreign scientific papers about accounting for goodwill and published from 1990 to early 2000s, it was found that the most controversial of all issues in relation to accounting for goodwill is its measurement after initial recognition (Generalova, Popova, p. 53-60).

And as a result of intense debate in the West, since 2001 according to US GAAP the 'impairment approach' has been used instead of amortization (SFAS 142 "Goodwill and other Intangible Assets" и SFAS 141 "Business Combination"). The reason for the abandonment of amortization was the following arguments. Firstly, the majority of analysts when making decisions for investments ignored the value of amortization of goodwill in the process of calculating the relevant operational performance. This was done to eliminate the influence on the fluctuation of the profit the factor of transition from date of implementing of goodwill amortization to date of cessation of amortization. Secondly, appropriate testing for impairment with qualitative disclosure would facilitate financial reporting transparency (Fabi and others, 2014, p. 11). So, in IFRS in 2004 there was a transition to the model of 'impairment' of goodwill

and refusal the ‘amortization approach’. Including, this was carried out in accordance with the idea of convergence of US GAAP and IFRS.

But despite the "consent of the majority" to make the transition to ‘impairment model’, rear-view has emerged by nowadays due to the existence of the negative aspects associated with the procedure of impairment of goodwill in practice. Rear-view consists in the following opinion: “Perhaps, the return to amortization is a necessary measure to overcome the existing practical problems associated with the implementation of ‘impairment approach’ to subsequent measurement of goodwill”. It is also worth noting, that the problems of accounting for goodwill arisen in practice should be considered combined with the difficulties of consolidation procedures, such as issues of perimeter of consolidation (for more details, see Crişan P. & others, 2012).

Amortization versus impairment of goodwill: pros and cons

The difficulties of implementing the impairment model in practice

After IFRS 3 “Business combination” had been released in 2008, IASB reviewed the results and consequences of the application of new the standard (PIR – Post-implementation review). It has been called into question: "Whether testing goodwill for impairment able to reflect the entity's exposure to adverse economic cycles? Besides, it was also caused concern about the subjectivity of information generated by the impairment of goodwill (PIR, 2015, p. 12).

Thus, the transition solely on impairment approach entailed existence of misinformation of users: in the presence of obvious signs pointing to the need to recognize losses in accordance with IFRS (IAS) 36, companies don’t tend to show them in the statements. Besides, the problem is that losses from the impairment of goodwill are reported too late, i.e. out of time. Especially this “delay recognition of losses” is noticeable at the time of economic crisis (Fabi et al, 2014).

The next weak side of impairment approach marked by Russian authors is undergoes to value judgments (Generalova, Sokolova, 2014). Firstly, The exposure of impairment procedures to value judgments arises from specificity of the impairment model contained in the standard: 1) the allocation of goodwill to the strong or weak CGU; 2) the determination of the date for impairment procedures; 3) the use of the most recent detailed calculation made in a preceding period of the recoverable amount of a cash-generating unit to which goodwill has been allocated for the current period (see p. 99 IAS 36); 4) dependence on the choice of valuation of non-controlling interest (see p. C4 IAS 36). Secondly, there are uncertainties arising directly from the impairment model: 1) calculation of forecast cash flows is subjective; 2) determination of the discount rate (increase/decrease by an insignificant amount of the discount rate may lead to recognition/non-recognition of impairment losses).

Sokolov J. in the work "Accounting and economic crisis" outlined: “An economic crisis arises due to errors by people who responsible for making economic decision. In its turn, these mistakes are the result of an inadequate data presented in the financial statements for the subjective and objective reasons. First of all, subjective errors relate to the unfounded hopes, which are embodied in the asset valuation”. (Sokolov, 2009, p. 18). Goodwill is an asset, too.

Decision ways

There are at least two solutions: the first is improving the impairment model, the second is return amortization. Standards’ developers follow to the first variant. According to such opinion it is need to minimize the cost of implementation of impairment procedures. (PIR, 2015, p.16). Members of the professional community, representatives of professional organizations and scholars have an opposite opinion

Arguments in favor of return to the amortization

The first argument: "Amortization of goodwill reflect the consumption of economic resources obtained in a business combination over the time" (Fabi and others, 2014).

The second argument is a "larger" degree of reliability of the information provided, because there is no need to disclose the numerous and ambiguous parameters for calculating replacement value of CGU to which goodwill is allocated according to impairment model. Is needed only the initial cost and useful life.

The third argument follows from the second: The ease of measurement is the key to the comparability and the verifiability of reporting data of companies worldwide.

The practice: research of the effect of implementation of the 'amortization approach' and the 'impairment approach' of goodwill on companies' financial statements

To study the effect of possible transition from impairment (the requirement of IFRS) to amortization of goodwill, we have carried out the research. The base of the research is the consolidated financial statements of the large companies operating stably for a long time in its industry. Data on the value of goodwill and data on the amount of costs related to goodwill (amortization or impairment losses) were calculated and compared. Besides, the research reveals the impact on net profit margin, return on equity (ROE) and return on assets (ROA).

The analysis of the large and long-time operating companies only doesn't provide enough representative results. But this study is intended to outline the main trends and the impact of 'amortization approach' and 'impairment-only approach'. In this paper this influence is showed in detail only at the example of companies. These companies are Vodafone Group (United Kingdom, mobile communication services, operates since 1983); Bosch Group (Germany, Electronics & Engineering, since 1886); Nestle Strategische Allianz (Switzerland, food products, since 1866); Philips Group (Netherlands, appliances, since 1891); Sberbank Group (Russia, banking, since 1991); VTB Group (Россия, banking, since 1990).

Analyzed period is from 2000 to 2014. The period for which the data were recalculated is from 2005 (2006) to 2014. The sample consisted of 62 statistical observations.

Briefly, in example of two companies show the main trends observed in the recognition of goodwill impairment in the statements.

Trends

As an example we take the Bosch Group and consider the changing the "cost behavior" associated with goodwill. Drawing attention to the columns 6 and 7 of Table 1 can be noted that the transition from the amortization (according to the German Commercial Code – Handelsgetzbuch; 10 years of useful life according to accounting policy) of goodwill to its impairment (since 2005), impairment losses recognized every two years steadily. 2009 was unprofitable for the Bosch Group. In 2011, as in 2013, there was a decline of basic indicators of the Group's activities (profitability, revenues, total balance sheet, and profit).
Note also that at drawing up of consolidated financial statements in accordance with German Commercial Code, the share of costs related to goodwill in the Bosch Group's operating expenses were higher than in the transition to impairment in 2005 in connection with the transition to IFRS.

Table 1. Acquired goodwill of Bosch Group and its subsequent measurement: amortization and the impairment amounts, 2000-2014, million euros

Year	Goodwill at beginning *(initial value)*	Good-wil the begin ning *(boo value)*	Increase		Decrease		Accumulated amortization / impairment at end	Disposal	Goodwill a the end
			Arrivals	Other	Amortization	Impairment			
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
2000	3 310	1 449	75	814	**681**	**x**	2 178	317	1 704
2001	2 015	871	57	466	**463**	**x**	1 615	19	904
2002	2 466	904	1 884	214	**490**	**x**	1 503	558	2 503
2003	3 990	2 503	7	862	**581**	**x**	1 322	769	2 768
2004	4 085	2 768	40	88	**459**	**x**	1 454	328	2 431
2005	2 829	2 829	9	301	**x**	**55**	x	-	3 084
2006	3 139	3 084	38	131	**x**	**0**	55	-	3 253
2007	3 308	3 253	47	87	**x**	**37**	92	-	3 350
2008	3 442	3 350	62	1 048	**x**	**0**	79	62	4 411
2009	4 490	4 411	7	230	**x**	**196**	275	3	4 449
2010	4 724	4 449	11	122	**x**	**0**	269	7	4 581
2011	4 850	4 581	2	32	**x**	**494**	763	-	4 121
2012	4 884	4 121	-	556	**x**	**0**	758	-	4 682
2013	5 352	4 596	14	149	**x**	**34**	790	74	4 651
2014	5 441	4 651	4	71	**x**	**0**	128	668	4 720

Source: Bosch Group Consolidated Financial Statements for 2000-2014.

Example of Swiss companies – Nestle Group. Transition to IFRS by Nestle Group (from national standards) took place in 2003. Hence, the use of the goodwill impairment model began in 2005. Before this transition, goodwill was subjected to an amortization and the impairment testing. Fig. 1 shows how a saltatory change in the net profit of the Group "combined with" the trends of the recognition of impairment losses for goodwill of subsidiaries. The trends are as follows: impairment losses of goodwill (since 2005) were recognized mainly in the highly profitable years for the Group.

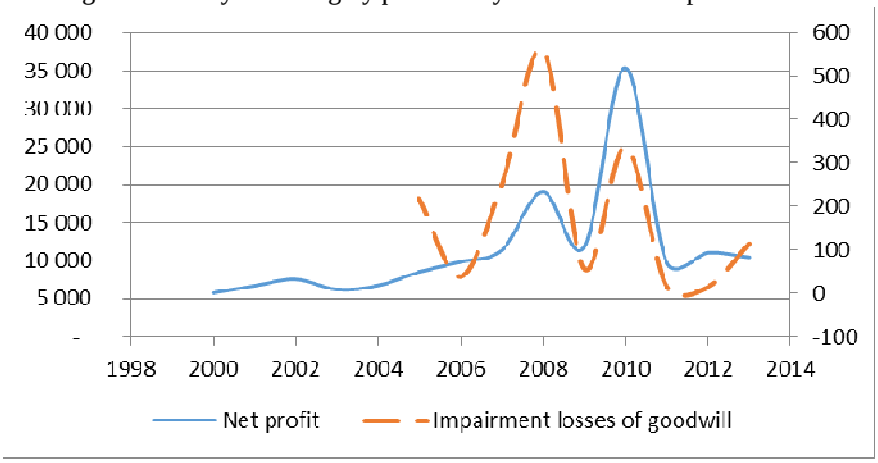

Figure 1. Comparison of the net profit and the amount of goodwill impairment losses, 2005 -2013
Source: Consolidated Financial Statements Nestle Group for 2000-2014
(*The impairment of goodwill is based on secondary axis).*

The effects of a possible transition to the amortization of goodwill on the profitability

Table 2 shows the results of the correlation analysis of the data before and after recalculation of net profit margin (NPM), return on equity (ROE) and return on assets (ROA), since 2005 to 2013. The correlation coefficients have been calculated according to data obtained from the analyze of the sample. The sample consists of financial data for the period from 2005 to 2013 obtained from financial statements of the companies observed. Then these factual data have been restated for the same periods of time according to assumption that goodwill has been amortized during the 10 years.

Table 2. Correlation coefficient data of profitability and impairment of goodwill amortization of 10 years, based on a sample of companies, 2005-2013.

	Net Profit Margin	**Return on equity (RO**	**Return on assets (ROA**
Correlation coefficient *(foe the whole period)*	**0,847566294**	**0,954148847**	**0,928573282**
2013	0,807688299	0,949775209	0,923641437
2012	0,811788862	0,951750241	0,926979954
2011	0,813927119	0,951724933	0,927481519
2010	0,814831605	0,952012296	0,928540426
2009	0,823543738	0,956176110	0,931045581
2008	0,824064223	0,956438302	0,931613558
2007	0,839090352	0,958525705	0,935430791
2006	0,840668704	0,958885067	0,937158280
2005	0,992062268	0,977914859	0,984784298

Based on the results of calculations, we can see that the values of profitability before recalculation (impairment; the actual reporting data) and after recalculation (amortization during 10 years useful life) have a low degree of deviation and correlation coefficient is positive and high (coef: 0,8 - 0,9). Consequently, the returning to amortization of goodwill during 10 years will not be substantially worsened for status of companies. Similar conclusion would be clearer if we look at the example of two of the companies in more detail. In Table 3 disclosed the calculated amounts of NPM, ROA and ROE for factual and recalculated data of the British Vodafone Group with deviation of these indicators (see columns 13-15). In Table 4 disclosed the calculated amounts of NPM, ROA and ROE for factual and recalculated data of the Russian Sberbank Group with deviation of these indicators (see columns 13-15).

Table 3. The total comparison of the effect on the profitability of Vodafone Group PLC (UK) during the transition from an impairment to the amortization of goodwill during of 10 years, mln GBP

Year	**In applying the impairment (actual da of CFS)**						**In applying of amortization of goodwill over 10 year (recalculation)**						Deviations (data in applying of amortization minus data in applying the impairment)		
	Total GW at the end	**The impairme of goodwill**	**Net Profit Margin**	**Return Equity (ROE)**	**Return Assets (ROA)**		Total GW a the end (recalcu lation befor the an impairment loss)	**Amorti ion of goodwi**	*Delta= Impairn nt minu amortiz on*	**Net Profi Margin**	**Return o Equity (ROE)**	**Return Assets (ROA)**	***NPM (delta)***	***ROE (de***	***ROA (delta)***
1	**2**	**3**	**4**	**5**	**6**		*7*	**8**	*9*	**10**	**11**	**12**	***13***	***14***	***15***
2013	30 372	**7 700**	**2%**	**1%**	**2%**		38 072	**3 807**	**3 893**	**10%**	**6%**	**5%**	8,76%	5,25%	2,76%
2012	38 350	**3 818**	**15%**	**9%**	**7%**		42 168	**4 217**	**-399**	**14%**	**8%**	**6%**	-0,86%	-0,48%	-0,27%
2011	45 838	**6 150**	**17%**	**9%**	**6%**		51 988	**5 199**	**951**	**19%**	**10%**	**7%**	2,07%	1,07%	0,62%
2010	51 838	**2 100**	**19%**	**10%**	**6%**		53 938	**5 394**	**-3 294**	**12%**	**6%**	**3%**	-7,41%	-3,73%	-2,13%
2009	53 958	**5 650**	**8%**	**4%**	**3%**		59 608	**5 961**	**-311**	**7%**	**3%**	**3%**	-0,76%	-0,38%	-0,22%
2008	51 336	**0**	**19%**	**9%**	**8%**		51 336	**5 134**	**-5 134**	**5%**	**2%**	**3%**	-14,47%	-7,06%	-4,33%
2007	40 567	**11 600**	**-17%**	**-7%**	**-2%**		76 121	**7 612**	**3 988**	**-4%**	**-2%**	**1%**	12,82%	5,23%	3,37%
2006	52 606	**23 515**	**-74%**	**-22%**	**-11%**		52 606	**5 261**	**18 254**	**-12%**	**-4%**	**3%**	62,20%	18,13%	13,45%
												The average deviatio	**0,02%**	**-0,02%**	**-0,03%**

Table 4. The total comparison of the impairm

Yea	**In applying the impairment (actual data of CI**						T th *(r be im lo*
	Total G at the en	**The impairm nt of goodwi**	**Net Prof Margin**	**Return on Equity (ROE)**	**Return on Assets (RO**		
1	**2**	**3**	**4**	**5**	**6**		**7**
2013	20 200	**8 700**	**24%**	**21%**	**3%**		32
2012	25 000	**1 700**	**30%**	**24%**	**3%**		28
2011	15 050	**1 209**	**37%**	**28%**	**4%**		17
2010	8 251	**917**	**23%**	**21%**	**3%**		9
2009	469	**0**	**3%**	**3%**	**0%**		46
2008	0	**3 970**	**16%**	**14%**	**2%**		3
2007	4 902	**0**	**25%**	**23%**	**3%**		4
2006	2 644	**0**	**26%**	**31%**	**4%**		2

Fig. 2 shows the data on which it is possible to judge at what rate to a greater extent will be affected by the transition to the amortization of goodwill.

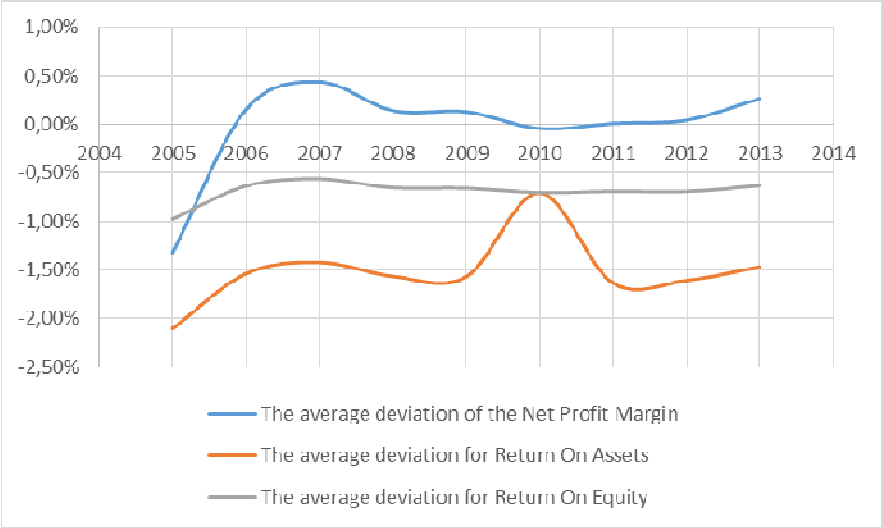

Figure 2. The dynamics of an average deviation of NPM, ROA, ROE in applying the goodwill impairment from values of the implementation of amortization during 10 years, 2005-2013

Table 5. Data on the average deviation of the profitability when an impairment of goodwill and amortization of 10 years, based on a sample of companies, 2005-2013

	Net Profit Margin	Return on equity (RO	Return on assets (ROA
The average deviatio	**0,10%**	**-1,28%**	**-0,53%**
2013	0,27%	-1,47%	-0,63%
2012	0,05%	-1,61%	-0,69%
2011	0,01%	-1,63%	-0,69%
2010	-0,04%	-0,70%	-0,70%
2009	0,13%	-1,57%	-0,66%
2008	0,14%	-1,56%	-0,65%
2007	0,44%	-1,42%	-0,56%
2006	0,16%	-1,54%	-0,63%
2005	-1,32%	-2,10%	-0,97%

So, based on this analysis the sample companies, we can note that a significant change in the Group's profitability indicators with the introduction of the amortization of goodwill will not happen. However, introduction of amortization instead of impairment (or along with) can contribute to leveling a series of problems, for which criticized impairment model applied today.

Conclusion

So, the question of goodwill measurement after initial recognition has remained one of the most controversial and unresolved issue in accounting. After refusal of the 'amortization' in favor to 'impairment approach' to goodwill subsequent measurement in IFRS, it found out that it demonstrated a number of disadvantages arising from uncertainties of impairment procedure. In this paper presents the advantages and disadvantages of amortization and impairment of goodwill.

The positive aspects of the applying of impairment as a subsequent measurement of goodwill consist of some opinion. According to this opinion, the information on goodwill formed 'impairment approach' (if it is adequate) and the proper disclosure are able to increase the transparency of financial reporting. Moreover, the 'impairment method' corresponds to the essence of goodwill, but it is not true for the 'amortization'. However, opposite case has happened in practice. We didn't come towards such transparency as we have been aimed. Applied research has shown that the disclosure of information about some parameters of the impairment procedure is ignored by companies and the impairment losses aren't reflected in the financial statements or appear after the time of appearance of negative circumstances.

With regards to goodwill amortization we can say that this method has a number of simple advantages. And at the same time, these advantages are very important. These advantages are ability to reflect the consumption of economic benefits from the business combination, reliability of the calculations (understanding them without narrowly specialized knowledge) and simplicity. However, in the global economy it is important to take into consideration the impact on business of the new methods approved in accounting. Accordingly, the authors have made an analysis of the impact of the return to the amortization on the analytical performance of companies' activity in several countries. So, with possible approving of requirement to amortize of goodwill it will be observed the decline of corporate profits. However, this reduction will not have a material impact on the change in the profitability ratios. Consequently, the "disastrous" influence on the attitude of the financial statements' users (particularly, owners) to companies will not be rendered.

In conclusion, it should be noted that in Accounting as a social science, the agreement between countries (or within one country) is more important factor than the perfection of created methods of accounting.

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An Automated Algorithm for Generating Neural Networks for Stock Value Prediction

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Abstract

This paper deals with the design of a model creating algorithm to assist in trading on financial markets with the use of artificial neural networks. The research focuses on the design and optimization of artificial neural networks (in particular nonlinear autoregressive networks) and their subsequent usage in predictive application in stock market time series. The aim of this paper is to prove that a correctly constructed artificial neural network can be supportive in trading on financial markets by means of the ability to predict trends of stock prices.

Keywords: Financial market, prediction, artificial neural network, stock price forecast

Introduction

Investors are faced with large amounts of information and overwhelmed by opportunities and changes on financial markets. Generally, for a comprehensive picture of trading with financial instruments, their use is related to the principles of market sentiment (psychological analysis), technical analysis and fundamental analysis. Analysis and evaluation of this information is intensive in terms of both time and knowledge and is, therefore, costly. In our "fast" world, investors do not have the time or opportunity to search for deeper correlations between the information and data to create a comprehensive picture of future market developments.

For lack of the time and space required for a deeper market analysis, this article focuses on the methods of technical analysis and its advantages. Technical analysis assumes that the decisive factors for pricing on organized markets are the market offer and market demand. These factors include all the available information (fundamental data) as well as the degree of optimism or pessimism among the trading participants (Rejnuš, 2014). Technical analysis is not concerned with the price level or the specific causes of exchange rate changes, but focuses rather on predicting their direction and estimating the time at which changes will occur. Forecasting based on analysis can then be used in the timing of the "most profitable" investment, i.e. the purchase or sale of a financial instrument. The principal research is based on creating learning machines via artificial neural networks for real stock price predictions.

Theoretical section – a review of the literature

Technical analysis is based on scientific theory and a variety of empirically verifiable facts. A number of possible analytical methods are based on these facts. These methods are based principally on statistics, fuzzy logic, genetic algorithms, evolution strategies and artificial neural networks (Hortai, 2015).

1. Artificial neural networks

Artificial neural networks are inspired by nature. Their function is based on real neural networks (for example the brain) which they try to understand and model to simulate a logic system of how a real neural network thinks and evaluates information. Simplified mathematical descriptions of neurons are based on this concept and try to describe how a real neuron "thinks". Artificial neurons and artificial neural networks are special mathematical algorithms that can simulate the logical operation of biological neurons and neural networks, thereby imitating intelligence for specific tasks (Russell, Norvig, 2010).

To describe the basic architecture of a neuron (basic perceptron) the following essential parts and concepts are represented: inputs (x_i), outputs, weights (w_i), bias, transfer function, and threshold (Dostál, 2015).

A description of the behaviour of a mathematical model of a neuron can be based on the following equation:

$$Y = f\left(\sum_{i=1}^{N} w_i x_i + bias\right)$$

The vector of input values (x_1, x_2, ... , x_n) is multiplied by a vector of synaptic weights (w_1, w_2, ... , w_n) for each "dendrite". A threshold bias, which may take negative values, is added to the total sum. When the sum is greater than zero, the resulting value is transformed into the output of an activation function also known as a transformation function. Transformation functions can be of various types (Dostál, 2015).

Neural networks have a wide range of applications. Their architecture is generally adapted to the purpose for which the neural network has been created. There is no universal network topology capable of effectively solving all kind of complex problems. Due to the variability of neural networks, they can be categorized from different perspectives (Šíma, Neruda, 1996):

1.1 According to their complexity and network topology:

The number of layers and number of neurons in a given layer; these may be (Dostál, 2015):

- Single-layer networks (used for linear separable problems)
- Multiple-layer networks (standard classification problems, simulation algorithms, the prediction of a direction or value)

The cyclicality of links (direct – acyclic, cyclic).

Organization (solid, self-organization).
The number of neural networks that are an interconnected network of networks (problems that require the processing of more inhomogeneous logic inputs, complex decisions dependant on multiple data sources).

Complexity – continuously optimizing decision-making systems based on the interconnection of many different functions and NN with input filters (analytic decisions based on experience).

1.2 According to the dynamics of data

According to Fanta (2001) data can be:

Static – data logic not varying over time, static (for example, the simulation of mathematical functions).
Dynamic – input data networks are time variable (for example, time series).

1.3 According to application:

According to Hagan et al. (2014) these application can be used for:

Algorithm imitation – a neural network can simulate an algorithm or an operator without being known to the mathematical rule.

Clustering – looking for the elements in a set of elements with similar properties that are different from other groups.

Prediction – can roughly simulate future development on the basis of historical values.

Classification – places elements of the set to the correct category.

Pattern recognition – used to recognize patterns in the data, for example image patterns, mainly used for computer vision methods.

1.4 According to the methods by which a network learns:

Russell and Norvig (2010) divided learning methods into:

Supervised learning – the neural network learns by comparing the actual output with the output required (teacher) and then adjusts the balance of synapses to reduce the difference between the actual and the desired output. Recurrent – the result or its error leads to adaptations of the initial calculation parameters. This process runs in cycles until the result is acceptable or there is a break for another reason (e.g. networks with back propagation algorithm).

Unsupervised learning – there are no "required" results or specific values to achieve. This is used for finding hidden structures or clusters among inputs (unlabelled data). Networks are governed by their own rules that determine success (e.g. dispersion of data). The feed forward – the inputs bypassing are sorted among the neurons or move towards the "target" value. This process has only the forward direction. Examples of learning without a teacher are neocognitron, the Hopfield network and the Kohen network.

Methodology and research

1. Forecast of stock trends

Technical analysis is used for stock trend prediction. Namely, the method of artificial neural networks to predict share prices and trends. The reasons for its choice are described in detail in the theoretical section. The algorithm created is based on the principle of time series analysis and should demonstrate that history has a repeating tendency. The algorithm tries to predict the further development of these courses in the future from this historical data analysis. The last movements in price and the volumes of transactions are especially important. In the end, the created application will provide an answer to the question as to the most appropriate time and position for buying or selling the given financial instrument.

2. The source data and input settings

Time series are vectors (sequences) of numerical values that are sorted and indexed over time. In other words, values over time. The sampling period, which may have different values (days, hours, minutes, seconds, etc.), is extremely important to time series. For easier comprehension, these values are generally plotted in diagrams in intervals with the appropriate values.

Time series analyses on the stock exchanges are used for a better understanding of the basic principles of surrounding information relations on the given stock market. Prediction is used for future stock price development in order to increase the likelihood of gains from trading and avoid the possibility of misinterpretation or poor forecasting.

The first step is to select the input data. Relevant information is available from published market data. These issues require a dynamic representation of data and user interaction. For this purpose, a graphical user interface has been developed to use the algorithm. This entire research has been incorporated into an application. The developed application intelligently responds to user interactions. It allows many settings. If the user tries to perform unwanted steps the application warns the user and tries to adjust the error. The application has been created for universal use. The *Yahoo Finance* server is set for default stock data. Any other sources may also be used (on-line servers, off-line data).

The process is initiated by data loading. The application sets the correct URL address and attempts to establish contact with the server or include the data from the file (in the case of data file inclusion). The application notifies the user of the absence of a share title (Ticker) or the availability of data (e.g. no access to the internet, no date data (non-business days), etc.). The application notifies the user if data inclusion from the server is successful. After the data is available to the application, it may be shown on

the attached chart (the top chart in the application). Data downloaded from the server is now available on the user's computer.

Available stock data can be represented in the diagram panel. Users can choose which values they want to see and need for their work to characterize the development of stock prices. The possible default values are: the minimum price (Low), the maximum rate (High), opening rate (Open), the closing price (Close) and the adjusted close price (AdjClose). The value of the trade volume for the trading day (Volume) can also be represented if it is available. The user can use various combinations for plotting the values. The graph shows the selected values. See the section in Results for examples.

Some shares are traded on several different stock exchanges, for which reason the ticker of the financial instrument can have more than one designation (ticker name). In view of the interconnection of modern stock exchanges, the stock prices may have just small differences in prices. However, greater differences are seen in the volumes of trading which depend mostly on the size of the given stock market. If the data is loaded into the system manually (from a data file), the designation (ticker name) is irrelevant and serves only for the purposes of orientation. The application can serve for prediction for any other data that shows some interconnection among the given data.

Some shares are traded on several different stock exchanges and therefore the ticker of the financial instrument can have more indications (tickers). Because of the modern stock exchanges interconnection the exchanges rates may have just small differences in prices (in case of shares). However differences are rather in the volumes of trading which mostly depends on the size of the given stock market. If the data will be loaded into the system manually (from data file) designation (ticker name) is irrelevant and serves only for orientation purposes. The application can serve for prediction for any other data which show some interconnection among the given data.

3. Analogy of functionality

Artificial neural networks which train themselves to predict the values of learned stocks. The values of the source data were used for training. The development of this application is described in detail in the following sections.

After setting the input data and including the available source data, the application can begin to evaluate. At the start, the algorithm checks the correctness of the data. The user is informed with an appropriate error message in the case of an unexpected disagreement. However, some control values have to be set first before the learning process begins. These are:

The length of the forecast: the number of trading periods (depending on the period used in the original data set) on which the prediction will be forecast. This argument leads to a division and shift in the input data. The application creates a data structure that is used to store all data while the algorithm performs evaluation (including the original data). This assumption is made if the analysis and evaluation of the given data would also be involved in another program.

Pairing the input and target values is based on the following analogy: if the length of prediction is "A" and the number of pieces of historical data is "n", then the entries are shortened at the end with the value "A" and their number is equal to "A- n". The target values for the learning process are skipped from the beginning with the value of "A" and their number is also equal to "A- n". This shift of input and target values ensures data pairing. This data will be used in the learning process and will serve as a basis for prediction. The condition of prediction length is maximum 10 % from the range of the historical source data. This 10 % serves exclusively for the learning process. The correctly trained neural network can be used for simulation with new data for longer predictions.

The required percentage of learning success which represents the number of correctly estimated trend rate developments. The correct estimation of a trend can be increase, decrease or no change. The application automatically sets the minimum value to more than 50 %. This is used to eliminate networks that give an outcome worse than a coin toss alternative (estimated 50 % to 50 %). The maximum value to estimate would be 100 %. This would mean that the learning of the network does not stop until the neural

network achieves a correct estimation of all changes in the trend. Such a high value leads to overtraining and an overlearned network. The result would then be a network that will expect the same trends as in the past. If the input data is different from the data used during the learning process, the network will reproduce the same results on which the network was trained to predict trends and which would not conform to current trends. Therefore, when setting a higher required success value, this value is reduced to a maximum value of 99 %. *This is followed by a further criterion – the maximum number of neurons.*

The maximum number of neurons is the maximum possible number of neurons in the neural network. This parameter serves as the limit value in the learning process. When the application exceeds this number of neurons the learning process is terminated and the application returns the result of not achieving the desired criterion of success. The algorithm begins with a neural network with the lowest number of neurons. The algorithm then adjusts the parameters of the network to achieve the desired percentage of prediction success. If the algorithm cannot achieve the required percentage of success by means of any change in the network, the algorithm increases the number of neurons in the network. This process is repeated until a desired percentage of prediction success is reached or the value of the maximum number of neurons is exceeded. The default minimum value is set to 10 neurons to speed up the algorithm. A large number of neurons in the network also increases computational complexity and the use of operational memory and, most importantly, increases the duration of the overall calculation. The maximum default value of neurons is set to 1,000 to limit this endless calculation. The time needed for the calculation depends on the performance of the operational computer (it can be minutes, hours or even days).

The application performs the creation and training of the network until the required criteria are met (the required percentage of success via the learning process). If the required percentage trend forecast is obtained, the application stops the algorithm and shows the result (leaned neural network with predicted values and trends). In the case of failure, when the required criteria are not met (the maximum number of neurons being exceeded), a change can be made to the parameters and the process of network learning can be repeated.

4. Creating the neural networks and data structures

The algorithm begins the formation of the neural network by the next few steps. The very first step is to check if all the required input data exists. After a successful data search, the application reads the other input data entered by the user. If all inputs are loaded it starts the initialization of variables and creates auxiliary variables which will be used in further calculations. All these variables, source data and settings data are stored in the created final data structure where the neural network model will be included if a successful output is achieved. The following basic information is required for the algorithm for the formation of a neural network for stock value/trend prediction:

Stock prices – from which the network learns (open, high, low, volume).
Stock prices – target data which the model should achieve (next close or adj. close prices).
The required success [%] – success in the learning process at which the algorithm stops the learning process.
The maximum number of neurons – if reached, the algorithm is terminated.

As a first step all related input data is summarized into a single data structure. This large-scale data can be better represented in tables, for which reason it is left in a vertical format. Later, this data structure holds both the output data and the created artificial neural network model. The desired trends changes are calculated (increase, decrease, no change) before the creation of the network begins from the input and target values.

Matlab software from the company MATHWORKS was used for the artificial neural network. This software package includes the Neural Network Toolbox™ which was used for further calculations. A number of self-made functions had to be created for this research for automated calculations. The "NARX" type was selected for default neural network creation. The abbreviation NARX represents a model which is nonlinear (N) and auto-regression (AR) and has an exogenous element (X). When something is exogenous, this means that it is caused by an external cause and has an external origin. Exogenous elements can be any element that has influenced the output or had any relation to the

formation of the output. In the case of current share prices, basic exogenous elements are historical share price data (the older the data, the less influence they have). In this case, it is possible to use any other technical analysis indicators, the price of alternative or complementary capital market instruments or entire market economic outlooks.

A recursive approach was used in the NARX network (supervised learning). Exogenous elements are delayed from the output by one to three sample periods. The delay values change during network parameter optimization together with the various transfer functions (the algorithm looks for the possible impacts of the input on the output data). The network is made up of two main layers. The number of neurons is equally divided between these two layers. The number of neurons increases due to the learning process. The algorithm begins with the minimum number of neurons and increases the number of neurons by one after each unsuccessful training. If the division of the present number of neurons by 2 is non-integer then the number of neurons in the first layer will be rounded down and the number of neurons in the second layer rounded up. If the training is successful, the algorithm stops and returns the created network.

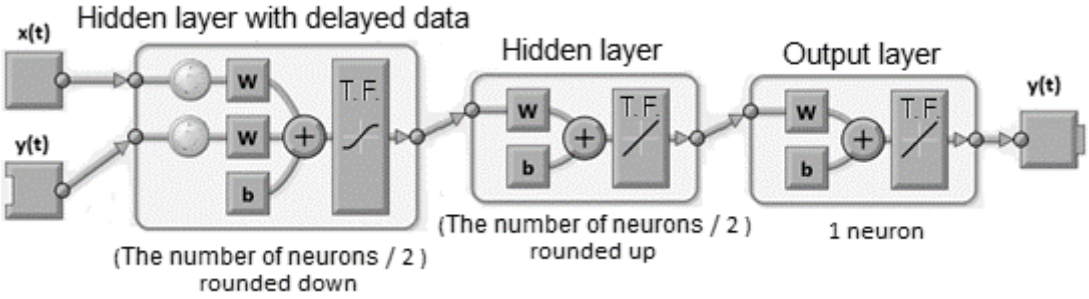

Fig. 1. A simplified graphical model of the used NARX neural network (source: the author)

5. Solving the output data and data representation

The application can simulate and predict values (according to the given settings) after successfully performing the learning process. The forecast values, along with the used data and completed neural network, are returned to the final data structure file. The trained neural network can be used for further simulations. The predicted data are shown in the given panel of the application and are also returned to the Matlab workspace and shown in the main console. Users can further decide which information they are interested in (values, trends or both). Data from the application can be easily copied and used elsewhere (e.g. in a table calculator).

The created application makes it possible to display a representative graph. Examples of such graphs are shown in Figure 2. At the top, two graphs show examples of the displaying of input data in different variations. The application also makes it possible to see the neural network training via a chart (Figure 2, bottom left). This chart shows the progress of the estimated trends as they evolve through the learning progress.

There are other possible financial indicators that can be illustrated, for example the “Bollinger bands of moving average”, to visualize volatility and relative price levels over a period of time (Fig. 2, bottom right). All the charts and graphs have a settings panel where precise settings can be performed.

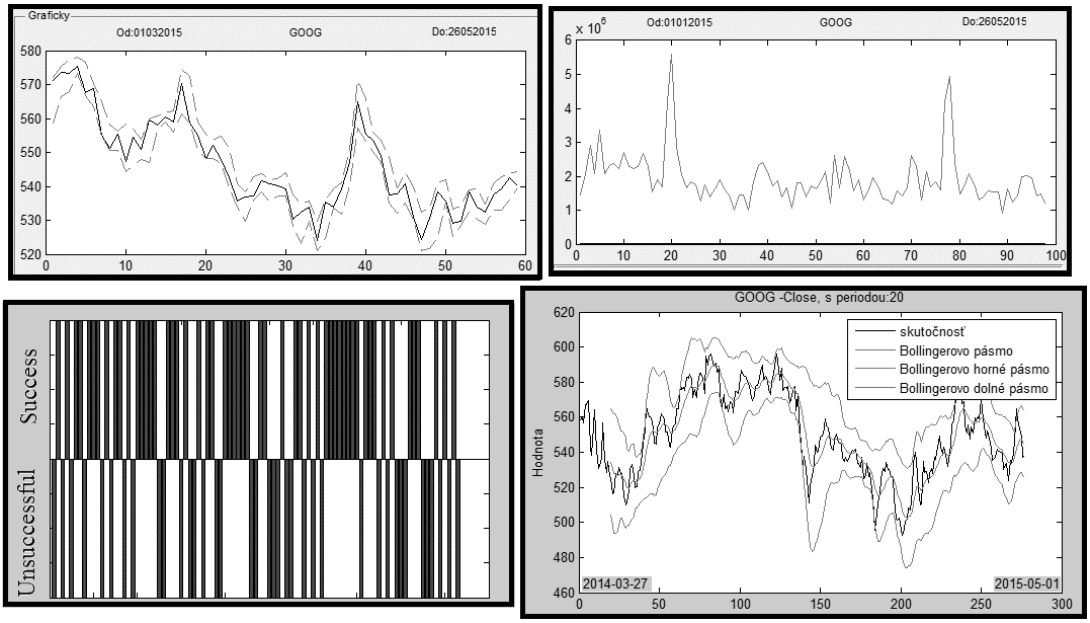

Fig. 2. Examples of representative graphs and charts (Source: the author)

Results

The output of this research is an application which makes it possible to download on-line data from a chosen server or include data from files in order to use it for prediction. Embedded data can be represented by various graphs, so the stock price development during the business day or over a longer period of time can be easily characterized. Users can choose which data they want to see, need to work with, characterize or analyse. Some calculators of financial indicators are included within the application for analysing the data.

From the selected data the application can be used for training artificial neural networks and predicting the future development of values or trends of chosen values. The application returns data in the data structure along with the trained neural network for the possibility of further use for data simulation and further analysis.

The application is designed for universal use. Intelligent adjustments help the user to use the application properly. The application is designed to eliminate possible error conditions.

1. An example of trading by using predicted trends

This section simulates an example of the buying and selling of one Google share on NASDAQ stock market. It serves as a prime example of the functionality of the proposed application by using predicted values from a trained neural network model. The used network was trained with stock prices data from 01/01/2015 to 01/05/2015. The required percentage of learning success was set to 90 percent. The created neural network was then used to simulate and predict the adjusted close price of the given shares for the next trading day. The table below summarizes and compares the actual and predicted share prices. In this case, 11 out of 16 trends were predicted correctly (69 %), with 5 trends predicted incorrectly (31 %).

The predicted trends were used to decide whether to buy or sell the given share. Spot purchases and sales were assumed during trading. This trade also assumed that the trader already has one share purchased. The share was sold and bought according to the most favourable forecasts. Trading simulation of 16 trading days came out positive $ 23.3 (the share remained). Transaction costs were not taken into account. These costs should be offset by a higher volume of share units sold and purchased.

Table 1: Sample of trading calculations

ID	Date	Real price [$]	Trend	Predicted price	Trend	Match	Buy [$]	Sell [$]
1	1.5.2015	537.90	↓	-	↓	-	-	-
2	4.5.2015	540.78	Increase	543.41	Increase	Yes	-	540.78
3	5.5.2015	530.80	Decrease	542.97	Decrease	Yes	-	-
4	6.5.2015	524.22	Decrease	540.65	Decrease	Yes	-	-
5	7.5.2015	530.70	Increase	517.91	Decrease	No	530.7	-
6	8.5.2015	538.22	Increase	578.11	Increase	Yes	-	538,22
7	11.5.2015	535.70	Decrease	544.10	Decrease	Yes	-	-
8	12.5.2015	529.04	Decrease	530.42	Decrease	Yes	529.04	-
9	13.5.2015	529.62	Increase	531.19	Increase	Yes	-	-
10	14.5.2015	538.40	Increase	533.40	Increase	Yes	-	538.4
11	15.5.2015	533.85	Decrease	532.33	Decrease	Yes	533.85	-
12	18.5.2015	532.30	Decrease	536.11	Increase	No	-	532.3
13	19.5.2015	537.36	Increase	531.65	Decrease	No	537.36	-
14	20.5.2015	539.27	Increase	544.89	Increase	Yes	-	539.27
15	21.5.2015	542.51	Increase	535.89	Decrease	No	542.51	-
16	22.5.2015	540.11	Decrease	541.42	Increase	No	-	540.11
17	26.5.2015	532.32	Decrease	533.02	Decrease	Yes	532.32	-
						Total:	3205.78	3229.08
						SUM:	**+23.30**	

(Source: author's own processing including Yahoo Finance GOOG share prices)

2. General success assessment of the generated prediction models

Overall, 2,070 cases were simulated, of which around two thirds (1,328 cases, 64 % of total) were successfully indicated. All calculations were performed on real stock data. Simulations were accompanied by simplified trading with one share which mostly ended in a profit. The created models recognize essential change rates and benefited from them. Large errors were caused by long-term prediction. Because they represent a greater number (length of prediction), their weight in the overall assessment deteriorates the overall final result of the correct predictions. Trained models knew "correct" predictions in the short-term within several periods. They can be used with new data for simulation, but had to be newly trained to predict correctly in the long-term.

Conclusion and discussion

The output of this research is an application that includes a developed algorithm. This algorithm creates artificial neural network models to learn historical stock data (from source data) to predict the future trends and prices of the learned stocks. The created models were tested on real stock data. More than 2,000 prediction examples were simulated. The overall success ratio for trend prediction was around 64 %. Long-term predictions distorted the final result. The output of models was used for trading which was of a profitable nature. The type of neural network developed achieved good generalized patterns and relations that appear in price movements and can be used as a prediction system.

In order to be user-friendly, a graphical user interface was developed in Matlab. As to the legislation: it is not illegal in the European Union to use such sophisticated algorithms for trading-decision support (Smejkal, 2015).

When using the applications for real trading, it is necessary to take the fees charged for individual trades into account. The relative importance of fees decreases with higher trading volume. For this reason it is necessary to consider whether the stocks will be traded in large enough volumes when the amount of stock sell and buy price difference is higher than the price of the trading fee before using the model for trading.

Further development of the networks could involve the addition of new optimized layers. It is necessary to understand that "big" networks or the use of long time series increases computational complexity and, therefore, the overall execution time. Application innovation could result in a newer version that would include more types of neural networks (the application was designed with the possibility of extension from the very beginning). These end results of created networks could then be compared with each other and the most suitable one chosen for a given instrument. The selected network should be the one that would most accurately predict the financial instrument. In this new version, an optimization algorithm would have to be used to spare computing time (using genetic algorithms and evolution strategies). All these changes would have to be made within the application code.

This paper is part of a larger piece of research in which methods of artificial intelligence are used for effective or automated trading systems on the financial markets.

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Application of Fuzzy Logic in the Process of Information Security Risk Assessment

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Abstract

Risk assessment is a demanding process of information security risk management. Organizations often do not employ sufficiently experienced and qualified employees in handling information security risks. This paper focuses on a fuzzy logic application in the process of information security risk assessment based on a matrix method of the ISO/IEC 27005 standard and regulations according to the Cyber Security Regulation No. 316/2014 introduced in the Czech Republic. The method and the regulations are combined to form a risk assessment matrix which is processed in the QtFuzzyLite software. The result is a fuzzy logic system designed for organizations that need to simplify and specify risk assessment where likelihood of threat occurrence, threat consequence value and asset vulnerability level are vague and difficult to estimate. These variables directly affect the information security risk value. The paper discusses the possibility of utilizing the fuzzy logic system as a decision support tool in Slovak organizations.

Keywords: Risk assessment, fuzzy logic, information security, threat.

Introduction

Information is an asset that needs to be suitably protected in organizations. That is especially important in the increasingly interconnected business environment (Said, Abdullah and Mohamed, 2013). Organizations encounter information security risks more often as information and communication technologies (ICT) progress. Due to the expansion of the Internet, organizations are easier to attack on the information assets (Huo, Meng and Chen, 2015). Information assets (e.g. information, software, hardware, business secrets, knowledge, and financial data) are crucial to create business added value. The theft or any change of such assets leads to loss of credibility, competitiveness and know-how. The most important data is stored in information systems (IS). For this reason, information systems are frequently exposed to various types of threats which can cause different types of damages that might lead to significant financial losses (Jouini, Rabai nad Aissa, 2014).

Implementation of information security risk management (ISRM) leads to a protection of organizations' ICT and IS at the adequate level. Risk management perceives risk as a combination of the likelihood of threat occurrence and the associated consequences that affect organization's information assets, which are vulnerable. These variables are involved in the process of risk assessment. The ISO/IEC 27000 (2014) standard defines risk assessment as the overall process of risk identification, risk analysis and risk evaluation. By assessing the risks which might cause irretrievable damages, organizations receive a comprehensive overview of the individual risk values.

Risk assessment is a demanding process that is not always definite. Determining values of likelihood of threats and their consequences requires a qualified estimate. Organizations rarely employ sufficiently experienced and qualified personnel (Bolek, 2013) and often do not have enough time to assess risks. The process of risk assessment may be facilitated by the use of fuzzy logic (Doskočil, 2016; Lee, 2014; Yang and Zhou, 2012) that determines how much an element belongs to the set or not (Dostál, 2011). Application of fuzzy logic assists employees to determine the risk value in the case of vague assessment

of input variables. Another possibility to improve the quality level of risk assessment is to promote continual trainings in the field of information security (Bolek, 2015).

Currently, lack of qualified and experienced personnel in information security is the issue of Czech organizations. In 2014, the Czech Republic adopted the Act on Cyber Security No. 181/2014. The act obliges the Czech organizations, which are administrators of information or communication systems of critical information infrastructure and administrators of important information systems, to manage and assess risks (Act on Cyber Security, 2014) based on a methodology proposed by the Cyber Security Regulation No. 316/2014. Slovak organizations also deal with information security risks, but miss a legal definition so far. Similarities between the environments of both countries indicate that the methodology and the fuzzy logic system may be applicable in Slovak organizations as well.

The paper focuses on a fuzzy logic application in the process of information security risk assessment using a matrix with predefined values method of the ISO/IEC 27005 standard and regulations according to the Czech Cyber Security Regulation No. 316/2014 in the software environment of QtFuzzyLite (Rada-Vilela, 2013). A designed tool serves the organizations affected by the Act on Cyber Security. However, because the tool is not directly linked to the law, it may be used in all organizations that need to simplify the risk assessment in cases where the values of threat, consequences and asset vulnerabilities cannot be precisely determined.

Literature Review

A family of ISO/IEC 27000 standards (2014) considers information security as a preservation of confidentiality, integrity and availability of information. From a different point of view, information security is the process of protecting information and information infrastructure from unauthorized access that results in disclosure, modification or destruction of information, and modification or disruption of information technology services (Ng, Ahmad and Maynard, 2013; Al Amro, Chiclana and Elizondo, 2012). Previously, information security issues were treated by technological solutions (Singh, A.N. et al., 2013). However, growing security needs have extended organizations' attention to explore the management role in information security (Soomro, Shah and Ahmed, 2016; Siponen, Mahmood and Pahnila, 2014).

While the significance of risk management is growing in the process of globalization, businesses learn to accept risks not just passively, but perceive the risks as an opportunity to improve their prosperity (Beňová, 2015; Butoracová-Šindlerová and Butorac, 2008). ISRM, which is now becoming a crucial component of good corporate governance, is a discipline responsible for protecting organizations' information assets against security risks (von Solms and von Solms, 2005). According to ISO/IEC 27005 (2011), ISRM is a continual process that establishes the context, assesses the risks and treats the risks using a risk treatment plan to implement the recommendations and decisions. Organizations willing to reach an adequate level of security must be able to identify security holes and develop a mechanism to prevent any misuse thereof (Alsaif, Aljaafari and Khan, 2015). Frequent assessment and treatment of the information security risks lead organizations to eliminate or reduce their likelihood or impact to a minimum (Farahmand et al., 2005).

The essential risk assessment activity is the process of estimation. Information used to estimate values of threat, consequence and vulnerability usually comes from (ISACA, 2015):

- Past experience or data and records,
- Market research and analysis,
- Reliable practices, guidelines or standards,
- Experiments,
- Economic and engineering models,
- Specialist advice.

Information security risk assessment process includes preparation of risk assessment, asset identification, threat identification, vulnerability identification, and risk calculation and other stages (Lee, 2014; Yang and Zhou, 2012). It is up to the organization to select its own approach based on the objectives and the

aim of the risk assessment (ISO/IEC 27005, 2011). In our case, the base for the fuzzy logic system design is the Czech Act on Cyber Security and the corresponding regulation, because they precisely define the process of risk assessment for the organizations concerned. Compliance with these regulations has become a model of good practice for other organizations. Combined with the risk assessment matrix method according to ISO/IEC 27005 (2011), a good quality basis for designing a fuzzy logic controller is introduced.

The application of fuzzy logic (Doskočil and Doubravský, 2015; Dotcenko, Vladyko, and Letenko, 2014, Aydın and Chouseinoglou, 2013, Singh, H. et al., 2013; Posoldová and Oravec, 2013) is based on the fuzzy set theory (Zimmermann, 2001). The fuzzy set is a set whose elements have degrees of membership (Doskočil and Doubravský, 2013; Dostál, 2011). By means of fuzzy logic it is possible to find the solution of given task from rules, which were defined for analogous tasks (Doskočil, 2016). The system design using the fuzzy logic consists of three basic components: fuzzification, fuzzy inference and defuzzification. The fuzzification involves transforming real variables into linguistic variables. The next step is to define the behavior of system by the rules of the following type: <If> Input_A <And> Input_B <And> ... <And> Input_X <Then> Output_1. By creating the rules, conditional sentences that evaluate the state of relevant variables are formed. The results of the fuzzy inference are numerical values. The defuzzification transfers the results into linguistic values of output variables. The results are described verbally. The fuzzy logic is a useful method when dealing with vague sets and logic (Dostál, 2011).

Objectives and Methodology

The main objective of the paper is to design the fuzzy logic application that evaluates information security risks as defined by the Czech Act on Cyber Security. The output of the application is the fuzzy logic system (controller) that is able to determine the measure of information security risk after the expert evaluation and inputting the values of threat likelihood, threat consequence and asset vulnerability level of the organization. Such system is useful in all types of organizations that need to manage information security risks. Employees, who are responsible for risk assessment, receive the effective tool to support decision-making process in the risk analysis.

The main scientific objective is supported by several partial objectives:

- To evaluate the possibility of applying the fuzzy logic in the process of assessing the level of information security risks,
- To design the effective decision-making tool for organizations that want to simplify the evaluation of risks where values of threat, consequence and vulnerability are difficult to estimate,
- To create the fuzzy logic controller applied on the selected methods in the QtFuzzyLite software.

When processing the studied issue, current domestic and foreign scientific studies, information sources and international standards and guidelines are used to achieve the objectives. Analysis, comparison and synthesis of theoretical background lead to specific results of the issue. In Figure 1, a research model shows a procedure to construct the fuzzy logic application for information security risk assessment.

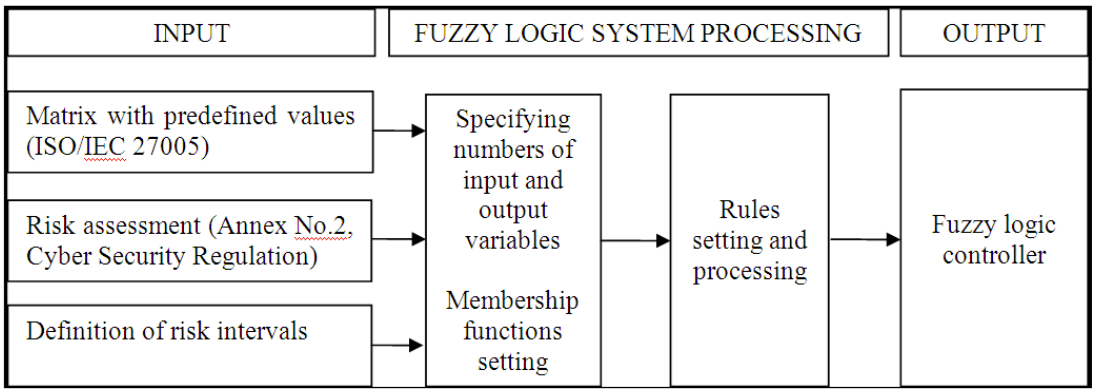


Fig. 1: Research model (Source: Authors´ own)

The matrix method with predefined values according to ISO/IEC 27005 is the input into the system. It is extended and modified by the approach of Czech Cyber Security Regulation. The regulation divides likelihood of threat, consequence value, vulnerability value and risk value into a scale of four levels: low, medium, high and critical. Each level is characterized by specific parameters of threat, consequence, vulnerability and risk identification and evaluation. Table 1 contains a simplified description of the scale.

Table 1: Scale of threat, consequence, vulnerability and risk evaluation (Source: Cyber Security Regulation, 2014)

Threat evaluation scale	**Description**
Low	• Threat does not exist or is unlikely. • Threat occurrence is not more than once every five years.
Medium	• Threat is less likely to occur. • Threat occurrence ranges from 1 to 5 years.
High	• Threat is likely to occur. • Threat occurrence ranges from 1 month to 1 year.
Critical	• Threat is most likely or certain to occur. • Threat occurrence is more frequent than once a month.
Consequence evaluation scale	**Description**
Low	• Consequence of a small extent for a limited period of time, not catastrophic.
Medium	• Consequence of a limited extent for a limited period of time.
High	• Consequence of a limited extent, but permanent or catastrophic.
Critical	• Consequence of a large extent, permanent and catastrophic.
Asset vulnerability evaluation scale	**Description**
Low	• Vulnerability does not exist or is unlikely. • High-quality security controls with early detection of possible weaknesses a attempts to overcome controls.
Medium	• Vulnerability is less likely to occur. • Quality security measures whose effectiveness is regularly inspected.
High	• Vulnerability is likely to occur. • Security controls exist, but their effectiveness does not cover all necessa aspects.
Critical	• Vulnerability is most likely to occur, abuse is almost certain. • Security controls are not implemented or their effectiveness is limited.
Risk evaluation scale	**Description**

Low	• Risk is acceptable.
Medium	• Risk can be reduced by less advanced controls. • Risk is acceptable in case of more advanced controls.
High	• Risk is unacceptable in the long term. • Systematic steps to risk treatment must be initiated.
Critical	• Risk is unacceptable. • Steps to risk treatment must be immediately initiated.

Individual threats, vulnerabilities and consequences need to be inserted into appropriate levels of scale as described in Table 1. However, identification and evaluation of inputs to the risk assessment may be difficult because it depends on knowledge and experience of the expert worker. The fuzzy logic assists to eliminate imprecision.

Table 2: Scale of input variables (Source: Cyber Security Regulation, 2014)

Threat or Consequence or Vulnerability	Low	Medium	High	Critical
Value	1	2	3	4

The levels of scale from Low to Critical are converted to values from 1 to 4 (Table 2), so that the calculation of risk value according to the following equation based on the Cyber Security Regulation (2014) may be applied:

$$\text{Risk} = \text{Threat} \times \text{Consequence} \times \text{Vulnerability} \qquad (1)$$

Definition of intervals to assess risks follows. Three variables (threat, consequence, vulnerability) enter the equation; their maximum value is 4. If all values of variables reach their maxima, the level of risk receives a maximum value of 64. In this case, the risk is considered critical. According to our preferences, the measure of risk is divided into four intervals with uniform ranges (Table 3). In various organizations, intervals can be determined differently based on experience, knowledge and expert estimation of responsible employees. The expert determines such intervals that best meet the current objectives of the organization.

Table 3: Risk intervals (Source: Authors' own)

Risk	Low	Medium	High	Critical
Interval of values	<1 - 16)	<16 - 32)	<32 - 48)	<48 - 64)

Table 4 shows the modified and extended risk assessment matrix in accordance with ISO/IEC 27005, which is adapted to the Czech Cyber Security Regulation for the affected organizations. In the matrix, the risk values are calculated using the provided equation. The risk values are highlighted according to their significance from Low to Critical. The adjusted risk assessment matrix is the input to the fuzzy logic system processing.

Table 4: Risk assessment matrix (Source: Authors´ own elaboration based on Cyber Security Regulation, 2014; ISO/IEC 27005, 2011)

Likelihood of threat occurren		**1**				**2**				**3**				**4**			
Consequence value		**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Vul abi lev	**1**	1	2	3	4	2	4	6	8	3	6	9	12	4	8	12	16

	2	2	4	6	8	4	8	12	16	6	12	18	24	8	16	24	32
	3	3	6	9	12	6	12	18	24	9	18	27	36	12	24	36	48
	4	4	8	12	16	8	16	24	32	12	24	36	48	16	32	48	64

The fuzzy logic system was processed in the open-source software QtFuzzyLite, which was selected because of quick response, availability, simple system designing and no expenses (Rada-Vilela, 2013). The program becomes a respected competitor of sophisticated software, e.g. MATLAB - Fuzzy Logic Toolbox and fuzzyTECH. In the program, three variable inputs are defined – Threat, Consequence, Vulnerability and one output variable – Risk. Parameters of membership functions (MF) of individual inputs and the output are set according to the selected methodology (Figure 2). For the purposes of the system, triangular shapes of MFs are sufficient. Vertices of variables' MFs represent the maximal confidence of the expert that the variable belongs to the specific level from Low for Critical. MFs' setting for all input variables is identical due to the same definition of input variables' scale. MF of the output variable copies the extreme values of risk intervals.

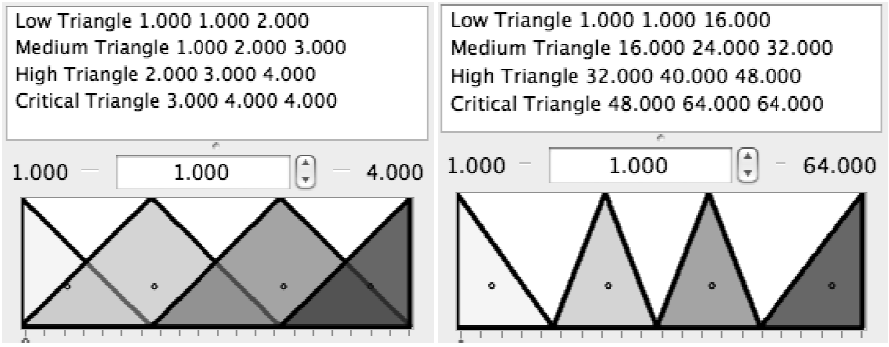
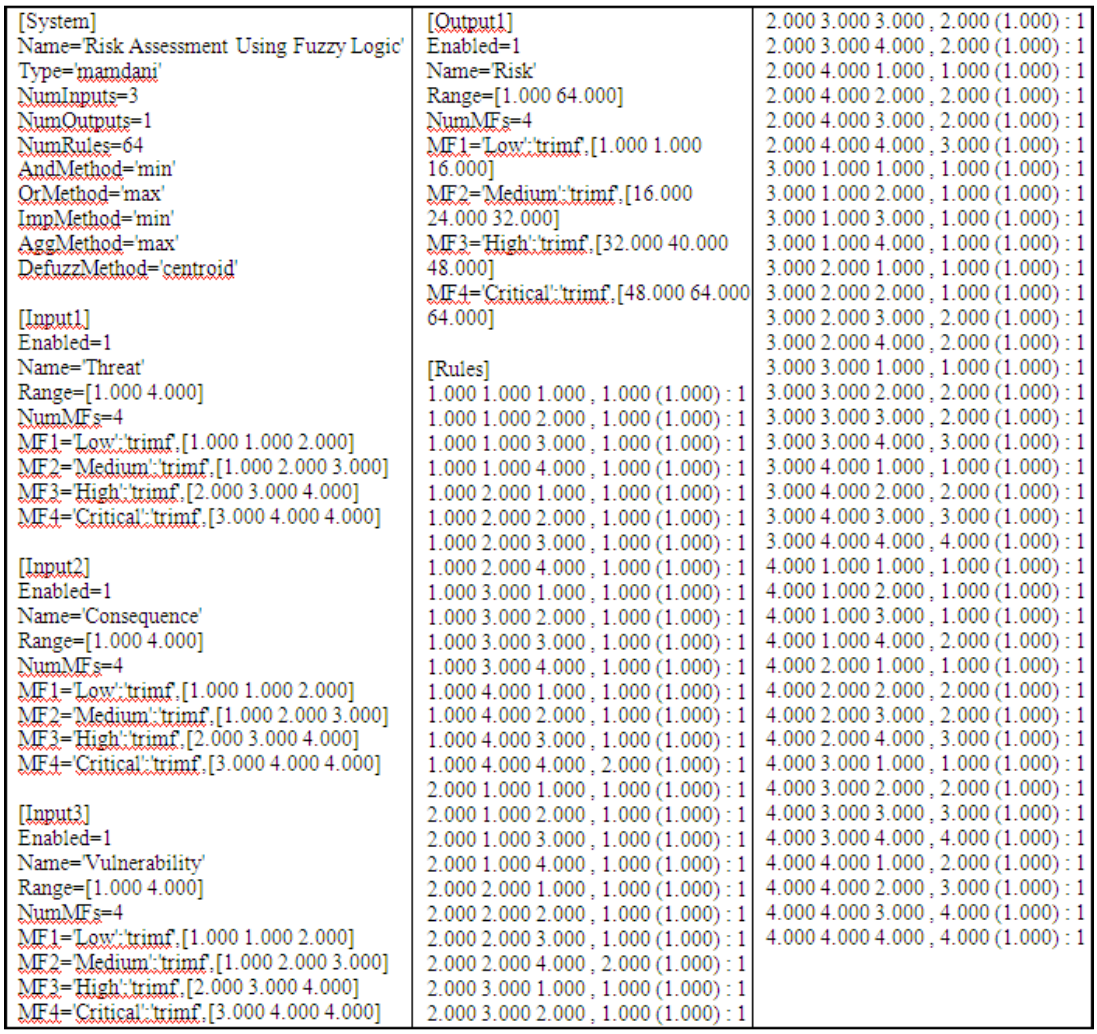


Fig. 2: Membership functions' settings for input (left) and output (right) variables (Source: Authors' own)

Subsequently, the rules determine which combination of inputs leads to the specific output. It is the expert system, which specifies that each combination of variables entering into the system and occurring in a condition of <If> <Then> represents one rule. In the designed system, 64 rules that correspond to the values in Table 4 are set. The rules have the following syntax in the software interface: <if Threat is "a" and Consequence is „b" and Vulnerability is „c" then Risk is „d">, where a, b, c and d are the linguistic variable values from Low to Critical. After the rule definition and setting, the fuzzy logic controller was designed, i.e. the fuzzy logic system that determines the output value in real time based on given inputs.

Results and Discussion

In terms of the fuzzy logic terminology, the result is a fuzzy inference system (FIS) that transforms input variables into the output. A selected type of FIS is Mamdani, which is more widely used, because it provides good results with a relatively simple structure, and due to the intuitive and interpretable nature of the rule base (Jassbi et al., 2006). In the designed system, the value of information security risk is calculated after entering the likelihood of threat occurrence, the threat consequence value and the level of organization's information asset vulnerability. The resulting system is shown in Figure 3.



```
[System]
Name='Risk Assessment Using Fuzzy Logic'
Type='mamdani'
NumInputs=3
NumOutputs=1
NumRules=64
AndMethod='min'
OrMethod='max'
ImpMethod='min'
AggMethod='max'
DefuzzMethod='centroid'

[Input1]
Enabled=1
Name='Threat'
Range=[1.000 4.000]
NumMFs=4
MF1='Low':'trimf',[1.000 1.000 2.000]
MF2='Medium':'trimf',[1.000 2.000 3.000]
MF3='High':'trimf',[2.000 3.000 4.000]
MF4='Critical':'trimf',[3.000 4.000 4.000]

[Input2]
Enabled=1
Name='Consequence'
Range=[1.000 4.000]
NumMFs=4
MF1='Low':'trimf',[1.000 1.000 2.000]
MF2='Medium':'trimf',[1.000 2.000 3.000]
MF3='High':'trimf',[2.000 3.000 4.000]
MF4='Critical':'trimf',[3.000 4.000 4.000]

[Input3]
Enabled=1
Name='Vulnerability'
Range=[1.000 4.000]
NumMFs=4
MF1='Low':'trimf',[1.000 1.000 2.000]
MF2='Medium':'trimf',[1.000 2.000 3.000]
MF3='High':'trimf',[2.000 3.000 4.000]
MF4='Critical':'trimf',[3.000 4.000 4.000]

[Output1]
Enabled=1
Name='Risk'
Range=[1.000 64.000]
NumMFs=4
MF1='Low':'trimf',[1.000 1.000
16.000]
MF2='Medium':'trimf',[16.000
24.000 32.000]
MF3='High':'trimf',[32.000 40.000
48.000]
MF4='Critical':'trimf',[48.000 64.000
64.000]

[Rules]
1.000 1.000 1.000 , 1.000 (1.000) : 1
1.000 1.000 2.000 , 1.000 (1.000) : 1
1.000 1.000 3.000 , 1.000 (1.000) : 1
1.000 1.000 4.000 , 1.000 (1.000) : 1
1.000 2.000 1.000 , 1.000 (1.000) : 1
1.000 2.000 2.000 , 1.000 (1.000) : 1
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4.000 4.000 1.000 , 2.000 (1.000) : 1
4.000 4.000 2.000 , 3.000 (1.000) : 1
4.000 4.000 3.000 , 4.000 (1.000) : 1
4.000 4.000 4.000 , 4.000 (1.000) : 1
```

Fig. 3: Fuzzy inference system (Source: Authors' own)

Application of the fuzzy logic in QtFuzzyLite enables to obtain results of risk values based on the input values of variables in thousandths (1.000 – 4.000). If the employee responsible for the risk assessment cannot assign the exact value to threat, vulnerability and consequence variables, variable values closest to the given set can be inputted. Impossibility of inputting extreme values of variables to the system (1.000 or 4.000) is its limitation. Within defuzzification, values of the output variable are converted to verbal values that represent understandable results of fuzzy calculation. Table 5 shows a comparison of several fuzzy logic system's outputs with the matrix method results.

Table 5: Comparison of results (Source: Authors' own)

	Threat	Consequence	Vulnerability	Results (Value)	Results (Risk
Fuzzy logic controll	2.000	3.000	3.000	24.000	Medium
	3.999	3.999	3.000	58.560	Critical
	3.000	1.001	2.000	6.000	Low
	2.000	3.999	3.999	39.968	High
Risk assessment matrix method	2	3	3	18	Medium
	4	4	3	48	Critical
	3	1	2	6	Low
	2	4	4	32	High

Numerical expressions are different because the system takes shapes and ranges of MFs, accuracy of rules, a defuzzifier method and other parameters into calculation. However, verbal expressions are accurate. Furthermore, because the system allows to input other values then integers, it is possible to obtain much wider range of risk values. Subsequently, they express the degree of risk membership in the set, i.e. in the defined interval. Such system provides new opportunities for variables that cannot be clearly assessed. The limitation of the system is that the shapes of MFs might not accordingly express the threat, consequence and vulnerability scales, which might result in the risk value distortion. The shapes of the system's MFs are considered to be further investigated in order to increase the risk value accuracy.

The designed fuzzy logic controller may be implemented in Czech organizations that are obliged to follow the Act and the Regulation on Cyber Security, as the system is directly based on the regulations. However, the system is generally applicable to all organizations that use risk management focusing on information security due to its simple usage, fast calculation of risk value and a possibility of inputting a wider range of variable values without a need for their exact inclusion in the defined scale from Low to Critical. A part of variable attributes might in fact meet the criteria of lower or upper level of the scale.

The above mentioned advantages together with the legal environment similarity enable the use of the designed system in Slovak organizations that are not currently affected by any related legal standard, but need to deal with information security risks. Many international standards and guidelines leave organizations to choose freely between the risk analysis methods and allow to adapt them. Therefore, the suggested fuzzy logic system already provides a comprehensive tool for immediate usage in the risk evaluation process and assists to achieve stable results of the risk assessment. Consequently, the final FIS is the appropriate decision-support tool for employees responsible for ISRM both in Slovak and Czech organizations.

After using the suggested system, the risk assessment results need to be evaluated in terms of organization's mission, risk tolerance, budgets and cost of mitigation. Based on this evaluation, a mitigation strategy can be chosen for each risk and appropriate controls can be designed and implemented. The results can also be used to (ISACA, 2015):

- Communicate the risk decisions and expectations of management throughout the organization,
- Identify areas where incident response capabilities need to be developed to quickly detect and respond to inherent or residual risk or where security controls cannot adequately address the threat.

Conclusion

The fuzzy logic is advanced method to support decisions. As a consequence of the fuzzy logic, it is possible to resolve a number of issues that arise in business management, public administration, and other organizations or institutions. The results of the applied fuzzy logic present fast and accurate outputs in the area, where decisions are vague and difficult. This is the case of information security risk assessment, where likelihood of threat occurrence, threat consequence value and assess vulnerability level cannot always be precisely determined. Variable evaluation requires qualified and experienced personnel. The designed system based on the application of the fuzzy logic in the process of information security risk assessment using recommendations of ISO/IEC 27005 and regulations of the Czech Cyber Security Regulation No. 316/2014 simplifies to determine the values of individual risks when the values of input variables are difficult and vague to estimate. The system is an effective tool to support decisions in the process of information security risk assessment in organizations.

Acknowledgments

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The Strategic Alignment of IT with Business Activities

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Abstract

Increasing informatisation of the society and the introduction of information technologies increases the level of dependence of organisations on information technologies. Currently, it is difficult to find business processes/activities, which are not in any way dependent on technologies. Dependence has reached such a level that virtually no organization can work effectively without access to IT. Implementation of information systems, their development and maintenance can significantly help to achieve sustainable competitive advantage of an organization. IT Governance as an integral part of organizational management at the highest level supports effective management of information resources to promote the achievement of strategic objectives of the organization. The size of a company has, among other things, a significant impact on selected areas of strategic alignment of IS/IT with business activities. The results of a research conducted in Slovakia at 363 enterprises deepen and expand the knowledge of strategic alignment of IT with business activities and examine the significant difference in strategic alignment of IT with business activities among enterprises of different sizes.

Keywords: IT Governance, strategy, business activities, IT management.

Introduction

The emergence of new technological breakthroughs in the field of IS/IT has brought not only new opportunities for strategic technologies, but it has also made numerous benefits more accessible for companies and organisations (Galliers and Leidner, 2003). Although many organisations understand the need to exercise some form of control over the area of IS/IT, a vast majority of organisations have not yet attained a sufficient control of this area (Hardy, 2006). In terms of utilisation of strategic technologies and control over IS/IT, support for organisation management is also important in the area of business continuity management (Filanová, 2015). Effective and efficient use of IS/IT needs to be aligned with business strategies thus ensuring stable and continuous support and increase in competitiveness of a company (Jorf, Norwegian and Najjar, 2011). Despite the fact that effective investments in IS/IT and their strategic use are based on systematic links between legitimate decision-making processes and a strategy, many businesses realise the importance of information assets and IS/IT infrastructure and recognise the importance of decision-making processes associated with IT Governance (Van Grembergen et al., 2004; Posthumus and Solms, 2005). IT Governance is seen as a set of relationships, processes, policies that help manage the organization so as to maximize the IT support for its strategic objectives.

The aim of the research carried out in the Slovak Republic was to deepen and broaden the knowledge of the strategic alignment of IT with business activities and identify the relationship/link between the area of strategic alignment of IT with a business and a company size measured by the number of employees in the Slovak Republic.

Theoretical background

The definition of IT Governance, which was conceived up by Rose and Weil, is accepted by most authors and considered to be the starting point in their work. They define IT governance as "a decision-making framework of rights and responsibilities to encourage desirable behaviour in the use of IS/IT." (Weill and Ross, 2004)

The increasing amount of work on IT Governance points out that there is no single agreed definition of IT governance, but that the stated definitions differ in various aspects. Webb, Pollard and Ridley use content analysis to integrate the diversity that is reflected in many definitions of IT Governance and define it as follows: IT Governance represents strategic alignment of IS/IT with business in order to achieve the maximum value through development and maintaining an effective control, accountability, performance management and risk management in the area of IS/IT. (Webb, Pollard and Ridley, 2006).

Similarly, R. Butler and M.J. Butler originated from the definition of Weil and Ross in constructing a framework for IT Governance, which considers the following three elements to be the most important: processes, structures and relational mechanisms that also appear in the works of other authors (Symons, 2005; Larsen et al., 2006; De Haes and Van Grembergen, 2008; Butler and Butler, 2010).

According to Wilson and Pollard (2009) the elements of IT Governance are: structures and processes, supplemented by control frameworks, which they regard as essential tools for application, implementation and development of IT Governance.

Authors often deal mainly with descriptions and categorisation of existing or proposed structures for IT Governance, including Peterson et al., Weil and Ross (Peterson, Parker and Ribbers, 2002; Weill and Ross, 2004; Willson and Pollard, 2009).

Another group of authors views IT Governance and its objectives through the so-called focus areas of IT Governance. The comparison of several opinions, for example also on IT Governance objectives, translates into the IT Governance focus areas, namely Strategic Alignment, Resource Management, Risk Management, Value Delivery, Performance Management (ITGI, 2003; Hardy, 2003; Kordel, 2004; Chun, 2005; Symons, 2005; Brisebois, Boyd and Shadid 2010, ISACA, 2012). Butler and Butler (2010) are inclined to this opinion and regard such focus areas as widely recognised.

View of various authors on the basic focus areas of IT Governance differ in some respects. The literature reveals a broader scope for IT governance that is commonly associated with corporate governance or SISP, and includes the following facets: Strategic alignment, Risk Management, Performance Management, Capability Management, Control and Accountability, and Delivery of business value through IT (Wilson and Pollard, 2009).

A summary of these aspects is substantiated in reference to other authors who have researched the area of interests of IT Governance. The concept of five aspects of IT Governance was researched, for instance, by Gellings in this specification: Strategic Alignment between the business and IT, Risk Management, Performance Management, Control and Accountability, Delivery of Business Value, Capability management (Gellings, 2007).

The most significant and comprehensive study dealing with the solution of the focus areas of IT Governance is considered to be the study by Wilkin and Chenchala (2010), which was published in 2010, called "A Review of IT Governance: A Taxonomy to Inform Accounting Information Systems“.

A persistent problem both in the area of research and practice of IS/IT is considered by the authors to be maximizing the potential of IS/IT. Therefore, they acknowledge the ITGI's claim that the role of IT Governance is to ensure the effective use of IS/IT with the focus on Strategic Alignment, Risk Management, Resource Management, Value Delivery and Performance Measurement (ITGI, 2008).

The authors of the study identified 496 articles in the period from 1998 to 2008 dealing with the area of IT Governance. They documented the progress in the understanding of the area of IT Governance, which is, however, characterised by fragmentation with very low integration of the IT Governance focus areas. The aim of this study was not to examine all the documents related to the research of IT Governance but to capture the essence of the research and propose other research options for the future (Wilkin and Chenhall, 2010). The research included all 5 areas of IT Governance. Most attention in the reviewed articles focused on the area of strategic alignment (31%).

Strategic alignment is not considered a new concept, but it is useful in aligning IS/IT and corporate strategy (Ward and Peppard, 2002). For businesses, it is important to implement strategic alignment in order to achieve a sustainable competitive advantage. According to Reich and Benbasat, strategic alignment is defined as "the extent to which the mission, goals and objectives of IS/IT support and are supported by the company mission, the company objectives and plans" (Reich and Benbasat, 2000).

Strategic realignment aims to provide the connection between the business and the plans of IS/IT, designation, maintenance and verification of the value propositions of IS/IT, and harmonisation of activities in the area of IS/IT with the business processes (ITGI, 2007).

As such, strategic alignment should address the direction for other ITG focus areas with a business value delivered through effective investment and planning including tactical plans for risk management and resource management. This would deliver business value as informed by coordinated performance measurement. (Wilkin and Chenhall, 2010)

Research framework and methodology

The goal was to deepen and broaden the knowledge regarding the strategic alignment of IT with business activities, based on the foreign and domestic literature, in order to identify the current state of knowledge in this area, with subsequent comparison and synthesis of acquired knowledge as well as the review of strategic alignment of IT with business based on data and information obtained by a questionnaire survey at Slovak enterprises.

Research instrument

Implemented research studies have identified a number of factors affecting the IT Governance framework. Works that can be considered as primary and underlying, even before the emergence of the concept of IT governance, addressed many factors and their links to the area of corporate IS/IT. Based on the theoretical basis and the implemented research projects, partial objective were defined. One of the milestones of the research, the solution of which is presented by this article, is to analyse the impact of a company size measured by the number of employees on the area of strategic alignment of IT with the business.

When drawing up the questions of the questionnaire survey, in addition to the standard classification of questions as open and closed, two basic approaches were chosen, namely the specification of a value judgement on the basis of the Likert scale (in the sections of the strategic alignment of IS/IT with business activities - Table 1, the support of business performance through IS/IT, IT Governance inhibitors) and the selection from possible answers (e.g. the organizational structure and the position of IS/IT, the methodology of IS/IT administration and management, management of IS/IT services). In applying the Likert scales the following steps of the evaluation opinion were used - strongly agree, somewhat agree, somewhat disagree, completely disagree and other, or not specified opinion. Variables were measured by respondents' expressed opinion on the scale of 1 (completely disagree) to 5 (strongly agree).

The research applied general theoretical methods - analysis, synthesis, induction, deduction, comparison, analogy, generalisation; specific methods - questionnaire survey, mathematical-statistical and analytical-logical methods; empirical methods, in particular observation. The normality of data distribution was tested by the Leven test. When further analysing the data with normal distribution, we used Anova with

Bonferroni correction. For data that does not qualify for normality distribution of data, we used the Kruskal-Wallis test; with the variable SA1 we applied the Chi-square test.

Table 1: Researched variables (Source: Authors´ own)

SA	**Strategic alignment of IS/IT with business activities**	**SA**	**Strategic alignment of IS/IT with business activities**
SA1	IS/IT strategy	SA12	Documenting of business processes
SA2	Alignment of the IS/IT strategy with the company strategy	SA13	Definition of links between IS/IT and busine processes
SA3	IS/IT as one of the strategic company objectives	SA14	Quality, documentation and monitoring of IS/IT services
SA4	IS/ IT as a strategic business resource	SA15	Link between success in business activities a their support for IS/IT
SA5	IS/IT as business support	SA16	Indicators to determine the benefits of IS/IT
SA6	IS / IT as means for achieving other objectives of the company	SA17	Regular evaluation of IS/IT return on investment
SA7	IS/IT as a tool of support processes	SA18	Efficiency of investments in IS/IT
SA8	Integrating staff into IS/IT projects	SA19	The level of knowledge of IS/IT staff of the IS/IT department
SA9	Specification of project priorities	SA20	The level of knowledge of IS/IT users
SA10	Integration of IS/IT applications	SA21	Relations between the IS/IT unit and its suppliers
SA11	Documentation of IS/IT processes	SA22	Barriers to connecting IS/IT with business

The research sample included 363 enterprises with the largest share of small and medium-sized enterprises, while the small enterprises accounted for the share of 31.40% and the medium for 29.48%. The share of large enterprises was 22.87% and micro-enterprises 16.25%. In terms of sector coverage, the most represented were: industrial production14.33%, information and communication 13.50%; wholesale and retail; repair of motor vehicles and motorcycles 12.12%. The share of the enterprises in terms of geography: the highest share solely in the Slovak Republic 37.47% and 23.14% in Europe; the lowest share only in Slovakia and the Czech Republic, namely 9.92%; and only in a certain region of the Slovak Republic 10.74%. The structure of the surveyed sample according to the IS/IT customer or the IS/IT contractor is the following: 71 percent of IS/IT customers from the business area, 23 percent of contractors of IS/IT products and services.

Results and discussion

In the first part of the evaluation, which translates into graphical outputs and in the area of management of IS/IT services into table outputs, in case of individual variables according to an established model, we included only the results representing a favorable opinion, while a favorable opinion is considered the answers strongly agree and somewhat agree. The values in graphs are defined by the ratio of the favorable opinion within a given group.

The second part of the research includes all the data and focuses especially on the statistical verification of a significant difference of individual variables (Table 1) affected by a relevant factor, while it originates from the partial results from the first part.

The evaluation is broken down by areas examined in accordance with the structure of the established research model and the research hypothesis.

The displayed results (Figure 1) can be used to identify the biggest difference in values, according to the company size, in case of the variable SA1 IS/IT Strategy and SA2 Alignment of the IS/IT strategy with the company strategy, which follows and builds on the variable SA1.

The values of the SA1 achieved are gradually differentiated in various size categories - large enterprises 83% (l), medium 59% (m), small 40% (s) and micro 27% (mi). Other significant differences between the categories of large and micro enterprises were recorded in the following variables:
SA11 Documenting of IS/IT processes (l - 80%, mi - 42%),
SA12 Documenting of business processes (l - 89%, mi - 51 %),
SA13 Definition of links between IS/IT and business processes (l - 71%; mi - 49%),
SA14 Quality, documenting and monitoring of IS/IT services (l - 75%; mi - 31%),
SA17 Regular evaluation of the return on investment in IS/IT (l - 52%; mi - 29%).
The differences in the values of the variables range from 22% to 44%.

Minimum differences were observed in the following variables:
SA4 IS/IT as a strategic business resource (l - 83%; mi - 78 %),
SA6 IS/IT as means for achieving other objectives of the company (l - 76%; mi - 69%),
SA7 IS/IT as a tool of support processes (l - 64%; mi - 62%),
SA8 Integrating staff into IS/IT projects (l - 75%; mi - 69%),
SA18 Efficiency of investments in IS/IT (l - 81%; mi - 85%; with a higher ratio of micro businesses),
SA20 Level of knowledge of IS/IT users (l - 87%; mi - 86%).

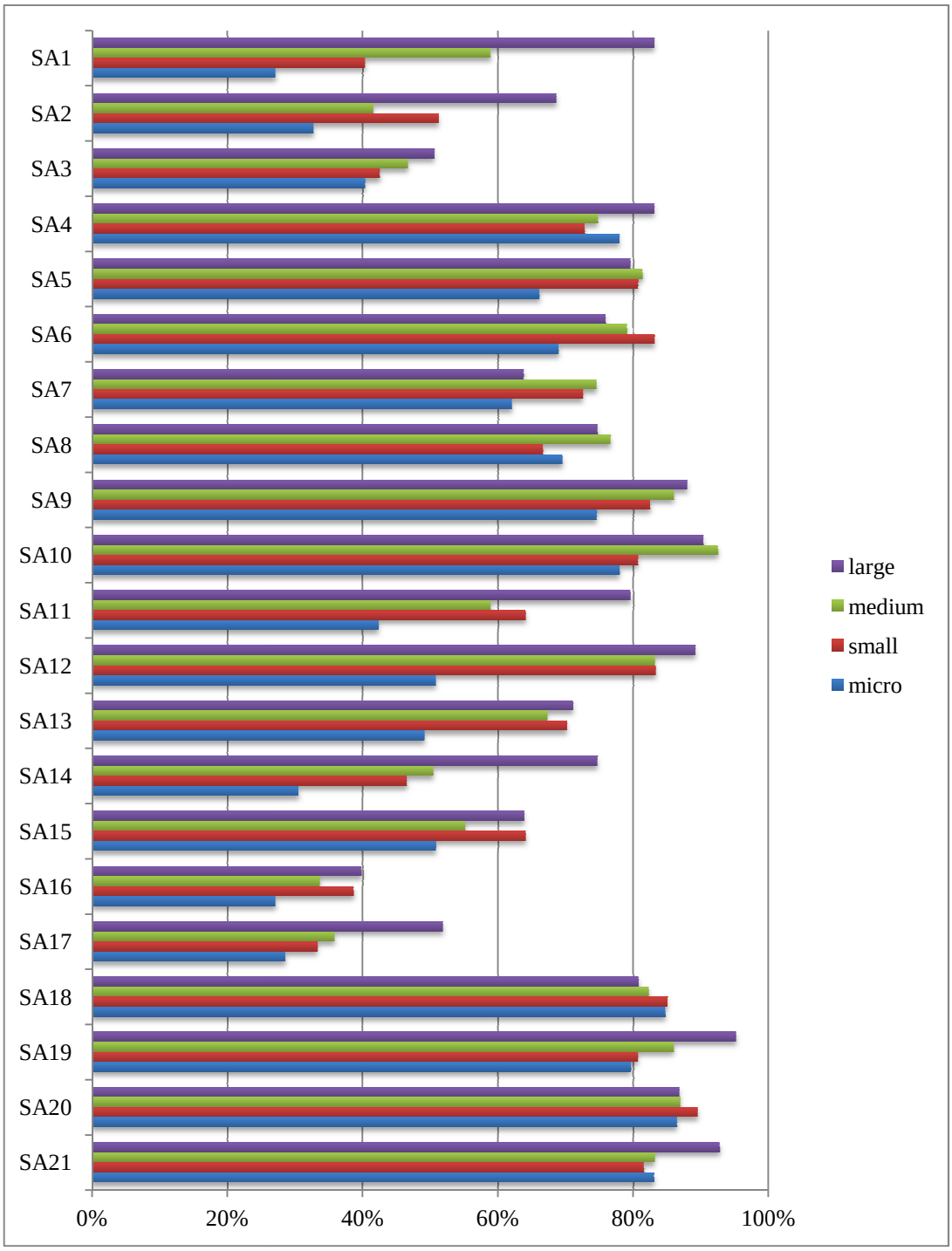

Fig. 1: Evaluation of variables of the strategic alignment of IS/IT with business activities according to the company size (Source: Authors´ own)

Verification of statistical significance

The variables were subjected to verification of the significance of the impact of the company size on the area under consideration. All tests were performed at a significance level of p = 0.05.

Table 2: Results of testing the statistical significance of strategic alignment of IS/IT with business activities depending on the company size (Source: Authors´ own)

Variable	Levene test		ANOVA		Kruskal-Wallis Test		Additional testing (χ^2, V)	Difference variances a the value of = 0.05
	Leven st	Sig.	F	Sig.	Chi-Squa	Asymp. Si		
SA1	-	-	-	-	54.8	0.0	$\chi^2(3)=42.095$, 0.0001, C(V)=0.377 p<0.0001	Yes
SA2	-	-	-	-	7.8	0.0	-	Yes
SA3	1.0	0.3	2.3	0.0	-	-	-	Now
SA4	4.7	0.0	-	-	3.1	0.3	-	Now
SA5	5.6	0.0	-	-	6.0	0.1	-	Now
SA6	2.3	0.0	0.3	0.7	-	-	-	Now
SA7	3.0	0.0	-	-	4.8	0.1	-	Now
SA8	4.2	0.0	-	-	3.2	0.3	-	Now
SA9	5.9	0.0	-	-	5.0	0.1	-	Now
SA10	15.2	0.0	-	-	10.6	0.0	-	Yes
SA11	22.4	0.0	-	-	21.0	0.0	-	Yes
SA12	21.8	0.0	-	-	36.0	0.0	-	Yes
SA13	3.6	0.0	-	-	9.1	0.0	-	Yes
SA14	19.6	0.0	-	-	29.4	0.0	-	Yes
SA15	5.5	0.0	-	-	5.2	0.1	-	No
SA16	4.0	0.0	-	-	3.7	0.2	-	No
SA17	0.8	0.4	8.6	0.0	22.2	0.0	-	Yes
SA18	1.2	0.3	0.3	0.8	-	-	-	No
SA19	15.7	0.0	-	-	9.7	0.0		Yes
SA20	1.0	0.3	0.2	0.8	-	-	-	No
SA21	10.8	0.0	-	-	5.9	0.1	-	No
SA22	0.5	0.6	0.1	0.9	-	-	-	No

From the aforesaid assumptions, the statistical verification of partial results of the implemented research confirmed a significant difference depending on the company size in the conditions of the Slovak Republic in the following variables (Table 2): SA1 IS/IT Strategy, SA2 Alignment of the IS/IT strategy with the company strategy, SA11 Documenting of IS/IT processes, SA12 Documenting of business processes, SA13 Definition of links between IS/IT and business processes, SA14 Quality, documenting and monitoring of IS/IT services, SA17 Regular evaluation of the return on investment in IS/IT. At the same time, a significant difference was confirmed in the variables SA10 Integration of IS/IT applications and SA19 Level of knowledge of IS/IT staff of the IS/IT department.

Wilkin and Chenchall (2010), who analyzed strategic alignment through 7 key aspects such as 1) Understanding the concepts of strategy and alignment; 2) Properties of IS/IT strategy and alignment; 3) Design of IS/IT strategy; 4) The role of the Board of Directors- the role of the Board in Governance; 5) The role of the CEO and the CIO to maximize the benefits of strategic alignment; 6) Alternatives to strategic alignment; 7) The linkage between strategic realignment and value creation. They conclude from their research that SA is a motivator for ITG (PWC, 2006) ensuring linkage of business, IT plans, and operations through establishing, ensuring, and evaluating IT value. Hence, SA research should go beyond the issues raised in SA1–7 and include holistic research into strategic issues like decision rights and responsibilities, policies for risk metrics, reporting requirements to ensure continuous value delivery, and oversight of controls. Thus, a number of these issues relate to the other four focus areas, highlighting the value of research exploring these linkages.

Other studies did not demonstrate for example a significant relationship between the size of the company and the design of an IT Governance model (Olson and Chervany, 1980; Ahituv et al., 1989; Tavakolian, 1989; Clark, 1992). Only Ein-Dor and Segev (1982) in their study demonstrated an association between the size of a company, however the size measured by the total turnover rather than the number of employees. Smaller firms tend to centralize IT management, whereas larger firms tend to decentralize it (Sambamurthy and Zmud, 1999). On the contrary, recent research studies have demonstrated that the influence of factors such as, for example, industry, organisational structure, culture, mission, vision and strategy as factors affecting the environment of IT Governance have to be taken into account when designing an appropriate framework for IT Governance. Each framework has different strengths and weaknesses and, of course, overlapping between them occurs. (Kordel, 2004; Symons, 2005; Butler and Butler, 2010).

The research results (Simonsson et al., 2010), based on 35 case studies, confirm the hypotheses of a positive correlation between IT governance maturity and IT governance performance. Although it is reasonable that there is a correlation between the quality of the internal structure of an IT organization – labelled IT governance maturity, and the external impact of the same IT organization on the business – labelled IT governance performance, this has not been validated.

Conclusion

IT Governance is a way of managing IT processes in an organization that aligns the information system and all information technologies with the global strategy of the organization. In the area of strategic alignment of IS/IT with business activities, we recorded the share of the favorable opinion less than 50% in the following variables: IS/IT as one of the strategic objectives of a company, indicators to determine the benefits of IS/IT, regular evaluation of the return on investment in IS/IT. The other two variables had the lowest share within this group (36% and 37%). The share of more than 75% was achieved by 10 variables. The highest share of the favorable opinion was reported by the respondents in case of an appropriate level of knowledge of IS/IT users (88%), an appropriate level of knowledge of IS/IT of the IS/IT unit staff (85%), good relations between the IS/IT unit and its contractors (85%) and efficient investments in IS/IT and their satisfactory return (83%). An interesting finding is that businesses in the conditions of the Slovak Republic are satisfied with their investment efficiency and return even though almost 60% of companies do not carry out regular assessment of the return and do not set indicators to determine the IS/IT benefits.

The principles of IT Governance should be a part of every modern managed organization. Considering its concept, functional IT Governance is primarily the responsibility of the IT Director; its scope, however, interferes with the work of almost all managers throughout the organization. Its introduction, however, is particularly in the interest of the owners because it increases the level of protection of IT investments, compliance with legal obligations, data retention, handling of sensitive information and reduction of a series of risks.

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Propulsive Cluster as a Tool to Promote Economic Growth

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Abstract

The study aims to systematize the known approaches to the definition of the clusters and their typology, the author grouping complemented by a new classification of symptoms associated with the cluster to give impetus to the development of the regional economy as a whole, we introduce a new concept of "cluster of propulsion."
The main purpose of this study is the theoretical development of scientific knowledge in the field of regional cluster.
Keywords: clusters, cluster-based policy, clustering conditions, propulsive cluster

Introduction

The search for effective tools that are able to boost a regional economy is one of the biggest challenges today. This challenge can be met by developing new methods of economic process management. The analysis of world practices in this area has shown that the most suitable method here is cluster approach.
Theoretical and methodological foundations of cluster formation are extensively discussed in the literature. M. Porter was the founder of the cluster approach. The problems of economic space clustering were studied by A. Weber, B. Zimin, A. Lesh, G. Myrdal, X. Richardson and others. The issues related to the formation of regional clusters were studied by many scholars such as Jill C., Deman A., Bengtsson M., Bokhol P., Bryden R., Doyringer B., C. Ketels, P. Krugman, S. MakKibbin, S. Rosenfeld, P. Romer, John Sennett, M. Feldman, E. Feather, H. Schmitz, M. Enright, R. Ezkurra, D. Jacobs, L. Young and others (Enright, M.,1996, Bergman, Ed. M. and Feser, Ed. J., 2000, Ketels, K., 2005). A significant scientific contribution to the development of expertise needed to improve the competitiveness of Russian industrial structures by clustering was made by such scholars as D.A. Akimov, M. Afanasiev, A. Blank, A. Voronov, Y.V. Vertakova, A.R. Yakovlev, V.M.Yuriev, V.A Plotnikov, Y.S. Polozhentseva, Y.I. Treshchevskiy, Risin I.E. and others.

The tasks related with the formation and implementation of a regional cluster policy are rather complicated to fulfill as there are several hindering issues including:

- the ambiguity of the notion “cluster” ;
- vague criteria of classifying an economic activity as a cluster forming one;
- different approaches to include business entities (organizations) either into the cluster center or refer it to cluster periphery as a supporting means ;
- lack of Russian official statistic data on industries or cluster formations (statistical data are available only for different kinds of economic activity), and on the indicators that specify co-operation links between industries (organizations) and their current state (Vertakova Yu. and Polozhentseva Yu., 2016).

Due to these aspects the methodology of cluster formation and development is bound by certain requirements and restrictions. First of all, such methodology should be based on common scientific approaches. At the same time it should take into consideration specific features of a particular social-and-economic system (in our case this is Russian system). The suggested original theoretic approach to clusterization management is founded on the understanding of the inter-dependence between the processes of cluster functioning and economic growth.

1. Definition of "cluster" and its properties

The analysis has shown that the "cluster" concept has not been definitely specified yet, and different scholars in different countries often understand it quite differently, sometimes giving very conflicting definitions. The variety of clusters is characterized by multiple organizational forms, interaction means and the lack of unified legal rules regulating the relationships between cluster members. It presents some difficulties in implementing a cluster policy in assessment of its efficiency.

In our opinion the notion "cluster" cannot be defined absolutely unambiguously. Since Michael Porter investigated the place of clusters in modern market economy and proved that clusters, but not individual enterprises, encourage competitive development of a country, a region or an industry (Porter, M.E., 1998), the term "cluster" has been interpreted very differently with numerous attempts to build up the classification of clusters. To support this statement we have included the table (Table 1) that presents different interpretations of a "cluster" that can be met in referential literature.

Table 1: basic definitions of the "cluster"

Definition	Author/ Source
Definitions of "cluster" as an economic category	
Cluster is a geographic concentration of interconnected companies and institutions in a specific field.	M.E. Porter, 2011
Clusters are groups of interconnected related industries, operating in a certain locality.	M. Delgado, M. Porter, S. Stern, 2009
A cluster is a group of firms, related with economic entities and institutions, which are located close to each other and reach a sufficient scale to develop specialized knowledge, services, resources, suppliers and skills.	US Council on Competitiveness
The cluster is the tendency of firms of similar business type to concentrate close to each other, though without any important special reason for the presence in this area.	C. Crouch, H. Farrell, 2014
A cluster is a concentration of firms able to synergy from their geographical proximity and independence, without their employment scope being significant.	S.A. Rosenfeld
Clusters are groups of companies within the same industry, based in the same territorial area.	G.M.P. Swann, M. Prevezer, 1996
Clusters are large groups of companies within the same industrial sphere concentrated in one place.	G.M.P. Swann, M. Prevezer, D. Stout
Clusters are a network of manufacturers of deeply interconnected firms (including specialized suppliers) linked together in a chain of value-added production.	T. Roelandt, P. den Hertog
Custer is temporary localized group of specific economic agents with an optimal composition and participation of governmental authorities. The cluster is absolutely independent entity acting as a means of innovative development in a specific economic sphere. It is based on the principles of cooperation and competition running under the influence of internal and external environmental factors.	E.V. Poklonova, I.P. Zagora
Cluster is an efficient concentration of interdependent companies competing in a certain economic activity area and making such a golden ratio in the national economy that is able to ensure strong competitive positions on the regional, national and international markets.	A.A. Migranyan
Cluster is a complex economic system that comprises a body of interdependent economic agents such as industrial enterprises having a common production cycle and supporting organizations that render relevant services (banks,	Yu.V. Vertakova, I.E. Risin, 2015

Definition	Author/ Source
consulting companies, marketing organizations, scientific, research and educational institutions, insurance companies, etc.).	
Clusters are not just related and supported by each other's businesses and institutions, but rather institutions are related and support each other, that are more competitive because of their relationships.	E.J. Feser, 2000
Economic clusters are groups of related companies and organizations in the branches of industry which joint cooperation provides a sustainable competitive advantage.	Utah's Economic Cluster Initiative
The economic cluster is a dense network of companies and institutes concentrated in one geographical area. Economic clusters are based on the basis of unique regional assets.	The Reut Institute. Israel
Definitions of "regional cluster" as an economic category	
The regional cluster is an industrial cluster in which member firms are in close proximity to each other	M. Enright
Regional industrial cluster is a cluster elements of which have a common regional location and where the region stands for an area, the labor market, or other functional economic unit	E.M. Bergman, E.J. Feser, 2000
Regional cluster is a pool of companies, universities and other organizations that are linked together acting in a certain industrial area in a given region. The synergy in the cluster is developed in the competitive environment through the co-operation between its members.	N.N. Semenova
Regional cluster is a group of interrelated enterprises and organizations that are concentrated on a certain territory and are united on the bases of common economic interests and/or by functional criteria of ensuring a synergetic effect of their collaboration predetermined by incrementing initial competitive advantages.	Yu.V. Vertakova, Yu.S. Polozhentseva, 2014

Certainly, Table 1 is far from presenting all available definitions of a cluster. However, it is full enough to demonstrate that the "cluster" is quite an abstract category. When trying to define the term more accurately, each author includes some specific cluster attributes that may be related with development level, territorial range, the scope of economic entities representing different industry branches or activity areas, etc. However it is safe to say that different researchers highlight certain features of clusters and put them into the foundation of their original cluster typologies, yet these features might be important for specific analysis with specific research purposes.

Borodkina E.V. and Risin I.E. (2011) have systematized different approaches to cluster typology by summarizing available classifications, emphasizing some productive elements and supplementing them. Thus in accordance with formality criterion all clusters can be divided into institutionalized and non-institutionalized; in accordance with origin criterion they are divided into spontaneously emerged and artificially established by public administration authorities; in accordance with potential development criterion there are active, latent and potential clusters; in accordance with range criterion there are global, inter-country, national, inter-regional, regional and local; in accordance with branch pertaining they are divided into intra-branch, branch and sectoral; in accordance with the predominant technical and technological relations clusters can be vertical or horizontal; and in accordance with their development stage they can be expected, developing, mature and disintegrating.

Many authors are right to mark that there are no unified cluster typology as each categorizing attribute is based on a certain aspect of clusters' functioning. However there is one important aspect that is not addressed properly in the existing cluster specifications. This is the relationship between clusters and economic growth. We suggest that this criterion should be included into cluster classification principles.

2. Classification of clusters based on their economy boosting ability

In our opinion, that has been founded on the reviews of legal and regulatory guidelines, as well as Russian and international expertise in the area of implementing cluster initiatives, there should be another cluster classifier that has not been considered in the literature yet. We mean such aspect as the ability of a cluster to influence the rates of economic growth. After all, evidently it was what Michael Porter implied when he drew parallels between clusters and competitiveness, which in its turn encourages economic growth. However he did not reveal that relationship, though, in our opinion, it has a top priority.

As we have already marked, clusters are always associated with a territorial concentration of economic activity and a more vigorous organizational and productive cooperation interaction with a certain alienation from other economic entities (a cluster is considered to be one of capital concentration forms and a form of integrative entrepreneurial union). Due to this fact the cluster shall be treated as an independent object of studies and administrating (including the influence of public authority exerted within the framework of independent clustering policy). At the same time many of available studies postulate a thesis about unambiguously progressive and positive effects of clusters on social-and-economic system of a region in particular, and the country on the whole, which, unfortunately, has no strict theoretical or empirical evidence. On the contrary, practical experience prompts that it is not always true. Economic effects caused by a cluster can be very different.

In this relation, we propose to distinguish the following cluster types: propulsive, neutral, and catch-up.
The greatest influence on a regional economy is produced by "propulsive" clusters.
The growth rates of value added production inside a propulsive cluster are higher than in the non-clustered part of the economy. The business activity of such clusters results in an increase in the regional economy growth in general as it gets a development impulsion. The multiplier effect produced by such clusters is able to boost the development of social and economic system in the total region. The cluster of this type is often called "a growth pole" (or *pole de croissance* as F. Perroux put it).

Perroux's general theory combines three concepts: dominating economy, harmonized growth and total economy. As Klevtsova M. G. (2012), writes, Perroux's basic proposition (Perroux, F., 1995) is the "domination effect", which consists in the change of the nature and forms of relations between economic entities. This effect results in the "polarization of production" that concentrates around an industry branch in which economic entities behave as parts of a whole ("macroentities"). Finally natural "aggressive" competition disappears, while aggregate efficiency of partners' activities grows up. Such industry can be called "propulsive".

According to François Perroux a leading, or propulsive industry, is the branch that is highly interactive and is dominating in such interactions, i.e. has a propulsion capability. The process of interaction development, that takes place between propulsive branches and/or individual enterprises, with its multi-level structuring is called polarization. As the production units and infrastructures develop, the pole is gradually turning into the center. Thanks to this harmonious development, the industries that constitute a "growth pole" are blending with regional economy environment.

Consequently, the growth pole will entangle individual economic elements existing on a territory into a unified production-economic system acting via key (propulsive) industries. It is worth noting, that in Perroux's opinion the elements of a growth pole interact not only in the horizontal plane, but also vertically (though such interaction may not be expressed very well). This understanding is close to the perception of center-periphery relationships in a cluster. Prof. Perroux (Perroux, F., 1982) also distinguished so called "groups' or "macroentities". A group is an association of unequal economic entities with hierarchic relations. The group that is formed up around an entraining entity (in fact, it is

the kernel of a cluster), that is able and capable of changing the structures, organizational types, growth rates, etc. of other entities, is classified as a stable group.
Thanks to such division of roles between group members, those ones that are developing at a greater rate, "entail' the others. In this case we say that a propulsive cluster has emerged. In this context we understand the propulsive ability as the development force that drives its possessor and at the same time stimulates the growth of other linked members. In other words, "propulsive ability" is the effect of an economic growth force that is able to encourage the growth of all interacting economic entities.

At the same time the considered impulse of regional growth is only a potential. Multiplier effect can be absent (however the nature of such clusters will not be affected leaving them propulsive), an example is the formation of export-biased machine-building assembly production clusters (so called "screwdriver industries"), that are actually "separated" from the regional social and economic system. Nevertheless, in this case such cluster will also produce a propulsive effect on the regional economy due to increasing rates of GRP growth, increased average salaries in the region, increased tax deductions into budgets, etc. In order to differentiate two kinds of propulsive clusters we suggest that they should be provisionally named as "propulsive-multiplying" and "propulsive-isolated" clusters. It must be noted that within a certain time period a propulsive-isolated cluster can alter and become a propulsive-multiplying one. For example it may happen, if a cluster in a region is formed based on significant foreign investments into a "rifle" project involving the establishment of a system of interrelated productions that will gradually evolve from an isolated propulsive cluster into a propulsive cluster with multiplier effect, with this process driven by economic practicability (logistics economy) or purposeful governmental policy (production localization imperatives). More or less similar picture could be observed in Russia in regard to Saint-Petersburg and Kaluga automobile manufacturing clusters.

Unlike propulsive clusters neutral clusters develop at a rate that is comparable with national economy development rate. Hence they are not able to have any notable quantitative effect on the development of the country. Yet, it does not exclude their positive qualitative influence, such as the introduction of new technologies, production diversification, leveling of spatial development distortions, etc.).

The development of catch-up clusters falls behind the development of national economy on the whole. As a rule it can be explained by their evolution stage: a cluster can be either in its early development stage or near the life-time end. From economic point of view such clusters are inefficient, as the resources are spent non-optimally. However their preservation can be justified from the social point of view. For example, they can keep employment rate at a desired level.

Table 2: type of cluster in their ability to affect the rate of economic growth

Type of cluster	The impact on economic growth of the economy	Examples of the clusters in the Russian Federation
1.Propulsive - propulsive-multiplied - propulsive-isolated	The dominant industries of the development poles interact with the resources of the region, connect the individual elements of the territory. Due to the increase in the growth rate of GRP, the average salary of the employed population, tax payments to the budget, etc. they have a positive effect on the regional economy.	The automotive clusters in Leningrad and Kaluga regions The pharmaceutical cluster in St. Petersburg The livestock cluster in Belgorod region
2.Neutral	They lead to the appearance of the positive synergy effects due to the increase in connectivity of the economic system, increase of its stability and the level of innovativeness, diversification of economic activities, involvement in the turnover of new resources.	The Electrical cluster in the Kursk region The Innovative regional clusters of rocket engine "Technopolis" New Star" in the Perm region

	It impacts the improvement of the static characteristics and this is due to greater employment, production of goods and services higher in quality and quantity in the region. This initiates structural changes in the economy due to the incorporation of innovative technologies, the introduction of new standards of governance and social responsibility, manufacturing the more modern and popular products.	The Sarovsky innovative cluster in the Nizhny Novgorod region
3.Catch-up	It is aimed at maintenance of social stability in the region. That promotes the growth of not only the region's economy, but the improvement of social indicators and increasing standards of living.	The textile cluster in the Ivanovo region The aircraft manufacturing cluster in the Voronezh region

Conclusions

1. The term and notion "cluster" still need to be clarified and unified. Cluster diversity is characterized by numerous organizational forms and various interaction mechanisms, as well as by the lack of unified legal rules regulating the relations between cluster members.

2. We define a cluster as a complex economic system comprising a totality of interrelated economic entities, for example industrial enterprises linked by a common production cycle, with their supporting organizations (banks, consulting and marketing organizations, insurance companies, research and educational institutions, etc.), that are concentrated on a certain territory, united either by common economic interests or/and by functional criteria, and are able to produce the effect of synergy due to their interaction determined by gradual extension of their initial competitive advantages.

3. Cluster typologies built up by different researchers are based on different features of clusters, consequently there is still no unified classification of clusters. Clusters can be split into categories based on the following criteria: formalization degree, origin, potential realization rate, development scale, industrial affiliation, character of dominating technical and technological links, production and capital concentration entities, competitive ability, innovation rate, etc.

4. We propose a new cluster classification criterion that has not been applied explicitly so far. This criterion is the ability of a cluster to influence economic growth rates. The existence of such cluster characteristic was supposed by Michael Porter who used to link clusters with competitive ability influence on economic growth. In our opinion, the ability of a cluster to produce economy boosting impulse (propulsive impact) in the process of its formation and development has the top priority.

5. Consequently, all clusters should be divided into the following classes:
-**propulsive** - a cluster that can produce the multiplier effect and influence regional economy development rates by imparting boosting impulse; this cluster is based on key (propulsive) industries that link individual territorial elements into a unified economic system;
-**neutral** – a cluster that is developing at a rate comparable with the regional economy development rates; its activity is not able to accelerate economic growth, but even without economy boosting effect it is able to initiate positive structural changes (for example, due to the introduction of innovative technologies, new management and social responsibility standards, production up-grading, etc.);
- **catch-up** – a cluster that is developing at a slower rate compared with the regional economy growth, which can be explained by a certain stage of its life cycle; in case of its constantly low performance indicators, the most efficient measure would certainly be its demolition (production process re-

engineering, innovative renovation and refurbishment, etc.,), however, it should be understood that if economic situation changes (for example, in case of an abrupt national currency devaluation, externally implied restrictions caused by foreign policy situation or economic sanctions), the status of such cluster can be changed, so its abolition may be impractical and by all means demands a thorough preliminary analysis.

We believe that the proposed classification and methodology of distinguishing propulsive clusters can be favorably used in the practice of cluster policy implementation in different countries. However it must be noted that because of the dominating organizational economic link such clusters cannot be of "market" nature, when small- and medium-size businesses, that use the same resources localized on a certain territory, make up a voluntary union. Such clusters can be either quasi-market (with one dominating company that affiliates smaller entities on subcontracting or outsourcing terms) or administrative, i.e. established by the government in order to exercise its functions and meet long-term goals.

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The Methodical Approach to the Evaluation and Development of Clustering Conditions of Socio-Economic Space

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Abstract

The paper represents an evaluation technique of clustering conditions characterized by using the iterative method. The main goal of the first stage is to evaluate technical and technological conditions of cluster formation – in every region some industries and enterprises are selected to be the "core" of future cluster. For this purpose localization factor, specialization ratio and per capita production ratio are being estimated. As a result, virtual clusters are formed, promising to turn into real ones. Then we aim at the evaluation and development of socio-economic and institutional conditions of the regions required to form actual clustering. In the second place the system-wide clustering conditions are estimated considering a set of indicators of socio-economic conditions which are hopeful for regional clustering. After that we carry out classification and ranking based on a set of statistical ratios. It results in virtual cluster formation differing in adequacy level of technical and technological, socio-economic conditions in order to form real clusters. Further in the fourth place virtual cluster analysis is practiced in order to identify both its general strengths and weaknesses. Finally, at the fifth stage formal and informal regional institutions are being estimated with respect to each virtual cluster. The development measures of socio-economic and institutional processes are being worked out for those regions in which they are going to form clusters. As a result we have obtained the data concerned the promising regional industries of Central Federal District to be involved into clustering. Besides, the authors have evaluated the platform of district regions to form radioelectronic cluster.

Keywords: clusters, cluster-based policy, methodical approach, industrial localization, specialization, production per capita, competitiveness, clustering conditions.

1. Introduction

Cluster development in economy is a challenging issue of many countries both developed and developing, discussed in studies by various authors (Afanasyev, 2005; Bergman and Feser, 1999; Boekholt and McKibbin, 2000; Delgado and Porter, 2011; Doeringer and Topakian, 1987). Economic clusters are defined as being totality of economic entities inter-linked to each other in business transactions. They together use natural, renewable physical and labour resources which permits to create auxiliary facilities for development and competitive growth. Not by chance, when identifying Global Competitiveness Index (GCI) (http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/apps/) and Business Competitiveness Index (BCI) significant attention is being paid to clusters, selecting them as one of the competitive growth areas (http://www.photius.com/rankings/economy/gdp_per_capita_2014_0.html). At the same time many countries including Russian Federation consider cluster development as spontaneous market formation without allocating them as one of the mechanisms of efficiency improvement of the state economic policy. In this case the benchmark targeted by public authorities is not fulfilled and also some member interests are not fully implemented. Therefore, the process studies and cluster forming techniques both spontaneous and controlled represent a great research interest and are up-to-date ones.

2. Problem statement

The current state of the economy largely depends not only on public sectors in which economic entities are functioning, but also on the nature and close links between them. Some companies may have significant power, high performance, but without being a part of the system with advanced technical and technological, organizational economic and institutional relations, with rare exceptions, are not able to participate in the increment and implementation of a comprehensive, systematic development of the territories.

The global competitive growth is limited in those countries exploring insufficient interconnection between stake holders and between governmental institutions and business as well. On the contrary, in highly competitive countries a visible and steady trend in cluster formation is observed. In most countries such as France, Spain, Norway, Italy, Great Britain, Austria, the USA, Finland, Denmark clustering processes are widely used. Here we can also observe high values of GCI index. This competitive rating is based on a combination of the public statistical information and the company executives' interviews which represent a comprehensive annual survey conducted by the World Economic Forum together with its network of partner organizations (http://business-swiss.ch/wp-content/uploads/2014/09/GCR_Rankings_2014-2015.pdf).

Table 1 illustrates information about the leaders by Competitiveness Index in 2015 and the plant concentration in these countries.

Table 1- Russia and Leading Countries according to Global Competitiveness Index and cluster-based policy development

Country	The Global Competitiveness index , in 2015	Cluster quantities	Per capita production, $	Specialization level of industrial production, %
Switzerland	1	5 Mega-clusters	58,149	68,1
Singapore	2	3 Mega-clusters	83,066	70,9
The USA	3	380	54,370	71,8
Finland	4	9	40,661	67,1
The Netherlands	7	10 Mega-clusters	47,960	61,9
Denmark	13	29	44,625	67,0
Russia	53	72	24,449	20,8

Source: worked out by Y.Vertakova based on the data of the global competitiveness rating (The Global Competitiveness report 2014–2015) and of international Bank for Reconstruction and Development http://data.worldbank.org

The assumptions in the table are as follows: by "per capita production" we mean gross domestic product per capita (by purchasing power parity) GDP per capita; a rate of manufactures in total exports is given, i.e. availability of specialization in the sectoral economic structure is partially characterized by the rate of specialization in total export.

The advanced countries' cluster analysis has revealed that the development trend of sectoral specialization areas is becoming increasingly important. It results in an adequate effort to concentrate some branches of industry in a particular location. Therefore, in order to form clusters companies choose the locations which offer some advantages. According to the table there is a direct relationship between the level of competitiveness and the level of industry specialization. Highly specialized industrial

production leads to an increase in national competitiveness. At the same time, high specialization requires cooperation. This leads to the formation and development of clusters. Therefore, developing promotion can enhance competitiveness.

In our view, while implementing cluster policy it is important to assess clustering conditions of socio-economic space. At the same time, this problem is decomposed into two fractions: 1) identification of existing clusters and cluster initiatives; 2) identification of potential clusters (Treshchevskiy, 2006; Vertakova and Plotnikov, 2013, 2014; Vertakova and Risin, 2015; Kuzbozhev, Kozeva and Klevtsova, 2011; Vertakova, Polozhentseva and Klevtsova, 2015).

There exist several approaches to identify potential clusters in the socio-economic regional space of the country (Eskurra and Rapun, 2006; Feldman and Audretsch, 1999; Feser, 1998). The main aim of this study is reviewing methodical approach to cluster identification based on cluster properties such as being a part of socio-economic and organizational system. Exploring this approach we undertake a series of logical steps which could be applied to the economy of various countries.

3. Overview of recent research and the brief literature review

A great number of scientists has investigated the theory and the methodology for the cluster formation based on the experience gathered in the field. It should be noted that M. Porter was a founder of cluster approach. Such researchers as G. Myrdal, X. Richardson and others studied the issues concerned space clustering. M. Bengtsson, C. Ketels, P. Krugman, S. Rosenfeld, P. Romer, M. Feldman, H. Schmitz, M. Enright, P. Eskurr and others are actively investigating the issues related to the formation of regional clusters. A significant contribution to the development of scientific knowledge for increasing the competitiveness of Russian industrial structures by clustering were made by such researchers as A. Blank, Y. Vertakova, A. Yakovlev, V. Plotnikov, Y. Polozhentseva, I. Risin, N. Sirotkina, E. Sibirskaya, S. Rastvortseva, Y. Treshchevskiy etc.

4. Purpose

The main purpose of the paper is to form a new methodological approach for the identification of clusters in the economy. That will allow to develop scientific and methodical recommendations for improving clustering process of socio-economic space.

5. Results and Discussion

Underlying the fact that there is no unified approach to the definition of "cluster" we offer to expand our previously proposed interpretation of cluster. It should be defined as a system of socio-economic and organizational content.

Considering the socio-economic point of view, cluster is characterized by high production and capital concentration within a particular location, being enough to start inter-connected activities. It is also specified by the existence of common competitive advantages and by enhanced competitiveness in relation to other systems as well.

In organizational terms, cluster is a set of economic entities with different institutional nature, forming a single system by means of technical and technological, market and institutional linkages; besides it is characterized by a long-term cooperation.

This cluster definition highlights some of the common features that characterize cluster systems:

- economic entities i.e. participants of the cluster system co-located in specific geographic region;

- steady technological links between economic entities – cluster system participants;
- long-term cooperative relationship between system participants in providing manufacturing programme, innovation, key management and quality control;
- creating the enterprise "core" in cluster to produce highly competitive goods which benefit from its appropriate competitive location;
- entry of "peripheral" i.e. business groups which are not linked in a particular production field (scientific, educational, financial and other organizations) and related to different functional subsystems of socio-economic geographic system into cluster.

Regarding these statements it is obvious that the evaluation of clustering conditions will differ in using iterative techniques. We have pointed out five stages, which may be characterized as follows:

1. The main goal of the first stage is to select some industries and enterprises which will be the "core" of future cluster in every regional location. For this purpose we believe that to identify such a role we can use the following three ratios (indicators) (Kuzbozhev, Kozeva and Klevtsova, 2011):

1) localization ratio defined as a relation ratio of some production in same industry group within geographical manufacturing structure between its ratio on a national scale (formula 1)

$$K_{LM} = \frac{Vir}{Vr} : \frac{Vic}{Vc} \quad (1)$$

where K_{LM} – localization ratio of separate production
V_{ir} - production output of the nth regional economic sector
V_{ic} - production output of the nth national economic sector
V_r – regional production output
V_c – nation's production output

2) per capita production ratio:

$$K_{pp} = \frac{Vir}{Vic} : \frac{Pr}{Pc} \quad (2)$$

where Kpp – per capita production ratio
Vir – production output of the nth regional economic sector
Vic – production output of the nth national economic sector
Pr – the population of the region
Pc – commonwealth (the population of RF)

3) specialization ratio:

$$K_{sp} = \frac{Vir}{Vic} : \frac{GRP}{GDP} \quad (3)$$

where Ksp – specialization ratio of the region in nth industry
Vir - production output of the nth regional economic sector
Vic - production output of the nth national economic sector
GRP – Gross Regional Product
GDP – Gross Domestic Product

Here we can add some other indicators, including:

- investment volume per employee in industry (of economic activity), serving as a base while forming the "core" of cluster;
- labor productivity in the primary sector;
- capital-labour ratio in the primary sector.

When the values of the calculated indicators are significantly greater than one, it could be concluded that the productions involved are areas of market specialization within this geography. And it is possible to create clusters here.

2. Next step should be devoted to the assessment of the system-wide conditions being important for clustering with regard to the selected locations. For the best results we use a set of statistical ratios. They could be as follows:

- the number of organizations engaged in research and development;
- the number of personnel engaged in research and development;
- domestic expenditure on research and development;
- the number of granted patents;
- the number of advanced production techniques;
- the number of advanced production techniques being used;
- innovative activity of organizations;
- expenditure on technological innovation;
- the share of innovative products , works and services;
- participation (labour force) rate;
- rate of academically and professionally trained population
- the number of students per 10 000 population;
-the number of organizations utilizing information and communication technologies;
- balanced financial result;
- capital investment per capita.

3. After that we carry out classification and ranking based on the totality of statistical factors. It results in virtual cluster formations which have sufficient conditions to form actual clustering in socio-economic space.

4. Further in the fourth place virtual cluster analysis is practiced in order to identify its overall strengths and weaknesses and to estimate sufficient conditions for clustering.

5. Finally, at the fifth stage using a survey we estimate clustering conditions with respect to each regional virtual cluster. The conditions must have qualitative characteristics only. These conditions are as follows:

- existence of regional legislation governing (controlling) clustering processes;
- existence of an authority coordinating activities of cluster members;
- existence and quality of a mechanism controlling clustering processes;
- existence and efficiency of regional development institutions;
- a variety of methods and tools of the state influence on clustering processes.

The obtained results allow to allocate areas within each virtual cluster and simultaneously to identify if these areas have sufficient or insufficient conditions for real clustering with qualitative characteristics only.

Thus, the desired evaluation is formed by series of complementary partial estimates, which detect the selective and system-wide clustering conditions in the region. In its turn a set of statistical indicators and expert data helps to reflect these conditions.

We believe that the results obtained by using this methodical approach can become the basis for the strategic development of clustering process management of regional socio-economic space .

We have carried out the practical approval of the proposed approach to form radioelectronic cluster in Central Federal District of the Russian Federation.

At first in order to implement a proposed approach, the authors evaluate technical and technological conditions of cluster formation – in every region some industries and enterprises are selected to be the "core" of future cluster. For this purpose localization factor (ratio), specialization ratio and per capita production ratio are being estimated by economic activities included in manufacturing production. When the value of each ratio is above 1.0 it verifies that there are objective conditions for cluster formation.

Table 2 shows the final estimated results of clustering conditions by regions of RF and types of manufacturing industries (intermediate calculations and conclusions are omitted). It should be noted that the most part of boxes in Table 2 remains blank. Thus we can conclude that from the economic point of view the combination of these regions and industrial sectors is unfavourable for clustering.

Completed boxes signify that specialization ratio is sufficient to form cluster. Colored boxes signify that there are favourable conditions to form clusters regarding all three ratios. The activities being performed in these areas have a high potential for clustering of socio-economic space.

The possibilities to form specific clusters could be proved by vertical analysis considering given industrial sectors. Having studied one industrial sector (12- electrical, electronic and optical equipment production) we found out that in some regions of RF there are favourable conditions to form radioelectronic cluster (table 3.).

Table 2 – Specialization ratios by regions and industrial sectors benefiting from production localization and production per capita.*

Region	Industrial sectors											
	1	2	3	4	5	6	7	8	10	11	12	13
1	4,4								4,6			
3	2,8	4,1		4,6				2,9		2,9	3,4	
4	2,0						2,4					
5		36,1		5,0								
6											8,8	17,3
7		2,5		28,8								
8			2,1				2,3	2,4				
9	3,0								18,7	3,2		
10	1,8			2,1	1,4		1,8	2,9		2,6		
11										3,0		
12			9,0			2,2					3,3	

13		3,3		6,4			2,8	3,2			2,4	
15		3,3	16,5	4,6				3,1				4,2
16							8,3		4,3			
17			3,9				1,9	3,8		2,5	1,8	3,9
18					0,9	1,5					0,6	

In the table the following notations are used: **industrial sectors**: 1- food production including tobacco and beverages;2- textile and garment manufactures;3- leather manufacture, leather goods and footwear manufacturing; 4- wood processing and wood products manufacture; 5- pulp and paper production; publishing and printing activities; 6-manufacture of coke and petroleum products ; 7-chemical production; 8-manufacture of rubber and plastic products; 9-manufacture of other non-metallic mineral products; 10-metallurgical production and hardware manufacture; 11-machinery and equipment production; 12-electrical, electronic and optical equipment production; 13-production of transport and equipment.

Regions of the Russian Federation: 1 – Belgorod region; 2 – Bryansk region, 3 – Vladimir region, 4 – Voronezh region, 5 – Ivanovo region, 6 – Kaluga region, 7 – Kostroma region, 8 –Kursk region, 9 –Lipetsk region, 10 – Moscow region, 11 – Oryol region, 12 – Ryazan region, 13 – Smolensk region, 14 – Tambov region, 15 – Tver region, 16 – Tula region, 17 – Yaroslavl region, 18 – Moscow city.

*Completed boxes signify that specialization ratio is sufficient to form cluster. Colored boxes signify that there are favorable conditions to form clusters regarding all three ratios.

Table 3 – Identifying prospects to form radioelectronic cluster in Central Federal District of the Russian Federation by concentration ratio of electrical, electronic and optical equipment production .

Region	Localization factor (ratio)	Per capita production ratio	Specialization ratio
Regions in which there is an absolute advantage to form cluster			
6 Kaluga	2,60464	5,6148	8,87503
12 Ryazan	2,02592	1,58197	3,3231
3 Vladimir	1,7105	1,51152	3,42805
13 Smolensk	1,64709	1,12359	2,47681
17 Yaroslavl	1,18357	1,05831	1,87471
Regions where there are relatively favorable conditions to form cluster			
8 Kursk	1,09567	0,52807	1,0559
10 Moscow	0,78717	0,86403	1,15304
11 Oryol	0,94	0,44055	1,06502
15 Tver	0,81812	0,52276	1,18575
16 Tula	0,57892	0,63453	1,43381
14 Tambov	1,61847	0,64433	1,5515
18 Moscow city	1,05969	1,25238	0,62197
Regions in which there are no conditions for clustering			
4 Voronezh	0,92991	0,51536	0,9561
1 Belgorod	0,13679	0,18844	0,23974
2 Bryansk	0,56138	0,25266	0,68852

5 Ivanovo	0,36472	0,14801	0,51696
9 Lipetsk	0,11112	0,18867	0,33748
7 Kostroma	0,36956	0,27784	0,63214

As it can be seen from the data presented in Table 3 we confirm that regarding all 3 ratios i.e. localization ratio, per capita production ratio as well as specialization ratio and in terms of absolute and relative advantages not only the absolute leader Kaluga has more favorable conditions for the cluster formation, but a number of other regions such as Vladimir, Ryazan, Smolensk, Yaroslavl has also friendly environment to form cluster.

Furthermore we can say that Kursk, Moscow, Tambov regions as well as Moscow city also have relatively favorable facilities for cluster formation. That is why namely these regions must obtain governmental support to form and develop this cluster. Similar calculations can be performed by all types of activities of any country with regard to its territorial division.

Conclusions

We have proposed a methodical approach based on the following assumptions.

1. The formation of any cluster is mainly connected with the creation of its “core”. Cluster participants are the companies producing rival products in which the competitive advantages of the location are implemented. In this context, the evaluation of clustering conditions should primarily cover those Russian industrial sectors which are planning to start such production.

2. Cluster represents a business group consisted of the “core” and the “periphery” as well. Cluster participants are the companies which are not linked in a particular production field (scientific, educational, financial and other organizations) and related to different functional subsystems of socio-economic geographic system. Therefore, the evaluation of clustering conditions should include system-wide parameters being important for all cluster organizations.

3. The conditions being significant for clustering have a variety of characteristics. Some of them could be estimated by the state statistical indicators only. Another part is verified only by qualitative estimates obtained from the experts.

4. Seeing that the clustering processes have a through scope in spatial economy, it is advisable to identify its best and worst conditions. So there is a need to group the regions of the country according to this characteristic.

In view of these provisions, we have proposed a new methodical approach to evaluate clustering conditions. We believe that given iterative technique could be used when considering the territorial division of different countries. The authors have given reasons for selecting five stages which are characterized in the paper.

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Public-private partnershipsin the implementation of cluster initiatives

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Abstract

The aim of the article is to study the experience of the use of PPPs in education in different countries and to offer the basic directions of development of PPP in the field of education in Russia.

The economic prerequisites for the development of public-private partnerships are revealed in the article. Analysis of the experience with public-private partnerships and other countries is carried out. Conditions for the development of public-private partnerships are shown. Regularities and principles of PPP subjects that promote the economic growth of the country are systematized. These results allow us to offer effective enablers of public-private partnership policy.

The basic principles of the subjects of public-private partnership in the management of education are determined.

The factors that help to give effect to public-private partnership policy are revealed.

This paper was carried out within the state scientific task No 26.2671.2014/K "Theoretical and methodological basis for the development and implementation of a cluster-based policy at the regional level and scientific and methodological foundations of the tools of the structural benchmarks of the regional social and economic system".

Keywords: public-private partnership, strategic management, management of the educationalsphere.

Introduction

People who wish to ensure the competitiveness of products of the enterprises in the conditions of globalization of the economy and take their rightful place in the international division of labor, should strive to increase the number of highly qualified specialists .

The aim of the introduction of public-private partnership in the sphere of vocational training is to increase the technological and intellectual potential of higher education and science as a condition for stable economic growth and modernization of the economy.

There is a need to create a modern model of personnel training system considering international trends in the modernization of higher education systems.

Many studies are devoted to the analysis of the state's role in the modern economy, among which we should mark out the fundamental works of Western scholars such as E. Atkinson, J. Stiglitz, G. Tullock, I. Shihata, as well as the World Bank reports. Various aspects of the nature of the PPP, as well as the processes of its formation and functioning are deeply studied by foreign researchers, among which are the works of T. Barnekov, R. Boyle, L. Dzheziruski, M. Gerrard, S. Kitajima, F. Cook, D. Rich.

Some modern Russian scientists such as M.N. Afanasiev, V.P. Bocharov, Y. Vertakova, S.Y. Glazyev, G.V. Gorlanova, G.A. Drobot, S.S. Evtyuhova, A.Y. Zudina, A.D. Nekipelova, I.M. Osadchaya, V.A. Plotnikov, B.G. Preobragensky, I.E. Risin, D.A. Rozenkova, E.V. Sibirskaya, Y.I. Treshchevskiy, Ya.Sh. Pappe, S.P. Peregudova, F.I. Shamkhalova, U. Shishkov, Yasin and others devote their works to the study of the various aspects of cooperation between the state and businesses.

Economic and organizational capacity and features of public-private partnership are discussed in the works of O.S. Belokrylova, V.G. Varnavsky, L.I. Efimova, O.A. Lomovtseva, V.A. Mikheev, T.N. Sannikova, B. Stolyarov and A. Shmarov. Important political and legal aspects of public-private partnership in Russia have found the illumination in the works of M.V. Vilisov, S.S. Sulakshin, E.A. Khrustalyova, V.I. Yakunin.

Despite the growing interest of scientists to the named domain, many of the fundamental issues are while only marked, but not solved, including those wuch are related to the formation of the system of ideas about nature, functional and procedural content of public-private partnership, the principles and the mechanism of its organization, development prospects.

Results and Discussion

The cooperation of the private sector and government to address socially important problems has a long history, both in Russia and abroad.

However, the public-private partnership as the actual direction of the interaction of legal entities, including educational institutions, has started to develop rapidly in recent decades.

This is due to both the increasing complexity of the socio-economic relations and business interest in new investment objects.

Public-private partnership (PPP) is a set of forms of medium- and long-term cooperation between the state and business to solve socially significant problems on mutually beneficial terms.

We understand public-private partnership in the education as a system of long-term relations between the state (representing his subjects) and the subjects of the private economic sector for the implementation of professional education, based on the incorporation of resources and the distribution of income or intangible benefits , expenses and risks.

The existence of public-private partnership is beneficial to the state because the attraction of financial resources in business schools can reduce budget expenses.

It is necessary to study the practice of developed countries to expand the scope of public-private partnership in Russia, the development of new models of interaction between business and government, including the cooperation of universities and enterprises in the implementation of vocational training programs, which has produced a variety of options to stimulate the efficiency of public-private partnership at the moment [6, p. 680].

A very wide range of business models and relationships is implied public-private partnership in the developed countries.

In the most general sense, the term is used for any use of the resources of the private sector to suffice the public's needs.

Areas of application of public-private partnership in foreign countries are very diverse.

The cooperation between partners can take place under different legislative frameworks, with a diverse range of problems and competences.

Table 42- Analysis ofthe experience of developedcountries inthe use ofPPPin education

Types of PPP	Countries	Characterize
1. Scheme of education fund	France	- provision of tax revenue, used by the government subseque financing the education (is formed mainly by taxes, fees, pa from the fund of commercial organizations wage);
	Denmark	- «tax shield", i.e. the release of the commercial organizatio taxes or reduce their level, including the establishment of m employer investments in training (mostly in the form of a perce the wages fund);
	Sweden	- tax-grants - collected taxes are distributed among the organ that implement the directions of training programs that are adm a priority by the state and / or industry.
2. Grant supporteducati	the USA	- Stateeducationalgrant support(the Ford Foundation, the Carneg MacArthur);
	France	- The Ministry of Educationallocateslocaladministrative unitsof decentralizationgrantto coverpart of thecurrent expensesto maint

		educational system
3. The manage model in the development o education	the UK	- model of the limited role of the state. The government defines only the levels of qualification star and regulates the quality of education. Business determines the content of educational programs ar cooperates with educational institutions in the framework of soc partnership;
	France	– - a model of active state involvement in the planni realization of vocational training pr – In France, the central government authorities pass responsibilities to regional structures and actively involve partners to the development and implementation of educational as professional associations, chambers of commerce, trade unic so on without giving up entirely on the regulatory process of vo education and training;
	Germany, De Netherlands	– - state regulation model in the activities of private cor and organizations involved in vocational education and t - For example, in Germany the social partners are actively invo the development of vocational education qualifi - Primary study of the need for the necessary professional ec programs is carried out at the regional (Land) level, on wh Federal Institute for vocational training (BIBB) prepares the ne documents of the structure and content of the program, the mecl of its preparation and impleme Then, employers' associations, trade unions, federal an governments reach an agreement on the coordinators of new pr and administrative proc - FurtherrelevantministryandBIBBmodifythedocuments
4.Service infrastructurein education	the USA, England, et National Association Business Inc in Russia (N	– creation of business incubators, i.e.specializedstructuresthat p favorable environmentfor beginners anddevelopingsmall ent andrendering services;
	the US, Russiaand ot	– creation ofservicesto facilitatethe employmentof graduates

As world practice shows, the most relevant and effective way to solve the identified problem is to organize the cooperation between the state, business and education by means of public-private partnership mechanisms.

Speaking about the public-private partnership in scientific and innovative areas, it is necessary to emphasize the importance of applying the theory of the "triple helix» (Triple Helix) in the implementation of PPP projects.

This theory was developed by Henry Etzkowitz, professor at Newcastle University, and LoyetLeydesdorf, professor at Amsterdam University, in England and the Netherlands in the beginning of the XXI century.

The triple helix symbolizes the union between government, business and universities, which are key elements of the innovation system of any country [8, p. 538].

World leaders in the field of public-private partnership are the United States, France, Britain, France and Germany.

In general, the experience of public-private partnership in several European countries in the management of a meaningful component of vocational education can be presented as Table 41.

Table 41 presents stimulating PPP mechanisms used in other countries for the development of universities.

Table 41 - The experience of public-private partnership of European countries in the management of vocational education

Options	The UK	France	Germany	Netherlan
Degreeof centraliz state regulatic	Intermediatet closerto th decentraliz	A strong, the centra is the Ministryof N Education, Hig Education an Researchandthe M of Economy, Finan Industry	Intermediatetype: administration dividedbetween federalgovernme government of l	Intermediate Statedefinesa g framework(tw model)
Organizationalfo	Industry Voca Education Com	Advisoryboar AdvisoryCommis	Industry-governi institutions Profes TrainingCommi LandCommitte	National organizations Confederat Profession TrainingComn
The presence thedepartmental(agency) coordin structures	IndustryCou forQualificat Agency fordevelopn ofqualificatio industrie Validstrong sy ofcoordinatin work ofminis	The Standing Comn the National Cou themanageme ofvocational trainingprogra The Coordinati Committee of the r training progra The Professional A Commission The Labor Comm	Professional TrainingCommi LandCommittee Vocational Trai Ministries of La The Federal Instit Vocational Educati Training The Federal Servi Labor	NationalOrgan forVocatio Education a Training The Associati National Organ COLO Netherlan Confederation o Unions

Adopting the experience of foreign countries, we can conclude that the prospects for the development of public-private partnership in Russia should be determined by changes in the regulatory framework, the education system modernization process and social demographic factors.

At the same time the basic conditions for the development of PPP mechanisms should be government support of research and educational activities and the modernization of the education system; State support of private business and business cooperation initiatives with universities; the adoption of measures for the

implementation of new financial, organizational and economic mechanisms of educational institutions [5, p. 414].

The objectives of the implementation of PPPs in the field of vocational training are:
• expansion of the estate and the financial base of vocational education by attracting extrabudgetary funding sources; ensuring the competitiveness of institutions of higher education and science, promoting convergence of basic and applied research;
• ensuring the competitiveness of educational programs, improving their quality;
• improving the efficiency of state property management in the field of vocational training;
• creation of innovative infrastructure of the university;
• satisfaction with the dynamically changing demands of the labor market, gain of innovation component of education and science.

The main areas of public-private partnership in the field of higher education are:
- orders for training
- execution of research projects;
-scholarship and grant support of teachers and students;
- joint educational programs aimed at training the necessary specialists;
- improvement of material and technical base.

Till now there is no specific law in Russia governing at the federal level all the questions arising in the field of PPP in education.

Activities of PPP in education are regulated by a number of legislative acts.

Formation and development of the national PPP model is largely determined by the readiness of private sector entities, government and education to interact with each other on the partnership principle.

Education system management in PPP mechanism may be based on the application of procedural, structural and systemic approaches:

1. The procedural aspect of the education system is considered as a set of intermediate and final stages of the organization of continuous multilevel training for the region's economy;

2. structurally it is a set of powers and responsibility for the results of operations;

3. The system view includes the following elements:

a) the purpose and results of the system, deterministic structure of the region's economy, its strategic priorities;

b) the conditions of the education system (level of material and technical base, social infrastructure, matching labor market of educational services in the region);

c) the results correlated with the resources and objectives of the development of the regional economy.

Management process is complied to the action of general laws of a stable and regulatory linkages between PPP subjects and objects of the education system, as well as an additional set of specific laws and principles (tab. 40).

Table 40-Patterns principles ofPPP subjectsin the management of education

Principles ofPPP subjectsin educ	Patternsofeducationmanagement	
	Common	Specific
Regionalization is a combination ofindustry regionalmanagement of educat the participation ofstate an structures	Diversification of management distribution of risksof developm regionaleconomy,connectedwith a ofconjuncture, resources, infras conditions	Adaption ofthe edu systemoptionsto thene the economy
Integration is an involvem allparticipants of education inthe processof sta regionclusters	Personalizationisa differenceof socio-economic development of regions considering theresource and intellectualpotential	Continuityofmanageme ges
Social partnership is an implem	Long-term is a pr	

ofadvancedformsand methoc cooperationof the s businesssectors	ofcertainqualificationrequirementsfor development ofclusters	Integralevaluation o results
	Modernisation is adevel andrealization ofthe creative potenti regional economysubjects	
Transparency of financial activ reporting p	Informatizationis a saturation ofsoc economic processesandinfo technologysystems	
	Intensification is a qual marketupdateregion	

Conclusion

Thus, the use of PPPs in education allows to universities to increase the intellectual potential of higher education, what ultimately leads to the modernization of the economy and economic growth.
In this regard, the following PPP development directions in the field of vocational training are:
• expansion of the use of PPPs;
• raise awareness of developments in the labor market and the education market;
• creation of favorable organizational, legal and economic conditions and mechanisms that promote the development of PPP practice in the field of education;
• Feedback system of vocational education with the development of the regional economy;
• the development of perspective and innovative forms of PPPs
• Increasing public participation in the management of vocational education system;
• improving the legal and regulatory and procedural framework governing the use of PPPs in education;
attraction of additional sources of funding in higher, secondary and primary vocational education.
Thus, the successful operation of public-private partnership is not possible without an effective system of state support.
Strengthening the role of state regulation of PPP should be based on the priorities of economic policy, a modern legislative framework of PPP regulation system stimulating innovative business through tax, financial and credit policies, developed infrastructure.

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Development Trends in the Progress of Industrial Production in Russia on the Basis of the Foreign Trade Analysis

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Abstract

The formation and development issues of industrial production in the innovation economy in Russia are being discussed in the given article. To achieve these aims the analysis of the dynamics and structure of foreign trade of the country has been made, the dependence of Europe on Russian natural gas has been revealed and the share of exports and imports in GDP has been justified. The special role in the formation of the import-substituting strategy as the system of incentives to support the national production of export products has been emphasized. The main strategic directions of industrial policies have also been suggested.
This paper has been out within the state scientific task No 26.2671.2014/K "Theoretical and Methodological Basis for the Development and Implementation of a Cluster-Based Policy at the Regional Level and Scientific and Methodological Foundations of the Tools of the Structural Benchmarks of the Regional Social and Economic System".

Keywords: foreign trade, foreign trade turnover, import-substituting strategy

Introduction

Fundamental principles of the theoretical and methodological approaches to the study of economic categories of industrial policy were laid down in the writings of great scholars such as Adam Smith, David Ricardo, JS Mill, A. Marshall, J. Robinson et al.
Applied evaluation aspects of the implementation regulation of economic processes are reflected in the works of Y.V. Vertakova, N.G. Hajiyev, K.S. Garanian, T.V. Goryachev, A.V. Komogortseva, S.N. Krekotneva, A.V. Lopota, M.V. Loskutova, K.M. Misko, V.A. Plotnikov, I.E. Risin, E.V. Siberian, E.K. Shabalin, M.N. Yan'shin and others.
Conceptual foundations of industrial management on the basis of assessing the effectiveness of current policies are presented in the studies of L.M. Albitera, S.Z. Asadulaeva, M.A. Bagomedova, A.A. Huseynov, Y.N. Dubenetsky, N.V. Koryakina, F.A. Kostina N.N. Lebedeva, O.A. Romanova, A.I. Tatarkina, Y. Friedman, V.A. Zuckerman, A.G. Shepsheleva, B.M. Shtulbergaets.
Despite the availability of numerous works in the field of state industrial policy, regulatory issues of export-import relations between states, as well as assessing the effectiveness of the implementation of management measures in the literature have been fragmentarily highlighted.
There are practically no publications dealing with a complex multi-level assessment of the effectiveness of implemented policy of industrial production.

Results and Discussion

Over the past decades we have marked the differences in growth rates and directions of foreign trade activities in Russia. These trends have led to the significant shifts both in the geographical and commodity structure of foreign trade turnover of Russia.
During the 90s The Russian Federation consistently drove its trade balance surplus. This also referred to the balance of export-import operations of Russia with foreign countries. In the middle of this decade imports from CIS countries slightly exceeded the amount of goods delivered from Russia.

In general, the dynamics and the geographical structure of Russian foreign trade are as follows (Table 1).

Table 1 - Dynamics and geographic structure of Russian foreign trade

Countries	1991	1995	1998	2000	2005	2010	2013	2014
USA turnover of all $ bln.	183,3	121,9	97,2	101,4	118,1	142,1	151,4	155,0
The growth of the previous yea	-	-32,5	-20,3	4,3	16,5	20,3	6,5	2,4
CIS countries Turnover, $ bln.	152,9	95,4	79,4	77,3	89,9	109,8	115,9	119,6
%	30,4	26,5	17,8	24,1	28,1	32,3	35,5	35,4
Including: Export	88,5	66,8	54,2	59,2	67,7	81,1	89,1	87,4
The growth of the previous yea	-	-24,5	-18,9	9,2	14,2	20,0	9,7	-1,9
Other countries	71,2	50,9	42,4	44,3	53,0	65,7	71,9	69,5
Near Abroad	17,3	15,9	11,8	14,9	14,6	15,4	17,1	17,9
Import	94,8	55,1	43,0	42,2	50,5	61,0	62,3	67,6
The growth of the previous yea	-	-49,1	-22,0	-1,9	19,7	20,8	2,1	8,5
Other countries	81,8	44,5	37,0	33,0	36,9	44,2	44,0	50,1
Near Abroad	13,0	10,6	6,0	9,2	13,6	16,8	18,3	17,5
Balance	-6,3	11,7	11,2	17,0	17,1	20,1	26,8	19,8

Socio-economic indicators of the Russian Federation in1991-2014 (Appendix to the book "Statistical Yearbook of Russia. 2015". Available: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1270707126016

Since 1995 the rate of growth in foreign trade turnover of the Russian Federation, especially after 2000 was not bad and it even increased by 1/6 and 1/5 over the year respectively.

The expansion of cooperation with the CIS countries is one of the main directions of foreign trade and foreign economic relations of Russia, which have been set up on three levels. The share of CIS countries accounts for about 1/4 of the total volume of the Russia foreign trade turnover.

In recent years more than 3/4 of the total value of exports of the Russian Federation (including trade with the CIS member states) account for commodities. Thus, in the years of 2013-2014. in the total exports of goods, Russia's share in the "Mineral products" group, i.e. mainly fuel and energy products accounted for 56.5%; ferrous and non-ferrous metals accounted for 11.4%; timber and pulp and paper products - 3.3%, and machinery, equipment and vehicles - 8.9%; chemicals and other products - 19.9%.

The structural changes that took place in the Russian economy during the restructuring had an impact on the structure of foreign trade of the country. The share of engineering products in the domestic machine-building production decreased from 30% to 17%, light industry - from 12% to 2%, while the share of fuel and energy complex increased from 11% to 33%.

In connection with these processes in the commodity structure of export the country's share of raw materials and semi-finished products increased from 84% in 2002 to almost 90% in 2012, while the share of finished products declined from 16% to 10%, which was due, above all, to non-competitiveness of most of the types of finished goods offered for export, as well as the difficult financial situation of the Russian enterprises [4, p. 680].

Major changes occurred in the structure of supply and export volumes of such groups as machinery, equipment and vehicles. In the 1970s the share of those products in the structure of the Soviet Union exports exceeded 20%, although even then, that figure did not correspond to the structure of domestic production and was significantly lower than the global level (30%).
Russian exports of machinery, equipment and vehicles in 2013 was $ 1191750000, that was 18.5% more than the level of 2012.
The situation with the export of domestic engineering, design and installation services in recent years is not quite favorable. The volume of Russian exports of complete sets of equipment does not exceed $ 1 bln. at the moment. That is 20% less than the volume of technical assistance of the USSR in the 1980s. The main reasons for this situation are the actual Russian withdrawal from the equipment spare part markets in Eastern Europe, namely the former CMEA partners, as well as from the markets of the most developing countries which in its turn caused a sharp decline in public funding of this form of cooperation.
According to statistics, in 2014 in the trade balance of the country's the main partners were the EU countries (42.2% of imports and 53.8% of total exports), APEC (34.3% of imports and 18.9% of exports) and the CIS (13% of imports and 14% of exports) China and Germany being the largest.
According to the above statistics, it follows that if the nature of the sanctions is the most severe and leads to an economic blockade under which the country will cease to be introduced to strategically important resources Russia can face serious problems.
So in 2008 for example, during the Georgian-Ossetian conflict, Russian refineries stood out of work because they did not receive special additives for the production of gasoline [15, p. 195].
It should be stated that along with the heavy dependence of the Russian Federation on the countries of Western Europe there is a colossal dependence of European countries on the strategic needs of export deliveries of Russian energy resources. For instance the distribution of the volume of Russian oil sales is as follows: 67,5% to Europe, 16,85% to China and 6% to the US. According to the international distribution of oil consumption, directly in Europe the share of the Russian oil and gas companies accountes for 46,38%. Consequently, all the European community accepts and understands the fact that declaring Russian embargo and depriving itsell of energy is inappropriate and in the first place, is defective in respect to the European population. To restore the gas supply of European countries from other regions is impossible in a short period of time so from this point of view Europe is still a reliable partner. On the other hand the United States, being the main initiator of the sanctions is able to announce an embargo and stop buying Russian oil as its consumption is only 5% of the demand. To compensate for the loss of partners Russia can refocus energy flows to the India and Japan markets currently consuming less than 1% of Russian oil, to the Asia-Pacific markets currently consuming only 4% of the Russian oil as the basis of their consumption is the Middle East oil. Along with the consumption of strategically important energy resources from Russia the European economy depends on the purchasing power and high demand for the European goods among Russians in particular the European automotive industry, household appliances, medical services and so on. At the moment, the owners of many of the major European companies do not support the imposed sanctions against Russia [7, p. 322].
Gas industry in Russia almost entirely focuses on the European and CIS countries Europe is supplied with 64,70% of the Russian gas, the post-Soviet countries get 27,85%, the remaining part goes to Asia. Domestic commodity companies are completely dependent on the European gas market, but Europe has diversified its trade relations, the share of Russian gas in the structure of imports being just 34.46%, other suppliers are Norway and the Netherlands. The US uses gas from Canada and as economists have estimated, having taken the shale revolution into account expects Europe to consume the US shale gas. But for the majority of European countries the Russian gas is the most important component of imports (Table 2.). It will take time and money to switch from the Russian gas supplies to the US shale gas supplies as new port facilities, machinery tanker fleet shuld be installed, construeted and adjusted. The cost of shale gas is much more expensive compared to the Russian pipeline gas.

Table 2 - Dependence of European countries on Russian natural gas in 2014

Countries	The share of Russian gas in gas imports, %
Finland	100,0
Slovakia	92,7
Poland	82,6
Hungary	81,4
Greece	79,3
Turkey	70,2
Czech Republic	66,0
Austria	61,8
Germany	34,6
Belgium	27,9
Italy	22,8
France	20,9
Netherlands	14,5

Russia and the countries-members of the European Union: Available http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1137677636609

Thus, the foreign policy strategy depends on the extent of foreign investment. A significant proportion of investments flows through the European offshore, both to Europe from Russia, and vice versa.
The data analysis on foreign investments in the Russian Federation, presented in Table 3, shows that the flow of investment from the United States is small and amounts to about 3%. On the other hand, if the US reduces its investments Russia is supposed to have great economic losses in the following industries: manufacture of coke and petroleum products (about 12% of US investment); manufacture of machinery and equipment (28.1% of the US investment).

Table 3 – The Volume of foreign investment accumulated by the Russian Federation in 2014

Countries	The volume of investments accumu inRussia, mln. $	Structure, %
Netherlands	66548	18,0
Cyprus	64640	17,4
Luxembourg	47989	12,9
China	32228	8,7
United Kingdom	24855	6,7
Ireland	18655	5,0
France	15786	4,3
Japan	10483	2,8
Germany	19812	5,3
USA	11491	3,1
Virgin Islands(Brit.)	10721	2,9
Total investments	370634	100

Russia and countries of the world: Available:
http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1139821848594

The Russian economy potential on the formation of import-substituting industrial policies is high enough.
One of the important directions of import-substituting industrial policy is to reduce the technological dependence on foreign suppliers. And although some companies have managed to create a competitive industry in the domestic technology market on the whole, the dynamics of creation and use of advanced production technologies does not allow to hope for a speedy result. Technology exchange is slowing down in Russia, thus the number of the advanced production technologies used in the manufacturing industry is being reduced. The amount of developed manufacturing technologies is growing, but in most cases these technologies, new for Russia, do not allow competitiveness in foreign markets.
The following factors objectively contribute to the implementation of import-substituting industrial policy:
- Positive stable dynamics of labor productivity;
- Financial stability of the country, which enables the implementation of a targeted industrial policy to stimulate domestic demand for domestic products and export of competitive industrial products over a long period;
- Deterioration of the macroeconomic environment, in particular the trend towards lower prices for energy that stimulates both import substitution and exports replace ment of low-level processing for products of a higher level of processing to increase the share of value-added and technological level;
- Russia's participation in the European and world "technology platforms", its involvement in global processes of technological exchange, which allows, if not to create new advanced manufacturing technology, then effectively replicate existing ones [8, p. 52].
Factors influencing the choice of strategic directions of import substitution development in different companies and industries are different, but they can be divided into two groups. The external uncontrolled factors include market forces (demand for domestic and foreign markets, competition in the industry), the system of state regulation of export-import transactions (the level of protection of domestic markets, the level of export promotion). The internal factors are the resources of the enterprise investment resources, production capacity, technology, skilled employees being among them and the system of enterprise management that is the system of strategic goals and objectives of the quality management system [10, p. 57].
Reserves for the efficiency increase of the company is the activity at the stage of import substitution production of individual or multiple elements of the product. The enterprise import substitution can be organized in one of two directions: the transition to the use of domestic analogs available on the market and the organization of domestic production of import-substituting elements.
The most important condition of import substitution is the ability to provide quality and recognition of domestic analogs on foreign markets, especially in markets abroad. At the same time it should be noted that there are differences in the perception of the level of quality in geographical terms. That is the level of quality which is acceptable for domestic consumption and consumers, for example, from the CIS countries, does not satisfy the demands of consumers, such as the EU, the US [2, p. 105].
The effectiveness of import substitution at the production stage is defined by the ratio of the effect resulting from the resources savings in terms of money when import-substituting element is used in the production taking into account the volume of production within the time interval scheduling (compared to the resources spent for the purchase of imported counterparts), to investment costs for the organization of its production [5, p. 414].
It should be noted that the organization of import-substituting products "from scratch" in today's economic environment is complicated by the lack of investment resources.
The production location of import-substituting products based on existing companies should become the most important direction of development of import substitution. The implementation of the strategy of import-substituting industries is possible in two main ways: with the focus on investment demand and with the focus on stimulating consumer demand [11, p. 225].
The Russian industrial enterprises can offer three options of import-substitution strategy: the strategy of internal-oriented import substitution, the strategy of external-oriented import substitution, strategy of mixed import substitution. Strategic directions of development of import substitution and identification of measures are reduced to determining the classifications of import-substituting products and target markets (Fig. 2).

Industrial Production Development Directions						
The leve implemer	Areas of impleme	Strategy	Model	The production base		Objects of in substitutio
Macro-leve	Oriented investm demand	Oriented to the domestic mark	On the basis of resources and technologies	On the basis of e production		products
Meso-level	Focused on consu demand	Oriented to the external marke	On the joint ven basis	On the basis of t newly created production		services
Micro-leve	Focused on consu demand	Combined	On the basis of and imported re and technologie	On the basis of e and newly creat production		Equipment, technology, raw materials, acces

Fig. 2. The system of classifications of alternative strategies of import substitution

Conclusions

Thus the basic principles of the implementation of import-substituting industrial policy in Russia are:
- reindustrialization, increase in the share of industry in GDP and advanced production from the technological point of view in the industrial structure;
- Stimulating domestic demand for industrial enterprises goods including "subsidies" of prices and the system of public orders;
- Long-term activities allowing to attract long-term investments;
- Keeping a high degree of openness of the economy. The development of cooperation with foreign partners in the areas of technological exchange, scientific cooperation and the creation of advanced manufacturing technologies. Keeping in mind that the creation of simulated restrictions on the import and export of technologies reduces the efficiency and competitiveness of products;
- State support of export of competitive industrial products.

To sum up the import-substituting industrial policy is a tool to improve the competitiveness of the national economy and ensure the economics security of the country.

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Government Support Tools for Small Business: Russian and Foreign Experience

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Abstract

This paper presents tools of the government support of small business in different countries and in the Russian Federation. The purpose of the article is to show the desirability and features of models of government support in different countries. In this paper strategic map is proposed for the development of small enterprises and government support for small businesses is highlighted as the main direction of its development. This article also presents comparative analysis of the international experience of financing and support for small innovative enterprises based on monographic and statistical methods. Direction for creation of projects on public-private partnership is allocated as one of the main forms of the government support of small business.

Keywords: small enterprises, government support, strategic map of development, small business cluster.

Introduction

Small business is one of the most common forms of business organization at the present time, which largely determines the socio-economic development of the country. In constantly changing conditions of external environment, small business must quickly respond to those changes and continually adapt to new conditions to survive. The analysis showed that small enterprises generally have great dynamism and flexibility differences than big businesses. Success and durability of small enterprises positions determine the need for continuous improvement, as well as tracking, analysis and rapid response to changing conditions and parameters of business environment. The government regulates and supports through the use of effective tools and instruments of financial support, it will allow small businesses to gradually take more meaningful positions in shaping the country's economic indicators. In its nature, small business are based on local needs. Due to the smaller scale, small business turns out to be more flexible to changing economic conditions and are better able to respond to fluctuations in consumer demand. Small business significantly contributes to the formation of a competitive environment and market equilibrium. However, for the development of small business in an unstable and volatile external environment implementation of its government support is need.

Different scientists engaged in the study of the development of businesses, including small businesses - Joseph Schumpeter (Schumpeter J. A., 1982), David McClelland (McClelland, David C.,1978), Peter Drucker (Peter Drucker, 1989), Robert Hisrich (Robert Hisrich, 2013) and others. But some practical and methodological issues remain unresolved, and that fact determines the theme of research within this publication.

Results and Discussion

1. In developed countries, a system for classifying businesses to small businesses is based on a combination of quantitative (number of employees, revenue, etc.) and qualitative (legal independence, control systems, administrative procedures and technology) criteria (Figure 1). In Russia the European model for classification of enterprises to small business is used. So in Russia, as in the EU, the required additional condition is introduced - the limit of the size (no more than 25%) of the share in the authorized capital or voting rights for other individual entrepreneurs and legal persons (except for public investment, venture capital funds, institutional investors). In the legislation of Russia, as in the European Union, the criteria of

sales (proceeds from realization of goods (works, services) excluding value-added tax) or the balance sheet (balance sheet value of the assets for the preceding calendar year) are considered, however, in the EU the values of this criteria are equal only for small businesses.

Analysis of international and domestic experience of selection criteria of enterprises to small businesses, it should be noted that before 2008, the American model was dominated in Russian Federation, and since 2008 – the European model. The main difference between these models is that in the American model for each economic activity there is own and sole criterion or the number of employees or average annual revenue. The European model for all sectors of the economy imposed uniform criteria for classification of enterprises to small business, this includes the number of employees, and sales volume (or balance sheet), as well as an additional condition.

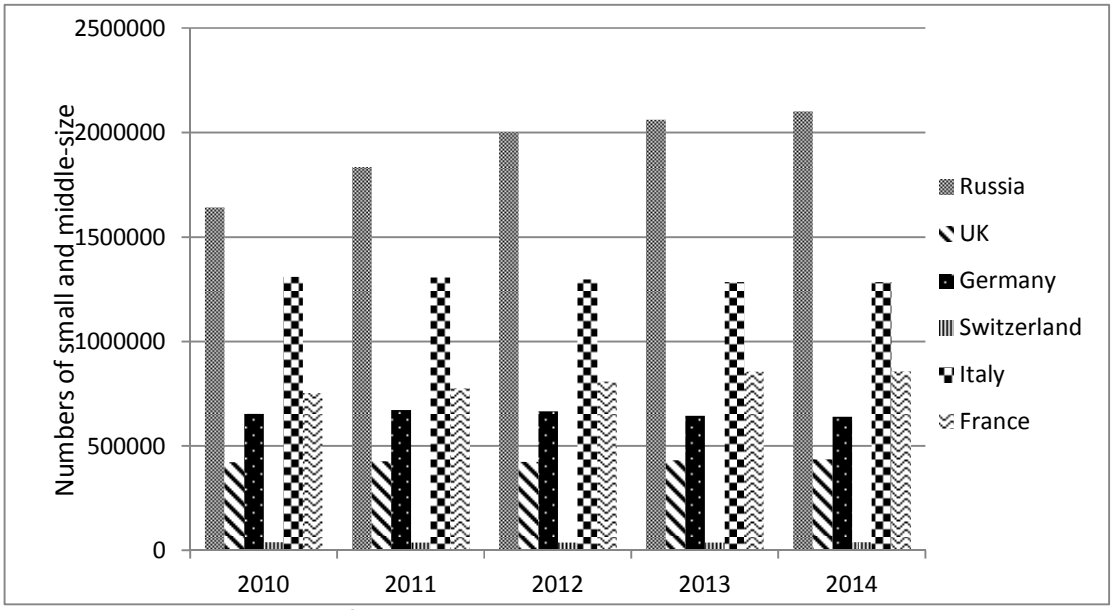

Fig 1. Numbers of small and medium-sized enterprises in Russia and EU

Source: statistic data

2. For effective management of small business and selecting priorities for government support we offer to comprise a strategy map for each direction based on the strategic goals of the company. Small enterprises strategic management process includes financial and non-financial performance indicators, set of which is unique for different businesses. Currently in practice the model of balanced scorecard (The Balanced Scorecard, BSC, by Kaplan, R. and D. Norton, 1996) is widely used, which includes material and static (concepts, structure of interdependence) and process-oriented (guidelines for the development, implementation and support of, the sequence and timing of action) components. Basic (classic) BSC structure has four projections: finance, customers, internal business processes, learning and growth (or staff). The purpose of the BSC is to address several strategic issues: assessment of trends and strategic initiatives; identifying new areas for growth; harmonization of strategic and tactical tasks; monitoring the achievement of the objectives; decision-making of tactical and strategic level.

The main task of the development of small enterprises in accordance with the balanced scorecard is to increase profitability; in that case the strategic map of small business can be defined as the integrated scheme of interaction of all four projections BSC (Figure 2) (Plotnikov, Vladimir and Leontyev, Evgeniy, 2015).

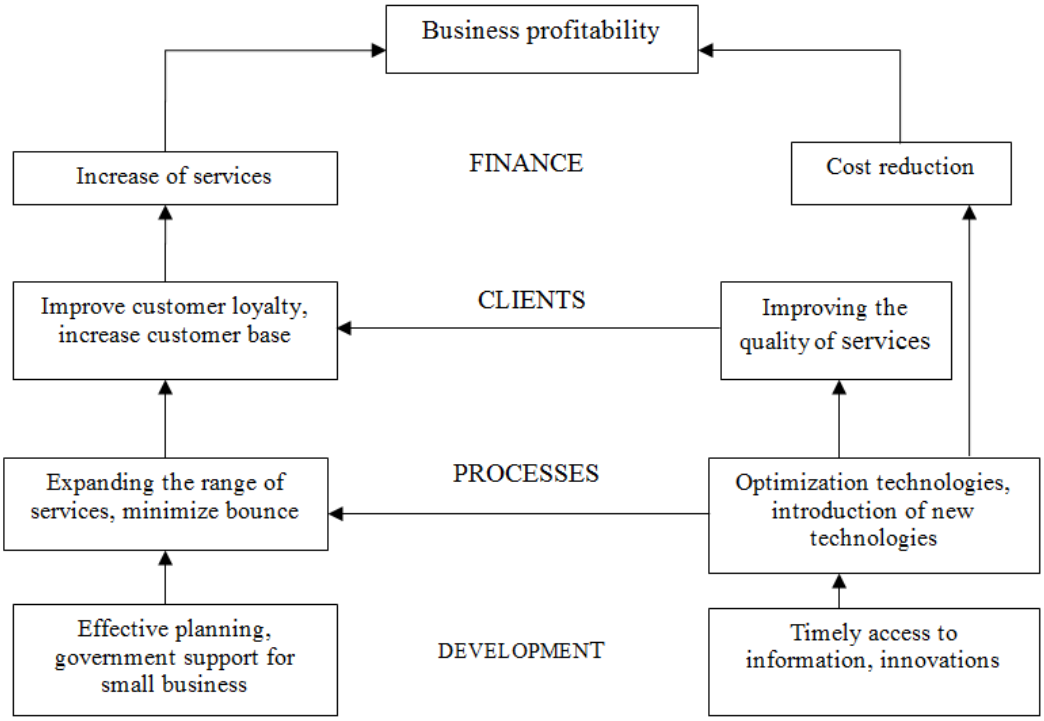

Fig 2. Strategy map for the development of small enterprises

Source: obtained by authors

3. In all countries the government support for small entrepreneurship forms is different, as the system support measures, and the degree of its maturity. It is based on fact, generally, that the system of measures of the government support of small entrepreneurship, occurring in every country, formed under the influence of specific historical factors and should be clearly linked to the features of economic, political and social reality in the country. However, their main characteristic is orientation towards the effective stimulation of small business, activity of small enterprises to create competitive environment, assist in providing of small businesses with all the necessary financial, material and human resources.

Thus, the United States has one of the most effective systems of governmental support for small entrepreneurship sector. The main institution of such regulation is The U.S. Small Business Administration, which is in the sphere of influence of the Federal Government of the United States. In addition to the active financial support of small business, based on grants for small firms on permanent basis, loans on preferential terms and their safeguarding, promoting venture capital, SBA provides an extensive system of measures in promoting small enterprises receiving government order, the provision of advisory services and training.

Based on our study it is revealed that the American economy uses SBIC as an efficient system of support for small business. SBIC is a kind of public-private funds private equity, including venture capital, in which a significant portion of the capital (to 75%) is formed at the expense of public funds, and the management has extremely private nature, is no different from any venture fund with fully private capital.
Another effective system of support for small business is the system in Great Britain (European model), the core of which is the Small Business Service and the Federation of small businesses. Small business service

decides on the approval of loans issued to small firms. A key feature of the UK's budget policy in support of small business is mild progressive profits tax scheme for small businesses.
In China (Asian model), as well as in western countries, there have been at least an effective system of support of small business. Policy development in the field of support of small business is exercised by the National Development and Reform Commission (similar to the Russian Ministry of economic development) (Table 1).

Table 1: Comparative analysis of international funding and support experience of small innovative enterprises

Comparison criteria	**European model**	**Asian model**	**American model**	**Russian model**
Government support of small business	Credit institution to restore	Small business finance corporation	Small business administration	Regional centers of the government support of small business
Mechanisms for the promotion and development of small business	Direct financing	Direct financing is not provided	Direct financing	Direct financing
	Free loans	Free loans are not available	Free loans are not available	Reimbursement of expenses for registration of first business
	Earmarked subsidies for research and development	Earmarked subsidies for research and development	Earmarked subsidies for research and development	Microfinance (Surety)
	Innovation funds	Innovations are carried out directly by the participants of the innovation process	Innovation functions are exercised by specialized scientific and technical organizations	Functions of innovation financing are saved for Russian Foundation for technological development
	Reduction of government fees, tax incentives	Reduction of government fees tax incentives	Reduction of government fees, tax incentives	Issues of tax incentives and reduction of government fees are under development
	Establishment of a network of science parks, towns	Establishment of a network of science parks, towns	Establishment of a network of science parks, towns	Establishment of a network of science parks, towns
	Special organizations for the support of small innovative enterprises are stably functioning	Creation of powerful government organizations	Creation of powerful government organizations	Innovative infrastructure and special development institutes were created

Source: obtained by authors

Within this structure has a Department of small and medium-sized businesses, which implements all the planned programs to stimulate small business. Other small enterprises support center is China Center for business cooperation and coordination, which study the conditions of small business in the country, and then on the basis of research data forms development of services to facilitate life for small businesses.

Small business support system in Russia is composed of organizations that provide support. It is worth

emphasizing that this system includes both commercial and non-commercial organizations created as contractors, as well as placing orders for execution of works to meet the public's needs. In addition, this combination of organizations includes various business support funds, guarantee funds and guarantees, investment funds to attract funds, business incubators, science parks and other organizations.

The majority of scientists and practitioners in the sphere of management notes that the approaches to government support for small entrepreneurship vary considerably in different countries, so it is almost impossible to allocate a single approach suitable for all countries. We agree with this thesis, however, studying of this experience and subsequent implementation in country regulatory and incentive measures for small firms on the basis of such analysis is seen as the real business climate improvement scheme (Table 2).

Table 2: Ranking countries in the world in terms of creating favorable conditions of small and medium-sized businesses

Indicators	**Ranking**	**1**	**2**	**3**	**4**		**7**		**51**	**84**
	Country	**Singapore**	**New Zealand**	**Denmark**	**The Republic of Korea**	**…**	**USA**	**…**	**Russia**	**China**
Registration of enterprises		10	1	29	23		49		41	15
Obtaining building permits		1	3	5	28		33		119	24
Connection to the power supply system		6	31	12	1		44		29	14
Ownership registration		17	1	9	40		34		8	4
Receipt of credits		19	1	28	42		2		42	13
Protection of investors		1	1	20	8		35		66	17
Taxation		5	22	12	29		53		47	23
International trade		41	55	1	31		34		170	13
Enforcing contracts		1	15	37	2		21		5	2
Resolution of insolvency		27	31	9	4		5		51	7

Source: Ranking of Doing Business, http://russian.doingbusiness.org/rankings

In Russia nowadays, there are many different small business tools of government support. Firstly, financial support for small businesses is realized through the allocation of budget funds for small business development.

Secondly, stimulating the development of this sector is carried out with the help of simplifying licensing, certification schemes, as well as taking part in various exhibitions and promotional campaigns; government authorities widely practiced the issuance of grants to small enterprise development.

Government financial support in Russia mainly turns to young entrepreneurs who have already experienced the initial stage of their formation. In such a situation, the young enterprise is available to series of consultations in the sphere of financial activities, as well as some jural advice, which are coordinated by employment centers, the Ministry of health and the Ministry of economic development and trade of the Russian Federation. It is worth noting that the already existing government programs to support small business allow many entrepreneurs receive assistance in the form of grants, preferential loans, consultations and through other mechanisms to support small and medium-sized businesses.

Public organizations mainly provide an opportunity to influence on the legislative initiatives concerning

small businesses, help to establish relations with foreign partners and provide jural protection.

Guarantee funds facilitate lending. They provide guarantees on bank loans and implement the surety. In addition, the funds provide their services in the field of leasing. Business incubators provide small businesses the possibility of placing on the territory of "incubator", that gives these organizations certain benefits, such as free office and consulting services, affordable rental price.
In Russia, support of small enterprises is realized on more than 1000 organizations, forming the infrastructure, and on the positive side, it should be noted that in virtually all constituent entities of the Russian Federation centers for enterprise development are established. In the part of the individual items of infrastructure density, we note, that one of the most common are business incubators, which accounted for 12.6%, playing an important role in the development of starting business. The latter is confirmed by the fact that in the world practice in business-incubator survive up to 85% of newly created small enterprises, whereas without the assistance of such only 14-30%. Other dominant institutions represented by leasing companies and consulting centers, which accounted for 12.5% and 14.0% respectively. Centers promoting innovative business are slightly represented: science parks and industrial parks, which have been established in 22 subjects of the Russian Federation in total 3% of infrastructure organizations.

In Russia the commercialization of the results of intellectual activity, during the transition to the innovation way of development, many of which accumulated budgetary institutions, educational and scientific spheres, is the matter. The central place in resolving problems indicated Federal law takes No 217-FL, which aims to solve the problem of low economic return of research results in budgetary institutions of science and education institutions of the Russian Academy of Sciences. The law creates a jural basis for the introduction of the results of innovation activity, the exclusive rights on which belong to universities and research institutes.

However, experience gained since the start of the program shows that, the implementation of this law poses a number of challenges. During the analysis of leading Russian scientists research materials, the main obstacles for the effective development of small innovative enterprises in the scientific-research and educational institutions in Russia were identified (Fig.3).

Government instruments, forming organizational-legal maintenance of small business activity, currently are working quite effectively, as evidenced by the implementation of the provisions of the relevant legislation, and their wide availability for research groups, that in turn allows us to speak about the quality of the created conditions for their stable operation. However, researches of domestic economists show that the most acute small business problems run into insufficient financial resources for the maintenance and development of activities and an essential key to positive dynamics of the studied cluster to achieve public purposes is a set of financial and economic instruments.

In 2015, in accordance with the Decree of the President of the Russian Federation "About measures for the further development of small and medium-size enterprises" and the Federal law "About amendments to certain legislative acts of the Russian Federation on development of small and medium-size enterprises in the Russian Federation" was founded JSC "Corporation "SME", which will work as the government institute of the small and medium-sized business development.

In the framework of the program, funds, earmarked on a competitive basis, are distributed among the regions for the implementation of the activities envisaged under regional programs to promote small and medium-sized business, provided co-financing costs by region. This approach allows you to supplement the federal budget to attract funding, and also encourage regions to implement a more active policy in the field of business support (Plotnikov, Vladimir and Vertakova, Yulia, 2015).

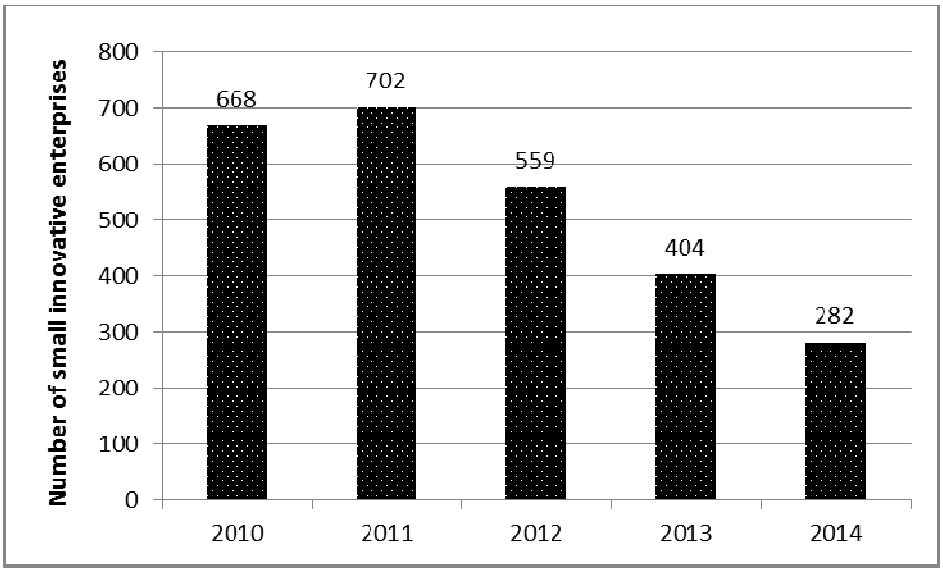

Fig 3. Dynamics of forming small innovative enterprises by the scientific and education subjects
Source: statistic data

Within the framework of the activities of JSC "Corporation "SME" these tasks will be concluded:
1) provide financial, infrastructure, property, jural, methodological and other support to small and medium-sized businesses; 2) raising funds from Russian, foreign and international organizations for the support of small and medium-sized businesses; 3) organization of information, marketing, financial and jural support of investment projects implemented by small and medium-sized businesses; 4) organization of activities aimed at increasing the proportion of procurement of goods, works, services of certain types of legal entities from subjects of small and medium-sized businesses; 5) interaction with the government of the Russian Federation, local self-governments, other subjects and organizations in order to provide support to small and medium-sized businesses; 6) ensuring improved measures of government support of small and medium-sized businesses.

JSC "Corporation "SME" will perform a system integrator support measures for small and medium-sized businesses.
In the Russian Federation there are following measures of the government support of small and medium-sized enterprises:
1) measures to ensure the financial support of small and medium-sized enterprises;
2) measures to develop support infrastructure small and medium-sized businesses;
3) special tax regimes, simplified rules for tax accounting, simplified tax return forms of individual taxes and fees for small businesses;
4) simplified accounting methods;
5) simplified procedure for compiling statistical reporting by small and medium-sized enterprises;
6) concessional payment for privatized public and municipal property by small and medium-size enterprises;
7) participation of the small entrepreneurship subjects as providers (performers, contractors) in the procurement of goods, works and services for public and municipal needs;
8) measures to ensure the rights and legitimate interests of subjects of small and medium-sized enterprises in the implementation of government control (supervision).
In particular, measures for support of small businesses are presented in table 3.

Table 3: Measures of the government support of small business in Russia

Provision of subsidies for:	**Concessional loans**	**Formation of business incubators**	**The holding of competitions**
1. Reimbursement of a portion of the costs associated with contracts of financial rent (leasing) 2. Reimbursement of a portion of the costs associated with the payment of interest on credit agreements 3. Reimbursement of a portion of the costs associated with the acquisition of equipment to build and (or) development, modernization of the production of goods 4. Refund of a part of expenses on energy efficiency programs 5. Reimbursement of a portion of the costs associated with obtaining certificates, including international 6. Reimbursement of a portion of the costs associated with participation in exhibition events 7. The provision of certain services or activities (e.g., the creation of tourist accommodation, leisure groups of preschool children, the creation and development of pre-school education centers, folk crafts, car purchase, etc.) 8. Stimulate the development of franchising in the sphere of small and medium-sized businesses 9. Starting subsidies for start-ups entrepreneurs	1. Incentive program of crediting of small and medium-sized businesses from JSC Sberbank. 2. Preferential loans for the development of small and medium-sized businesses from SME's Bank 3. Preferential loans from the Bank of Moscow etc.	1. Rental of premises at a reduced rate. 2. Consulting services. 3. Jural protection. 4. Training, provision for using of office equipment, negotiations, etc.	"The best in the small and medium-size business. "The leader of the small and medium-size business sphere", etc.

Government support for small enterprises is carried out through subsidies from the federal budget to the budgets of the constituent entities of the Russian Federation for reimbursement of a portion of the cost of interest on bank loans, and loans obtained agricultural credit consumer cooperatives of private farms, citizens, leading a personal part-time farm, agricultural consumer cooperatives (except for credit) (Polozhentseva Yulia and Klevtsova Maria, 2015).

4. Public-private partnerships can be extremely effective in the framework of the implementation of the strategy for the development of innovative type of economy. This model involves the effective assimilation of scientific and technological innovation (innovation), new technologies, products and resources, as well as the implementation of the organizational and institutional projects in the sphere of national reproduction. Innovative development becomes not just a product of the functioning of the government, but also achieved through the prism of reconciling the interests of the overall vision of the prospects for science and innovation sphere, its place in the economic system of society, representatives of different segments of the economy and social strata. The most modern and promising institutions of PPP in Russia nowadays are: - Investment Fund; - Development Bank; - public corporations; - special economic zones; - Russian venture company; - concessions (Vertakova Yulia, Polozhentseva Yulia and Klevtsova Maria, 2015).

In foreign practice characteristic of PPP's forms is based on the criteria of clear distribution of responsibility: who and what are the functions of partnership members will perform, who does provide the

resources, who and how does control the use of shared resources and the resulting from joint activities of income and its distribution (Fig.4).

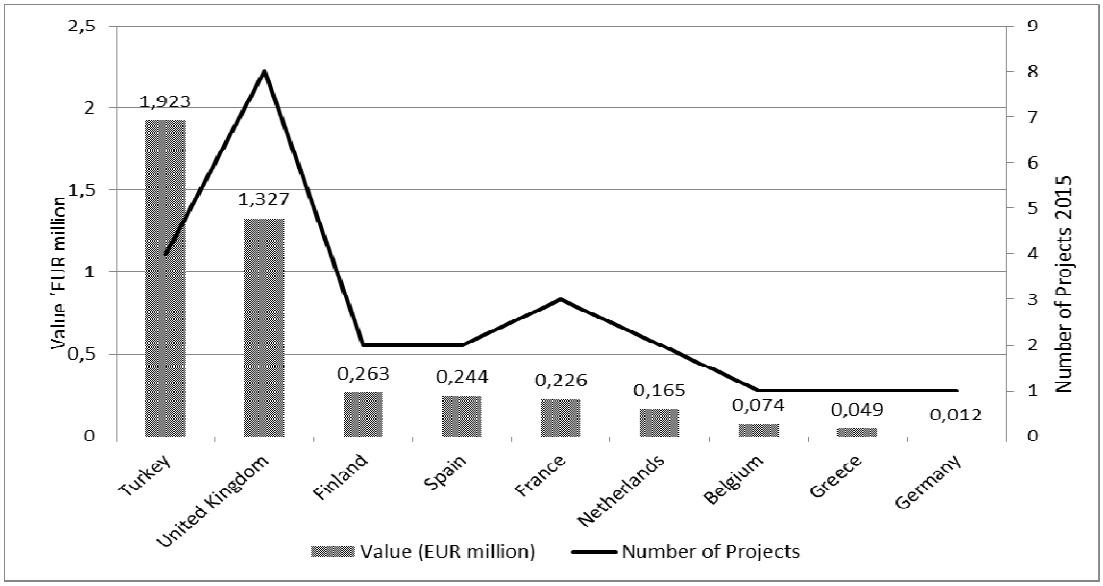

Fig 4. European PPP market in 2015

Source: European PPP Expertise Centre, http://www.eib.org/epec/

According to the European PPP Expertise Centre in the first half of 2015, there is a high level of financing public-private partnership projects in Turkey and the United Kingdom.

Therefore, public-private partnership can be described as strategically important government and business alliance aimed at effective implementation of socially significant projects and programs in a wide range: from economy, science and education to health and culture, capable of promoting the transition of the Russian economy to an innovative type of development. Obviously, this would require to develop specific mechanisms of co-ordination of interests of government, business, science, education and society in order to make optimal and rational attract different resources and their sources, as well as the corresponding adjustment of the Russian jural base. Therefore, to address these challenges, in particular, it would be useful to develop and implement the following activities:

firstly, for qualitative realization of priority national projects and programs to generate meaningful public-private partnerships as an effective mechanism for the integration of public and private resources and their sources for the development of national economy;

secondly, the form and structure of the PPP moreover can be formed on the basis of the existing resource potential of the national and regional economies of Russia, as well as taking into account the patterns and trends of development of the world community;

thirdly, depending on the availability of resources, as well as the factors and conditions of its formation, it is necessary to carry out a qualitative study of internal and external environment of the national economy with a view of developing a set of strategic priorities and directions of innovative development, including through interregional interaction. This requires that these elements are combined with the economic interests of independent economic agents (firms, enterprises, corporations, etc.), as well as the institutions of science and education.

Conclusions

Based on this analysis, we can conclude that the system of government regulation of small business is disjointed, mechanisms of interaction between the State and business representatives on the issues of financial support, tax and priority support areas for development are not fully developed. Currently the basic principles of the financial regulation of small business, financial support instruments are not formulated; there is no method for estimation of efficiency of public financial support for small businesses. Therefore, support for small business needs to be carry out through the conduct of socio-economic, financial and monetary, structural and investment and science and technology policy through the development of targeted programs of tax and tariff policies, system procurement, grants, loans, guarantees, information and marketing collateral.

Thus, the Russian Federation provides for the establishment of investment companies such as SBIC, which should become the main instrument of the government of the Russian Federation in promoting the development of small enterprises.

Small business gradually took a stable leading position in the economy, the most to adapt to crisis situations in the world economic system. The main form of operation of small businesses should be self-development; public participation in the future should be limited to the task of creating a favorable external environment. Public administration small business development at the level of the territory should contribute to the revitalization of the supply and demand in commodity markets, the creation of the required number of new jobs; should reduce the social pressures on the budget. The economic, political and legal conditions affecting the development of small business, certainly, in the greater part are determined by the legislation of the country.

We offer to management of small telecommunication operators organizing activities for the development and implementation of methodologies to analyze management efficiency in external and internal environment conditions, the results of which it is advisable to take into account on making management decisions, and the implementation of the proposed activities will achieve the necessary sustainability indicators of enterprises. In our view, the method of analysis of management efficiency of small enterprise telecommunications industry should be developed in the context of the impact of significant factors of internal and external environment, to take into account all peculiarities of the enterprises of such class (specifics of the industry sector, dynamic business environment, the need for a detailed decomposition of enterprise infrastructure, etc.) to give the company forecast for rational decision-making.

The government support of small business is especially necessary in the crisis so as to ensure that its activities will enhance employment and alleviate the negative impact of the crisis on the economy.

Acknowledgments

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Influence of Economic Sanctions on the Financial Resources of Russian Organizations

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Abstract

In 2014-2015 a number of additional problems connected with financing of Russian organizations came to light. External restrictions (the sanction of the western countries) were added to the ongoing structural crisis in domestic economy. The sanctions inflicted by EU countries and the USA substantially affect the sphere of financial provision of the Russian organizations and limit their presence in the international financial markets. Closing of channels of external financing not only aggravates the problem of the financial market, but also threatens prospects of long-term investment growth and development of Russian organizations.

This article describes the features of financing of Russian organizations which have developed under the influence of the crisis in the domestic economy in 2014 -2015 and economic sanctions against Russia.

Keywords: financial resources, external financing, economic sanctions, sectoral restrictions.

1. Introduction

In 2014 - 2015 in the Russian economy signs of economic instability and the crisis phenomena began to be more visible. Together with reduction of prices of raw material resources, strategically important for the Russian economy, there was a falling of national currency, inflation acceleration, reduction of the real income of the population, decrease in GDP growth.

At the present time the economic development of Russia and leading countries of the world, is determined by the background and nature of the global crisis that began in 2008 and continues to the present. The crisis in Russian economy is occurring due to the strengthening of economic and financial sanctions of the USA and the EU inflicted against Russia since 2014. As a result, Russian organizations have serious problems locating financial resources. The plausible solution is connected to the development of the financial and credit system of Russia.

2. Macroeconomic conditions, which have determined the formation of external funding of Russian companies before the economic sanctions introduction

The crisis folding at the current time in domestic economy has some specific characteristics. In 2014 - 2015 Russia faced simultaneous manifestation at once several crisis a component, the most essential financial resources from a position of providing organizations are cyclic (internal conjectural) and external (Mau V. (2015)).

First of all, the current crisis is the internal cyclic crisis connected with change of level of a business environment within the country. From the financial point of view, there are some characteristic signs of it: 1) decreasing growth rates of investments into fixed capital during several years (Figure 1); 2) delay of growth of the bank credits to non-financial sector (Figure 2); 3) growth of share "bad" debts at Russian banks.

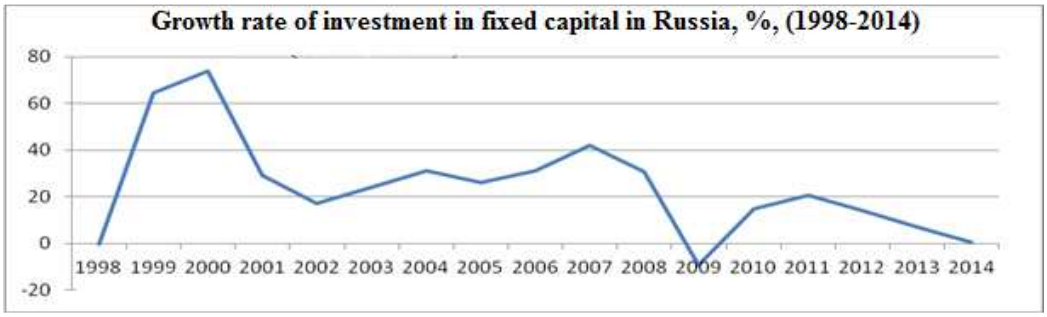

Figure 1. – Rate of a gain of investments into fixed capital in the Russian Federation for 1998 - 2014, % (http://gks.ru)

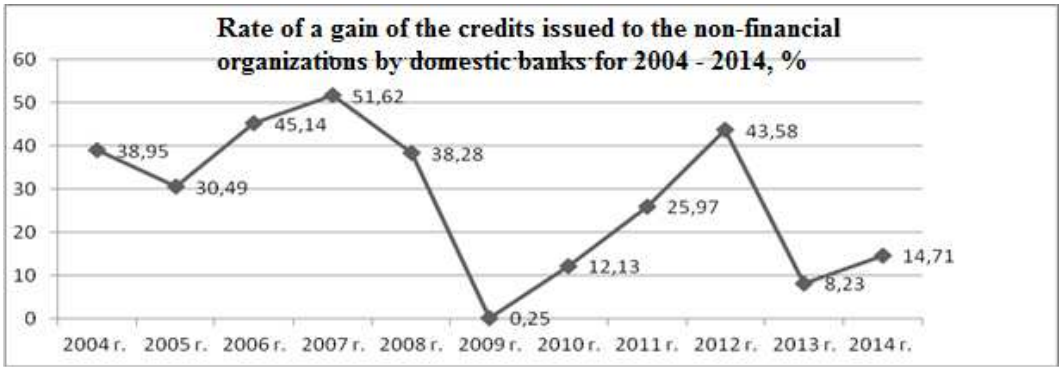

Figure 2. – Rate of a gain of the credits issued to the non-financial organizations by domestic banks for 2004 - 2014, % (http://cbr.ru)

Delay of growth of bank crediting domestic companies is connected, first of all, with growth of interest rates on loans (Figure 3).

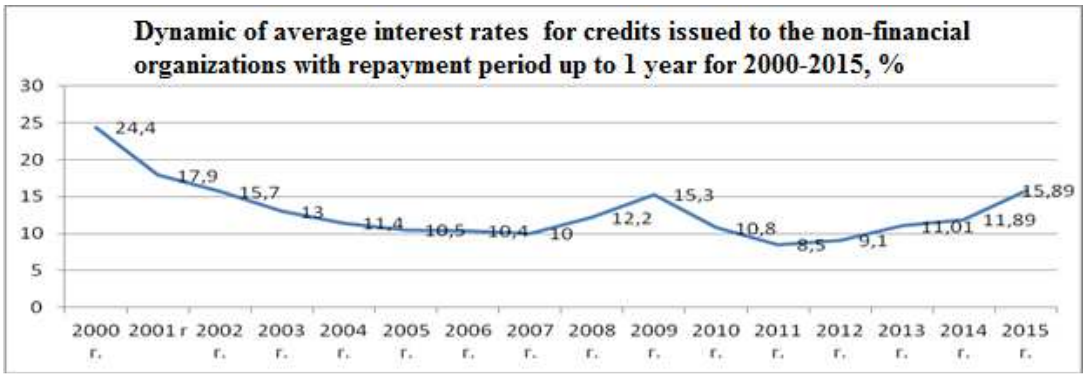

Figure 3. – Dynamic of average interest rates for credits issued to the non-financial organizations with repayment period up to 1 year for 2000-2015 (http://cbr.ru)

Growth of rates on the credits to the non-financial sector organizations is, on the one hand, a consequence of the Central Bank of the Russian Federation policy in the direction of in-crease of key interest rate. On the other hand, the high level of interest rates is caused by continuous decrease in volume of liquidity in economy* (Yershov M. (2014)).

Aggressive dynamics of interest rates for the credits to the non-financial organizations is explained by deterioration of a credit portfolio of Russian banks. According to the Central Bank of the Russian Federation, in structure of bank assets has been observed growth of arrears on the credits issued to the non-financial organizations for the period since 2009 till 2014 (Table 1).

Table 1 – Arrears on the credits issued to the non-financial organizations from 2009 for 2015 (http://cbr.ru)

Years	2009	2010	2011	2012	2013	2014	2015
Volume of arrears, million rubles	607,313	664,694	753,756	850,579	883,538	1,030,497	1,634,256
Rate of a gain of arrears in relation to previous year, %	-	9.45	13.39	12.84	3.87	16.63	58.59

Banks continue to fix the considerable volume of problem debt that is connected with prolongation of the problem credits and their subsequent account on balance for a long time on the balances. The developed conditions force banks to toughen approaches to risk management, and as its tool to use increase of interest rates.

The current crisis is connected with change of an external economic environment. One of negative factors of the external economic environment is change in a trend of the prices of the raw material resources exported by Russia. Falling of prices for oil has reduced a share of financial resources to the federal budget that affected the volume of financing of the domestic organizations. Data on change of dynamics of investments into fixed capital of the organizations financed by receipts from the budget of the Russian Federation are provided in Table 2.

* Restriction of ruble liquidity is considered sometimes as the measure stabilizing the currency market as the ruble credits obtained by the organizations are used for purchase of currency that causes depreciation of ruble and reduction of currency reserves. In such conditions restriction of the provided ruble liquidity for economy in general can block inflow of speculative resources on the currency market. At the same time this measure should be applied extremely carefully as it also limits cash flows for all other types of ruble operations (the credits, deposits etc.) that negatively affects financing of the organizations of real sector of economy.

Table 2 – Investments into fixed capital of the domestic organizations financed by budgetary funds of the Russian Federation into % by the previous year for 2000 - 2014 (http://gks.ru)

Year	Rate of a gain (decrease), %
2000	67.6
2001	23.4
2002	14.4
2003	38.0
2004	-3.6
2005	71.2
2006	32.2
2007	61.3
2008	24.7
2009	28.6
2010	- 4.3
2011	29.2
2012	8.4
2013	9.0
2014	-7.6

Not less important factor having impact on change of financing terms of the domestic organizations is process of financial globalization. As its distinctive feature liberalization of the national financial markets acts. Together with possibility of attraction of financial resources from the international financial markets globalization of the Russian financial market provoked prompt outflow of financial resources from domestic economy. Data on volumes of the financial means which are taken out from the country are presented in Table 3.

Table 3 – Net export / import of the capital by the private sector (banks and other sectors) from 2000 for 2015, bln. dollars of the USA (http://cbr.ru)

Year	Net import (-), Net export (+)
2000	23.1
2001	13.6
2002	7.0
2003	0.3
2004	8.6
2005	0.3
2006	-43.7
2007	-87.8
2008	133.6
2009	57.5
2010	30.8
2011	81.4
2012	53.9
2013	61.6
2014	153.0
2015	56.9

Undoubtedly, capital outflow from the Russian economy significantly reduces possibilities of domestic financial and bank sectors as involves narrowing of money supply. Decrease in level of monetization in economy leads to the corresponding falling of investments and productions, to further deterioration of a financial position and, as a result, bankruptcies of the organizations of real sector (Glazyev Page (2015)).

Process of integration of financial systems and internationalization of the financial markets, promoted emergence and a wide circulation among the Russian companies of the depository receipts (DR) allowing to overcome national borders of stock market and to attract on national stock market the capital of foreign investors (Aseeva M., Gleba O. Azarnikova I. (2014). The Russian issuers issue two kinds of depository receipts: 1) American Depositary Receipt (ADR) which are traded only on stock market of the USA; 2) Global depositary receipt (GDR) which is traded on stock markets of any countries except the USA.

Active use of such financial instrument by the Russian companies as depository receipts, was connected with that it allowed issuers to bypass a ban and restrictions on export of actions abroad in own country and on free circulation of foreign securities in other countries. Release of depository receipts represented a convenient way to bring the securities to the markets of the developed states and to attract additional foreign investments.

Now more than 3000 depository receipts on the stock of various companies more than from 75 countries among which the important place is taken by Russia (http://bnymellon.com) are traded on the world stock markets. The main platforms where shares of the Russian issuers are placed, are: London Stock Ex-change (LSE), New York Stock Exchange (NYSE), Deutsche Boerse (DB).

The active entry of the Russian companies into foreign trading floors through of issue of programs of depository receipts was observed during the period from 2000 to 2007 (Table 4).

Table 4 - Dynamics of the ADR/GDR market on the shares of the Russian companies during the period from 2000 to 2007 (Zhdan A., Aseeva M. (2015))

Exchange	The annual trading volume of ADR / GDR on shares of Russian issuers, billion dollars.							
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
NYSE	3.95	1.5	1.8	11.3	12.6	17.5	26.8	26.2
LSE	15.31	18.46	19.26	53.4	96.2	134.5	214.3	169.8
DB	10.27	3.66	4.2	4	4.9	12.4	19.7	17.9
Total	**29.53**	**23.62**	**25.26**	**68.7**	**113.7**	**164.4**	**260.8**	**213.9**

Trade in depository receipts on shares of the Russian issuers on LSE especially actively developed in the specified period. First of all, it was caused by lower expenses at their place-ment, and also more liberal requirements of LSE to issuers of the shares placed with use of pro-grams of depository receipts.

New level in development of trade in depository receipts was reached by the Russian companies during 2009-2011 (Table 5).

Table 5 - Dynamics of the ADR/GDR market on the shares of the Russian companies during the period from 2009 to 2014 (Zhdan A., Aseeva M. (2015))

Exchange	The annual trading volume of ADR / GDR on shares of Russian issuers, billion dollars.					
	2009	**2010**	**2011**	**2012**	**2013**	**2014**
NYSE	66.91	81.3	52.85	53.53	36.42	32.63
LSE	407.3	538	419.64	356.86	242.8	217.52
DB	56.74	58.6	42.16	35.68	24.28	21.75
Total	**530.9**	**677.9**	**514.6**	**446.07**	**303.5**	**271.9**

Since 2011 negative dynamics of trade in depository receipts on shares of the Russian issuers which is connected with introduction against them economic sanctions, and also with deterioration of the general economic situation in the country was observed.

Thus, even before introduction of economic sanctions in 2014, in the Russian economy the internal and external tactical conditions limiting possibilities of use of external financing (mainly bank crediting) by the domestic organizations already developed.

3. Influence of the economic sanctions imposed by the EU and the USA on conditions of attraction and use of external financial resources by the Russian organizations

In 2014 the external sanctions of the western countries were added to the above-named negative factors in the Russian economy.

The economic sanctions directed against Russia have various reasons, structure and mechanisms. Characteristic of these sanctions is their dot orientation, i.e. restrictions are imposed not on the state in general, as on uniform geoeconomic subject, but on certain residents of the country: commercial structures and some individuals (http://weic.info, http:// nauchforum.ru).

In general sanctions can be grouped as follows (Table 6).

Table 6 – Group of the economic sanctions imposed by the EU and the USA on object of influence (Perestukin A. (2014), Orlova N. (2014), Klinova M. (2014))

Sanctions	Object of economic sanctions
Sanctions, according to the SDN list (Specially Designated Nationals) ("specially certain companies or natural persons")	Mainly the largest defensive organizations of Russia got to this list. These sanctions assume rigid restrictions because they forbid registering currency payments in advantage or on behalf of the companies. Persons from the USA or connected with the USA are forbidden to perform operations with the persons specified in this list, and all assets of these persons in the American jurisdiction are blocked. Financial risk becomes be the main risk which assumes that all calculations in dollars are traced by the USA. The companies which underwent sanctions can keep accounts only in the Russian banks against

	which there are no sanctions.
"Sectoral" sanctions ("SSI list" (Sectoral Sanctions Identifications) of the American Management on control of foreign assets (Office of Foreign Assets Control (OFAC))	The "sectoral" list includes the Russian banks - VTB, Bank of Moscow, Rosselkhozbank, Gazprombank, Vnesheconombank state corporation (VEB), the Novatek and Rosneft companies. All restrictions extend also on the companies in which belongs to the companies from the "sectoral" list 50% and more shares. The main restriction of the sanctions inflicted on banks and the enterprises is the ban of their entry into the debt markets of the USA and Europe acts, but they can register the payments or payments of the clients. The cooperation which isn't connected with new financing, and operations with securities which are already circulating on the market are allowed. The ban concerns also all companies which own or which are under control to these organizations.

Introduction of "sectoral sanctions", according to the SSI list, assumes certain restrictions on actions of the persons cooperating with the Russian companies (Table 7).

Table 7 – Allowed and forbidden actions concerning the Russian companies which got under "sectoral" sanctions

Allowed	Forbidden
To purchase and sell the existing shares, ADR/GDR and bonds of the companies from the "sectoral" list.	To invest in new issues of bonds of the companies from the "sectoral" list, to grant them the new loans more than 90 days. To refinance the existing debts of the companies if it means extension of the credit more, than for 90 days
To invest in future share issues of JSC Rosneft and JSC Novatek, to participate in the organization of such placements.	To invest in new shares of "VEB", "Gazprombank", "VTB", "Bank of Moscow", "Rosselkhozbank" (if those are let out)
To provide financing to the companies from the "sectoral" list no more than 90 days	To render any services connected with release of new debt obligations "VEB", "Gazprombank", "Rosneft", "Novatek" including the organization of placements
To support correspondent accounts from "VEB", "VTB", "Gazprombank", to provide them settlement and clearing services	
To trade in derivatives on the shares and the bond (futures, options, credit and default swaps of CDS) of the companies from the "sectoral" list irrespective of a date of issue of the papers which are the cornerstone of the derivative tool	
To continue the commercial cooperation with the Russian companies which isn't assuming providing new financing to them	

Source: Management on control of foreign assets of the Ministry of Finance of the USA (OFAC), the analysis of RBC

The sanctions entered by the EU and the USA from the financial point of view are mainly connected with restriction of access of the Russian companies on the international capital market. First of all, possibility

of receiving the long-term financial resources coming to a turn of the domestic organizations in the form of the foreign credits and issue of securities is blocked.

According to data of the Central Bank of the Russian Federation, the corporate sector of the Russian economy for the last several years actively increased volumes of external debt (Figure 4) (http://cbr.ru).

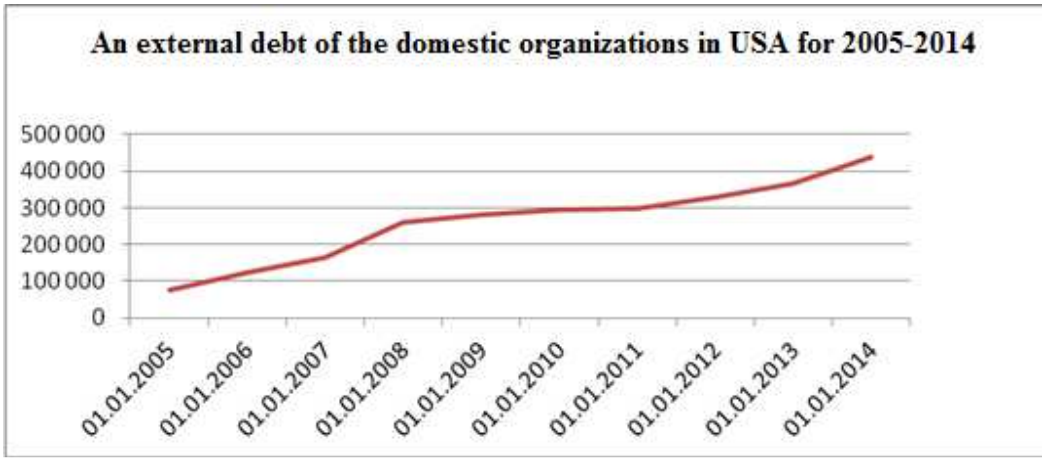

Figure 4 – An external debt of the domestic organizations for 2005-2014

As of 01.01.2014 the external debt of the Russian corporate sector made 651.16 bln. dollars of the USA, for 01.01.2015 – 546.84 bln. dollars of the USA (http://cbr.ru). The essential volume of an external debt and high specific weight of obligations to nonresidents in the general structure of debt are characteristic, generally for most large exporters that is caused by the following reasons: 1) the companies prefer funding in foreign currency for "natural hedging" when the debt share in foreign currency approximately corresponds to its share in revenue; 2) financing cost in foreign markets for the companies having an investment rating, in general, lower, and financing terms – is longer.

The main borrowers in foreign markets are the companies of oil and gas branch. On 01.10.2014 not less than 3.2 trillion rubles that made about 20% of the total external debt of non-financial sector of the Russian economy were the share of three largest Russian oil and gas companies. For the largest oil and gas companies the share of an external debt in the general structure of their debt obligations made 84%. This indicator is the highest in comparison with other branches (http://cbr.ru).

With introduction of the restrictions connected with sanctions of the EU and the USA the Russian corporate sector became have the following problems:1) repayment of an external debt and, as a result, research of possibility of its refinancing was globally designated; 2) rise in price of loan financing; 3) need of search of alternative sources of debt financing.

According to the Central Bank of the Russian Federation, according to the schedule of payments of the largest non-financial organizations for obligations of external financing payments are distributed in time rather evenly: for 2014-2015 only 26% of volume of payments were necessary; the share of repayments falling on the period after 2019 makes 38%. This schedule of payments will allow the Russian companies to satisfy gradually an external debt, using own cash flows and attracting the loans at the Russian banks. The companies of oil and gas and metallurgical branches have a considerable short-term external debt where the share of payments until the end of 2015 made, respectively, 35 and 21% of a total debt. For other branches this indicator doesn't exceed 5 –7%, and the most part of payments fall on the period after 2019. Despite rather big payments until the end of 2015, the risks connected with payments of external obligations of the oil and gas companies by estimates of the Central Bank of the Russian Federation,

remained moderate. In general, "the Russian companies – exporters are able to satisfy independently external debts, using own operational cash flows and refinancing of debts in the Russian banks" (http://cbr.ru).

From March to September, 2014 against some of the Russian credit organizations and their subsidiary banks sanctions of the USA and the EU were imposed. On October 1, 2014 the external debt of the Russian banking sector was 192 billion US dollars (http://cbr.ru). The Russian commercial banks faced a problem of payment for external foreign liabilities. The main volume of an external debt fell on banks with the state participation. Thus the main volume of the planned repayment accounted for more than three years.

In September, 2014 the Central bank of Russia conducted survey of 30 largest credit organizations with the purpose to estimate their actual term structure of assets and liabilities in foreign currency. It was revealed that they had "the net buffer" of foreign currency (a difference between the volume of liquid assets and liabilities with repayment in the IV quarter 2014 – 2015) of 32 billion US dollars. By results of survey Central Bank of Russia confirmed that "in some banks there was a lack of liquidity in foreign currency due to the mismatch of assets and liabilities by maturity, but for the banking sector in general the problem of external debt refinancing is not a systemic" (http://cbr.ru).

Despite the positive opinion of the Central Bank of the Russian Federation on the payment of the external debt of non-financial organizations and financial sector, the payment of the external debt of the corporate sector can cause a decrease in the level of monetization of the economy and, as a result, the restriction of credit resources and increase of interest rates on loans. Besides, arrival on the Russian market of large commodity companies can complicate the process of obtaining credit resources for other domestic organizations..

The imposition of economic sanctions provoked also increase the cost of borrowing, especially for the long term, because the major share of 'long-financing' provided on the external market in previous years. In addition to a direct increase in rates for Russian borrowers an additional negative factor was the high exchange rate risk for loans in foreign currency. Raising the cost of lending, coupled with Exchange rate risk, firstly, reduces investment opportunities for companies; Secondly, it limits opportunities to refinance current debt of companies which imposes restrictions on their operations, as the current financial flows are diverted to repay existing debt.

Economic sanctions affecting the possibility of obtaining Russian banks available credit provoke investment recession in the country. With imposition of sanctions EU stopped financing of a number of the Russian investment projects implemented in cooperation with the European Bank of Reconstruction and Development (ERDB). Some of the measures, in spite of the opposition of Germany and France, affected projects with financial participation of the European In-vestment Bank (EIB).

The suspension of financing new projects in Russia public sector by the EIB has no such implications, as in the case of EBRD, for which Russia is the principal recipient of funds. EBRD shareholders are 64 countries, including Russia (4% of the share capital), and two intergovernmental organizations (the EU and the EIB). Since 2003, EIB has invested in projects in Russia 1.6 billion euro, in 2013 EBRD has allocated 1.8 billion euro and the total investment for all countries — clients of the Bank amounted to 8.5 billion euro. For the first half of 2014 19% EBRD investments fell on Russia, while the Bank lends 35 countries. As of 2014 the Bank participated in 792 projects in Russia, investing a total 24.4 billion euro. The amount of European funding programs of cooperation with Russia until 2020, according to the European Commission (EC) is about 450 million euro. Now the EU can cut it up to 275 million or even up to 98 million euro depending on the rigidity of the decision (Klimova M. (2014)).

With imposition of sanctions concerning Russia also the situation on the market of depositary receipts has changed. The sanctions regime, in fact, discredits the holders of depositary receipts of Russian issuers -

foreign minority shareholders. Introduction of sanctions to the Russian companies creates a risk of losing the asset and non-recognition of shareholdings through depositary receipt at the time of the imposition of sanctions Depositary banks may simply not to carry out orders in relation to sanctions companies.

Already there are some cases when the western banks – holders of the GDR – receive a direct ban from financial U.S. authorities to vote by their package at meeting of shareholders. In the conditions of sanctions regime risks of ownership of the GDR and ADR is significantly in-creasing. So, for the 'sponsored' (i.e. issued on the initiative of the issuer) ADR extension of sanctions can, with high probability, result in the automatic termination of their circulation in the organized markets (if they are admitted to them). This will lead to the risk of loss of liquidity and is likely to decreasing prices. If hypothetically assume that the depositary will forbid any work with the ADR, and their owners will have to re-register the shares in order to sell - there is possible risk of losses due to the spread. Besides, there is still very high risk of losses from the Russian countersanctions in case of deterioration of an international situation. In this case losses of holders of ADR can be up to 100% of their value. Under such circumstances, foreign investors will prefer invest in securities of other countries (not Russian). This will lead to a reduction in investments in securities of Russian issuers, including ADR and GDR (Figure 5) (http:// moex.com are justified; http:// sberbank-cib.ru).

Red - secondary trading in stocks, depository receipts and shares, bln. rub
Green- trading in shares, ADR and GDR at over-the-counter market, bln. rub

Figure 5 – Dynamics of trading volumes of shares of the Russian issuers during 2011 - 2015.

Conclusion

Thus, to summarize, it is possible to tell that the economic sanctions of the EU and the USA imposed in 2014 in many ways have exacerbated the negative and crisis processes developing in economy of Russia earlier. The suspension of obtaining external credit resources provided in the form of foreign loans and Eurobond issue and increasing the cost of external borrowing were major impacts to Russian organizations in terms of their financing. The volumes of financing of Russian organizations through issue of depository receipts have significantly decreased. Reduction and sometimes full suspension for obtaining long-term investment resources, which blocks the implementation of important investment projects, can be described as the most significant negative impact of sanctions.

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Education innovation strategy and implementation of projects focused on methods of modern technical practice

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Abstract

This paper describes the implementation of innovation in education at the University of West Bohemia (UWB) at the Faculty of Mechanical Engineering (FME). The main aim of these innovations is to introduce Project-Based Learning (PBL), which forces students to acquire deeper information about the issues that they are dealing with. PBL is playing an increasingly larger role in technical education all around the world, because this type of education is very advantageous for technical fields and so it is necessary to implement it effectively in our Faculty too. The aim of these innovations is primarily to enhance our students' practical knowledge and make teaching of technical subjects more attractive for students and thereby motivate more applicants to study at FME. 'Today there is a great need to enhance science and math education and to broaden the learning experience to make it more enjoyable.' (Snyder et al., 2014) Implementation of PBL is described here using the examples of reverse engineering and rapid prototyping. These two modern methods are used in engineering practice for digitalization of already produced parts and for production of prototypes. Students at FME have the opportunity to become acquainted with these unconventional methods during their study of certain subjects, within which they can deal with projects similar to those occurring in real practice. These specific subjects provide students with practically applicable know-how which is important for every engineer.

Keywords: innovation of education, project based learning, reverse engineering, rapid prototyping

Overview

The task of every university is to provide high-quality education and thereby deliver to the labour market graduates prepared for their future employment. But according to recent studies and feedback from industry this is not true. 'Today's engineering graduates need to have strong communication and teamwork skills, but they don't. They need to have a broader perspective of the issues that concern their profession such as social, environmental and economic issues, but they haven't. Finally, they are graduating with good knowledge of fundamental engineering science and computer literacy, but they don't know how to apply that in practice.' (Mills & Treagust, 2003) Despite the poor quality of graduates there has been a slight improvement in recent years. 'Technically oriented commercial companies themselves have also made a considerable contribution to this improvement, and are increasingly sending their specialists to lectures and seminars at universities in order to present, in addition to the theoretical fundamentals, practically useful skills. It seems that the key to success is the effective cooperation between practice and education. This should guarantee flexible adaptation of curricula to new trends.' (Petříková, 2014). 'It is clear that universities need to cooperate with engineering companies to produce highly skilled graduates.' (Hynek et al., 2013)

Alongside theoretical education it is also very important to learn and develop practical knowledge in technical fields, because this often determines the employment of graduates in the labour market. 'It is necessary to provide practical information and real applications in class to compensate for the lack of practical experience.' (Hynek et al., 2014) 'It can be said that the ideal engineer must possess sound knowledge of fundamental engineering principles and laws, and must be able to apply the knowledge and convert theory into practice.' (Nguyen, 1998) 'The need to ensure that students gain practical experience of real industrial environments during their studies is therefore extremely important.' (King et al., 2007) 'One of the most important factors in forming the engineering graduate qualities is the practical component of

the engineering curriculum. The professional engineering community expects engineering graduates to develop practical skills during their undergraduate educational experience.' (Nedic et al., 2003) Technical projects are often created on the basis of the solution of a comprehensive problem. The solution always includes a range of activities that are based on significant theoretical knowledge, experience and the practical skills of the investigators. One of the fundamental reasons for implementing Project-Based Learning (PBL) into learning is primarily the current trend in the application of modern teaching methods that are closely tied to modern technologies. 'The pedagogic concept of project-based learning is different from traditional learning in that it tries to develop students into active learners who actively acquire necessary knowledge to resolve problems that appear in the project, not as passive learners who always receive second hand knowledge.' (Thomas, 2000) 'The learning is dynamic as students use various processes and methods to explore the project. The project is generally information rich, but directions are kept to a minimum. The richness of the information is often directly related to the quality of the learning and level of student engagement.' (Capraro et al., 2013) This is why at our university within certain subjects we are extending the use of practical projects focused on real technical problems that students may deal with in their future professional life in any industrial company. Modern methods of rapid prototyping and reverse engineering were selected as suitable examples for describing the implemented innovations. These two methods will be used for explaining how students solve their project on the basis of PBL.

Reverse engineering

First, it is important to explain what reverse engineering actually means. 'While conventional engineering transforms engineering concepts and models into real parts, in reverse engineering real parts are transformed into engineering models and concepts.' (Várady et al., 1997) 'CAD (Computer Aided Design) models are often unavailable or unusable for parts which must be duplicated or modified. This is a particular problem for long life cycle systems for which spare part inventories have been exhausted and original suppliers are unable or unwilling to provide custom manufacturing runs of spare parts at affordable prices and in a timely manner.' (Thompson et al., 1999) The typical procedure of this method can be seen in Fig. 1.

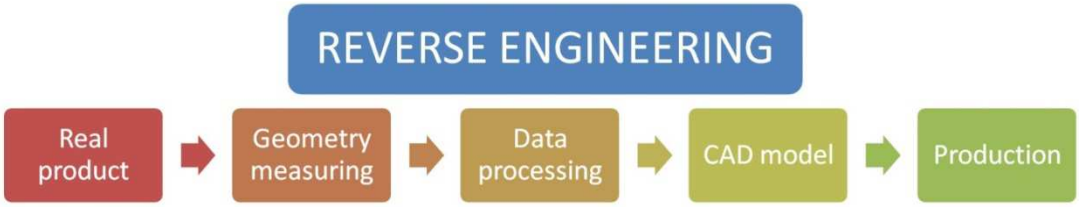

Fig. 1 – Reverse engineering

All of the steps shown in Fig. 1 include several options and methods that can be used to achieve the desired result, and it is only up to the students to consider what fits their project best. Using these basic steps, students will learn different methods and procedures used in measuring and obtaining information about geometry, working with specialized 3D software for editing data gathered from measurements, creation of CAD models, data preparation for further processing in the PC such as drawing documentation, machining programming, 3D printing, etc. At the end of the project students also have the opportunity to manufacture a final product and compare it with the assigned example model.

Rapid prototyping

Another modern method used increasingly in industry is rapid prototyping which applies the technology of Additive Manufacturing (AM) and uses 3D printing. 'Until recently, prototypes had to be constructed by skilled model makers from 2D engineering drawings. This is a time-consuming and expensive process.' (Pham & Gault, 1998) This outdated method of prototype production has largely been replaced by rapid prototyping. 'Rapid prototyping generally refers to techniques that produce shaped parts by gradual creation or addition of solid material, therein differing fundamentally from forming and material removal manufacturing techniques.' (Kruth et al., 1998) 'These technologies significantly improve the present prototyping practices in industry.' (Yan & Gu, 1996) 'Rapid prototyping initially focussed on polymers.

These were later replaced/supplemented by ceramics, metals and composites.' (Kumar & Kruth, 2010) Although 3D printers were originally intended exclusively for the production of prototypes, nowadays their use has expanded significantly. 'While currently used primarily to manufacture prototypes and mockups, a number of promising applications exist in the production of replacement parts, dental crowns, and artificial limbs, as well as in bridge manufacturing.' (Berman, 2012) It is clear that rapid prototyping will continue to play a significant role in industrial production and therefore it is necessary to also include this method in the teaching of technical subjects. 'Interestingly, community colleges have served as an excellent gateway for exposing students to AM techniques, and their courses tend to adapt to recent trends.' (Huang & Leu, 2014) There are several types of 3D printers at our university, so students have the opportunity to learn how to use these printers and determine all the possibilities and limitations of each type of printing. Rapid prototyping can also be used in reverse engineering under the section "production". The procedure for creating a component using rapid prototyping is shown in Fig. 2

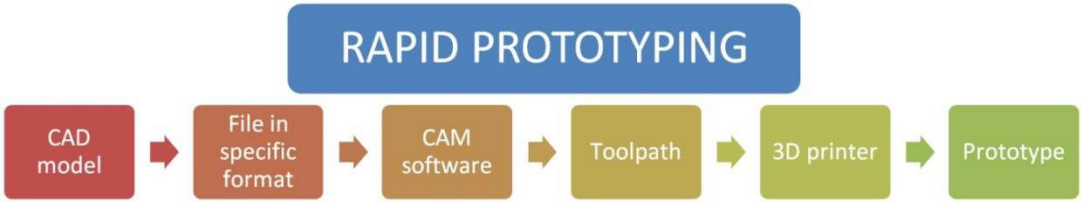

Fig. 2 - Rapid prototyping

Innovation of education at UWB

Innovation of education is being implemented at the UWB and FME for the improvement and modernization of education. One of the major trends in today's teaching is PBL. 'Effectiveness of Project-Based Learning is well recognized.' (Verma et al., 2011) 'In considering the enhancement of student interest to learn engineering and to further increase their positive attitude, influential factors ought to be considered in engineering curricula.' (Tseng et al., 2013) A number of projects were created for several subjects on the basis of this innovation at our Faculty. All projects were designed so that students could complete them in one semester. Project topics were chosen from a wide range of machines, equipment, tools and products. Each project always includes several disciplines, fields or specializations so it is always a very complex task. The simplified procedure for a sample project focused on reverse engineering is as follows:

- Student receives a part with complex shape for which an exact copy must be made on the basis of reverse engineering. At the same time the student receives a detailed assignment with all the requirements which need to be met.
- The first step is digitalization of the geometry of the received parts. The student has to choose the method of measurement according to the shape of the part and according to the requirements of the assignment.
- From the measurements the student obtains a point cloud that has to be cleaned from noise and also logically adjusted for compliance with the geometry of the part.
- By this process the student gains the required CAD model, which is further processed for final production of a copy of the specified components.
- The last step is the final production by selected/assigned technology. There is the option to use conventional machining methods or AM.

Via this process, students learn all the steps of reverse engineering and acquire practical skills in terms of digitalization of parts, CAD data editing and final production of parts.

Benefits for students

PBL means that students themselves must find and acquire information that is often much more extensive than information that could be given to students during traditional classes of individual subjects. 'Students must take responsibility for the learning process by setting goals, monitoring, reflecting, and sustaining

their motivation from the beginning of the project until the end.' (English & Kitsantas, 2013) 'Through practical activities, interactive discussions, independent operation and/or team cooperation, students reach the planned target and establish their own know-how.' (Tseng et al., 2013) Students gain practical know-how that is required from every graduate from a technical university. They also become familiar with modern technologies and procedures used in real industrial practice.

Conclusion

The aim of this article is to introduce innovations implemented at the UWB in the FME. These innovations include the effective implementation of PBL into teaching of several technical subjects. Projects in these subjects were created on the basis of modern methods that are increasingly widespread in technical practice. The methods described in this paper are rapid prototyping and reverse engineering. These innovations have been created on the basis of the need to enhance the quality of teaching and increase the quality of the graduates from our Faculty. Another reason was to make these disciplines and subjects more attractive and increase the number of applicants.

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Motivation of students

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Abstract

Motivation is the most important thing in education. Without hesitation it can be said that success or failure of studies depends mostly on it. The presented paper is research in progress that is focusing on motivation in the education system. The main points of interest are the student, the teacher and the relationship between them. The aim of the article is to provide teachers with suggestions for key areas that are important and, at the same time, to highlight errors that many of us are making without realizing it.

Keyword: motivation, higher education, learning success, student, teacher

Introduction

'Motivation is love: love to do something or to have something. It is a driving force to carry out actions a person likes or desires' (Teo, 2010). From birth we are affected, or more accurately, educated, by our parents. After a few years, this role is largely transferred to the teacher for a long period of time. Therefore it is necessary to focus on the motivation of the student and the importance of the relationship between the student and the teacher (Abrami, Perry and Leventhal, 1982; Klem and Connell, 2004).

Student

Students are the cornerstone of the educational system and they are important for the labour market too. We must realize that students represent not only themselves but also their university. Therefore, any invested energy is beneficial in the long run. Unfortunately, there are many factors that affect motivation and student achievement.

Important factors include study habits and time spent learning (Nonis and Hudson, 2009). These two habits are learned constantly with each year spent in high school. The big difference for many is the transition to college. Many students cannot handle the freedom of study, optional attendance and only fixed submission deadlines. This means they might gradually lose their learned habits, with the result that the student does not go to lectures, does not have their own notes, making it harder for them to learn from other notes.

Another important factor is cooperation with firms and companies. Each example of possible application of learned knowledge after graduation and potential reward is very motivating, even more so as we draw closer to meeting the expectations of the student. Therefore, it is important to be interested in the expectations of the students and how to eventually satisfy them.

Teacher

"If a teacher educates just to secure livelihoods, his students are bored, are tired and are withering with him" - Konstantin Sergeyevich Stanislavsky.

The quality of education does not depend on the subject which is taught. It depends only on the teacher. Without hesitation it can be said that if the teacher is not able to motivate students to study, s/he is not doing his/her job well.

Teacher qualifications

'Teacher quality matters. In fact, it is the most important school-related factor influencing student achievement' (Rice, 2003), and Darling-Hammond (2000) also have the same opinion, stating that: 'characteristics such as certification status and degree in the field to be taught are very significantly and positively correlated with student outcomes'. Therefore it is necessary for teachers to constantly educate themselves and also to be evaluated (Çeliköz, 2009). If the evaluation is not correct, corrective action must be taken immediately. No student can be motivated enough by outdated information which does not correspond to the present time.

Teaching style

The most common connection between student and teacher is during lectures, seminars and through the teaching materials. Although a teacher may be skilled, and no matter how familiar they are with the subject to the last detail, if they are not able to present their knowledge, they are useless. Over the years, each teacher develops their own characteristic style of teaching and many of them are described in scientific articles (Keefe, 1986; Schmeck, 1988). Modern educational tools can be used to create better teaching materials, inspiring lectures and attractive exercises. Currently the most commonly used are E-Learning and Project-Based Learning. The advantages and disadvantages of e-learning are described in many specialized articles (Kanninen, 2008; Bennett *et al.*, 2012). This tool is very flexible. The education model can be adapted easily for humanities and technical fields (Khasawneh, 2010; Hynek, Grach and Votapek, 2014). Project-Based Learning is the opposite of E-learning, it is more focused on solving a particular problem on a real subject. The main advantage is that it eliminates some of the disadvantages of E-learning, especially in technical fields. Unfortunately, the application of this approach requires the cost of premises, facilities, time and devoted teachers. For example, Lam et al. (2009) stated that:

Project-based learning will have a better chance to bring about the desired benefits, such as improved motivation for students, if teachers themselves have a strong motivation to experiment with and improve it in the classroom.

By correctly combining these two styles, obsolete teaching methods and bad practice from earlier times can be removed. Most importantly, the teachers are motivated to look for new styles and make changes.

Relationship

Even the smallest details affect students' motivation and make big differences between teachers. It is not enough merely to amaze students with knowledge. The outer appearance and confident behaviour of a teacher in class and other characteristics are important factors (Wayne and Youngs, 2003). Even though the teacher is superior to students in the class, it is important to build a personal relationship on a professional level, identify the characteristics of the students, be interested in their interests and use all this information during communication. For building a relationship with students it is appropriate to use practical experiences, personal stories or current events. When posing a question do not ask just one student, but invite more students into the discussion. Do not use sarcasm, criticism, or abusive remarks, and any negative issues and problems should always be dealt with in private, so that they do not feel embarrassed in front of their classmates. Behaviour and body language are also important (Neill and Caswell, 1993). The teacher must look confident, establish eye contact, smile and recognize the current mood of a student from his/her behaviour.

Conclusion

It is certain that if a teacher is motivated enough, this can create the foundation for an educational model that attracts students to lectures and seminars. At the same time, it increases the incentive to pass the subject, to increase the commitment of students to educate themselves in their own free time and set themselves high goals. Therefore, it is necessary to motivate and be motivated. Take advantage of the willingness of parents, teachers, colleagues, classmates and others to help in developing our personality and achieving the stated objectives. Even in the case of failure it is necessary to find new motivation and always continue forward.

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Practical Implications of the Weak Signals Concept for Control System of Production Projects Execution

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Abstract

A weak signal is the carrier of a message to specific parameters of an object, system, process or production project. Activation of this sort of data and its further transformation into useful information (knowledge) allows to anticipate future environment variables and record early symptoms of potential changes in the plan of a project. The concept of weak signals is the starting point for constructing an early warning system as a tool for monitoring possible threats in a control system of production projects execution. An important element of early warning of imbalances/disruptions is a module monitoring production processes. Wear and tear diagnostics of a control system of production project execution requires a systemic approach. The purpose of this article is to present solutions dedicated for constant monitoring of machinery and equipment in a production system, as well as the flow of materials and information in processes. Therefore, a synthetic approach was proposed, based on the use of measuring systems risk analysis, and the earned value method which allows to control the project completion stages (work progress). Early identification of weak signals, their proper assessment and estimation of a forecast of future conditions require taking appropriate real-time actions. Proactive steps translate into effectiveness of production projects execution.

Keywords: weak signals, early warning system, production project, measurement systems, project execution control, risk identification, earned value method (EVM).

Introduction and background

The global economic crisis which started at the beginning of the 21st century reached an unexpectedly large scale and significantly slowed down the world's economy. Together with a relatively high level of synchronicity of business cycles of many of the Western countries and of the emerging markets, the scale of this phenomenon caused a significant decrease of the economic growth. Commonly observed results of an economic crisis, apart from a general economic downturn, also include a decrease of quality, which has a permanent impact on the functioning of an economic system. Nowadays there is a noticeable tendency among production companies to be focused on the external environment of business, which consists of defining company targets in terms of market and customers needs. Global economic political and social processes have necessitated internal reorganisation of most companies and contributed to a flexible reaction to the changing needs of customers. The majority of those changes bring the necessity of implementing new solutions in the area of company management, which, in turn, increases the difficulty of finding suitable approaches towards production management.

The challenges which must be faced today by most production companies are the result of the strategy of diversification, which leads to an increase of the offered goods and the sizes of orders. Nowadays, due to specific requirements of customers, most of the production is realised in MTO (make-to-order) mode, with only a part of the offered goods and manufactured in the MTS (make-to-stock) mode, most of which include standard goods of high demand. In case of mass production and varied production, which is characterised by irregular orders for not only standard but also custom goods, the flow of materials through the production process is organised in non-pipeline forms. Flexible sets of operations logically conditioned in time and space, with a changeable structure

adapted to the quantity-quality characteristics of the manufactured goods, comply with discrete processes in which non-constant flows of energy and materials dominate (Muhlemann, Oakland, Lockyer, 1992). Discrete production is the dominant type of production in Poland. It is dedicated for, among others, cabinet making, car and electronic industries, and it requires preparation of complicated engineering documentation and software controlling the production devices, as well as complex production planning. The greatest problem in managing a mass production with often very limited resources is a high changeability of external and internal conditions.

In the classification of industrial production processes by continuity and duration we find, apart from discrete and repetitive manufacturing, project production which refers to aviation industry defence industry and companies which design product to order and those which use the Seiban production control method (a method which enables a comprehensive management of the structure of commissions and orders. It enables a comprehensive planning and monitoring of production of custom goods in terms of deadline, costs and availability of materials and components). The variability of factors which have effect on individual resources of the production system and the environment dynamics cause numerous deviations from the plan, which calls for proper management of production in order to meet the expected results). In production to order, a production commission is generated after an order from a customer was received, which hinders production control understood as a system of actions which aim at receiving the desired results by the production system and the company (Pająk, 2006).

The development of CE (i.e. concurrent engineering) had a great contribution to the introduction of solutions based on project management paradigms to the practices of companies functioning. Concurrent engineering strategies, evolving towards Concurrent Engineering Environment which takes into account the cross-over of business and engineering activities, are widely applied in the processes of products development. According to the engineering approach, an integrated, concurrent engineering of a product, manufacturing process and auxiliary processes have been the methods more and more often used to reach operational and strategic goals as well as to introduce general improvements in the activity of a company. Parallel and serial-to-parallel performances of development tasks (e.g. in the new product development process) show the essence of this approach and set them apart from the traditional sequential (serial) approach. Thanks to this, already at the initial stages of product engineering the decisions are made concerning the product's quality, costs, meeting customers expectations in all the stages of the product's life cycle. Such projects are realised on the basis of initially incomplete data, starting with the preparation of an offer and a quote, then the preparation of a budget and realisation schedule and finally there is the control and realization of the project and the preparation of accounts for the contracted work. The repetition of orders is close to zero. The order realization process in this sort of environment requires special support in terms of knowledge management. This approach requires team work of specialists from different organizational departments in a company. During each stage, project team members are active participants in the processes of solving problems and making decisions.

In an integrated development of products, processes and production systems, a number of methods are used to facilitate the activities which form information aimed at defining the product, the process and the manufacturing system. One of the more important effects of implementing production systems which allow realisation of modern development strategies is a shorter start up time of new products and faster realisation of orders. The range of the effects depends on the efficiency of the information-decision connections between the stage of the technical preparation of the production and the sphere of the planning of production management systems. An integrated process of production process realisation reflects a network of stages, tasks, activities and the correlations among them. Such correlations between individual stages are the result of the relationships between tasks and the required knowledge at individual stages of project execution.

Problems with managing a mass production in conditions of limited resources

The challenges that must be faced by most manufacturers today who produce to order are focused on many important issues whose sources are, by and large, the result of mass production in conditions of

limited resources. The selection of goods is wide and not stable. It is difficult to foresee the size of potential orders and their timing. High changeability of this type of production results in machinery being placed in groups, e.g. according to type, which creates specialised technological cells, and every realised product requires the use only some of the resources (Knosala et al. 2007). It is also worth stressing that in case of such an organization of production the number of employed blue-collar workers does not match the number of operators necessary for proper functioning of all the machines at the same time. It is economically justified, as the machines are not loaded evenly and it sometimes also happens that some of the machines are used very rarely. However, this has serious implications for production control (Wróblewski, 1993). When planning production, one should remember not only to secure the material demand on an appropriate level but also about proper, economically justified load of the machinery. In the conditions of limited resources, this can mean deciding to use a machine at the right moment at the price of stopping the use of another production resource.

Purchase of resources for production is often forecast, which is usually imprecise; the longer time period the forecast concerns the higher the degree of imprecision. Varied and unstable assortment of goods makes it difficult to foresee the size of potential orders and their timing. Moreover, the average time between the dates of order placement and its realisation is shortened (Knosala et al. 2007). Different realization times of production orders, insufficient production resources and problems with overdue delivery of raw materials cause substantial problems in production planning, and production plans which need constant changes entail the need for flexible, adaptable control. When analysing the situation of production companies, it is worth noticing that there are certain difficulties which occur in almost every company which manufactures a wide range of products in conditions of variable number of irregularly received orders. They include (Trojanowska, Koliński, 2011):

- high costs connected with maintaining materials stocks and intermediate warehouses,
- a long time of material flow through the production system has a negative effect on the quality of the finished product,
- overdue realisation of customers' orders,
- no online information about the current state of the realisation of individual orders,
- plans becoming outdated fast.

High changeability of the conditions and the dynamics of the production environment are a serious problem which hinders production planning, and thus also its control. The foundation of control is the assumption that in case of system ill-adjustment resulting from external and internal factors, there is a deviation from the plan and, in order to achieve the initially planned results, a number of actions is undertaken. It should be noted that the direction of the actions taken must be in accordance with the adopted production strategy. The fundamental tasks of production control are (Śliwczyński, 2008):

- control and current checking of the availability of workforce, machinery and devices, tools, materials necessary to realise the adopted production plans,
- determination of current priorities in the realisation of production tasks,
- tracking and reporting the course or the production process activities and the flow of materials and production deficiencies, stocks, the condition of machines and the use of the workforce,
- securing the flow of information and production documentation necessary to assess and regulate the works in progress, the use of supplies and the flow or materials.

The level of difficulty in the realisation of these tasks depends on the type and form of production organization employed in a given company. Among the factors that affect the realisation of the control function are the following: (1) organisation and flow of production, (2) information and information flow, (3) short-term planning systems, (4) technological process requirements, (5) stable prioritising and (6) system feedback. The major problem of control is the speed and relevance of responses to the occurring disruptions. It is assumed that taking proactive rather than reactive actions greatly improves the efficiency of production processes. Reactive management leads to elimination or maintenance of deviation (which results from past actions) and the undertaken actions usually are a late reaction to the occurred situation. While in a proactive system, potential causes and results are analysed. Still the contemporary production systems are reluctant to design the future. Foreseeing of potential problems, with the view to avoid them, or searching for new solutions to implement them,

aims at proper identification of opportunities and threats. In the new reality, companies more often are facing the issues of adaptation and dynamic and intelligent production control.

The idea of early identification of changes

The purpose of the carried out research and the proposed concepts is the pursuit of early identification of changes during the execution of production projects in order to properly direct the actions and preparation to manage changes in a proactive manner. The context of the analyses was focused on an attempt to gain information on the subject of potential problems and the obtained order control indexes in mass production via early detection typical of the theory of weak signals by H. I. Ansoff (1975). In every organisation, early detection of upcoming changes plays a crucial part. The incoming signals (often a first sign of changes, of little meaning at the moment of their appearance but which can have a decisive effect in the future) carry with them the knowledge about the environment and can become the basis for the decisions about identification of changes taken in the organisation. The information from the signals of the early detection system plays the role of an initiator of readjustment processes. Such processes are indispensible for the organisation to react to changes in advance. In the literature of the subject, early symptoms of changes are referred to as *weak signals* (compare Fig. 1).

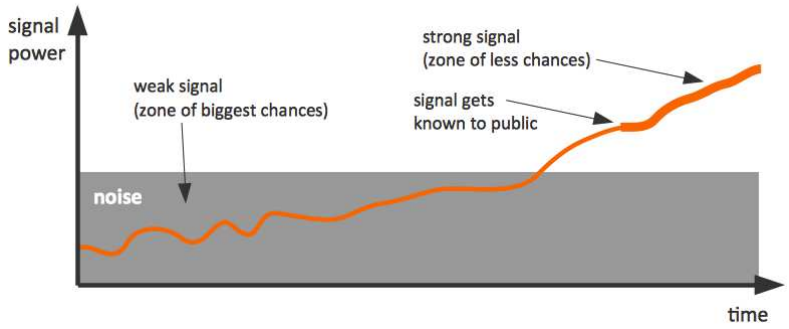

Fig. 1. Conception of a weak signal
Source: (Eckhoff, Markus, Lassnig, Schön, 2014)

The concept of weak signals is the starting point for constructing an early warning system as a tool for monitoring possible threats in a control system of production projects execution (compare Fig. 2). The proposed early warning system consists of three modules: monitoring, diagnostic and predictive. The monitoring module is responsible for observing and collecting data. The diagnostic module is responsible for assessments based on the observed symptoms or comparisons with the standard. The predictive module provides a forecast of future conditions on the basis of the data and observations collected in the monitoring module and the correct assessments in the diagnostic module.

The diagram of a structural early warning system presented in Fig. 2 shows, apart from such input data as: weak signals, thought models, power, norms, resource and output data (including forecasts, future scenarios, assumptions, language, cause and effect relations), also show process connections and their inclusion in the production system. Such conditions require an integrated implementation of the early warning system into the structure of the production project control system. This is substantiated by the process approach understood as action during which resources (i.e. machinery, devices, raw materials, knowledge, data base, workforce, financial resources) are used and which is managed towards proper input-process-output transformation. Thus, the input consists of: customer's requirements (contracts, orders), materials, raw materials, prefabricated products, technical documentation, information, legislation, etc. And the output of the production process we have: the product, service, decision (or a combination of these) and customer's satisfaction.

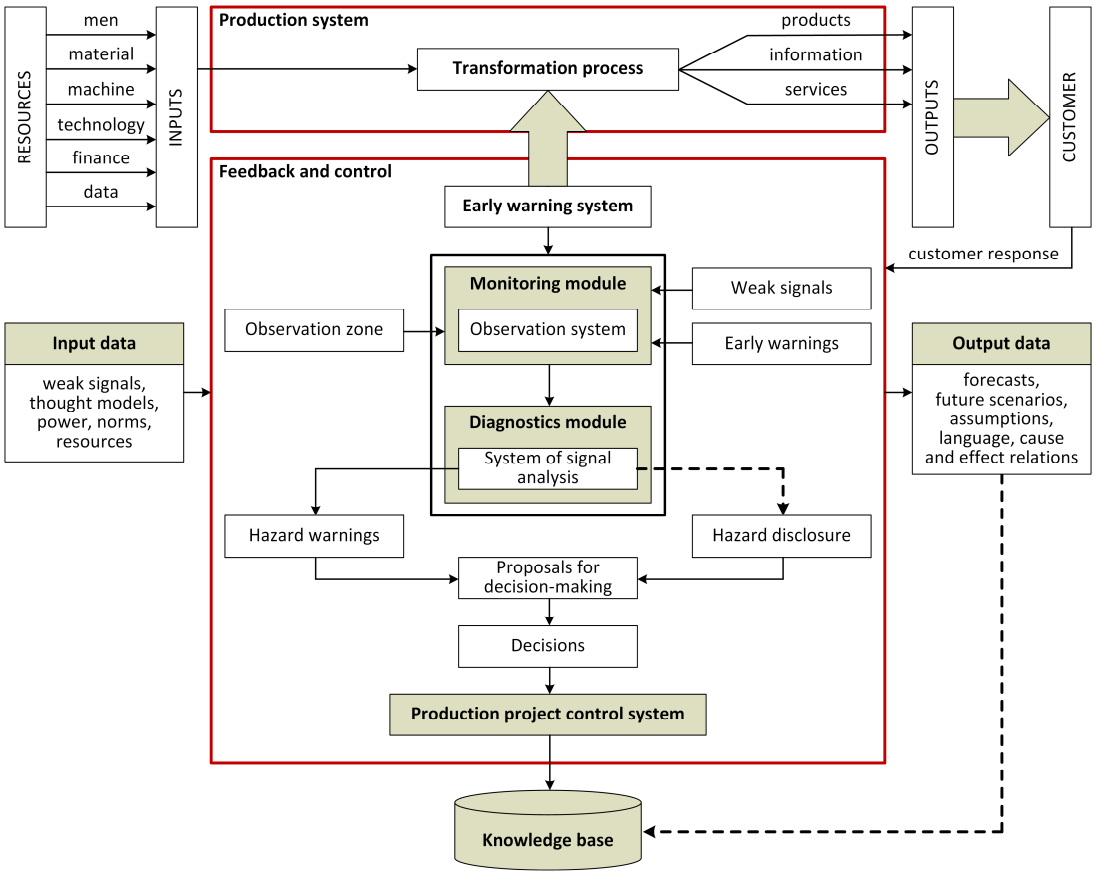

Fig. 2. Implementation of the early warning system into the structure of the production system
Source: own elaboration based on (Ćwik, Telep, 2015)

Among the innovative technologies used in industrial processes control are:

- techniques of monitoring of the size of typical industrial processes,
- techniques of diagnosing industrial processes,
- wired and wireless network technologies with data transfer synchronisation.
- systems of visualisation of the conduct of industrial processes,
- technologies of automatic identification during production and measurement (such as RFID and similar) in time,
- technologies of so-called real time, e.g. XFC (eXtreme Fast Control),
- systems based on AI algorithms,
- technologies which use non-linear systems of control and analysis,
- technologies which use intelligent control systems.

These technologies have immense impact on early detection of weak signals in the control of production projects execution and are an essential reference point for building an early warning system. The subject in question is also related to a selected group of technologies which relate to automatics, robotics and measuring techniques, as well as the technologies used in transportation and logistics.

An important element in recognising potential threats in a system of project execution control is the module which monitors the production process. It is the core of the early warning system. Wear and tear diagnostics of a control system of production projects execution requires a systemic approach. A final outline of the concept consists of monitoring both machinery and devices in the production system, as well as the material-information flows in the process. The concept of weak signals as the foundation of the structure of the monitoring module is a synthetic formula for the proposed

solutions. Practical implications of the concept of weak signals for the early warning system stem from the consolidation of both technical (static) and organisational (dynamic) elements. Technical (hard) elements of the monitoring module are measurement systems (dedicated for diagnostics of machinery, devices and tools) whose role is to detect weak signals as symptoms of potential disruptions in the production projects execution control. On the other hand, organisational (soft) solutions are based on risk assessment and the earned value method which enables the integration of range management, schedule management and project costs management, at the same time controlling project execution progress.

Detecting weak signals with technologies in process production

Recognition of weak signals in production processes often requires the use of modern technologies and is the result of implementation of appropriate measurement systems. Such innovative technologies which use dispersed measurement systems include:

- distributed processing technologies,
- group communication technologies,
- clock synchronization technologies,
- distributed transactions technologies,
- multiplication technologies,
- distributed processing technologies,
- technologies of failures detection, their tolerating and masking,
- technologies of state reproduction.

Measurement systems are used by almost all production companies. The term *measurement system* has a broad meaning. It is connected with measurements in general, telemetry or monitoring systems. Over a number of years when measurement systems have been present on the market, there have been many solutions, both scientific and industrial. A lot stress is put on quality in production or services; this is why the importance of industrial measurement systems in growing every year. It has been observed that properly functioning measurement systems greatly influence the quality of production processes.

A measurement system is a complex system consisting of one or many measurement tracks. Every measurement track has a driver, microcontroller or a computer which is the control unit (a graphic interface or data acquisition device). In real measurement tracks, it is a rare situation when individual functions are realised by separate measurement devices. Fast development of IT technologies has led to a situation where most currently realised measurement systems can be called computer measurement systems. Such a computer measurement system can have various configurations. According to the type of connection of the elements with the main unit, the configurations are as follows:

- linear (bus) – the exchange of information takes place through the system bus,
- in series (tandem) – the exchange of information take place only between the neighbouring elements,
- star – the control unit communicates with every device independently.

At the moment, all high-quality measurement devices are computerised and have Ethernet network port or at least a USB port and built-in software which enables controlling the device via WAN network. Many executive elements have communication interface which helps avoid problems with configuration and drivers, which may be problematic for a potential user in many situations. The popularity of such solutions also results from a very good customer support by the producers of specialised software, e.g. LabView by National Instruments.

One of the latest solutions widely used in the communication between the elements of a measurement system is the use of cordless communication technology, e.g. Bluetooth, WiFi and GSM. A large part of the measurement infrastructure has the structure of an installation dispersed in a production hall or in a number of production buildings. That is why cordless communication, which ensures the

possibility of easy integration of all sorts of measurement elements, becomes very valuable. Another solution which is becoming more and more popular is the cloud technology used for storing and managing data. This type of data acquisition so-called Big Data application is used in large measurement systems which have multiple measurement points.

The structure of a typical measurement system consists of a controller which controls the activity of the system and a set of functional units. These units include: measurement sensors transforming measurement values, signal acquisition block data processing block and user communication block. The functional units are most often realised through hardware, which entails higher costs of building a measurement base. In order to lower the costs, a concept of virtual measurement instruments was devised. A virtual instrument (most often in the form of software) may be built by the manufacturer as well as by the user. It is their great advantage, as this makes the instrument flexible and reconfigurable. This enables to create a collection of virtual instruments which realise various functions and which reduce the costs of instruments and shorten the time of their preparation and further modifications.

In many companies, measurement systems are regarded as an optimization tool by means of which something can be made more efficient, or production costs may be reduced. Nonetheless, in the proposed early warning system they will mostly have monitoring function which, combined with the organising aspects of the concept (risk analysis, earned value monitoring) offers a holistic approach towards an early detection of distortions in the production projects execution control system.

Early warning as a part of project risk management

The first of the analysed areas aiding in an early warning of potential disruptions in processes and in the production organisation is project risk management. Risk management concentrates on the identification and control of events which may have detrimental effect on project execution, and its main goal is to minimise project failure risks. The process of risk management in projects consists of particular stages. PMI distinguishes individual stages in risk management (PMI, 2013). In practice, this means that risk management is a process of identification, analysis, assessment of various types of risks and monitoring and control of threats which may affect a project positively or negatively. The process of risk management should be an integral part of project management.

Project risk management involves decision-making and carrying out actions that lead to the achievement of an acceptable risk level by the project team. The knowledge of risk involved in the execution of a given project is one of the factors in project success (Lock, 2007). The ability to predict threats and accordingly preparing an effective contingency plan are key in project management. Risk management is focused on identifying and controlling events that can have a negative impact on the execution of a project, its main goal is to minimize the risk of project failure (WSDOT, 2014). Project risk management consists of several stages, as determined by the Project Management Institute (PMI, 2013). In practice, risk management is a process of identifying, analyzing and assessing different types of risks, as well as of monitoring and controlling events that can affect a given project in a positive or negative manner. Risk management should be an integral part of project management (Jaafari, 2001). The main goal of risk management is to identify and assess the risk of a given project. The first step of risk management is risk identification. In this phase all potential risk sources are identified. Potential risk factors, which can have a particular impact on the project, are determined. A number of techniques of project risk identification are used in practice. Potential project risks can be determined through: brainstorming, checklists, questionnaires and interviews, the Delphi group method, cause-effect diagrams (Mojtahedi et al., 2010). Risk assessment constitutes the second stage of risk management. The main goal of project risk assessment is to measure the impact of risks identified for a particular project. To this effect, the following methods are employed: Event Tree Analysis (ETA), Faults Tree Analysis (FTA), the Monte Carlo method, Scenario Planning, Sensitivity Analysis, Expected Net Present Value (ENPV), Decision Trees, Program Evaluation and Review Technique (PERT), Estimations of System Reliability, Failure Mode and Effect Analysis (FMEA), and Fuzzy Set Theory (Elbrahimnejad et al., 2010).

In (Nikander, 2002) a procedure was proposed for early warning which was based on earlier assumptions by Ansoff (1984). Individual stages of the procedure, such as: making an observation, accepting the observation as an early warning, determining the state of knowledge and the time available, identifying the problem and its cause, are regarded as the first phase of project risk management, and called risk identification. The proposed approach to risk analysis dedicated for projects was more widely presented in (Łapuńka, Pisz, 2015).

The need of knowledge acquisition (weak signals, in particular), its structure and proper processing during the entire process of project management are a crucial element of the carried out tests. Adaptation of the concept of weak signals to project market management and its implementation in a system of early detection of chances and threats in the execution of production projects facilitates data control. Such inference, also called progressive, leads from facts, thought rules to the final conclusions. Apart from risk factors predefined at the stage of project initiation, these are early signals registered during the control of project execution that will enable the possibility of proactive response to disruptions which appear during the phase of production project execution. Undertaking proper actions and preparation in advance for an unwanted situation may contribute to increasing the effectiveness of the realised projects.

This aspect of the discussion leads to regarding early warnings in categories of risk identification in the structure of project execution control. The second of the organisational aspects of this discussion leads towards monitoring and control of the production projects processes with the use of the EVM method.

Early warning as a part of monitoring and controlling process

Early warning systems provide IT security for planning and control processes by supplying information reducing the uncertainty of decisive situations, and so they make taking more rational decisions impossible. The EVM method enables the integration of the management of range, schedule and project costs. It is a tool for project state analysis, and it also allows to forecast execution of projects in the future. EVM is the most effective tool of project execution measurement, and thus also of its control. Using the earned value method allows project managers to close a project management cycle in accordance with Deming's PDCA (Plan-Do-Check-Act). The condition for using the earned value method is preparation of an appropriate plan and its realisation prior to the project initiation, as well as management of the project and detailed valuation of work resources. Every project which has its own WBS work plan, defined costs structure and appropriate system of data collection can use the earned value method.

The EVM requires detailed planning and the use of systems of costs monitoring and calculation. Apart from that, an appropriate control system and responsibility for reached targets are necessary. Implementation of the EVM in an organisation may require a change of work practices to a greater degree than just in terms of reports preparation. Higher level of discipline in the planning process will require focusing on objective reporting, integration between planning systems and accounting systems. The process of planning begins with determining of the range through the product breakdown structure (PRINCE2) or work breakdown structure (PMBOK). These structures allow for hierarchical decomposition of the range, but they do not present the logical relations between individual elements. That is why the next step is developing of a network of reliability directly with WBS or indirectly through the product breakdown structure (PRINCE2). During the project planning process, the earned value method requires a PMB (performance measurement baseline). This requirement strengthens the importance of project planning principles, especially those connected with range, schedule and costs. Deviations during the execution of a production project are recorded with respect to this performance measurement baseline.

The project's final product should be broken down into tasks necessary for its production. In this way a WBS (work breakdown structure) is formed, which is an element of project range management plan. An important element here is the OBS (organisation breakdown structure) of a company whose implementation resources realise the project. According to WBS, all the woks in a project should be

thoroughly planned (project schedule). Every task in the work division structure should have allotted appropriate resources (labour and materials). All this will enable proper preparation of costs management plan. Such prepared WBS plans, schedule management plans as an integral element of time management plan, as well as costs management plans, should be recorded (usually using IT tools assisting project management). Such recorded plans, referred to in PMI methodology as base plans, shall be the PMB for the earned value method. Figure 3 presents a PMB for a sample project in EVM.

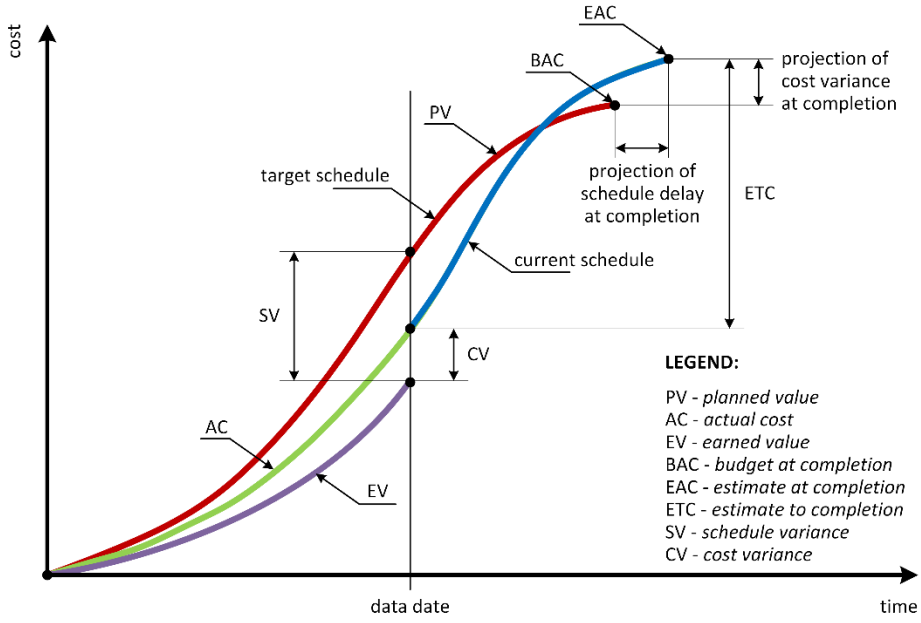

Fig. 3. Elements of EVM

Source: elaboration based on (PMI, 2005)

The basis for measurements of project progress in the earned value method are the following (Kemps, 2000):

1) budgeted cost of work schedule – also referred to as PV (planned value), it is the sum of all the costs planned within the project or its part, calculated from the date of reporting,
2) budgeted cost of work performed – also referred to as EV (earned value); it is the cost of the entire progress achieved in a project or its part calculated from the date of reporting and expressed in the categories of planned costs assumed in the preliminary estimations.
3) actual cost of work performed – also referred to as AC (actual cost), these are the total costs connected with a project or its part calculated from the date of reporting (the sum of expenditure regardless of what was planned or completed).

Precise calculation of the earned vale using the EVM is one of the contentious issues of project control process. EV reporting should be objective and easy to verify. There are several methods of EV estimation (Kemps, 2000), including the following: subjective assessment, measurements-based assessment, practice-based assessment or indirect assessment. When the earned value is plotted on a graph, the difference between that value and the remaining two values can be divided into the part relevant to the deviation of costs of performed work and the part relevant to the work performed within time other than planned (Kemps, 2000; Fleming, Koppelman, 2000):

- cost variance (CV) – the deviation of costs is the difference between the earned value and the real costs at the time of reporting,
- schedule variance (SV) – the deviation of the schedule is the difference between the earned value and the planned costs at the time of reporting.

If the deviation of costs or schedule is a negative value, the project is in a bad condition. On the other hand, if the values of the deviations are positive, the execution of the project is progressing better

than planned. The deviations of costs and schedule can be calculated for cumulative data or individual periods (usually weeks in production projects) of project execution. They should be calculated on the lowest level of detail and summed up increasingly through subsequent stages of the project. Thanks to this, project managers can see where problems with costs and schedule realisation occur and they can undertake appropriate corrective measures. Costs and schedule deviations may change during execution of the project, but mostly they stabilise as the project is about to be completed.

There is a possibility of calculating two indicators which are a measure of the realisation of both costs plans and schedule plans (Kemps, 2000; Fleming, Koppelman, 2000):

- cost performance index (CPI) – it is the quotient of the produced value to the total sum of expenses in a project at a given point in time.
- schedule performance index – it is the quotient of the produced value to the sum of values which, according to the plan, were to be produced at a given point in time in the project.

CPI and SPI values greater than one mean that the execution of the project in terms of costs and schedule is better than planned. If the CPI and SPI values are smaller than one, it means that the performance is worse than planned. Other measurements of plan realisation within the earned value method are presented in table 1.

Table 1: Measurements of project execution within the earned value method (EVM)

Data	BAC		AC		EV		PV
Deviations		VAC		CV		SV	
Indicators		TCPI		CPI		SPI	
Forecasts	EAC		ETC		ATE		
Formulas	VAC=BAC-EAC			CV=EV-AC		SV=EV-PV	
	TCPI (BAC)=(BAC-EV)/(BAC-AC) TCPI (OD)=(BAC-EV)/(BAC-PV)			CPI=EV/AC		SPI=EV/PV	
	EAC=BAC/CPI						
Legend:							
BAC – budget at completion VAC – variance at completion EAC – estimate at completion TCPI – to-complete performance index OD – original duration of the project ETC – estimate to complete ATE – actual time expended to date				AC – actual cost EV – earned value PV – planned value CV – cost variance SV – schedule variance CPI – cost performance index SPI – schedule performance index			

Source: elaboration based on (Łabuda, 2012)

In order to assess the total costs and the date of project completion, assuming that the trends determined at the date of reporting remain unchanged until project completion, we may use the EAC, ETC relation described in greater detain in the literature on the subject of earned value method (Kemps, 2000; Fleming, Koppelman, 2000). Table 2 presents an interpretation of the basic indicators of work performance in the earned value method.

Table 2: Interpretation of the basic indicators of performance in EVM

Performance measurements		Schedule		
		SV>0 and SPI>1	SV=0 and SPI=1	SV<0 and SPI<1
Costs	CV>0 and CPI>1	Ahead of the planned schedule, below the planned budget	In accordance with the planned schedule, below the planned budget	Behind the planned schedule, below the planned budget
	CV=0 and CPI=1	Ahead of the planned schedule, in accordance with the planned budget	In accordance with the planned schedule and the planned budget	Behind the planned schedule, in accordance with the planned budget
	CV<0 and CPI<1	Ahead of the planned schedule, over the planned budget	In accordance with the planned schedule, over the planned budget	Behind the planned schedule, over the planned budget

Source: elaboration based on (Fleming, Koppelman, 2000)

The earned value method has many advantages; it facilitates project management, costs planning and control and project performance. The key good practices of the earned value method include (Lambert, Lambert, 2000; Łabuda, 2012):

1) Establishing the performance measurement baseline for works performance at the planning stage by:
- decomposition of the project range to the determined level of WBS,
- a clear responsibility assignment matrix,
- ascribing an appropriate budget to every task in the project schedule,
- selecting the earned value measurement determined for all tasks in the project schedule,
- maintaining the integrity of the PMB in the project, where integration refers to the range, schedule and the costs of the project.

2) Measurement and analysis of works performance in relation to the determined PMB during controlling:
- recording the use of resources during project execution,
- objective measurement of the works actually performed in the project,
- measurement of the earned value in accordance with the measurement technique adopted for the project,
- analysis and forecasting of costs/schedule performance,
- reporting problems in project execution and/or undertaking corrective measures.

Conclusions

The process of project management requires the use of various forms of information about the environment in the project's life cycle, generation of new knowledge (project knowledge), an increase of the level of organisational learning and taking process-related decisions. In practice, this implies the need to possess such a type of information which is the result of weak signals detection and enabling the anticipation of future conditions of the environment. This is why it is necessary to create early warning systems which are a special type of information systems dedicated for decision-makers, including production projects managers. The information from the early detection system signals plays the role of an initiator of readjustment processes. Such processes are indispensible for the organisation to react to changes in advance.

Undoubtedly, an important element of the carried out tests is to identify the barriers blocking early recognition of changes in a project execution control system at the individual, group and organisational levels. These issues were generally discussed in (Bąk, 2013). Dedicated solutions such as models, programmes, tools will be the aim of our further analyses and verifications of their importance for the dynamic structures of production projects execution control. The awareness of such barriers as knowledge on the subject of possible solutions will allow us to efficiently recognise the symptoms of early changes (potential disruptions), and eliminate the unnecessary background noise and false alarms in the early warning system. As a result, it will enable obtaining of information in advance and will support the process of taking actions in real time whose ideological purpose is the increase of effectiveness in the execution of production projects through proper control.

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Romanian SMEs' Performance in the Knowledge Economy

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Abstract

This paper highlights the importance of knowledge, as the basic asset in today's knowledge economies and also as the main support for any sustainable performances of the SMEs. A lot of research has placed accent on what happens in large multinationals, so this study comes to balance the findings and show if there is a link between the basic knowledge processes in a small company and sustainable performance. The study also includes a comprehensive literature review on knowledge management and performace measurement related to knowledge management in SMEs. We found that the processes of knowledge acquisition, knowledge sharing and knowledge implementation or use are directly correlated to the a companies' performance. For sustainable development, knowledge managers must pay attention to the basic processes related to knowledge in their organizations. The study is very usefull for practitioners, because it shows a direct link among operational processes in the organization an performance and also it bring value to researchers because of the literature review and analysis.

Keywords: knowledge management, knowledge organization, SMEs performance, small and medium-sized enterprises;

Introduction

Firm performance was intensively studied in the last decades, but particular results were obtained only in large companies. Moreover, performance is also a complex and multidimensional business phenomenon. Performance can be characterized as “the firm’s ability to create acceptable outcomes and actions” (Ceptureanu, 2014). For many organizations achieving improved performance is not only dependent on the successful deployment of tangible assets and natural resources, but also on the effective management of knowledge (Ceptureanu, 2015a). SMEs have their own roles to play in the economy, as do large organizations. Therefore, not only do large organizations need to improve themselves through knowledge management (KM) in their pursuit for excellence, but so the same should be the case for SMEs.

The concept of knowledge-based economy is widely used in a variety of contexts and with several meanings (Nonaka et al, 1995). Nowadays, the knowledge-based economy is addressed more broadly and is seen as broader than simply overall high-tech industries. Some authors emphasize the key role of "social class creative" in generating competitive advantage (Florida, 2002). The concept of KM has witnessed considerable research during the last decades (Carrillo et al., 2003; Tsai and Shih, 2004; Lin and Tseg, 2005; Young, 2006). Nonaka and Takeuchi (1995), in their theory on knowledge-based organizations, further emphasized the importance of knowledge in the new economy. Their thesis states that knowledge represents one of the sources of sustainable competitive advantages and that knowledge is the basic foundation for economic performance. Knowledge is an important asset for small and medium-size firms in this times of global competition. Knowledge can be considered an important determinant of success for the small and medium-size firms and undoubtedly one of the few sources of sustainable competitive advantage. For these organizations, KM is an innovative management tool that enables them to benefit from the current interest in the subject in academics and business practice. Gloet and Terziovski (2004) describe KM as the formalization of and access to experience, knowledge, and expertise that create new capabilities, enable superior performance, encourage innovation, and enhance stakeholder’s value.

Literature Review

Knowledge is important to any modern organization in the XXI century. Knowledge had witnessed considerable research in the past few years (Bruton et al., 2007). It is widely recognized that knowledge is

an essential strategic resource for a firm to retain sustainable competitive advantage (Ceptureanu, 2015b). As knowledge is created and disseminated throughout the company, it has the potential to contribute to the company's value chain by enhancing its capability to respond to new and unusual situations. Knowledge is "an asset that needs to be effectively managed" (Davenport et al., 1998). Interest in knowledge management has grown dramatically in the recent years, as more researchers and practitioners have become aware of the "knowledge potential to drive innovation and improve performance" (Cavaleri, 2004). Knowledge management is an emerging concept in the field of management and widely adopted in organizations for enhancing performance. It is promoted as an essential cornerstone for companies to develop sustainable competitive advantage and to remain at the forefront of excellence in a level playing field market (Ceptureanu et al., 2015a). Liebowitz and Wilcox (1997) stated that KM can be defined as the explicit control and management of knowledge within an organization aimed at achieving the company's objectives.

Knowledge management is an approach of more actively leveraging "the knowledge and expertise to create value and enhance organizational effectiveness" (Gold et al., 2001; Scarbrough, 2003). It provides a new way for the organization to achieve explicit and tacit knowledge sharing (Ceptureanu et al, 2015b). Knowledge management impacts firm performance through its efficiency in developing the intellectual assets that are a source of competitive advantage (Ndlela & du Toit, 2001). For an organization to remain competitive, it must effectively "practice the activities of creating, acquiring, documenting, transfering, and applying knowledge in solving problems and exploiting opportunities" (Zack, 1999). Further, effective KM entails an "understanding of the interrelationships that may exist among KM processes such as knowledge acquisition, knowledge creation, knowledge documentation, knowledge transfer, and knowledge application" (Lee et al., 2005). Firms that exhibit a greater level of KM capacity experience a learning effect that can reduce redundancy, respond rapidly to change and develop creative ideas and innovation (Gold et al., 2001; Scarbrough, 2003, Ceptureanu, 2015c). The quality of decision making depends on acquisition, sharing, and application of knowledge across individuals and organizational groupings. As described by Bergeron (2003), the KM approach or process consists of eight fundamental components, namely acquisition, modification, use, archiving, transfer, translation, access, and disposal. Scholars have addressed several KM processes or activities, including acquisition or creation, storage, sharing or transfer, and usage or application (Bouthillier and Shearer, 2002; Beckman, 1999; Wiig, 1999). In this research, we look upon three KM processes: acquisition, sharing and application of knowledge.

Knowledge acquisition is one part of KM which, in turn, has been defined as "[...] the process of critically managing knowledge to meet existing needs, to identify and exploit existing and acquired knowledge assets and to develop new opportunities" (Quinstas et al., 1997). Knowledge acquisition is "the process by which knowledge is obtained" (Huber, 1991). Knowledge acquired can be tacit, explicit or a combination of both. Knowledge acquisition results from individual participation and interactions with tasks, technologies, resources, and people within a particular context (Tsoukas, 1996). Several scholars agree that part of managing knowledge within the organization is developing processes that acquire knowledge (Leonard, 1995; Nonaka and Takeuchi, 1995). Two primary means for collecting knowledge are as follows:

(1) to seek and acquire entirely new knowledge;

or

(2) to create new knowledge out of existing knowledge, through collaboration between individuals and between business partners (Leonard, 1995; Nonaka and Takeuchi, 1995). Several researchers also emphasize that collaboration with other organizations is critical to knowledge acquisition (Grant, 1996; Matusik and Hill, 1998).

Firms who can acquire external and internal knowledge would reduce uncertainty and achieve a greater number of administrative and technological distinctiveness (Sarin and McDermott, 2003).

The goal of **knowledge sharing** can either be to create new knowledge by differently combining existing knowledge or to become better at exploiting existing knowledge. It comprises a set of shared understandings related to providing employees access to relevant information and building and using knowledge networks within organizations (Hogel et al., 2003, Ceptureanu et al., 2015d). Knowledge sharing refers to collective beliefs or behavioural routines related to the spread of learning among different

individuals or units within an organization (Moorman and Miner, 1998). It is about how individuals, groups, and organizations communicate and learn from each other. Personal or organizational networks play an important role in accessing knowledge. The sharing of knowledge is facilitated by some kind of personal or virtual network. Without networks there is no opportunity for accessing knowledge. Networks can be maintained by formal or informal face-to-face meetings, or – the latest trend – by physical structures that do not allow individual cubicles, but emphasizes transparent community spaces. Knowledge sharing is critical to a firm's success (Davenport et al., 1998). Knowledge sharing creates opportunities to maximize organization ability to meet those needs and generates solutions and efficiencies that provide a business with a competitive advantage (Reid, 2003).

Another important aspect of the KM process in organizations is **knowledge application**. Wiig (1999) notes that the value of knowledge assets is realized when the assets are being used to create products or deliver services, or when they are sold or traded for value. Knowledge application is a focal element in KM process (Grant, 1996). Knowledge application is defined by some researchers as "the utilization and use of knowledge in an enterprise's value-adding process". It includes adapting, integrating, and applying knowledge to the organization's processes and products. By effectively applying knowledge, individuals might make fewer mistakes or improve their efficiency and reduce redundancy (Gold et al., 2001).

SMEs **performance** is an indicator which measures how well an enterprise achieves its objectives. Ho (2008) defined performance in terms of "how well an organization accomplishes its objectives". Schermerhorn et al. (2002) point out that "performance refers to the quality and quantity of individual or group work achievement". Delaney and Huselid (1996) suggest two ways to assess SME and market performance. Koh et al. (2007) rightly pointed out that although performance is measured by both financial and market criteria, the short-term objectives of supply chain management are to enhance productivity and reduce inventory and lead time. A number of prior studies have measured performance using both financial and market criteria, including return on investment, market share, profit margin on sales, growth of return of investment, growth of sales, growth of market share and overall competitive position (Vickery et al., 1999; Stock et al., 2000). Tippins and Sohi (2003) propose performance measures on four dimensions: relative profitability, return of investment, customer retention and total sales growth. Morales et al. (2011) identifies four dimensions of performance, including:

- Return on assets,
- Return on equity,
- Return on sales and market share
- Growth of sales.

Zack et al. (2009) propose performance measures on five dimensions: innovation, rate of new product development, customer satisfaction, customer retention, and operating costs. Based on the above literature, we focused on three dimensions of performance, including turnover, TQM and stakeholders' satisfaction.

Wolff and Pett (2006) argued that SMEs and entrepreneurial firms are a key segment and driver for most national economies. Successful SMEs have a similar competitive advantage factor that allows them to create a niche in the market by changing their product mix to satisfy customer needs (Gadenne, 1998). SMEs are defined in different ways in different parts of the world. Some define them in terms of assets, while others use employment, shareholder funds or sales as criteria. Some others use a combination of revenue and employment as a hybrid criterion. Current literature suggests that SMEs may be differentiated from larger companies by a number of key characteristics. These are generally described (Ghobadianet al., 1997; Berry, 1998) as: personalized management, with little devolution of authority; severe resource limitations in terms of management and manpower, as well as finance; reliance on a small number of customers, and operating in limited markets; flat, flexible structures; high innovatory potential; reactive, fire-fighting mentality; and informal, dynamic strategies. Lane et al. (2001), suggest that large organizations may suffer from inertia and thus retard learning. This view is also highlighted by some international business and economics studies, which propose that larger organizations may gain less knowledge internally, for example, from foreign parents, than smaller organizations, because they are able to create knowledge by themselves (Minbaeva et al., 2003) or are likely to have more opportunities to acquire knowledge from external sources (Almeida et al., 2003). According to Day et al. (2006), this is because SMEs have a propensity to seek out information more eagerly through interactions with knowledge

possessors than large firms. One important dimension that has an effect on the practice of KM in SMEs is their special characteristics – management structure, markets, systems, culture, etc. – that differentiate them from large organizations. SME characteristics are likely to influence all activities in the life-cycle of knowledge – from the acquisition and capture of knowledge, its organization and storage, and its dissemination/transfer, to its ultimate application. The practice of KM in SMEs differs from that of a large organization because SMEs are not "a little big business" (Wong and Aspinwall, 2004). First, they are a source of innovation in products and services; they supplement a variety of products and services by operating in niche markets (Storey, 1994). Thus, SMEs are an important and indispensable part of a country's growth. Secondly, some of the widely cited potential benefits of KM apply aptly to SMEs. These are improvements in efficiency, decision making, competency, learning, innovation, and responsiveness, among others (Civi, 2000; Frey, 2001; Jarrar, 2002). The vast majority of studies in the literature of KM suggest that KM positively impacts firm performance (Hoopeset al., 1999; Lloyd, 1996; Lubit, 2001, Ceptureanu EG, 2015b). In Jantunen's (2005) research, he states that knowledge is positioned in an organization as a strategic asset which can help the firm maintain its competitive ability in a turbulent environment. Gorelick and Tantawy-Monsou (2005) view KM as a system or framework that integrates people, processes, and technology to achieve sustainable results by increasing performance through learning. The results indicate that KM practices are positively associated with OP as generally suggested by the KM literature, both qualitative (Nonaka, 1994) and quantitative (Choi et al., 2003; Darrochet al., 2002; Schulz et al., 2001; Simonin, 1997; Tanriverdi, 2005, Ceptureanu, 2015a). Given the importance of organizational knowledge, many companies have been trying to influence the acquisition, sharing and application of knowledge (Coombs et al., 1998; DeCaroliset al., 1999; Von Krogh et al., 2001). In fact, knowledge-based assets and KM processes are critical for a firm's performance. Based on the literature review and research objectives, the following hypotheses were derived: KM processes are positively related to SMEs' turnover, TQM and stakeholders' satisfaction.

Research Methodology and Results

The variables in the questionnaire include background information, information on knowledge acquisition, knowledge sharing, knowledge application, turnover, TQM and stakeholders' satisfaction. All independent and dependent variables require five-point Likert style responses ranging from "strongly disagree" to "strongly agree". This study examined a sample of 121 SMEs in Romania. Each company received five questionnaires to answer. The authors request the questionnaires to be completed by entrepreneurs or managers who are familiar with the topic of this study. Out of the 144 SMEs, 121 returned the questionnaires and those were valid and complete for the quantitative analysis (valid return rate is 0.84 percent). The reliability of the measurements in the survey was tested using Cronbach's coefficients. Hair et al. (1998) stated that a value of 0.70 and higher is often "considered the criterion for internally consistent established factors". The Cronbach's coefficients in parentheses indicate the internal consistency reliability of the measures in the six factors are all above the suggested value of 0.70 (Hair et al., 1998). Table I displays the research statistics and Table II presents the results of regression analysis regarding the effects of KM processes on SMEs' performance. Coefficients of knowledge acquisition, sharing and application are positive and significant for turnover ($p < 0.05$, $p<0.01$, and $p<0.01$, respectively). These findings indicate that SMEs would achieve a higher level of turnover if they had well-developed knowledge acquisition, sharing and application. In summary, all three factors of KM processes have the expected signs and also have significant effects on SMEs' performance.

Table 1: Research Statistics

The variables	Mea	SD	1	2	3	4	5	
Knowledge acquisition	5.22	0.82	1	-	-	-	-	-
Knowledge sharing	5.18	0.77	0.22	1	-	-	-	-
Knowledge application	5.12	0.98	0.54**	0.29*	1	-	-	-

Turnover	4.98	1.0	0.16*	0.24*	0.38**	1	-	-
TQM	5.32	0.57	0.15*	0.37**	0.36**	0.37**	1	-
Stakeholders satisfaction	5.07	0.95	0.16*	0.15*	0.44**	0.48**	0.48**	1

Notes: Significant at: *p<0.05 and * *p<0.01

Table 2: Results of regression analysis

Variables	**SME Performance**		
	Turnover	**TQM**	**Stakeholders satisfactio**
Knowledge acquisition	0.07*	0.18**	0.1*
Knowledge sharing	0.19**	0.19**	0.14**
Knowledge application	0.24**	0.31**	0.31**
R2	0.21	0.30	0.21
F	17.7**	9.7**	14.7**

Note: Significant at: *p<0.05 and * *p<0.01

Discussion and Conclusions

This study examines the role of KM processes on SMEs' performance. The results indicate that KM processes have positive and significant effects on SMEs' performance. So although, KM processes may contribute directly to performance and each resource significant in respect of its construct (Zaim et al., 2007), in some cases the contribution of particular resources may be more indirect through their impact on other factors linked to performance. For example, while the study did not uncover a positive link between performance, and knowledge acquisition and knowledge creation, their study showed both processes were directly related to knowledge application which in turn was related to performance. The practical implication of the results is that entrepreneurs need to actively manage their firm's human capital so as to stimulate managing knowledge acquisition, sharing and application. Furthermore, research suggests appropriate investments in KM initiatives can enhance performance. It is therefore important that firms recognize the variableness of knowledge processes and the need to deploy strategies that lead to the acquisition and deployment of those that are most relevant to the firm's objectives. This study also has some limitations. The first limitation is the number of responses obtained from the survey was rather small. A larger number of responses would probably yield a more accurate finding and so, future research could replicate this study, with the hope that more SMEs have implemented KM. In addition, since this study only investigates Romanian SMEs, hence, the findings and conclusions drawn from this research are representative of the Romanian SMEs, and the findings may not generalize to other geographic regions or cultures.

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Social Software and Online Collaboration Tool: A Comparison Based on User Expectations

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Abstract

Collaboration systems are a key point in modern Information Systems. They are very useful when companies base their work on “knowledge”. Collaboration systems help knowledge workers to share knowledge and to work together regardless of where they are located. There are several solutions from turnkey solutions, to ad-hoc, as well as customizable solutions. Collaboration systems can be classified as social software and online collaboration tools, and they are useful both for big and small to medium sized companies. The collaboration systems promise to increase knowledge worker efficiency, and this is an important goal for all companies; especially small and medium sized companies. The real problem is that, very often, a knowledge worker does not use the tool. In this paper, starting from an empirical study, the expectations of the knowledge workers and of the companies are defined and a survey of several collaboration based on them will be presented.

Keywords: Collaboration systems, sharing information, survey

Introduction

Companies, especially small and medium sized companies (SME), operate within highly complex situations characterized by very dynamic markets, operating not only locally, but also nationally and internationally. In order to survive, the SME need a flexible type organization, capable of bringing innovation and efficiency. The SME are revolutionizing their traditional modus operandi and initiating the use of new communication tools that let you create real collaboration networks (both inside and outside the company) able to put the company in a position to function within more complex situations. Within this context arises the concept of collaborative e-works, understood as “highly knowledge intensive and involved experts, often with different knowledge backgrounds and from different work organizations who share knowledge in order to arrive at an optimal decision or problem solving strategy”.(Anya et al. 2010)(Nof 2003).
Analyzing the concept of collaboration, we can identify two aspects:

- A purely technological aspect that concerns the use of collaboration tools: instant messaging, video-conferencing, e-mail, file sharing tools, discussion forums, enterprise social networks, online communities etc. We are speaking of e-Collaborations defined by Kock in 2005 as "collaboration using electronic technologies among different individuals to accomplish a common task". (Kock 2005)

- A purely social aspect that concerns the management of "team collaboration" within the company cuts across the company's organization chart, which can be re-configured dynamically as needed. The team collaboration is typically "self-organized". In the software development company, it is possible to intercept these teams, due to the source code repository (Caglayan et al. 2013). When there isn't the possibility to draw on a specific data source (a source code repository), intercepting and then directing the team is very complicated.

To better analyse the concept of collaboration and team collaboration, it is necessary to refer to the concept of knowledge workers who, in this context, take on a leading role. Drucker coined the concept of a "knowledge worker" in 1969 (Drucker 1969). In his book, *The Age of Discontinuity*, Drucker differentiates knowledge workers from manual workers and insists that new industries will employ mostly knowledge workers. The knowledge worker is characterized by several aspects that may be summarized as follows (Kayakutlu & Laurent 2012): the impact of intellectual quality is to be enhanced (Cope & Kalantzis 2009); person-to-person skills or soft skills are to be developed (Warhurst 2008); individual knowledge facilitators are to be motivated and retained in order to achieve effective collaboration (Garcia 2007). Davenport affirms that "knowledge workers have high degrees of expertise, education or experience, and the primary purpose of their jobs involves the creation, distribution or application of knowledge." (Davenport 2005)

The international scientific community has studied collaboration both from the technological aspect as well as the social aspect.

From a technological perspective, there are some interesting surveys on collaboration tools aimed at understanding the technical and functional characteristics (Schauer & Zeiller 2011); the surveys focused on SMEs when selecting tools currently on the market are characterized by communication, information sharing, electronic calendar, and project management in order to identify which of the collaborative tools would be suitable for a particular organization (Abdulrahman et al. 2015). There are studies (Al-Husain & Mirza 2010) that focus on online collaboration tools by identifying the aspect of collaboration, communication and coordination of the main features of the collaboration tool, and assuming that the use of full cooperation tools facilitates teamwork.

From a social point of view, there are studies that analyse the dynamics that exist within the team from a social perspective to discover the dynamics of collaboration and identify patterns that can be repeated in different business contexts (Ehrlich et al. 2007). There are also studies (Wamba & Carter 2014) that highlight the growing importance that these instruments have for SMEs.

The collaboration of the knowledge workers, who can do much more than they could as individuals, leads to an increased interest especially for small and medium sized companies in the use of business tools that enable collaboration.

This push by the companies, however, collides with reality. A study conducted in August 2015 from dimensional research (Alfresco 2015) was conducted on 753 knowledge workers, and highlighted on the one hand, the importance of collaboration for knowledge workers (98%) and the consequent importance of the use of technology. The alarming fact is that 71% of adults between 22 and 35 years of age and 45% of adults over 50 use their own tools and ignore those made available to them by the company. For example: knowledge workers collaborate using their personal e-mail (51%), sharing tools for public documents (51%) and non-approved tools (16%).

All this implies that:

- Corporate security is ignored and therefore relevant business information leaves the business environment in an uncontrolled manner.

- The company has not quite clear what the real business dynamics are and this generates, as will become clear later, more cost.

Therefore, it is not enough to identify a collaboration system and make it available to the between knowledge workers, but it is important to spread the culture of its use within the company. This can be made identifying tools that earn the knowledge workers' approval. You must, therefore, identify what their expectations are with respect to these tools and then choose the ones that are closest to those expectations. Of course, these expectations must not conflict with the companies' needs.

The goal of this paper is twofold:

- Identify the expectations of knowledge workers and companies in reference to collaboration tools.

- Carry out a survey of collaboration tools aimed at figuring out what is the level of coverage of these tools compared to the identified expectations.

In this paper we outlined in section 2 what are the characteristics of the tools that meet the approval of both companies and knowledge workers. What section 3 will achieve, in reference to the identified characteristics, is an analysis of the tools currently available on the market and distinguishes between social software and online collaboration. Section 4 will highlight the gaps present today in the identified systems that effectively limit the use of enterprise collaboration tools. In Section 5 we present the conclusions.

Collaboration tools: knowledge workers' and companies' expectation

To identify the expectations of enterprises and knowledge workers in reference to collaboration tools, an empirical study was conducted on three small and medium-sized companies. In particular, a total of 50 employees in each company were studied, according to a hierarchical organization distributed among 3 levels. The analysis was focused on the one hand to understand what the company expects from a collaboration tool and on the other to understand the uses that knowledge workers intend for the collaboration tools. The study, which lasted one year, focused not only on observations in the field, also in the realization of interviews and questionnaires submitted on a quarterly basis to employees and included a view to a larger study dedicated to understanding the satisfaction of each compared to software tools made available to the company.

The sample companies, operating in the ICT sector and in the textile and clothing sector, had the following features that are easy to find in most small and medium-sized companies:

- **Strong dynamism**: Often, in small and medium companies, skills are not vertically integrated but rather cover a range of different areas, so the dynamism translates into the need of having to take on different roles depending on specific contexts: the same knowledge worker is found to be the coordinator of activities within one project while operating on another project. During a single business day, the knowledge worker performs multiple tasks simultaneously.

- **Strong creativity**: Creativity is the engine of small and medium-sized companies. Often the projects are moving forward thanks to the brilliant ideas of knowledge workers for overcoming the problems, and over the course of the working day of a period of time they may emerge.

- **High level of mobility of workers**: In small companies, as well as large ones, the concept of mobility is increasingly important. Knowledge workers move to meet their customers, to make agreements, or to provide advice on specific tasks.

- **Multiple locations geographically distributed**: Small and medium-sized companies today in Italy and abroad often have more dislocated offices where there is not always a fixed staff. However there are some workspaces for knowledge workers who, for various reasons, need a space in a location different from their usual work location.

Of course for companies in the textile and clothing sector we have been considering only the knowledge workers in the sense that was emphasized in the definition by Davenport; those involved the creation, distribution or application of knowledge. We're not taking into account workers who work directly with textile machines.

From the analysis of interviews and proposed questionnaires, the following key aspects emerged for a collaboration tool from the point of view of a knowledge worker:

- **Mobility**: understood as the possibility to access the tool regardless of the device used (PC, laptop, smartphone, tablet) and have access to all necessary data.

- **Dynamic network**: the possibility of using the chat tool and video conferencing to communicate directly with other knowledge workers regardless of a defined corporate organization hierarchy chart. The tool must provide the ability to create and maintain a team that can easily adapt to deal with specific tasks to be performed. It must be possible to insert the external working team into the staff of the company (customers, new employees, etc.).

- **Integrated tools**: having within a single instrument all the tools that enable collaboration such as email, chat and video conferencing, social networking, corporate wikis, shared calendars, etc.

- **Context awareness search**: ability to always have the information they need to perform their daily work. This means to carry out targeted searches for specific needs, have the research provide the information, and make it possible to extract knowledge from information contained within the tool regardless of the channel used to produce it. Research must be functional in creating contextualized knowledge repositories respecting the skills of knowledge workers, the relationship between the various knowledge workers, the activities in which they are involved, and the data produced and used in the tool.

- **Private account usage**: very often, for simplicity and convenience, each knowledge worker uses his/her own personal accounts (on social networks, on cloud tools, etc.) also for business needs, and therefore should have a single point of access for all these tools.

The important aspects for a collaboration tool for the company are:

- **To enable sharing among knowledge workers**: it is in the company's interest to push for the sharing of data and information in order to allow a continuous exchange of know-how between knowledge workers. The human being is inclined to not share, and this is true both in private life

and at work. Knowledge workers are encouraged to share, but sharing is not a usual fact within the companies.

- **Spread:** it is important that the collaboration tool is used within the company at all levels. The collaboration tool must always be available to the knowledge worker on the move, and must represent the "virtual desktop" of knowledge workers.

- **Dynamicity**: providing a collaboration tool that can support the high level of dynamism of the companies and thus enable and facilitate the creation of teams in order to enable the sharing of knowledge within a company.

- **Private account usage**: to prevent or curb the use of personal accounts for business reasons. This is to prevent important data from being propagated on channels that cannot be controlled directly by the company.

- **Data Security**: to ensure that users' data, which make up the company's assets, are deposited in safe environments.

- **Context awareness search**: Ability to provide at all levels the right information at the right time and in the right context.

- **Cost reduction**: Think of the cost for the company arising from the fact that ideas are likely to be re-invented because the original work is not found or people ignore the existence of this work. This leads to a double cost for the company resulting from time lost unnecessarily by searching for information and from the need to produce already existing information again. Another cost comes from the fact that many times the decisions are based on incomplete or incorrect information and thus entails a business risk. Last but not least, the cost arising from the duplication of work; when two or more business units are working on the same project without knowing what has already been done and end up duplicating the effort.

- **Non-invasive**: The collaboration tools should not change the company's information system and therefore does not require set-up time and extra long information system integration.

The following table shows the relationship between the requirements of the company and those of the knowledge workers. The characteristics indicated in the left column (knowledge workers) find their correspondence, albeit from different points of view, in the right column (company).

Table 1: Comparison of knowledge workers and company's expectation

Knowledge worker	Company
Mobility	*Dynamicity* *Non - invasive*
Integrated tool	*To enable sharing among knowledge workers* *Spread*
Context awareness search	*Context awareness search* *Cost reduction*
Private account usage	*Private account usage* *Data Security*
Dynamic Network	*Dynamicity*

Analysis of social software tools and online collaboration tools

The tools that inhabit the collaboration tool are appointed E-collaboration systems (Al-Husain & Mirza 2010) which is what is meant by "…various heterogeneous system classes. There exists a large variety of open source and commercially available tools for team cooperation and collaboration. Some tools were developed out of former project management or content management systems, others put an emphasis on supporting communication with conferencing tools originated from groupware solutions". In this paper we refer in particular to two types of E-collaboration systems:

- Social Software: Dron defines social software as, "Software that allows individuals to collaborate, groups to self-organize and communities of individuals to evolve into an emergent structure"(Dron 2006). To create a selection of these tools you can analyse the latest report published by Gartner (October 2015) on Social software tools. Which we place in Visionaries/leaders quadrant. (http://www.gartner.com/technology/reprints.do?id=1-2QJAU20&ct=151027&st=sb)

- Online collaboration tools (Al-Husain & Mirza 2010) among which we selected the most popular.

The analysis of the instruments was realized through the study of commercial brochures and, where possible, using the demo installation. Importantly, many of these tools also implement useful functions for project management, but these functions are not taken into consideration for the purposes of this analysis.

With regard to social software tools, the products selected (table 2) are geared towards large companies, but can also be used by small and medium-sized companies.

Table 2: Selected tools

Gartner quadrant	Company name	Solution
Visionaires	SAP	JAM
	Google	Google App
Learders	Tibco Software	Tibbr
	Salesforces	Chatter and Comunities
	Jive Software	Jive
	IBM	Connections
	Microsoft	Yammer

Referring to online collaboration tools, those deemed significant for this paper are:

- Slack
- ASANA
- SOCOCO
- PODIO

Table 2 presents the results of the evaluation of these tools, whether or not they implement the features introduced in the previous section. For each tool we will define if there are (☑) or are not (☒) the specific characteristics.

Social software

Referring to social software, here is a detail of the characteristics defined in Table 3.

SAP JAM is a tool that integrates with SAP products. JAM also available in a mobile version for iPhone and iPad and focuses on collaboration among knowledge workers, providing long lasting working teams not only among members of the same organization, but also different organizations. SAP JAM introduces the concept of "work pattern": a template collection of experiences that facilitate the interactions with the idea that this collaboration takes place around an existing business problem. Real-time communication is integrated, although not natively: Microsoft Lync adds to SAP JAM a real time communication system

with audio-video conferencing. The installation and its management require the presence of the appropriate professionals. The spread is not guaranteed because while mobile it is possible to use only Apple devices. SAP JAM indexes every word file and PDF file and allows you to search among all documents, including events, groups and people. The research is a free type text search, but you can select an advanced filter.

Google app integrates editing tools for documents, communications (shared calendars, e-mail, chat) and file management (Google drive) in one place. Its strength is mobility: Google app lets you manage your files regardless of the device used. Google app, as an additional service from the standard allows archiving of emails and chat specifying which part of the company index, date ranges, etc. This service also allows you to manage the eDiscovery, i.e. conducting information research for legal purposes, far from a context-awareness approach.

Tibbr is a collaboration tool characterized for its simplicity. It can be integrated into various applications such as Share Point, Oracle, SAP and others, and allows you to link together different knowledge workers who work on the same project each with his/her own app. Tibbr allows you to manage your social account directly from the platform. Tibbr implements the concept of mobility allowing knowledge workers to operate with their own devices and to identify the important events around the knowledge worker who is mobile. Tibbr unifies access to files integrating Box, Dropbox, Google Drive and Huddle. Tibbr requires no installation, providing a "turn-key" solution on the Cloud; however, it can be installed on corporate servers. It is not indicated how searches are done.

Chatter and Communication is proposed as a tool designed for mobility. Much attention is devoted to the tools that enable the exchange of knowledge and the ability to create groups within which to give birth to and emergence of ideas. Salesaforce Files, integrated into Chatter, makes files accessible everywhere and continuously updated with the latest version. File searches are based on free text search, or by name, description, owner and file type. With a development effort you can integrate Chatter with Facebook and Twitter. Chatter lets you use integrated messaging tools and use screen sharing. Despite Chatter requiring installation, there are no particular problems of integration with the corporate information system.

Jive is presented as a tool that integrates several tools such as e-mail (outlook and Gmail) mobility applications, apps for Google Drive (storage, Dropbox and others) communication tools, and other third-party tools. Find people, documents, and conversations - whatever you need - with a few keystrokes. Content is prioritized and recommended based on what's important to you, your team and the projects you're working on. Jive supports the OpenSearch API too, so integrating with other repositories is a snap. The management of knowledge worker groups is very simple and intuitive. However, it does not allow integration with personal accounts such as Facebook or LinkedIn. Jive does not require any effort for integration into existing information systems, however, it does require the presence of appropriate professional figures.

Connection includes everything needed for today's Social Business: enterprise-class email on the cloud, instant messaging, online document editing, web conferencing, and file sharing. It is possible to combine your social network platform with web conferencing and collaboration capabilities, like storing and sharing files. IBM integrates all the connections of useful collaboration tools to share knowledge. All documents within the platform are indexed. The content type in which the search is made depend of the application. For example, research in the attachment file content is only performed in the Activities application, file and search Wiki. The compartmentalized channel search effectively excludes the possibility of having investigations context awareness, as it does not integrate information from different channels.

Yammer is a collaboration tool designed to facilitate teamwork and allows for collaboration with users outside the company, such as customers and partners. Yammer integrates instant messaging tools and lets

you share information. Yammer can be used with Apple's mobile devices, Android and iOS. Yammer uses the Open Graph protocol to collect third-party content in a deeper, more structured way than traditional web crawling technology. To protect privacy, Yammer also carries over the access rights and permissions set in third-party applications. For example, only users with access to view a file in SharePoint will be able to see that file in Universal Search. Integration with Facebook is not provided natively, but it need a minimum of development effort. There is, however, integration with other social networks. Yammer is designed as a SaaS application and is not available to install on a local server. The effort towards integration in the existing information system is, therefore, minimal.

Online collaboration tools

The element that distinguishes the online collaboration tools being analyzed is the desire to eliminate the use of e-mail. The universal theme that covers all three of these tools is the fact that “smart” communication is achieved by the use of messaging tools, and can replace email, therefore reducing the management effort and simultaneously shortening the approval procedures.

Slack looks like a classic messaging application, with the added possibility of integrating a long list of services including Dropbox, GitHub, Google Drive, Hangouts, and Twitter. Once registered, the team's users can divide the topics of discussion, exchange files using hash tags, and then create thematic channels. It is possible to use the integrated chat tool even if there isn’t the possibility to create a group chat. Slack does not integrate with Facebook, presenting itself instead as a tool that replaces it. Once you create the domain for a specific company, users are free to sign up with the company's account or a personal account. The free text search allows you to find both the messages exchanged between the various collaborators and the files that contain the keyword. Slack, also available for mobiles, is totally non-invasive with regard to the company's information system.

Asana, again with the goal to reduce e-mail exchange, looks and acts like an email inbox for group projects with the ability to add dates, "likes" and stars for important items in one place. It integrates with a number of other third-party sites including Google Drive and Slack. Asana can be used while mobile and with the personal account of the individual employees. It does not integrate with other social networks, but is itself a social network that helps manage workgroups. Asana integrates with many third-party applications such as Dropbox, Google Drive, Slack and many others.

Sococo creates a virtual workspace for teams to connect as if they were in a real brick and mortar building. Each team member gets their own "office", which even has a door you can shut to have privacy. It's a great way for teams to bond, have spur of the moment meetings (or virtual happy hours) and see who is "in the office" (or online and available). The downside to Sococo is that there is no file sharing inside chat windows. There are not enough restrictions on what they can do with your data. Sococo integrates with Google drive. It also allows integration with Slack, even if it does not natively, and then you can see its characteristics.

Podio is the web and mobile solution for enabling collaboration within the company. It integrates collaboration tools, integrates with Dropbox and Google Drive, as well as with box, OneDrive and other virtual folders. Research can be done on Podio as a keyword search that helps you find documents and materials within Podio. Integration with Facebook is not native, but you can achieve integration with external tools.

Discussion

The table 3 analyses collaboration tools currently in the commercial and in the open source landscape, and analyzed them with respect to the features that from our empirical analysis, both knowledge workers and

companies want. It emerges immediately that all tools may be used in mobility and, although to a different extent, all integrate collaboration tools such as chat, blog, shared calendars, etc. It also shows how online collaboration tools are trying to eliminate the use of email and this goes against the trend compared to the expectations of knowledge workers. On the contrary, they would like to manage the business collaboration tool, even with their own personal email. In this regard, it is clear that only 4 out of 11 analyzed tools allow knowledge workers to use their personal accounts. If this is prohibited by corporate security policies, it may be a factor that determines the non-use of the tools by knowledge workers. All tools are careful about data security and only 2 of 11 require an integration effort into the company's information system: the other tools are simple to install and configure, even without the presence of experienced staff. All analyzed tools allow the exchange of knowledge between the knowledge workers, a key factor for companies that have an interest in capitalizing on the tacit knowledge present in the company.

Information research management is, however, particularly critical.

All analysed tools implement, in fact, a free-text type search that finds the specific post, file, article, etc., which contains your search term. But, this is far from a contextual search, which in turn, both knowledge workers and businesses would like to have in the collaboration tool. In some cases (Google App), the search is implemented to respond to legal requirements; in other cases (Connection) there is a vertically integrated research application (chat, blog, etc.) in the system and therefore it cannot provide integrated information with respect to user needs.

The analysis shows that in order to ensure maximum use by the knowledge worker, it is important that the tool have two key features:

- Use a single tool for both business accounts for personal ones, thus integrating privacy and business life.
- Enhance the search to present the information needed in order to allow the user to always have the right information, at the right time and in the right context.

Another feature, which is not found in the analyzed tools, is linked to the need to reduce the costs related to the management of information. It is obvious that this feature is an immediate consequence of the strengthening of research.

Conclusions

In this paper, focused on business collaboration tools, we have reflected on the main features knowledge workers and companies expect from a collaboration tool.

The presented features are used to compare systems according to functional collaboration and their true coverage of activities within team collaboration setting standards. The evaluation of the reviewed systems deduces that the main shortcoming of the collaboration systems lies in research management. Despite the fact that all the instruments dealt with indexing, the results presented to the user are, at best, a list of files, blog posts, etc. absolutely out of context given the specific task of the collaboration. This clashes with the needs of both knowledge workers who would like a system that would facilitate their daily work, and with companies that would like to preserve the company's know-how and above all to reduce the costs of the management of information.

Table 3: Comparison Table

		SOCIAL SOFTWARE							ONLINE COLLABORATION TOOLS			
		JAM	Google APP	Tibbr	Chatter	Jive	Connection	Yammer	Slack	Asana	Sococo	Podio
KNOWLEDGE WORKERS	*Mobility*	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	Dynamic network	☑	☑	☑	☑	☑	☑	☑	☒	☒	☑	☒
	Integrated tool	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	Context awareness search	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☑
	Private account usage	☒	☒	☑	☑	☒	☒	☒	☑	☑	☒	☒
COMPANIES	*To able sharing among knowledge workers*	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	Spread	☒	☑	☒	☑	☑	☑	☑	☒	☑	☑	☑
	Dynamicity	☑	☑	☒	☑	☑	☑	☑	☑	☑	☑	☑
	Private account usage	☒	☒	☑	☑	☒	☒	☒	☑	☑	☒	☒
	Data security	☑	☑	☑	☑	☑	☑	☒	☒	☑	☑	☑
	Context awareness search	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	Cost reduction	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	Non–invasive	☒	☑	☑	☑	☑	☑	☑	☑	☑	☒	☑

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The impact of CSR on company's stock price: Evidence from Bucharest Stock Exchange

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Abstract

This paper aims to analyze the impact of Corporate Social Responsibility (CSR) on stock price and other market variables, such as dividends and stock return for the companies listed on Bucharest Stock Exchange (BSE).This study investigates the differences in the market variables of companies that show CSR compared with those that do not. Based on three statistical techniques applied in our analysis, namely: discriminant analysis, probit analysis model and logistic regression, we highlighted that stock price is the main driver for CSR activities of a company, while the others – dividend and stock return – don't have a significant impact. Moreover, the best predicting model is probit analysis model and logistic regression, with an average correct classification of 65.82%.

Keywords: CSR, stock price, company performance, BSE companies.

Introduction

Corporate social responsibility (CSR) attracts considerable attention among academics, practitioners and mass-media. Yet understandings of CSR and the fields of analyses vary across the discussions and groups of those who are interested in.

CSR become in the last decades a "business model" and a "risk management", and also at international level was adopted ISO 26000, which is recognized as the CSR international standard.

Furthermore, the way of implementing CSR into a company varies between the organizations. If some firms prefer to include the CSR responsibility under existing departments such as human resource, public relations or business development, other companies prefer to create a separate CSR department. In the same time, there are also companies without a defined structure and objectives for CSR activities.

The importance of CSR activities is well recognized both by academics and practitioners, because CSR has many benefits for a company, among which we can mention the fact that it helps the company to hire and to retain personnel, brand awareness, improves the relationships with suppliers, and also helps the company to improve its public image. Of course, there are also some criticism in the literature regarding CSR activities, because the main purpose of a business is to bring added value for its shareholders, while CSR will spend this value.

Despites of all this contradictories and different opinions in the economic literature regarding CSR, this is still a very important topic for all companies and this is the reason why we proposed to analyze it in this paper.

The paper is organized as follows: the second section reviews the literature regarding the CSR concept, the impact of the recent financial crisis on CSR and also the relationship between social responsibility and stock

market performance of companies showing different results. The third section presents the methodology used in order to capture the impact of CSR on market variables of the companies and also a descriptive statistics of the main data used in our analysis. In section four we will report the results and the main findings of our research. Finally, we present the conclusions of our study.

This study, which is limited to companies listed on the BSE, has significant practical implications because it can motivate potential investors and/or the public at large to decide to invest in companies that demonstrate a high degree of CSR and improve policymaking through appropriate policies or incentives for CSR activities. This paper is an original research paper that presents new empirical findings and it adds to the literature on this topic because of its policy implications.

The CSR concept

In literature there are many papers about this issue, although not all unanimous, but following we will highlight a few of them. CSR definition is both complex and complicated. According to The World Business Council for Sustainable Development (WBCSD): "Corporate social responsibility is the commitment of business to contribute to sustainable economic development, working with employees, their families, the local community and society at large to improve their quality of life" (Holme and Watts, 2000).

European Commission (2016) considers that "Corporate social responsibility (CSR) refers to companies taking responsibility for their impact on society". Also, the European Commission believes that CSR is important for the sustainability, competitiveness, and innovation of EU enterprises and the EU economy because "it brings benefits for risk management, cost savings, access to capital, customer relationships, and human resource management."

Sheehy (2015) applies a scientific definitional approach of genus, differentia and species to arrive at a definition of CSR as international private business self-regulation.

In other approach (Silberhorn and Warren, 2007), CSR is presented as a comprehensive business strategy, arising mainly from performance considerations and stakeholder pressure. In this context, companies focus on how they interact with stakeholders and how business activities impact on society because most CSR policies addressed community, employee and customer issues. In their opinion, the CSR objective is to increase "quality of life". Their main conclusion is that "business and CSR strategy appear to be on a convergent path, making business and CSR integration across the company the norm in future".

Ratajczak (2015) undertook a research on business opinions on the concept of CSR in the second half of 2013 and included 174 micro, small and medium enterprises from the agribusiness sector engaged in business activities in the rural areas of the Warmia and Mazury (Poland). The results obtained by the author of the study showed that more than half of the surveyed entrepreneurs do not know CSR at all. Thus, there is a need to supplement these shortcomings by providing knowledge and information about CSR.

It is very interesting the Islam perspective (Ahmad et al., 2015) regarding the concept and elements of CSR. The authors explain the CSR and its components: faith, morality and legal rulings. Also, they highlighted that Allah's consciousness is central and focal point to establish the relationship of man with Allah and toward the activities of this world.

Other authors (Argiolas, 2006) tried to delineates the key drivers of Corporate Social Orientation that in some way takes in, includes, and transcends the previous, implying the adoption of social dimension as background reference in defining its way of being and operating.

Thus, we can conclude that CSR is a form of corporate self-regulation integrated into a business model. That is, CSR is the decision-making and implementation process that guides all company activities in protecting

and promoting international human rights, labor and environmental standards, and compliance with legal requirements within its operations and in its relations to the societies and communities where it operates (Carroll 1999).

CSR and financial crisis

The 2007–2009 financial crisis caused many to question the basic premises of the current business system (Kaletsky, 2010) and the financial services industry. Some authors (Porter and Kramer, 2011) suggest that corporations should aim to regain legitimacy by pursuing shared value rather than mere financial value.

In this context, researchers analyzed the effects of financial crisis on CSR practices and they tried to quantify the link between CSR and financial crisis. The results of Stoian (2013) showed various opinions on attitude that companies should undertake in financial crisis: to cancel the CSR actions, to freeze the CSR actions or to be involved more in CSR actions. Despite this, he recommended that companies continue their CSR efforts in periods of financial crisis due to the fact that would mainly bring positive results for involved companies only in mid and long-term basis.

In another study (Yelkikalan and Köse, 2012), the effects of the crisis on CSR activities have been evaluated in the light of the developments following the 2008 global financial crisis and a model is proposed. As a result of the identifications regarding the theoretical background for perception of the crisis as a threat or opportunity for CSR activities, both two situations are presented together in the proposed model and serve the survival or long-term profitability of the business.

Giannarakis and Theotokas (2011) evaluated empirically the effect of financial crisis in CSR performance, based on companies that implement Global Report Initiatives (GRI) reporting guidelines modifying the application level in a point score system. Their results indicate increased CSR performance before and during the financial crisis except for the period 2009-2010. Companies increase their performance in order to regain the lost trust in businesses.

Also, Jacob findings (2012) show us that the financial crisis of 2008 had a clear impact on CSR initiatives in many companies because of the exceptional pressure that they had to face in order to survive and with massive layoffs and expenditure cuts on community involvement programs being the most obvious outcomes of the crisis. However, not all impacts were seen as negative, many CSR issues were pushed forward and gained more depth after the crisis, such as organizational governance and environmental policies, as well as compensation policies. According to his study, the main stakeholders that were affected by the crisis were employees, followed by investors and customers; and labor practices were the most severely impacted.

In Romania, “responsible corporate behavior was initially evaluated based on commercial considerations of image and reputation, and not in terms of sustainable development or stakeholders needs” (Sitnikov, 2015). The author also noticed that recently “there has been a shift towards the implementation of the second approach, responsible practices being associated with long-term success, directly proportional to community development, environmental welfare and practices and connections within the area of influence”. Even so, and taking into account the progress after EU accession, a number of challenges continue to exist, which must be addressed by all stakeholders, including increasing awareness of CSR and of the integrated approach involved by the implementation of responsible practices; increasing awareness of the needs and benefits associated with incorporating responsible practices into business objectives and operations to ensure sustainable success; and increasing transparency, monitoring and assessment of CSR initiatives impact on all involved or affected stakeholders.

Another study (Serbanica et al., 2008) regarding CSR in Romania underline the fact that the concept of CSR is still new and not well-known in Romania and define CSR policies under the concept of sustainable

development and cover economic, social and environmental aspects. In their opinion, the corporations that adopt CSR policies are mainly concerned by their reputation and image but corporations may include in their CSR policies a specific Human Rights commitment, respect of legal obligations, as well as charity.

Thus, Simionescu and Dumitrescu (2014) analyzed the impact of financial crisis on CSR practices and their performance during the financial crisis for the companies listed on Bucharest Stock Exchange that are active in CSR. The results suggests a positive link between CSR practices and companies financial performance. Moreover, this paper underlines the benefits of CSR practices as a strategy for long term business leading to competitive advantage and win-win opportunities.

Another study that aimed to identify the link between CSR and the recent financial crisis, and to determine the main features of the companies' responsible behavior during this period was undertook by Zaharia and Grundey (2011) based on examples of CSR for Romania and Lithuania. The authors arrived at two major conclusions: the first one is that CSR is on a turning point and it is expected that a new orientation toward theoretical and practical approaches regarding the concept will be developed after this crisis. The other outcome reveals the contradiction between discourse and action: companies' priorities in crisis time are more concentrated on financial aspects; even if at the discourse level all companies declare their commitment to responsible actions.

CSR and stock market

There exist a limited number of papers discussing CSR published in recent years in the top academic finance journals, which suggests that this topic does not appear to be a main concern in the finance literature. According to Goss and Roberts (2011, p.1794), "The debate over the merits of CSR revolves around whether such investments are value enhancing or whether they are the value-destroying manifestation of agency conflicts". Much of the discussion of CSR in the finance literature revolves around the argument that where CSR does not directly increase shareholder value, it is an inappropriate misallocation or misappropriation of funds. This idea is according to Friedman's (1970) arguments: he consider the philanthropy in the form of CSR that does not enhance firm value is considered a misallocation because the shareholders themselves should be determining whether and how to donate their funds. Brown et al. (2006) found that giving does enhance shareholder value.

In order to demonstrate this, Waworuntu et al. (2014) analyzed the impact of CSR on ASEAN listed companies and they found that companies are aware of the need to disclose their approach regarding sustainability. Also, they demonstrate a moderate positive correlation between all Corporate Social Performance (CSP) and Corporate Financial Performance (CFP) variables.

In the case of companies listed on the Athens Stock Exchange, Tsaklanganos (2012) indicate that very few of the investigated market variables—stock price, stock returns, earnings per share, and dividends—play a role in discriminating between these two categories of companies (companies with or without CSR), while firm size plays almost no role at all.

In an earlier study, Alexander and Buchholz (1978) analyzed the relationship between social responsibility and stock market performance of corporations in the U.S. for the period 1970-1974 and they found a low insignificant relationship between risk-adjusted performance and degree of social responsibility.

Although prior research has addressed the influence of CSR on perceived customer responses, it is not clear whether CSR affects market value of the firm. Luo and Bhattacharya (2006) developed and tested a conceptual framework, which predicts that (1) customer satisfaction partially mediates the relationship between CSR and firm market value (i.e., Tobin's q and stock return), (2) corporate abilities (innovativeness capability and product quality) moderate the financial returns to CSR, and (3) these moderated relationships are mediated by customer satisfaction. Based on a large-scale secondary data set, the results show support

for this framework. The authors found that in firms with low innovativeness capability, CSR actually reduces customer satisfaction levels and, through the lowered satisfaction, harms market value.

Despite the positive societal implications of CSR, there remains an extensive debate regarding its consequences for firm shareholders. The research of Mishra and Modi (2016) made on a sample of 1,725 firms for the years 2000–2009 indicates that the effects of overall CSR efforts on stock returns and idiosyncratic risk are not significant on their own but only become so in the presence of marketing capability. Furthermore, the results reveal that although marketing capability has positive interaction effects with verifiable CSR efforts—environment (e.g., using clean energy), products (e.g., providing to economically disadvantaged), diversity (e.g., pursuing diversity in top management), corporate governance (e.g., limiting board compensation), and employees (e.g., supporting unions)—on stock returns (and negative interaction effects with these CSR efforts on idiosyncratic risk), it has no significant interaction effect with community-based efforts (e.g., charitable giving).

In this context, in order to add more results to those that are existing, we conducted an analysis on listed companies on Bucharest Stock Exchange.

Methodology

In order to identify if the CSR activities of a company have impact on the stock price, we use three statistical techniques, namely: discriminant analysis (DA), probit analysis model (PA) and logistic regression (LR). The reason in choosing these statistical techniques is that we want besides to see the relationship between CSR activities and stock price, also if the market variable of a firm, such stock price, paid dividend, and stock return can be used as predictors in classifying the companies in those which have CSR and those which don't have CSR activities.
Going further, even if according to Bucharest Stock Exchange (BSE) it is mandatory that each company to apply social responsibility in all its actions, only a part of them are really doing CSR activities, that's why based on these three techniques, we will be able to predict if a company have CSR activities using market variables.
The first method, discriminant analysis, was proposed by Fisher (1932), and shows the best linear regression of independent variables which will best discriminate the groups included in the dependent variable. The implicit assumptions of applying DA require the data to be normally distributed. The discriminant equation which will be estimated in our analysis is expressed by relation (1):

$$CSR = \alpha_0 + \alpha_1 \cdot P + \alpha_2 \cdot D + \alpha_3 \cdot R + \varepsilon \quad (1)$$

where CSR – is the dependent variable, equal to 1 if company has CSR activities and 0 otherwise; P – stock price; D – paid dividend, R – stock return, $\alpha_0, \alpha_1, \alpha_2, \alpha_3$ – the discriminant coefficients and ε is error term.
Based on discriminant analysis we will be able to see if the classification of companies based on CSR activities depends on at least one of the market variables: stock price, paid dividend or stock return.
The second approach, probit analysis model, transforms the linear combination of independent variables to cumulative probability from the normal distribution. In our case the PA will be estimated based on equation (2):

$$prob(CSR = 1) = \phi(\alpha_0 + \alpha_1 \cdot P + \alpha_2 \cdot D + \alpha_3 \cdot R) \quad (2)$$

where CSR – is the dependent variable, equal to 1 if company has CSR activities and 0 otherwise; ϕ - the value from the cumulative normal distribution; P – stock price; D – paid dividend, R – stock return, $\alpha_0, \alpha_1, \alpha_2, \alpha_3$ – the coefficients in linear combination of explanatory variables.

The last approach, logistic regression, is similar to probit analysis model, but the difference between these two techniques lies in the assumption regarding the error distribution. If for PA it states that the error are normally distributed, for logistic regression the errors are standard logistic distributed. In our case the LR will be estimated based on equation (3):

$$(3) \qquad \log\left[\frac{prob(CSR=1)}{1-prob(CSR=1)}\right] = \alpha_0 + \alpha_1 \cdot P + \alpha_2 \cdot D + \alpha_3 \cdot R$$

where CSR – is the dependent variable, equal to 1 if company has CSR activities and 0 otherwise; P – stock price; D – paid dividend, R – stock return, $\alpha_0, \alpha_1, \alpha_2, \alpha_3$ – the coefficients in linear combination of explanatory variables.

Data and descriptive statistics

All companies listed at Bucharest Stock Exchange were selected in our analysis. From these we had to exclude 5 companies due to data availability, so the final sample is formed by 79 companies. From these 79 companies, only 29 of them have done clear CSR activities, which are publically presented on their website or annually reports.

The selected companies, based on the industry classification can be seen in table 1.

Table 1. Companies' classification base on industry membership and CSR activity

Industry Classification	Number of companies	Companies having CSR
Machinery of Industrial Equipment	18	6
Investments fund	9	2
Construction Materials	6	2
Manufacturing rubber products	5	3
Real Estate	5	3
Transportation Services	4	0
Trade	4	2
Hotels	4	1
Banks	4	1
Specialized Chemicals	3	2
Electricity	3	1
Consultancy	3	0
Medical products	3	1
Food and beverage industry	2	2
Manufacturing industry	1	1
Technology – Electrical Office Equipment	1	1
Raw Materials – Aluminum	1	0
Industry Suppliers	1	0
Computer Materials	1	1
Clothes and Accessories	1	0
TOTAL	**79**	**29**

Due to fact that the last available annual reports for the companies listed on BSE are for 2014, all the market data was computed for the year 2014. The stock price of each company was calculated as the average stock price for year 2014, the dividend value is the value of dividend given by each company in 2014. For the

companies which didn't pay dividends in 2014, the value is equal to 0. Finally the stock price return for 2014 was calculated based on the final and initial price from the year, accordingly to relation (4):

$$R = \frac{P_f - P_i}{P_i} \cdot 100 \quad (4)$$

For linearization of the data, we apply logarithmic at the value of stock prices.

The main descriptive statistics for the selected market variables for analysed companies are presented in table 2. At a first glance, we are able to see some differences in the mean of market variable between the 2 groups: companies with CSR and NON-CSR companies.

Table 2. Descriptive statistics for analyzed variables

Variable	Mean	Median	Max	Min	Std. Dev.	Skewness	Kurtosis
CSR companies							
Price	17.0195	1.2786	211.2934	0.0439	42.9804	3.6013	15.9928
Dividend	3.5879	3.2700	12.5500	0.0000	3.8155	0.5917	2.1788
Stock return	8.22%	3.57%	85.49%	-63.06%	30.68%	0.3667	3.4700
NON-CSR companies							
Price	4.6049	0.4521	78.8224	0.0082	13.4292	4.2519	21.7157
Dividend	2.4526	0.0000	13.5600	0.0000	3.5068	1.4245	4.3322
Stock return	11.07%	3.49%	170.49%	-54.73%	43.01%	1.7834	6.3141
ALL companies							
Price	9.1622	0.6545	211.2934	0.0082	28.5078	5.2763	34.7568
Dividend	2.8694	0.0000	13.5600	0.0000	3.6407	1.0739	3.2133
Stock return	10.02%	3.57%	170.49%	-63.06%	38.76%	1.6217	6.6111

The average stock price for the CSR companies (17.02 RON) is 4 times higher compared with NON-CSR companies (4.60 RON). Similar difference we can see also in the dividend value, CSR companies giving an average dividend of 3.6 RON per share and NON-CSR companies give an average dividend of 2.45 RON.

The situation is different when we analyse the stock return of the 2 groups of firms. In this case the higher value of stock return is recorded by NON-CSR companies: 11.07%, compared with only 8.22% for CSR companies.

Table 3. Normality test: Kolmogorov – Smirnov

Variable	CSR companies		NON-CSR companies	
	Statistic test	Prob.	Statistic test	Prob.
Dividend	0.242	0.000	0.318	0.000
Ln(price)	0.124	0.200	0.088	0.200
Stock return	0.135	0.189	0.215	0.000

This is not an abnormal situation, because it can be explain by the economic theory. According to Gordon model (Gordon and Shapiro, 1956), the stock price is the ratio between dividend and expected stock return (if we assume the growth rate for dividend equal to 0). According to data presented in table 2, the ratio between divided and stock price for NON-CSR companies is higher (52%) than the same ratio calculated for CSR companies (21%), so it is understandable based on Gordon model that the stock return for NON-CSR companies, to be higher that stock return for CSR companies.

In order to test the normality, we will use Kolmogorov–Smirnov test. As shown in table 3 stock return and price for CSR companies are normally distributed, while the divided series is not. For the NON-CSR companies, we can see that only price is normally distributed.

Results

The best fitting model is selected by estimated the three statistical techniques mentioned in methodology: discriminant analysis, probit analysis model and logistic regression. The estimated coefficients for each model are given in table 4.

Table 4. Regression models estimation

Variable	Coefficient		
	Discriminant analysis	Probit analysis	Logistic regression
Constant	-0.058	-0.375*	-0.609*
Dividend	0.067	0.022	0.036
Ln(price)	0.406**	0.140**	0.227**
Stock return	-0.004	-0.155	-0.242
Eigenvalue	0.076	0.054	0.054
Correlation	0.266	0.367	0.367
R-squared	5.548*	5.711*	5.658*

*,**,*** - Indicates significant at the 0.1 level, 0.05 level and 0.01 level

In all models only stock return is the only significant and the most discriminating variable and contributes positively.

Having calculated the value for discriminant coefficients for each model, further can be calculated the discriminant scores for each company in the sample, and to assign to one of two groups: CSR companies and NON-CSR companies.

Table 5. Classification Table for Groups (Percentage Correct – Overall Index)[a]

Model		CSR = 1	CSR = 0	Total
Discriminant analysis (DA)	CSR = 1	32	18	50
	CSR = 0	12	17	29
	Total	44	35	79
	Correct	32	17	49
	% correct	72.72%	48.56%	**62.03%**
Probit analysis (PA)	CSR = 1	44	21	65
	CSR = 0	6	8	14
	Total	50	29	79
	Correct	44	8	52
	% correct	88.00%	27.59%	**65.82%**
Logistic regression (LR)	CSR = 1	44	21	65
	CSR = 0	6	8	14
	Total	50	29	79
	Correct	44	8	52
	% correct	88.00%	27.59%	**65.82%**

[a] – Cut-off point: 0.50

In table 5 is reported the classification results using all three models. We can see that both probit analysis and logistic regression, has the best average correct classification (65.85%), compared with the discriminant analysis which has only 62.03%.

Conclusions

The aim of this paper was to analyze the relationship between companies' CSR activities and stock price performance, for listed companies on Bucharest Stock Exchange in 2014.

Even if BSE introduced a mandatory code through each all companies must to adhere to the corporate social responsibility, from 84 listed companies, only 29 of them have clear activities regarding CSR.
Further we wanted to see if the market variables can be good discriminant in order to classify the firms in CSR companies and NON-CSR companies, by using three statistical techniques: discriminant analysis, probit analysis and logistic regression.

Analyzing the descriptive data for each group of companies, we were able to see that the average price and average dividend are higher for CSR companies, compared with NON-CSR companies. In the same time, the stock return is higher for NON-CSR companies.

Based on the estimation of three selected models, we pointed out that stock price is the main market driver for the CSR activity of a company, while the other two variables, dividend and stock return, don't have a significant impact.

Our results are logically through economical point of view, because usually companies having more valuable stocks on the market have the necessary resources to be involved in some CSR activities.

The analysis pointed out that the best predicting model is probit analysis and logistic regression, with an average correct classification of only 65.82%, which can be considered a limitation of the paper. Further research can extend the analysis through the number of discriminants included in the models, by taking into account financial ratios, such as ROE, debt to equity ratio, working capital ratio, and not only.

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Productivity and Motivation of Employees in the Services Sector

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Abstract

The article focuses on the special properties and measurement of productivity related to these properties in the service sector. The approaches to measurement of public sector workers productivity are recommended. The dependence between the salary of academic staff and the main indicators of universities activity is analyzed. Motivation improving recommendations for employees of services sector are substantiated.

Key words: labour productivity, service sector, labour intensity, motivation, universities performance indicator.

The labour productivity is an integrated characteristic of economic and social development of enterprises and sphere of activities. Therefore, The International Labour Organization recommends using productivity indicators in the manufacturing and non-manufacturing sectors of economy (services, management activities, civil service and business information).

The services sector has a number of distinguishing features compared with manufacturing; in particular, it has a high volume of labour costs directly related to the customer service, low productivity and lack of convincing productivity measuring procedures in some cases, which is not conducive to its growth. The impact of the budget sector of economy on the growth of labour productivity in the real sector determines the necessity of a competent implementation of motivation and stimulation of the state employees work.

Labour productivity growth has become increasingly important in the service sector as a condition for reducing the production costs. All this leads to the relevancy of the issues.

Objective

The main purpose of our article is to offer the approaches to measurement productivity in the public sector. To develop recommendations for labour productivity improvement. To substantiate a hypothesis of predominance in education sector the strong non-monetary motivation to work and to develop recommendations of improving motivation of education sector workers.

Literature review

In modern Russian economic literature, the problems of productivity improvement are considered in the works of Volgin N.A. (2002), Genkin B.M. (2007) Kokin J.P. (2010), and others. The main focus is on the identification of factors and reserves of labour productivity growth. As the labour productivity indicators there were considered the labour intensity and output of production.

The main feature of foreign methodology of productivity calculation is the fact that foreign scientists propose to evaluate and analyze the productivity of all production factors but Russian specialists do the main emphasis, as already noted, on the assessment of the human labour productivity.

Foreign approaches to labour productivity management in the modern economic literature presented in the works of P.F. Drucker, (2003), K. Kurosawa (1980), A. Lawlor (1973), I. Maasaki (1986), M. H. Mescon, S. Moss (1982), F. W. Taylor (1911), J. Devan, A. Millan, P. Shrike (2005) and others.

Recent developments of A. Lawlor (1985) and K. Kurosawa are the most known among foreign techniques of labour productivity calculation. A. Lawlor (a member of the UK Commission for Employment and Skills) considers productivity as a comprehensive indicator of the organization of production efficiency and offers following steps in productivity improvement: goal definition, calculation of efficiency coefficient, effectiveness evaluation, conducting comparability of results and development of specific measures.

Lawlor's concept based on the fact that the purpose of organization proceeds from certain amount of funds that are necessary for production maintenance costs, salary payment, fixed capital investment, profits and tax deductions.

The main estimated indicator in this method is efficiency coefficient, which shows how much of required products are producing from existing resources; in fact it determines the degree of capacity utilization. The production profitability is estimates by this indicator as the ratio between the volume of production (production costs plus profit) and production costs. Determination of the effectiveness is based on a comparison of achieved and design results with more efficient management of resources as the ratio between the volume of production (standard calculated amount that could be achieved) and production costs.

The productivity measurement method of K. Kurosawa (Professor of Tokyo Institute of Technology) based on a system of interrelated indicators characterizing the organization of production effectiveness for the certain period of time. A distinction is made between the individual, overall and total productivity.

In foreign sources, the problem of productivity improvement presented, mainly as a description of quantitative methods for assessing separate productivity indicators (K. Kurosawa, S. Moss etc.) but approaches to its management considered mainly applied to the material production.

Focusing on issues of labour productivity, labour productivity in its classical approach is measured by output, i.e. the number of products produced by one employee per unit of time or per average employee in a calendar period.

The main components of productivity measurement are presented on Fig.1 (Bazarov T.J.,1996)

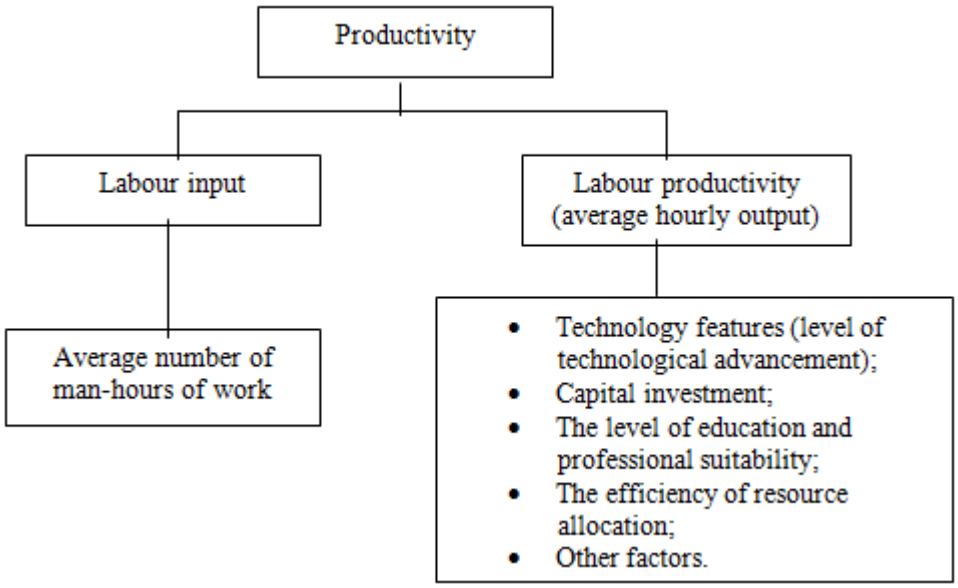

Fig.1. The main components of labour productivity

Productivity is linked to both the amount of labour (for example, the number of man-hours) and the quality of work (for example, the quality of staff) as seen on the fig.1.

It is possible to define the output or labour-intensity of product more or less accurately only in very simple activities, mainly in manufacturing.

The services sector, as noticed before, has a number of distinguishing features compared with manufacturing; in particular, it has a high volume of labour costs directly related to the customer

service. These operations are difficult to mechanize and automatize, what determines the high share of living labour costs in the total costs of services production.

American scientists W.J. Baumol, W.G. Bowen (1966) described the phenomenon that productivity growth in the service sector has generally lagged behind that of the material production sector. This phenomenon called as "Baumol's disease." It is due to the fact that scientific and technological progress and the replacement of human labour with materialized (physical) capital are slower in the service sector, including the social sphere, than in the production of material goods. As a result, the complexity of services in social services is higher than in manufacturing industries.

Indeed, the highest labour productivity in Russia at the moment - in the fields of oil and gas production. Efficiency in this sector exceeds the average efficiency of the country by 7 times. People who work for the state are much less effective than the commercial sector workers.

According to William Baumol, today the costs of health care, education, and live performing arts are rising almost everywhere at a rate significantly greater than the economy's rate of inflation. The disease is chronic, because these activities are inherently inhibit innovation, which saves the labour costs, as the nature and quality of these services require immediate investment of human labour.

It should be noted that not all economists agree with Baumol, explaining their position in following way, that serious doubts arise from labour productivity measurement tool in the service sector, what allowed Baumol to draw conclusions about the "chronic disease."

Service sector is non uniform, accordingly for purposes of productivity measurement, services are classified as follows:

1) mass-market-oriented services, with easily identifiable units of output and simple manner of monetary value (transport, car service, hotels, etc.). In this case, the procedure of productivity measuring is similar to that for material production;

2) services the productivity in the conventional economic sense should not be calculated for (for example, artists and others);

3) services the end result of which is poorly identified, for example - education, health.

Regarding the last subgroup it should be noted that there is no convincing measuring procedure, so we will look closer to the issues of productivity measurement in relation to this part of the service sector.

Collins J., Porras J (1994), Ruddle K., Feeny D. (1998) and many other scientists were working on issues of motivation.

It is subconsciously associated with the Maslow's pyramid (A. Maslow, 1943), which states that every person has five levels of needs satisfaction and while the lower level needs are not satisfied, it makes no sense to motivate a person on the basis of more complex needs. A similar idea underlies the X and Y McGregor's theory (D. McGregor, 2005).

Not without interest are modern theories of motivation (goal setting, justice, etc.) (D.C. McClelland, 1984). However, using western theories of motivation to the Russian practice does not give the desired result, and motivation in the best is monetary.

Methodology

112 universities of Volga Federal District were selected as study objects.

Materials for the research were obtained from open sources.

We used OLS method (ordinary least squares method) to determine the effect of salary on basic indicators of universities activity, which was implemented in two phases:

1) specification problem solving - selection of the most suitable paired dependence on minimum error of approximation and/or a maximum coefficient of determination;

2) analysis of obtained models quality indicators for the statistical significance of paired regression equations coefficients by Student and the reliability of equations by Fisher.

The results can be used to explain the cause-and-effect relationship between wages and quality indicators of higher-education teaching personnel activity, and for the planning of their creative growth.

Results

First of all, it should be stated that the question of necessity to find reserves to increase the labour productivity in the health and education itself sets the wrong strategic benchmark inasmuch as the fact that relating to many of creative (not routinely) types of work the idea of measurement and increasing its productivity in the classic sense is meaningless at all. In addition, we must not forget about the effect of interactivity: efficiency (productivity) of teachers' and doctors labour no less than on them, depends on who they work for - students and patients.

It is much easier to measure the labour intensity of the considered sector workers than productivity. Unfortunately, the two concepts are often confused with each other. Speaking about necessity to increase the labour productivity in the public sector, essentially it means the increasing of labour intensity of public-sector employee. The Minister of Finance in his speech made a call for an intensity increase, offering to link more closely the salaries of teachers and doctors with hourly load and duration of holidays. He stated this during the meeting of the Federation Council, which took place on September 25, 2013. "We have a number of budget sectors, which have the reduced number of hours in a work week. However, wages should be equal to the economy average. But the economy average hours of work week is much more than in any given budget industry ", - said the head of the Russian Finance Ministry.

But, as opposed to productivity, the intensity is a measure of the load, rather than the result of labour. The growth of labour intensity leads to deterioration in quality and vice versa - reducing the intensity to normal levels positively affects the quality of work and the state of psychological climate in the collective. "Greeks and Russians spend more time at work comparing to others all over Europe but the performance indicators in these countries are not very high".

The growth of labour intensity can be highly dangerous in creative activities, where made product is nonstandard and intangible. That product’s quality is difficult to assess. Such activities preponderate in the public sector. Therefore, as a strategic benchmark for public sector development it is better to choose the quality of work results and its effectiveness rather than productivity, not as the ratio of results and costs (efficiency) but as goal achievement level (effectiveness).

Public organizations generally do not produce the commercial products and authors tend to think that the rights to provide limited services on a commercial basis it is an coercive measure, which has a number of medium and long-term negative consequences. Since budget organizations provide variety of administrative and social services with different complexity, it is necessary to develop key performance indicators for each position of each budget organization (KPI).

For the KPI development in the public organizations it is advisable not to focus on the process approach, assumed as description and optimization of company’s business processes, which is worked out for a very small number of Russian companies, but on the functional approach (Fig. 2). In accordance with this approach, efficiency indicators at different levels (organization, department, and employee) are developed based on company objectives and official functions of managers and unit employees. At the organization level the appropriate KPI selected or developed for each target, it gives the possibility to assess the goal achievement level. It is similar at the departments and employees level – there is one or several indicators selected for each function, these indicators directly or indirectly assess the level of function fulfilment. Since the function of units derived from the business goals decomposition and staff functions logically derived from functions of departments, the KPI of staff will provide the KPI of divisions and KPI of departments, in their turn, will "work" for KPI of organization. Indicators of different levels are interlinked as cause and effect. Thus, the organization goals consistently pass "top-down" on the level of departments and employees.

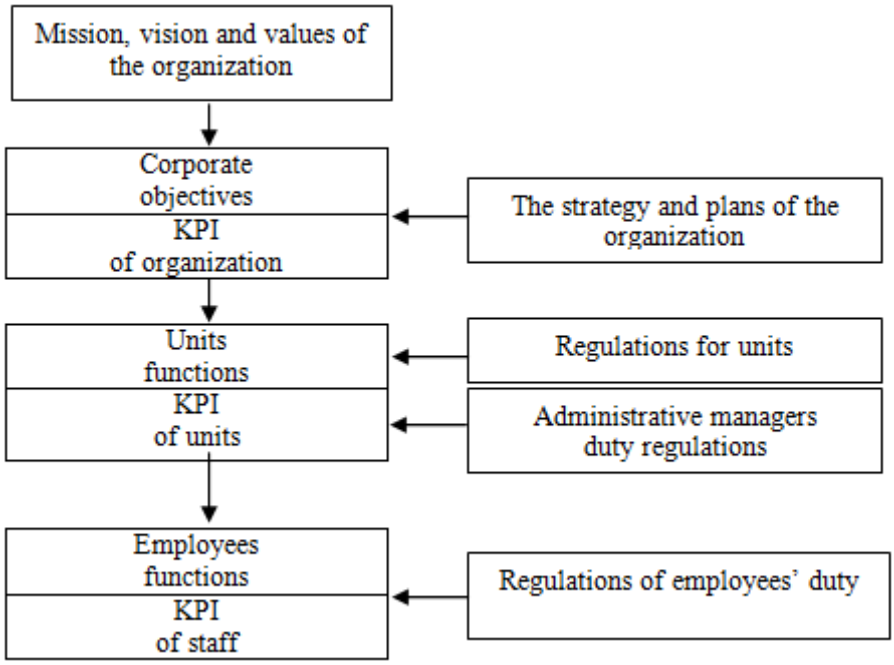

Fig.2. Functional KPI development approach

Developed for each position KPI at the end can be converged to a conditional integral indicator of overall result. This indicator should be considered as labour productivity indicator.

The value of public sector in social services in dealing with the problem of increasing the social labour productivity in the national economy lies primarily in its impact on labour productivity growth in the real sector of the economy; hence there is a need to implement competently the motivation and stimulation of state employees.

It should be said that the system of motivation and stimulation of all employees work mainly oriented towards material forms of encouragement, which satisfy only the primary needs of workers but the higher levels of needs stay unsatisfied. Generally, the main motivation method in organizations is increase in wages. The Minister of Labour and Social Protection of Russian Federation also believes that the salary is the main quality work motivation. In the world competitiveness ranking for 2014-2015 (The Global Competitiveness Index) Russia occupies 53rd place out of 143 countries. Our neighbors on wages are Philippines and Bulgaria.

The constant advance in wages, in our opinion, is not conducive for keeping the labour activity at the appropriate level and improving the labour productivity. This method may be useful to achieve short-term rises in productivity, because as a result, the certain type of adaptation to that kind of impact takes place.

Apparently, to avoid this adaption a variety of incentive pay systems are currently being tested, particularly, sophisticated ones in education field (L. Nadreeva, 2015). For example, one of the normative approaches in the formation of wages - when the salary of an employee or its' part determined by multiplying the price of point on the number of earned points.

This approach to the university teachers' labour assessment lays in the basis of so-called "Teachers portrait". The purpose of implementation of "Teachers portrait" in universities is providing the link between researchers and teachers wages with the results of their work. Teacher acquires a right to receive a premium (surcharge) by achievement of certain results, which are translated into points. The value of the result (amount of work) depends on position - higher position has higher requirements for the employee, and the greater number of points has to be earned for premium (surcharges). Thus, described salary system stimulates the intensification of teachers' work.

In order to achieve the better returns and quality of work of education sphere employees, it is necessary not to encourage the intensification of their work, as unfortunately happens today, but on the contrary, as noted above, unload workers, facilitate their work. The approach associated with the

maximum work load, leads to self-defense mechanisms triggering the work out of class reduction, attention decrease, increase in irritability, indifference to the students, patients comes out, emotional burnouts grow.

In our opinion, a strong non-monetary motivation takes place in creative activities, which can be attributed not only the culture and art, but also the work of academic staff (teachers, researchers), doctors and scientists.

To confirm this hypothesis, an analysis of the interrelation between average wage per one academic staff member and university activity indicators was held:

- Income from R&D per academic staff member, thousand rubles;
- The number of citations in the Scopus indexed system per 100 academic staff members, units;
- R&D volume per one academic staff member, thousand rubles;
- The number of license agreements, units.

112 universities of Volga Federal District were selected as study objects.

Results are included in table 1.

Table 1: Pair correlations of wages and income from R&D, the number of citations in Scopus, R&D volume per one academic staff member, the number of licenses

		Wages	Income from R&D	Citations (Scopus)	R&D per 1 REE	Licenses
Wages	Pearson Correlation	1	,635	,744*	,389	,498
	Sig. (2-tailed)		,066	,034	,300	,172
	N	109	109	108	109	109
Income from R&D	Pearson Correlation	,635	1	,611	,595	,544
	Sig. (2-tailed)	,066		,108	,091	,130
	N	109	109	108	109	109
Citations (Scopus)	Pearson Correlation	,744*	,611	1	,550	,898**
	Sig. (2-tailed)	,034	,108		,158	,002
	N	108	108	108	108	108
R&D per 1 REE	Pearson Correlation	,389	,595	,550	1	,358
	Sig. (2-tailed)	,300	,091	,158		,345
	N	109	109	108	109	109
Licenses	Pearson Correlation	,498	,544	,898**	,358	1
	Sig. (2-tailed)	,172	,130	,002	,345	
	N	109	109	108	109	109

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The performed analysis allows establishing an interrelation between only two indicators - wages and income from R&D, and this relationship is reversed, that is absolutely logical – when income from R&D increase then wages rise accordingly.

For other factors the correlation dependence between wages and universities activity indicators - number of citations in Scopus, the volume of R&D and the number of licenses - is not revealed, which confirms the conjecture about existence a strong non-salary motivation in creative activities.

Thus, the incentive function of wages in higher education institutions is less relevant than, for example, in many professions that belong to manufacturing. There is the reproductive function come to the foreground: it is not necessary to try to connect as accurately as possible the wages with the immediate results or load fluctuations. It simply must be sufficient for the normal reproduction of worker, in the terminology of the International Labour Organization - dignified, i.e. providing the ability to meet the requirements necessary to maintain the normal state of complex workforce.

Strengthening the stimulative function of wages leads to the fact that:

- Significant part of total labour effort is used unproductively, i.e. not to perform the basic functions and duties (for the treatment, education, scientific problem solving, etc.) but to present their achievements and results of the work in the best way;
- One that redistributes their time fund from basic to representative functions benefits;
- There is an unhealthy competition, envy, deteriorating atmosphere in the team developed.

In creative activities the labour results (which is difficult to measure, as already mentioned) depend primarily on the level of employees professionalism – that what is need to be measured and stimulated by setting the quality grading, underlying the differentiation of wages levels guaranteed to employee providing fulfillment their duties in good faith. As a criterion of permit to work, guaranteeing an appropriate level of payment shall be the rigid conformance to professional standards.

It is necessary to use the other types of motivation, not only economic, for professional and personal growth. For instance, there is a need to consider the system of career advancement of teachers, who have very short career ladder with limited steps - it can only become a head teacher or principal, and these steps are available only for a small number of teachers. Therefore, it is appropriate to look for other options in order to motivate teachers for further career development. It can be offered to implement different statuses, such as teacher - methodologist, teacher - innovator, teacher - researcher. Teacher's activities would change with a new status and would be consistent with the development phase, which can be realized in several ways.

Summing up, some important points should be highlighted. Thus, in June 2014, the Russian Federation government approved a plan to improve labour productivity. The Central Bank of Russian Federation, Bank for Development, Federal Agency on Technical Regulating and Metrology, Russian Union of Industrialists and Entrepreneurs, etc. were considered to be involved to this work. However, the subgroup dealing with issues of improving productivity didn't meet even once during current year. According to the chairman of the Public Association of productivity improvement it is necessary to establish a special institute for program to be effective (V. Bovykin, 1997). Apparently, by analogy with experience of foreign countries. There is a European association of national centers of productivity in the West, which consist of 14 countries. Also, there is an Asian organization of labour productivity actively functioning in the East, with 20 countries as members.

Taking into account the fact that in 1990's all the institutions concerned with improving productivity were eliminated in Russia and that now there are just few qualified and experienced experts in improving productivity, the implementation of the idea of special institution will contribute to productivity growth in material production sphere and in the services sector.

Russian Ministry of Labour and social protection together with The Ministry of Education and Science of Russia, Agency for Strategic Initiatives and number of other organizations are realizing the project which is very interesting from the perspective of improving productivity point of view.

They prepared the reference book, which includes 1620 the most demanded professions and specialties. Identification of these professions and specialties carried out on the basis of the survey more than 13.3 thousand organizations. There were highlighted the requiring vocational secondary education. During the formation the top 50 specialties requiring vocational secondary education, the focus was not only on high-tech industries, but also on services. At the same time the requirements for the competence of competitions participants within the World Skills championships were taken into account. Importantly, the Ministry of Education and Science of the Russian Federation is going to implement the new effective forms and standards of workers training in professions (specialties) from the "top 50" list.

The main conclusions and recommendations

1. In terms of productivity measurement in public sector:

- as a strategic benchmark for public sector development it is better to choose the quality of work results and its effectiveness rather than productivity, not as the ratio of results and costs (efficiency) but as goal achievement level (effectiveness);
- there have to be convincing productivity measuring procedures, therefore we suggest to develop key performance indicators for each of the budget organizations for each position. KPI developed for each position should be kept in a conditional integral indicator of the overall result, which seems appropriate to consider as an indicator of labour productivity.

2. In terms of public sector employees labour motivation improvement:

- we analyzed the interrelation between average wage per one research and teaching employee and basic indicators of universities activity. Furthermore we substantiated the hypothesis of predominance in education sector the strong non-monetary motivation to work. It means that the salary does not need to be linked as accurately as possible with the short-term results. It simply must be sufficient for the normal reproduction of worker, i.e., provide the ability to meet the requirements necessary to maintain the normal state of complex labour. Taking into account the level of wages in the education sector at the moment, it is referred to the need to increase wages of the higher-education teaching personnel.

- we proved the necessity to establish a quality grading underlying the differentiation of salary levels, guaranteed to workers under condition of diligent performance of their duties. The criterion for admission to work, guaranteeing an appropriate level of payment, should be rigid compliance with professional standards;

- we suggest to change the system of teacher career development by introducing different statuses - teacher - methodologist, teacher - innovator, teacher - researcher. Activities of the teacher would change with a new status and would be consistent with the development phase of the teacher, which can be carried out in several ways.

3. In terms of development of recommendations to improve productivity in the service sector:

- to establish the special institutions oriented on the labour productivity improvement;
- to introduce new and effective forms of service workers training standards.

Creation of a modern system of workers training in service sector, using conclusive measurement procedures for productivity assessment, improving the motivation and stimulation system of service sector personnel allows us to look forward for positive changes in productivity of workers in this sector.

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Study on Motivating the Involvement of the Companies in Romania, in Social Responsibility Actions

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Abstract

The present analysis, aims at identifying the motivations which are the basis of the involvement of the companies in actions of social responsibility and the managers awareness on the effects of these activities among the employees and the community. As a research method the quantitative study was used, by means of the questionnaire, applied to the managers, at the company location, by the interviewers. In evaluating the data in the survey, the association test was used, (Chi, Hi or $\chi 2$, theoretical). This statistical indicator implies to verify the association hypothesis between the answers obtained from the questionnaire to the alternatives of a question and to verify a particular set of data which can follow a known statistical distribution.One of the major problems that concern the managers relates to the question whether it is fair to make known the actions of social responsibility. It results that one of the disadvantages of the social responsibility programs is that they are not interconnected with the specific of the business. The companies are not able to identify, to prioritize actions that have the greatest impact. Through this study, we consider that we contributed to the managers' awareness on the financial and moral effects resulting from the initiatives of social responsibility. It is time for a new corporate model, driven by a new type of leader, model in which the creation of a value in business also means creating value for the society. The initiatives of social responsibility are closely related to the level of managers' education and to the company seniority they manage.

Keywords: motivation, social responsibility, social impact.

Introduction

There are still many difficulties in adopting a responsible behaviour of the companies managers in Romania, who need to understand that the initiatives in the field of the social responsibility can turn into marketing strategies. The fact that the benefits generally occur only on long term, discourages many companies. Kotler, (2000) recommended in his book "If the organizations used in the actions of social responsibility the same principles that guide also the choices they make in business, they would find that the social responsibility will transform from cost or charitable action into a source of competitive advantage on the market".

On short term, these activities determine the cost of the company, but on long term the company has benefits, both financially and in terms of consumer confidence and strengthen a positive image among them. People are connected and make connections; they judge the companies not only for the quality of services or goods purchased or shares owned, but also in terms of footprint which they have in the community and how this has impact on their welfare.

Materials and methods

For the study elaboration, 2 types of methods were used: 1.Methods of data collecting: specialised literature review; getting information from administrative and secondary sources; individual interview; focus group; case study; on site survey. 2. The method of questionnaire for data collecting and interpreting. Depending on the type of questions – closed or open – each repondent was free to formulate answers and could choose

from a series of pre-defined statements. The questionnaire was elaborated by interview and was addressed directly to legal entities and natural persons, that were involved. In evaluating the data in the survey, the association test was used, (Chi, Hi or $\chi 2$, theoretical). This statistical indicator implies to verify the association hypothesis between the answers obtained from the questionnaire to the alternatives of a question and to verify a particular set of data which can follow a known statistical distribution. The test is applied to the issues in the social and economic area and is calculated after forming some contingency tables, where the data are clasified according to one, two or more segmentation variables, mentioned by Mihăiţă (2013) in his study.

This test allows to highlight the existence/non-existence of some association links between the sub-groups created by the studied segmentation variables.
As the test expression $\chi 2$ is obtained based on observations, it results that it is a statistical value and so it is not a parameter, that is why it is also named non-parametric statistical test or free distribution test, namely a test that does not depend on the form of the initial, basic law, mentioned by Mihăiţă (2013) in his study**.**

The stages are the following:
1. *Formulating the null hypothesis H0*, which states that the two variables-segmentation questions there is no cause or association link between : X – company seniority (up to 5 years, between 5 and 10 years, between 10 and 25 years, over 25 years) and Y – managers' education involved in social responsibility actions (high school, higher, post university education)
2. Choosing the meaning level of threshold α and calculating the number of freedom degrees of the table, according to the formula (r-1)*(c-1); (ex: (3-1)*((4-1) =6); based on these data, it is taken from distribution table $\chi 2$ its value, $\chi 2$ theoretical.
3.Calculating the expected theoretical frequencies (hoped for, in case of a homogeneity test). The calculations were carried out with Microsoft®EXCEL and are included in the superior part of table 1.

Table .1. Respondents' structure according to education and company seniority

Company seniority	UM	**Managers education**			Total	
		High school education	Higher education	Post univers education	No	%
Up to 5 years	nr	6	12	4		
Between 5 – 10 years	nr	8	10	11		20,10
Between 10 - 25 years	nr	12	24	8		8,79
Over 25 years	nr	13	19	4		9,05
Total	nr	39	65	27	131	100,00
	%	30	50	20	100,0	X
Indicators	Test $\chi 2$	Meaning threshold				
	≤	0,2	0,1	0,05	0,01	0,001
CHITEST (value Sig)	7.47E-02					
Freedom degree	6					
CHIINV (Chi theoretical)	≥	8,56	10,64	12,59	16,81	22,46

CHIINV (Chi calculated)	38,91					
Pearson Co-efficient	0,30					

Source: Processed according to data in the applid questionnaire

4. *Comparing the results obtained*, for which there are the following situations:
- if the null hypothesis is rejected and so there is an association or potential relation between the studied variables;
- if a null hypothesis is accepted and so there is no association or potential relation between the studied.
5. *Calculation of C contingency co-efficient*, has the role to measure the association degree between the variables of the contingency table, are included in the lower part of the table (Table 1).It is compared CHIINV (Chi calculated) respectively 38.91 with CHIINV (Chi theoretical) for different probability thresholds. Thus, it is find out that CHIINV (Chi calculated) of 38.91 is placed more over 22.46, which corresponds to a risk of 0.001, respectively, a probability of 99.99%. This means that the initiatives of social responsibility are closely related to the level of managers' education and to the company seniority they manage.

Pearson co-efficient, is calculated regardless of the nature of variables (continuous or discrete) and regardless of the nature of their distribution (normal or not), at the population subject to research, according to the mathematical model proposed by the statistician Karl Pearson. The closer the *C* value is to 1 (but it never reaches equal to 1), the more correlated the variables are. In our case it has the value of 0.30 and it is very significant ,Pascu as also mentioned in 2011.

Results and discussions

The spread of the concept of corporate social responsibility generated controversy on the ethics of their involvement in the community life, asa cum mentioneaza the speciality literature, seeing Catherine J.M (2006), Charter et all. (2002), Mohr (2009). Besides the economic considerations, managers must consider also the moral arguments in favour of the social responsibility actions. They, through the work they carry out, generate social problems, and therefore they have the responsibility to solve them and prevent the occurrence of new problems, namely: extinction of certain occupations and hence unemployment increase; labour migration; environmental pollution, exploitation of non-renewable resources, mentioned by Coors (2005) and Zadek (2000) in their studies**.**

The study regarding the social responsibility– pillar of the company strategy was conducted on a sample of 131 companies, with activity in the agriculture and food industry, operating in South Muntenia Development Region. The questionnaire consists of 11 questions, including: filter questions, knowledge of notion and of initiatives of social responsibility, the company's involvement in such initiatives, the main reasons for which the managers practice social responsibility, ways of involving the companies, causes that should be supported by the companies in the context of this concept, other aspects.

In the structure of the organizations subjet to the study (figure 1) it is remarked the fact that micro-enterprises predominate with a percent of 50, followed by the big and medium size enterprises with a percent of 48 and the state enterprises, with a percent of 2.

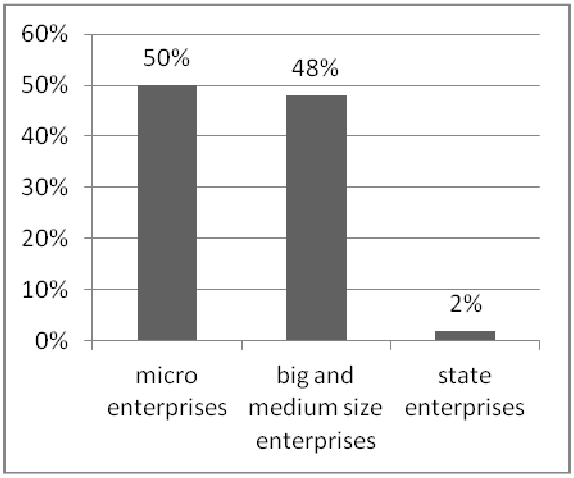
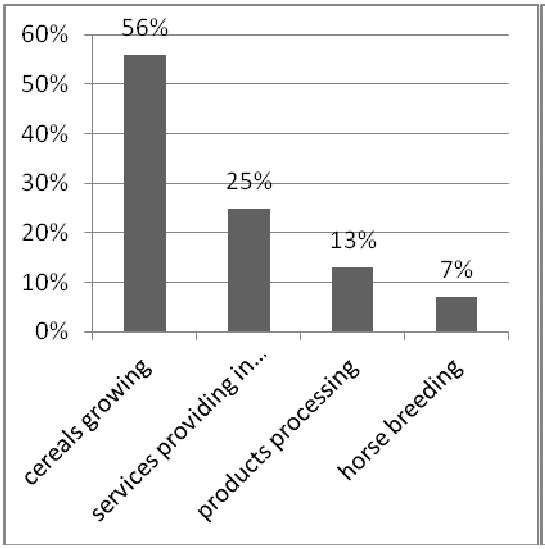


Figure 1. Structure of the economic agents in the studied sample

Regarding the activity sector, a percent of 56, has as activity - cereals growing; 25 percent – services providing in agriculture; 12.5 percent – meat and milk products processing; 6.5 percent, horse breeding (figure 2).

Because the interviewed persons are part of the superior management sample, the predominant level of their studies, is at the faculty level - percent of 50 (figure 3).



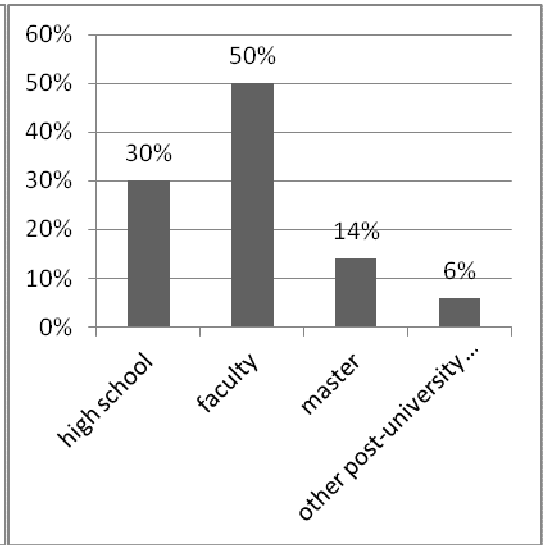


Figure 2. Activity sector of the economic agents **Figure 3. Level of the respondents studies**

The respondents age (figure 4), is contained between 18 and 65 years old. The share, on age categories, is represented by the segment 35- 59 years old, with a percent of 60. Persons with different positions and studies were interviewed, just to show an image closer to the reality of the conceptions regarding the perception on the concept of social responsibility (figure 5). The share is represented by the companies administrators, with a percent of 26, followed by the technical manager of the company, with a percent of 16, by the general manager, economic manager and other staff categories.

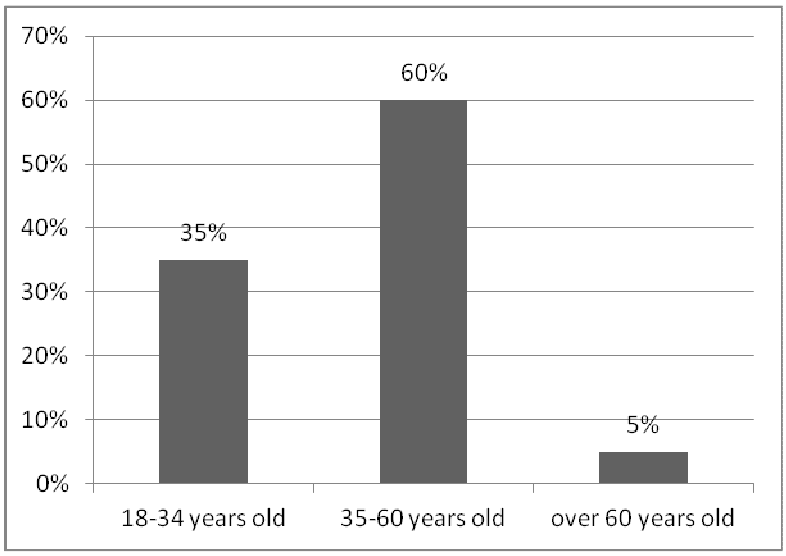


Figure 4. The respondents age

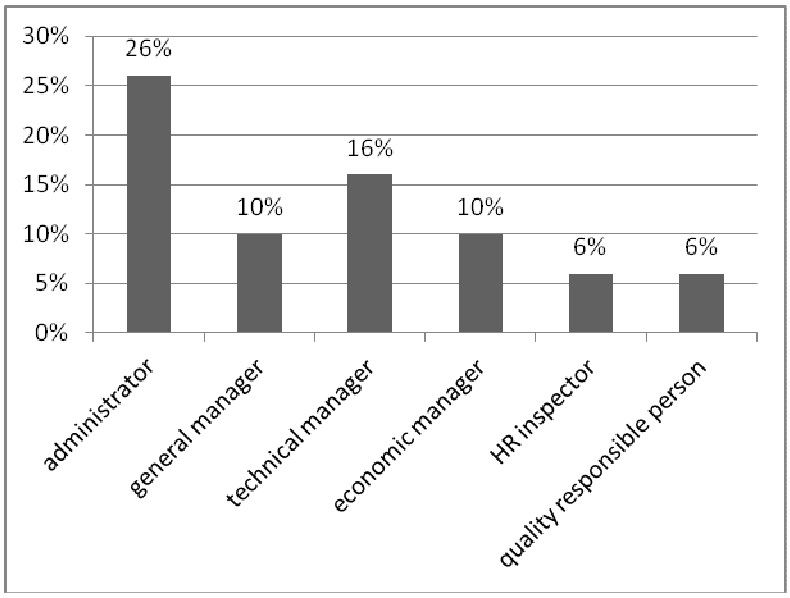


Figure 5. The respondention position within the company

At the question "Do you know the concept of social responsibility", 89 percent of the respondents said YES, and a percent of 11 said NO.

At the question "In your opinion, social responsibility must be practiced rather by ": a) companies; b) NGOs; c) state institution, a percent of 61.66 answered that this responsibility is rather to NGOs (figure 6).

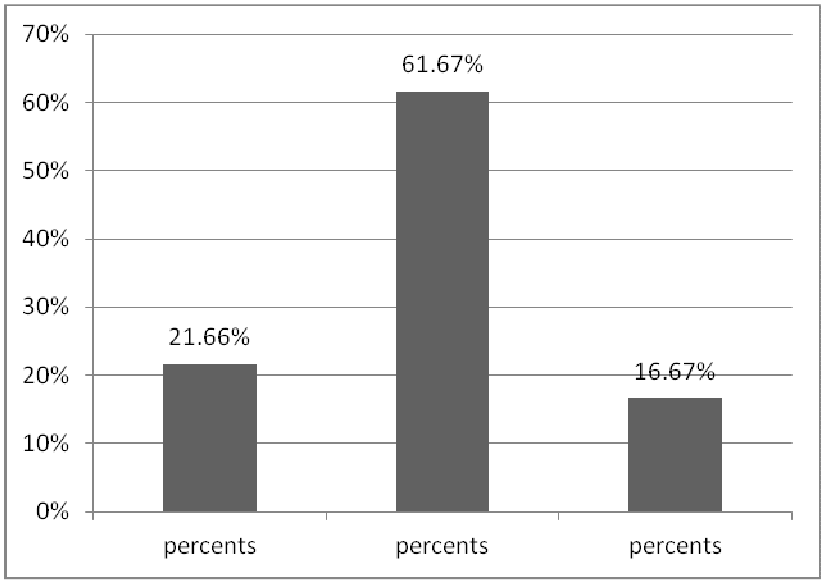


Figure 6. The structure of answers regarding the social responsibility

At the question "Were you involved in initiatives of social responsibility", 81 percent answered YES and 19 percent answered NO.

At the request: "Evaluate the modalities for which you develop actions of social responsibility, according to a scale from 1 to 5 (1= the least important motivation, 5= the most important motivation) depending on the importance you give to it", from the managers responses it resulted that they do not have a unique motivation for taking responsibility but rather, it is about a mix of reasons that lead them to do good deeds and motivations are as diverse as managers and management itself.

The result is that 21 percent do actions with social impact to compensate the pollution and the negative effects of its production, this response came especially from companies that have the object activity meat processing. Other managers, 11 percent, said it is a matter of pride and it shows the status acquired. There are managers, 29 percent which do not make a secret of the fact that they initiate actions of social responsibility due to tax facilities. Other managers, 9 percent feel a moral duty to customers and employees and they realize they would have not been there without the support of those who have bought the products and then, they feel compelled to return to the community some of the profit obtained under the form of projects with a positive impact. There are also managers, 23 percent initiating such actions due to the pressure exerted by NGOs. Last but not least, there are the managers who practice social responsibility for the undisguised need to increase profits (table 2).

Table 2.Evaluation affirmations

No.crt	**Affirmations**	**Evaluation**				
		1	2	3	4	5
1	Environment protection, in order to compensate pollution and the negative effects of their won productions	2%	6%	2%	30%	60%
2	It is a matter of pride and of showing the status obtained	4%	4%	20%	20%	52%

3	Fiscal facilities	6%	8%	4%	42%	40%
4	Pressure made by NGOs	6%	6%	10%	24%	54%
5	Promotion, in order to increase profit	2%	8%	12%	10%	70%
6	Pressure of clients and providers	80%	4%	4%	6%	6%

At the request: "Evaluate the following initiatives, according to a scale from 1 to 5 (1= the least important initiative, 5= the most important initiative) depending on the importance you give to it", among the managers initiatives of social responsibility, 21 percent considered as priority actions aimed at environment protection, 19 percent actions in favour of their employees, 9 percent those that support talents, 27 percent of those that support contests and other activities in the education sector, 14 percent supporting actions in health sector, 9 percent those that support people in situations of poverty and social exclusion (table 3).

Table 3.Evaluation affirmations

No crt	**Affirmations**	**Evaluation**				
		1	2	3	4	5
1	Environment protection	2%	6%	2%	30%	60%
2	Talents support	4%	4%	20%	40%	32%
3	Contests and other actions in educational sector	6%	8%	4%	42%	40%
4	Action for their own employees	6%	16%	14%	30%	34%
5	Actions in health sector	22%	16%	16%	20%	26%
6	Persons found in poverty situations and social exclusio	80%	4%	4%	6%	6%

At the question "Actions of social responsibility serve the interest of": a) employees; b) community; c) organization, a percent of 53.33 answered they serve the community interest and a percent of 31.66 answered that they serve the organization interest, to make known and to increase the sales. A percent of 15 answered that the actions serve the employees interest, who become proud of the organization they work with (figure 7).

At the question "Management in the organizations in Romania, implies the employees in drawing and developing actions of social responsibility": a) not at all; b) to a small extent; c) to a large extent, a percent of 38.33 answered that they are not involved at all and a percent of 25 answered that they are involved to a large extend, this answer resulting from the managers of the large companies, who have staff qualified in this kind of (figure 8).

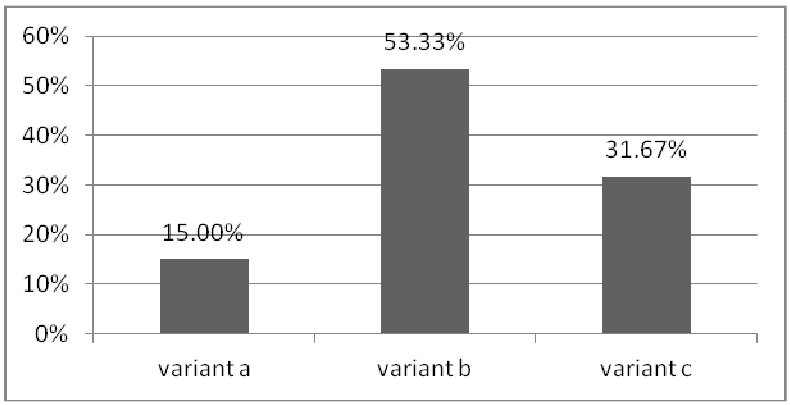


Figure 7. Answers quantification

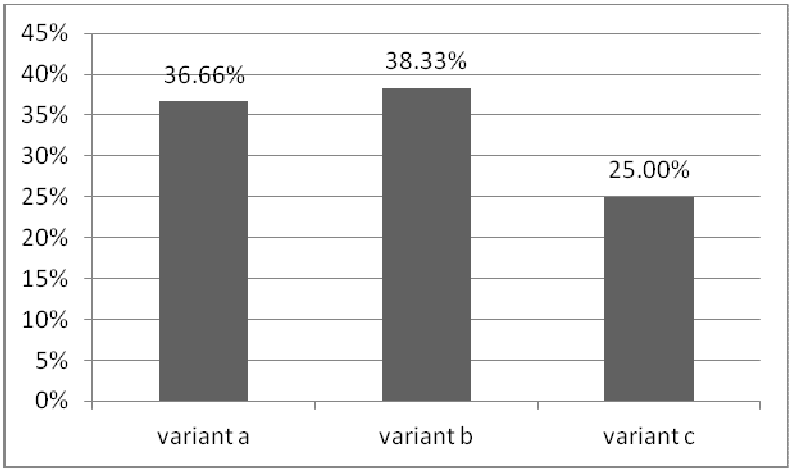


Figure 8. Answers quantification

At the request: "Make a hierarchy of the below factors, which could encourage the actions of social responsibility (1= the least important factor, 5= the most important factor) depending on the importance you give to it", a percent of 53 considers that the most important factor that could encourage the actions of social responsibility is represented by the fiscal facilities, followed by the priority access to financial resources (27 percent), promotion on the market (15 percent), better dissemination of information (3 percent) and only 2 percent, mentioned the factor "argument of ethics in business" and "programs of social responsibility certification" (table 4).

Table 4.Evaluation affirmations

No crt	Affirmations	Evaluation				
		1	2	3	4	5
1	Better dissemination of informatio	8%	16%	12%	30%	34%
2	Programs of social responsibility certification	4%	4%	20%	60%	12%
3	Fiscal facilities	6%	8%	4%	32%	52%
4	Priority access to financial resourc	6%	6%	10%	24%	54%
5	Promotion, organization visibility the market	12%	12%	16%	10%	50%

6	Arguments of ethics in business	80%	4%	4%	6%	6%

Conclusion

Although the managers' role is to manage the company's money, we must keep in mind that corporate social responsibility is a marketing tool that can bring profit. It is ethical that part of the company profit to return to the social group who participated, even indirectly, to achieve it.

A healthy society needs healthy companies and vice versa. No social program can rival the business sector when it is about creating jobs and improving living standards. Moreover, we must not underestimate the sense of involvement of employees of a company, who after such actions feel they are part of a major and impact action.

No business can solve all the problems of the society and cannot cover all the costs of such actions. Therefore, the companies must carefully select the specific problems that interfere with their activities, Archie B (1991) as mentioned in the study.

In the current socio-economic context, the old ways of doing business no longer work. The traditional leadership roles fail. It is the perfect time for a new corporate model, driven by a new type of leader, model in which the creation of a value in business also means creating value for the society beyond the present markets and products. The countless researches conducted over the past decade highlight the importance of responsible and sustainable corporate behaviour, because any action of a company reaches the community it operates, creating positive or negative effects. Therefore, social responsibility must become an important pillar in the company's strategy.

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L'Impact de la Mise en Scène de l'Emotion Dans la Publicité Selon le Profil Psychologique des Récepteurs

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Résumé :

Cette recherche s'intéresse à la mise en scène de l'émotion dans la publicité, ses effets et ses modes de fonctionnement. Une expérimentation fondée sur 256 entretiens, nous a permis de vérifier que l'émotion perçue pendant l'exposition publicitaire, pouvait jouer un rôle important dans la formation des réponses à l'égard de l'annonce et de la marque. Cependant, ce processus se réalise à condition que les consommateurs associent l'émotion perçue à la marque émettrice ou sa consommation. Par ailleurs, nous avons établie des différences d'efficacité entre les annonces magazines, selon la façon dont elles mettent en scène l'émotion. Nous étudions en particulier les aspects de l'intégration émotionnelle dans la publicité, à savoir la saillance de l'émotion montrée dans l'annonce, la présence d'information centrale sur la marque et la clarté du message publicitaire à propos des attributs hédonistes de la consommation. De façon intéressante, l'impact des caractéristiques de mise en scène de l'émotion est modéré par les variables individuelles des répondants, notamment leur besoin d'émotion, leur tolérance à l'ambiguité, leur besoin de structuration et leur besoin de cognition.

Mots clés : réactions émotionnelles, intégration émotionnelle, variables psychologiques, efficacité publicitaire.

Abstract:

This research focuses on the staging of emotion in advertising, its effects and functioning. An experiment based on 256 interviews supports the hypothesis that emotion perceived during ad exposure can play an important role in the formation of responses toward the ad and the brand, on the essential condition that it is associated to the announced brand or consumption experience. We also provide evidence of effectiveness differences between print advertisements based on how they stage the emotion. Various creations are observed according to the emotional integration in advertising, in particular the salience of depicted emotion, the presence of central information related to the brand and the explicitness of message about hedonic attributes of consumption. Interestingly, the impact of ad characteristics appears to be moderated by some individual variables, especially the need of emotion, the tolerance of ambiguity, the need of structure and the need of cognition.

Keywords: emotions reactions, emotional integration, psychological variables, advertising effectiveness.

Introduction

Au cours des années 80, les théoriciens du comportement du consommateur ont redécouvert le concept d'émotion, en s'opposant à l'approche cognitive qui avait dominé la recherche dans la décennie 70. En matière de communication, cette démarche s'est soldée par un intérêt croissant pour le rôle des émotions dans la publicité, et la prise en compte de l'émotion comme médiateur de persuasion publicitaire, parallèlement aux croyances (Lajante, 2015). La mise en cause des modèles de persuasion publicitaire à dominance cognitive constitue alors le point de départ du regain d'intérêt pour l'émotion en publicité. Les recherches publicitaires soulignent l'importance de l'émotion comme système indépendant de la cognition, et s'intéressent par conséquent à l'ensemble des "états affectifs" manifestés spontanément par les consommateurs en réponse à l'annonce. Différentes études (qui varient dans leurs résultats empiriques,

leurs méthodologies, et les stimuli publicitaires qu'elles emploient) ont contribué à montrer le rôle suffisant des réactions affectives spontanées pour expliquer l'efficacité publicitaire. (Batra et Ray, 1986 ; Derbaix et al, 2012 ; Aaker et al, 2008 ; Holbrook et al, 1991)

Mais en dépit du nombre important d'études relatives à cette thématique, L'étude du concept de réaction affective en publicité s'est caractérisée par des visions qualifiées le plus souvent de réductrices, concentrées sur un ou certains éléments au détriment d'autres (Bakalash et Riemer, 2013) d'où le constat de plusieurs zones d'ombre qui restent jusqu'à aujourd'hui non éclaircies. En effet, on remarque que face à une même publicité émotionnelle, les réponses individuelles peuvent varier considérablement d'un individu à un autre. De même une même personne peut être fortement touchée par une publicité émotionnelle et être totalement indifférente face à une autre publicité qui utilise le même registre émotionnel. La majorité des travaux ont cherché la réponse soit dans les caractéristiques intrinsèques des stimuli publicitaires (Becheur et al, 2009), soit dans les caractéristiques personnelles du récepteur (Dafonte-Gomez, 2014 ; Poncin, 2004). Notre recherche a essayé de pousser encore plus loin la réflexion, en combinant ses deux axes de recherche et en essayant de voir quelle mise en scène de l'émotion en publicité affecte le plus chaque profil du consommateur selon ses caractéristiques psychologiques.

Notre recherche veut montrer que la façon de mettre en scène l'émotion dans l'annonce a un impact sur la nature et l'intensité des réactions émotionnelles des récepteurs mais aussi sur les variables de l'efficacité publicitaire. Notre intérêt se porte plus particulièrement sur les caractéristiques de mise en scène de l'émotion qui donneraient une opportunité plus ou moins grande aux consommateurs de détecter des stimuli émotionnels dans l'annonce mais surtout d'utiliser l'émotion ainsi perçus dans la construction de leur attitude envers l'annonce et la marque mais aussi leur intention d'achat en associant l'émotion ainsi perçue à la marque. (Kemp et al, 2013)

On s'est intéressé plus particulièrement à la variable intégration émotionnelle qui est définie comme une caractéristique particulière de la mise en scène de l'émotion dans la publicité. Elle désigne les publicités dans lesquelles un ou plusieurs personnages expriment des émotions, ces émotions étant dues à la consommation du produit sponsorisé par la publicité (MacInnis et Stayman, 1993). On va étudier les trois notions qui relèvent de l'aspect intégré et/ou ambigu de la mise en scène de l'émotion dans l'annonce (Esparcieux, 1995), à savoir la saillance de l'émotion montrée dans l'annonce, la présence d'information visuelle sur les produits de la marque et la clarté du rôle de l'émotion dans le message publicitaire et leurs impacts sur les variables de l'efficacité publicitaire.

Nous tentons également de montrer que les récepteurs ne réagissent pas tous de la même manière face à une publicité émotionnelle et que cela dépend grandement de leurs profils psychologiques. Pour se faire nous allons étudier l'impact des variables psychologiques des récepteurs, à savoir leur besoin d'émotion, leur besoin de structuration, leur besoin de cognition et leur tolérance à l'ambiguité, sur le processus déclenché par un stimulus publicitaire émotionnel.

Cadre Conceptuel et Hypotheses

1. Les variables indépendantes, les caractéristiques de la mise en scène de l'émotion dans l'annonce :

Les études antérieures (Allen et Padgette, 1997) ont montré que la façon de mettre en scène (ou décrire visuellement) l'émotion dans l'annonce a un impact sur le mode de traitement émotionnel de la publicité. Notre intérêt se porte plus particulièrement sur les caractéristiques de mise en scène de l'émotion qui donnent une opportunité plus ou moins grande aux consommateurs : de "détecter" des stimuli affectifs dans l'annonce ; d'utiliser l'émotion ainsi perçue dans les raisonnements intellectuels au sujet du contenu publicitaire. Deux concepts paraissent intéressants à considérer dans ce but : l'aspect intégré de l'annonce et son aspect ambigu. (Olson et Reynolds, 1983)

La variable intégration émotionnelle est définie comme une caractéristique particulière de la mise en scène de l'émotion dans la publicité. Elle désigne les publicités dans lesquelles un ou plusieurs personnages

expriment des émotions, ces émotions étant dues à la consommation du produit sponsorisé par la publicité. Il ne s'agit plus d'étudier la réaction émotionnelle du consommateur pendant l'exposition publicitaire, mais plutôt la façon dont le consommateur peut percevoir une réaction émotionnelle chez les personnages dans la publicité, et peut traiter cette réaction émotionnelle comme une information portant sur l'expérience de consommation du produit. (MacInnis et Kamp, 1995)

Premièrement, l'annonce possède un aspect intégré lorsque le contenu publicitaire est organisé autour d'un ou plusieurs thèmes principaux. Cette disposition vise à faciliter la compréhension du message publicitaire, mais également à mettre en avant les aspects les plus importants dans la communication. L'émotion peut faire partie des thèmes mis en exergue par la publicité, ce qui doit faciliter sa prise en compte par les consommateurs lors du traitement de l'information publicitaire. (Evrad et Aurier 1996 ; Holbrook et al. 1984 ; Holbrook et Hirschman, 1982).

L'aspect intégré d'un stimulus augmente généralement sous l'effet de trois caractéristiques : (Streufert et Schroder, 1965)

(a) Le caractère saillant (c'est-à-dire apparent, évident) des informations relatives aux thèmes centraux.
(b) Le caractère confirmatoire (redondance entre les éléments d'information qui se confirment les uns les autres). (Karlins et Lamm, 1967)
(c) L'aspect structuré, de telle sorte que toutes les informations communiquées sont rattachées et expliquées par rapport aux thèmes principaux, et hiérarchisées en fonction de leur degré d'importance par rapport à ces thèmes. (Neimeyer et al, 1983)

Deuxièmement, l'annonce possède un aspect ambigu lorsque le message publicitaire est libellé de manière équivoque plutôt que de manière claire (Sieber et Lanzetta, 1964). En choisissant l'ambiguité, l'annonceur évite d'imposer "trop" directement ses arguments aux consommateurs. Il les laisse faire preuve d'"imagination" ou d'"abstraction". Ainsi une émotion peut être montrée dans l'annonce (par exemple une émotion vécue par un personnage), sans que son rôle (notamment son rôle par rapport à la consommation de la marque) ne soit clairement défini. Ce type de communication incite les consommateurs à donner eux-mêmes un sens à l'émotion montrée dans la publicité. Un message est plus généralement considéré comme ambigu lorsque qu'il est équivoque (admet des sens ou interprétations multiples), fragmenté, incomplet, ou incertain (s'exprime comme une fonction de probabilité quant à sa signification et ses implications). (Norton, 1975)

Dans une étude sur le rôle du produit dans la publicité, MacInnis et Stayman (1993) ont défini et mesuré le concept d'intégration émotionnelle, qui est définie par "la mesure dans laquelle l'utilisation, la non-utilisation ou l'utilisation abusive ou mauvaise du produit est décrite comme une cause des émotions ressenties par les personnages humains, animaux ou dessinés, dans la publicité" (Espacieux, 1995). MacInnis et Stayman (1993) puis MacInnis et Kamp (1995) distinguent les annonces dans lesquelles la marque est clairement montrée comme la cause de l'émotion de l'utilisateur (annonces à forte "intégration émotionnelle"), et celles dans lesquelles le lien entre l'émotion de l'utilisateur et la marque n'est pas clairement établi (annonces à faible "intégration émotionnelle").

Dans le cadre d'une communication qui montre de l'émotion, l'information sur le produit est critique, car elle permet de montrer l'existence d'un lien entre l'émotion décrite dans l'annonce et la consommation de la marque (Braun, 1999). A cet effet, le produit doit occuper une place centrale dans la publicité pour que celle-ci soit efficace. Pour prendre en compte la question du degré de centralité du produit dans le contenu publicitaire, MacInnis et Stayman (1993) définissent un concept d'***intégration focale***, ce dernier désigne "la mesure dans laquelle le publicitaire assigne au produit un rôle de premier plan dans l'action, l'argumentaire, ou la présentation publicitaire" (forte intégration focale), ou au contraire un "un rôle d'arrière-plan, d'élément contextuel" (faible intégration focale). Cette définition se fonde sur les rôles joués par le produit dans la vie des consommateurs établis par Holman (1986), dont la publicité fait l'écho.

Holman (1986) a décliné les rôles que le produit peut jouer dans la vie des consommateurs. Il accorde

au produit un degré de centralité d'autant plus élevé que la possession du produit est un moyen pour l'individu d'exprimer sa personnalité, ou qu'il développe à l'égard du produit une relation exclusive. Il est à signaler que le produit est central lorsqu'il entretient un lien étroit avec le "soi" du consommateur.

Le concept d'intégration focale tel qu'il est défini comporte plusieurs limites : Premièrement, le produit (ou une partie du produit) peut être occulté du visuel publicitaire, et pourtant son absence ne fait que souligner l'importance de ce dernier dans la compréhension du message. Deuxièmement, la centralité du produit définie sur la base des rôles de Holman (1986) s'applique seulement à des publicités, où une tranche de vie de l'utilisateur est représentée (et dans laquelle le produit joue un rôle). A la place des effets de l'intégration focale, il est préférable d'étudier les effets de la présence (plutôt que l'absence) d'information visuelle sur les produits de la marque dans l'annonce. Celle-ci a des répercussions importantes sur le traitement de l'annonce, en particulier sur la mise en relation de l'émotion vécue ou perçue dans l'annonce avec la marque. (Braun, 1999)

En troisième lieu, on considère le problème de ***clarté du rôle de l'émotion dans le message publicitaire***. Cette notion permet d'observer les effets des annonces qui utilisent clairement l'émotion comme un argument publicitaire, contre celles qui suggèrent (mais sans le clarifier) un rôle pour l'émotion dans le contenu publicitaire. La clarté du message peut venir de son contenu univoque (ou sans ambiguité). Elle peut également venir de son contenu intégré, lorsque la présence des différents éléments d'informations publicitaires s'explique par un thème commun (ainsi le fait de montrer de l'émotion est justifié par une idée que l'annonceur veut faire passer et qu'il met par ailleurs en évidence). (Esparcieux et Ben Miled, 1997)

Une information est claire lorsqu'il n'a y a pas d'équivoque concernant son contenu ou sa signification. A l'évidence, il n'existe pas de clarté absolue de l'information, mais seulement des niveaux de clarté plus ou moins importants selon la façon dont l'information est communiquée. Le concept de clarté est intéressant, dès lors que le manque de clarté d'un message renforce sa complexité, et laisse place à l'abstraction, à la créativité des individus pour compléter l'information. Il a donc des répercussions sur l'élaboration des consommateurs face à l'annonce. (Sawyer et Howard, 1991)

MacInnis et Stayman (1993) et MacInnis et Kamp (1995) ont montré que les annonces à forte intégration émotionnelle génèrent des réactions émotionnelles plus fortes et sont généralement plus efficace que les annonce à faible intégration émotionnelle, bien que MacInnis et Stayman (1993) n'obtiennent pas de différences significatives d'attitude à l'égard de la marque face à ces stimuli, lorsque l'émotion montrée dans l'annonce est positive. Le fait que l'information publicitaire soit focalisée (ou centrée) sur la marque semble être une condition importante pour que les consommateurs construisent une représentation favorable de cette dernière (Baumgartner, Sujan et Bettman, 1979). Néanmoins, les résultats que l'on tire de cette étude empirique sont relativement limités, dès lors que l'intégration émotionnelle n'a pas été manipulée expérimentalement mais simplement mesurée, de même que la tonalité des publicités.

Nous allons entreprendre, dans le cadre de cette recherche, une étude des mécanismes de persuasion de la publicité sous des conditions d'intégration émotionnelle forte versus faible (Esparcieux, 1995). Il s'agit d'investir le rôle de l'intégration émotionnelle dans la persuasion publicitaire, et de le distinguer du rôle des sentiments personnellement ressentis par le consommateur pendant la publicité. Par rapport à l'analyse de MacInnis et Stayman (1993), on cherche à formaliser les liens entre l'intégration émotionnelle et les variables de persuasion : émotions ressenties pendant l'exposition, attitudes à l'égard de la publicité et du produit et intention d'achat. On propose alors de confirmer cette même relation dans un contexte tunisien à travers des publicités magazines sur un même parfum.

Au final, nous supposons que les publicités qui possèdent un aspect intégré engendrent des émotions positives plus fortes et seraient donc plus efficaces que les publicités qui possèdent un aspect ambigu.

2. Les variables psychologiques individuelles :

Les effets d'interaction entre l'affectif et le cognitif ouvrent des possibilités de segmentation des cibles de communication, et ce à partir du croisement des besoins de cognition (fort/faible) et d'affection (fort/faible) des consommateurs. Sojka et Giese (1997) définissent quatre profils de répondants: (1) les "penseurs" traitent l'information de manière rationnelle, et se fient par conséquent aux informations objectives; (2) les "sentimentaux" jugent un objet sur la base des sentiments qu'il évoque ; (3) les "combinateurs" sont sensibles à la fois aux arguments affectifs et cognitifs, de telle sorte qu'une communication qui combine ces deux types d'informations est plus persuasive qu'une communication qui s'appuie sur une seule dimension ; (4) les "passifs" sont des individus non impliqués (indifférents), que les modes de persuasion affectif et cognitif ne parviennent pas à convaincre. Il y a lieu de retenir dans cette recherche quatre types de caractéristiques individuelles modératrices des réponses affectives des récepteurs face à une annonce publicitaire : le besoin d'émotion, le besoin de cognition, la tolérance à l'ambiguité et le besoin de structuration. (Vanhamme et Chumpitaz Caceres, 2003)

Les styles cognitifs sont définis comme des "tendances individuelles stables. Ils s'expriment dans la manière dont les individus abordent et traitent l'information qui leur parvient" (Sternberg et Grigorenko, 1997). Dans l'étude actuelle, il est envisagé, précisément, un style cognitif lié au traitement de l'information ambiguë : ***la tolérance à l'ambiguité***, ou la tendance à ne pas être troublé par une situation ou un stimulus ambigue et à le considérer comme étant plus désirable, ils sont donc attirés par ce type de stimulus (Budner, 1962). Celle-ci permet de comprendre comment les consommateurs peuvent réagir aux annonces qui mettent en scène l'émotion de manière plus ou moins saillante, qui fournissent un message explicite ou implicite à propos du rôle de l'émotion dans la consommation de la marque, ou omettent de donner une information importante à propos des produits.

Par ailleurs, il est à considérer deux besoins de rationalisation de l'information complexe ou problématique : ***le besoin de cognition***, ou tendance à s'engager, par plaisir, dans un processus de raisonnement poussé (Cacioppo et Petty, 1982); ***le besoin individuel de structure***, ou la tendance à produire des raisonnements simplifiés pour sortir d'une situation problématique (Neuberg et Newsom, 1993). Il est à noter que les besoins de rationalisation de l'information sont en partie instables, car ils subissent des variations intra-individuelles ou contextuelles : au cours de sa vie ou selon les situations rencontrées, un individu peut se positionner différemment sur un même besoin de rationalisation. (Cacioppo et Crites, 1996)

Le besoin d'émotion désigne la tendance des individus à utiliser l'émotion dans leurs rapports avec le monde. Par rapport aux autres caractéristiques individuelles liées à l'émotion, ce concept présente l'avantage d'être le plus englobant car il traite à la fois (Raman, Chattopadhyay et Hoyer, 1995) : (a) du rôle de motivation de l'émotion (le besoin d'émotion oriente les préférences et décisions des individus par rapport à des situations/objets qui contiennent de l'émotion) ; (b) de son rôle d'état affectif subjectif (le besoin d'émotion détermine la volonté de manifester des réactions affectives plus ou moins intenses face aux événements) ; (c) et de son rôle d'information (le besoin d'émotion intervient dans la perception et l'évaluation des événements sous un angle émotionnel). Le besoin d'émotion présente donc un double intérêt pour cette étude : il influence à la fois les réactions affectives spontanées des consommateurs face aux annonces qui mettent en scène de l'émotion, et la prise en compte de l'émotion le long du processus de traitement de l'information publicitaire.(Safraoui, 2008 ; Kidwell, Hardesty et Childers, 2008)

Nous considérons le style cognitif de tolérance à l'ambiguité, les besoins de rationalisation, et le besoin d'émotion comme étant indépendants. Ainsi, l'intolérance à l'ambiguité peut engendrer une tendance à rationaliser l'information et ce, pour résoudre l'incertitude rencontrée : celle-ci peut s'exprimer par des stratégies de simplification de l'information (qui découle d'un fort besoin de structure), ou par des stratégies d'élaboration cognitive et ce, pour contrôler l'incertitude (qui découle d'un fort besoin de cognition) (Vannoy, 1965). Cependant, l'intolérance (plutôt que la tolérance) à l'ambiguité inclut deux autres composantes sans rapport avec les stratégies de traitement de l'information : (1) une tendance à vivre l'incertitude de manière négative (plutôt que positive) sur un plan émotionnel (Budner, 1962) ; (2) une fermeture (plutôt qu'une ouverture) d'esprit. (Rydell et Rosen, 1966)

Il est à constater que les individus qui ont une faible tendance à la simplification (besoin de structure)

peuvent avoir une forte tendance à l'élaboration (besoin de cognition) et inversement. Néanmoins, cette opposition n'est pas systématique : les individus peuvent choisir une troisième tendance, qui est l'évitement de l'information (c'est-à-dire ne pas la traiter), auquel cas, leur besoin de structure est faible, ainsi que leur besoin de cognition. Il est à noter que Neuberg et Newsom (1993), obtiennent empiriquement des résultats qui montrent que les besoins de structuration et de cognition sont partiellement (et inversement) corrélés. Il a lieu de remarquer qu'il n'existe pas d'opposition entre le besoin d'émotion et le besoin de cognition, mais plutôt une possibilité de combinaison de ces éléments. (Raman, Chattopadhyay et Hoyer, 1995)

Pour résumer, la définition de la tolérance à l'ambiguité est la tendance des individus à ne pas être troublé par un stimulus ambigu, à le considérer comme étant plus désirable et ils sont donc attirés par ce type de stimulus. Cette variable est mesurée dans le cadre de cette étude grâce à l'échelle d'Espacieux (1995). A ce titre, nous supposons que la tolérance à l'ambiguïté du récepteur agit sur le lien intégration émotionnelle et réaction émotionnelle du récepteur mais aussi sur le lien réaction émotionnelle du récepteur et efficacité publicitaire.

Le besoin d'émotion est aussi définit comme la tendance à apprécier des situations émotionnelles, des stimuli émotionnels, et la tendance à préférer l'utilisation d'émotion dans les différentes communications avec les autres. Cette variable est mesurée dans le cadre de cette recherche grâce à l'échelle de Raman et al (1995). Le besoin d'émotion influence à la fois les réactions émotionnelles spontanées des consommateurs face aux annonces émotionnelles, mais aussi la prise en compte de l'émotion tout au long du processus de traitement de l'information publicitaire (Poncin, 2004). Par conséquent, le besoin d'émotion est supposé agir sur le lien intégration émotionnelle et réaction émotionnelle du récepteur mais aussi sur le lien réaction émotionnelle du récepteur et efficacité publicitaire.

En ce qui concerne le besoin de rationalisation, on va étudier deux types de relations, ceux qui sont rattachées au besoin de structuration et ceux qui sont rattachées au besoin de cognition. Le besoin de structuration est la tendance à produire des raisonnements simplifiés pour se sortir d'une situation problématique. Cette variable est mesurée dans le cadre de cette recherche grâce à l'échelle PNS par Neuberg et Newsom (1993). Les recherches ont montré que face à des annonces désintégrées, les individus qui possèdent un fort besoin de structuration devraient ressentir des émotions plus intenses envers l'annonce que les individus à faible besoin de structuration. (Batra et Stephens, 1994). Nous supposons alors que le besoin de structuration du récepteur agit sur le lien intégration émotionnelle et réaction émotionnelle du récepteur mais aussi sur le lien réaction émotionnelle du récepteur et efficacité publicitaire.

Le besoin de cognition se réfère quant à lui à une tendance et à un plaisir intrinsèque à s'engager dans un traitement de l'information qui demande des efforts (Baumgardner, 1993). Les recherches ont montré que les individus qui ont un besoin de cognition élevé, procèdent à un traitement systématique des arguments du message, et que les individus à faible besoin de cognition s'engagent dans des traitements peu élaborés et préfèrent les éléments périphériques et holistiques de la communication (Ferraz De Souza, 2006). Par conséquent, le besoin de cognition est supposé agir sur le lien intégration émotionnelle et réaction émotionnelle du récepteur mais aussi sur le lien réaction émotionnelle du récepteur et efficacité publicitaire.

L'ensemble des relations que nous venons d'expliciter, est repris au niveau du modèle que nous proposons de testé dans le cadre de cette recherche. (Figure 1).

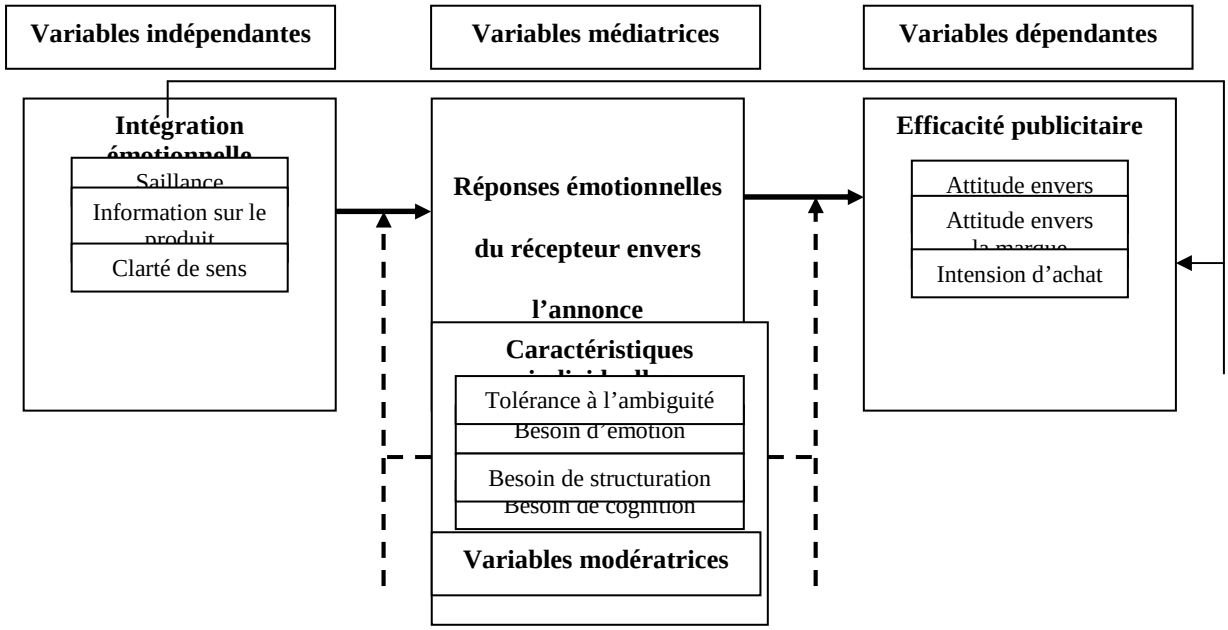


Figure 1 : Modèle conceptuel de la recherche

Methodologie

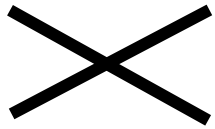
Avant de présenter les résultats, nous exposons ci-après les stimuli utilisés, les échelles de mesure, ainsi que les tests préliminaires relatifs à la validation des mesures et la vérification des manipulations.

Les Stimuli

En combinant les trois caractéristiques de la variable Intégration Emotionnelle, à savoir, la saillance de l'émotion, la présence d'information centrale sur le produit et la clarté du rôle de l'émotion dans le message, nous avons obtenu cinq catégories d'annonces comme l'illustre le tableau suivant :

Tableau 1 : Le contenu visuel des publicités testées et ses conséquences sur la façon dont l'émotion est montrée dans l'annonce

	Saillance forte		***Saillance forte***
Présence ou absence d'information central	**Absence de personnage d l'annonce**	**Représentation d'un personnage (utilisateur) train de consommer le pr**	**Représentation d'un personnage (utilisateu potentiel) qui ne consom pas le produit**
Présence du packshot d produit dans l'annonc	**(1)** L'annonce montre q l'émotion positive fait parti qualités intrinsèques du pr (ou du contexte de consommation)	**(2)** L'annonce montre clairement les conséquen hédonistes de la consomma du produit par l'utilisate	**(3)** L'annonce montre l'ém positive de l'utilisateur pote du produit, le produit lui-m mais ne décrit pas de lien e ces éléments

Absence de représentati visuelle du produit dar l'annonce	**(5)** L'émotion vient d'un c ou d'un contexte congruent le produit ou sa consomma mais le produit lui-même r pas montré		**(4)** L'annonce montre l'ém positive ressentie par u personnage (qui peut faire f d'utilisateur du produit

Clarté forte ***Clarté faible***

Trois experts ont été mis à contribution, dont deux enseignants en marketing et un créatif publicitaire, afin de sélectionner les publicités à tester à partir de 211 publicités magazines pré-sélectionnées. La majorité des jugements s'est effectuée au cours d'un seul et même entretien individuel de plusieurs heures. Un guide fourni aux trois juges a permis de clarifier le travail de classification qui leur était demandé. Notre méthode de classification des publicités s'est inspirée du système de caractérisation des annonces émotionnelles proposé par De Pelsmacker et Geuens (1997).

Dans un premier temps, la tâche des experts a consisté à différencier les annonces en fonction de leur contenu visuel. Les juges ont dû classer les publicités étape par étape en fonction des trois critères de l'intégration émotionnelles. Dans un deuxième temps, les experts évaluent le contenu émotionnel des publicités. Ils doivent d'abord déceler si l'annonceur a voulu mettre (ou non) de l'émotion dans l'image publicitaire. Puis ils doivent caractériser les images dans lesquelles l'annonceur a souhaité mettre de l'émotion, en spécifiant leur valence et leur intensité.

La difficulté réside dans la sélection des annonces, dans le fait de choisir pour le maximum de catégories d'annonces définies grâce aux choix d'opérationnalisation, des caractéristiques de mise en scène de l'émotion. Le choix final s'est arrêté sur cinq versions de la publicité d'un même parfum : (Annexe)

(1) La publicité utilisée dans la condition expérimentale n°1 est une publicité à forte intégration émotionnelle. Cette publicité est caractérisée par la présence d'information visuelle du produit (présence du packshot du parfum), par une forte saillance de l'émotion (présence d'une actrice qui exprime des émotions positives) et par une forte clarté du message (l'actrice est clairement montrée en train de vivre de l'émotion positive pendant l'utilisation du parfum).

(2) La publicité utilisée dans la condition expérimentale n°2 est une publicité à moyenne intégration émotionnelle. Cette publicité est caractérisée par la présence d'information visuelle sur le produit, par une forte saillance de l'émotion mais par un manque de clarté du message (l'annonce ne fait que suggérer l'existence d'un lien entre l'émotion positive de l'actrice et l'utilisation du parfum puisqu'il n'y a aucun contact physique entre les deux).

(3) La publicité utilisée dans la condition expérimentale n°3 : est une publicité à faible intégration émotionnelle. Cette publicité est caractérisée par l'absence d'information visuelle sur le parfum (absence du packshot du parfum), par une forte saillance de l'émotion mais par un manque de clarté du message.

(4) La publicité utilisée dans la condition expérimentale n°4 : est une publicité à faible intégration émotionnelle. Cette publicité est caractérisée par la présence d'information visuelle du parfum, par une faible saillance de l'émotion (absence de la femme qui exprime des émotions positives) et par un manque clarté du message.

(5) La publicité utilisée dans la condition expérimentale n°5 : est une publicité ambigue sans aucune intégration émotionnelle. Dans cette publicité, l'émotion vient d'un objet ou d'un contexte congruent avec le produit. A savoir, une main qui tient une boule de lumière qui suggère le parfum sans le montrer. Cette publicité est donc caractérisée par l'absence d'information visuelle du parfum, par une faible saillance de l'émotion et par un manque de clarté du message.

Mesures :

Pour tous les items de mesure, nous avons choisi d'utiliser des échelles de type Likert en 5 points (1 : Pas du tout d'accord, 2 : Plutôt pas d'accord, 3 : Ni d'accord ni pas d'accord, 4 : Plutôt d'accord et 5 : Tout à fait d'accord). Pour mesurer les réactions émotionnelles des récepteurs lors du visionnage des publicités, nous avons utilisé l'échelle de De Barnier (2002) qui est une traduction et une adaptation de l'échelle de Richin (1997), le Consumption Emotion Set (CES) et qui se compose 43 items. L'attitude envers l'annonce des récepteurs a été mesurée par l'échelle de De Barnier (2002) qui est composée de 6 items et qui a été inspirée de l'échelle Machleit et Wilson (1988). L'attitude envers la marque a été mesurée par l'échelle de De Barnier (2002) qui comporte 3 items et qui a été inspirée par l'échelle d'Edell, Goodstein et Moore (1990). Nous avons évalué l'intention d'achat des répondants par l'échelle d'Esparcieux (1995) qui se compose de 4 items. Le besoin d'émotion des répondants a été mesuré par l'échelle développée par Raman, Chattopadhyay et Hoyer (1995) et traduite par Safraoui en 2008 (6 items). Le besoin de cognition des répondant été évalué grâce à l'échelle de Cacioppo, Petty et Kao (1984), traduite et testée en 2005 par D'Astous et Deschênes (6 items). L'échelle PNS (Personal Need for Cognition) de Neuberg et Newsom (1993) traduite en français par Espacieux en 1995 (6 items), nous a permis d'évaluer le besoin de structuration des répondants. Pour finir, la tolérance à l'ambiguité a été mesurée par l'échelle de Budner (1962), traduite en français par Ben Miled (1992) (9 items).

L'échantillon

Un échantillon de convenance constitué de 260 personnes a été interrogé dans l'enquête finale. Toutefois, pour des raisons de non-conformité des questionnaires, nous avons dû éliminer quatre observations ce qui réduit la taille de l'échantillon à 256 personnes. Les répondants ont été invités de manière aléatoire à chacune des cinq cellules du traitement.

Le déroulement de l'expérimentation

Les annonces étudiées ont été incorporées dans un extrait de magazine de divertissement, ainsi que cinq publicités "leurres". Les annonces étudiées ont été insérées en page de droite faisant face à un article, conformément aux principes de mise en page généralement pratiqués dans les magazines. Certaines doubles pages peuvent, néanmoins, être occupées par des séries d'images ou d'articles. Cette procédure a été répétée cinq fois pour prendre en compte l'ensemble des annonces manipulées (cinq magazines factices ont été produits). La place des articles et des publicités leurres n'a pas été modifiée, mais seulement celle des publicités étudiées. Celles-ci sont insérées selon un ordre aléatoire, de manière à éviter les effets d'ordre et de récence. Les publicités "leurres" portaient sur des catégories de produits différentes de celles qui sont testées. Celles-ci sont choisies de façon à posséder un faible contenu émotionnel : elles servent alors de publicités de "contrôle". Cette manipulation permet d'augmenter la crédibilité de l'enquête en présentant la publicité comme une annonce réelle et d'introduire un certain univers de concurrence publicitaire et plus généralement un univers informatif.

L'expérimentation finale s'est déroulée comme suit : Une première partie du questionnaire est administrée au répondant afin de mesurer ses tendances individuelles à l'égard d'un stimulus, à savoir son besoin d'émotion, son besoin de structuration, son besoin de cognition et sa tolérance à l'ambiguité. Une fausse revue est feuilletée par le répondant dans un ordre chronologique. L'enquêteur s'arrête sur la dernière annonce du magazine. Une deuxième partie du questionnaire est administrée dans les secondes suivantes à l'exposition publicitaire, afin d'évaluer les réactions affectives ressenties spontanément face à l'annonce. Le répondant est invité à répondre de manière spontanée et sans réfléchir. Le questionnaire auto-administré est un moyen d'obtenir des réponses anonymes, favorisant la sincérité. Une troisième partie du questionnaire est présentée au répondant afin de mesurer son attitude envers la publicité, son attitude envers la marque et son intension d'achat.

Mesure de la fiabilité et la validité des échelles :

L'analyse exploratoire a été conduite sous SPSS 11. La dimensionnalité des échelles de mesure a été évaluée par une analyse en composantes principales (ACP) avec rotation Varimax. Les items qui ont une faible contribution factorielle ou ceux dont les contributions sont partagées entre plusieurs axes, ont été éliminé. Tous les items retenus ont des contributions factorielles supérieures à 0,7. La fiabilité et la cohérence interne des items constituant une seule dimension ont été évaluées par le coefficient alpha de Cronbach. Toutes les variables étudiées ont des coefficients alpha acceptables. Les échelles de mesure des variables attitude envers l'annonce, attitude envers la marque et intention d'achat sont tous unidimensionnelles. L'échelle de mesure des réactions émotionnelles est composée de trois dimensions avec des valeurs propres supérieures à 1, respectivement 14.012 ; 4.990 et 1.656 ; qui expliquent plus de 73.781 % de la variance totale de l'échantillon. La première dimension regroupe les items relatifs aux réactions émotionnelles positives. La deuxième dimension regroupe les items relatifs aux réactions émotionnelles d'éveil. (Formel et Larker, 1981)

Dans une deuxième phase, une analyse factorielle confirmatoire a été réalisée sous Lisrel 8.3 afin de tester les validités discriminante et convergente des construits (Roussel, Durrieu, Campoy et Akremi, 2002). À l'issue de cette étape toutes les variables ont été retenues vu que les contributions factorielles sont acceptables. Les analyses de la validité des construits donnent des résultats acceptables. Les indices d'ajustement sont considérés comme bons, étant donné la complexité du modèle et la taille de l'échantillon relativement faible par rapport aux autres études faites sur le TAM. Le premier indice (*Chi-2/ddl*) satisfait le seuil préconisé de 2 à 5. Le RMSEA est inférieur au seuil plafond de 0,08. Le CFI est supérieur au seuil critique de 0,9. Le GFI peut être considéré comme satisfaisant dans la mesure où sa valeur est supérieure au seuil préconisé de 0,9. L'ajustement du modèle de mesure est par conséquent considéré satisfaisant. (Bergkvist et Rossiter, 2008)

Resultats

Impact de l'intégration émotionnelle sur les réactions émotionnelles des répondants et sur l'efficacité publicitaire :

Afin de vérifier l'effet de la mise en scène de l'émotion dans la publicité à travers la variable intégration émotionnelle sur les réactions émotionnelles des répondants et sur les variables de l'efficacité publicitaire, nous avons eu recours au test d'égalité des moyennes. Ce test permet de tester l'égalité de la moyenne d'une variable sur deux groupes d'observations définis par une variable qualitative. On émet deux hypothèses : l'hypothèse H0 selon laquelle il y a égalité des moyennes et l'hypothèse H1, selon laquelle, il n'y a pas d'égalité des moyennes entre les deux populations.

Nous calculons, ensuite, le test de Student en partant des caractéristiques des deux groupes d'expérimentation. Si ce test est significatif, nous pouvons procéder au test d'égalité des moyennes. Dans ce cas de figure, nous relevons que si la différence de moyenne appartient à l'intervalle de confiance, l'hypothèse neutre H0, selon laquelle il y a égalité des moyennes est rejetée et l'hypothèse H1, selon laquelle il n'y a pas égalité des moyennes, est acceptée. Si par contre la différence de moyenne n'appartient pas à l'intervalle de confiance, l'hypothèse H0, selon laquelle il y a égalité des moyennes, est acceptée et l'hypothèse H1 est rejetée.

Afin de mieux cerner l'impact de la variable intégration émotionnelle, nous avons étudié séparément l'effet de chaque composante de la mise en scène de l'émotion, à savoir : la saillance de l'émotion, la clarté de l'émotion et la présence d'information visuelle du produit, sur les réponses émotionnelles positives des répondants et sur les variables de l'efficacité publicitaire.

L'effet de la saillance sur les réactions émotionnelles et sur l'efficacité publicitaire :

Afin de vérifier l'influence positive de la saillance de l'émotion sur les réactions émotionnelles des répondants et sur les variables de l'efficacité publicitaire, nous avons réalisé un test d'égalité des moyennes

de la variable émotions positives et des variables de l'efficacité publicitaire entre le groupe d'expérimentation n°2 et le groupe d'expérimentation n°4. En effet, l'expérimentation n°2 est caractérisée par : la présence d'information visuelle du produit, la forte saillance de l'émotion et la non clarté de l'émotion montrée dans l'annonce. Par contre, l'expérimentation n°4 est caractérisée par : la présence d'information visuelle du produit, la non saillance de l'émotion et la non clarté de l'émotion dans l'annonce. La seule variable qui différencie ces deux groupes est la variable saillance de l'émotion.

Suite au test d'égalité des moyennes, nous remarquons que les différences des moyennes des émotions positives et des variables de l'efficacité publicitaire appartiennent tous aux intervalles de confiance. L'hypothèse neutre selon laquelle il y a égalité des moyennes est donc rejetée. En effet, il y a bien une différence des moyennes pour la variable émotions positives et pour les variables de l'efficacité publicitaire, à savoir l'attitude envers l'annonce, l'attitude envers la marque et l'intention d'achat et ce, entre le groupe d'expérimentation n°2 et le groupe d'expérimentation n°4. On peut donc conclure que les publicités qui montrent les émotions de manière saillante engendrent plus d'émotions positives et provoque des attitudes envers l'annonce, des attitude envers la marque et des intention d'achat plus favorable que les annonces qui montrent l'émotion de manière peu saillante.

L'effet de la clarté du rôle de l'émotion sur les réactions émotionnelles et sur l'efficacité publicitaire :

Afin de vérifier l'impact positif de la clarté du rôle de l'émotion sur les réactions émotionnelles des répondants et sur les variables de l'efficacité publicitaire, nous avons réalisé un test d'égalité des moyennes des émotions positives et des variables de l'efficacité publicitaire entre le groupe d'expérimentation n°1 et le groupe d'expérimentation n°2. En effet, l'expérimentation n°1 est caractérisée par : la présence d'information visuelle du produit, la forte saillance de l'émotion et la clarté de l'émotion dans l'annonce. Par contre, l'expérimentation n°2 est caractérisée par : la présence d'information visuelle du produit, la forte saillance de l'émotion et la non clarté de l'émotion dans l'annonce. La seule variable qui différencie ces deux groupes est la variable clarté de l'émotion.

Suite au test d'égalité des moyennes, nous remarquons que les différences des moyennes des émotions positives et des variables de l'efficacité publicitaire appartiennent tous à l'intervalle de confiance. L'hypothèse neutre selon laquelle il y a égalité des moyennes est donc rejetée. En effet, il y a bien une différence des moyennes pour la variable émotion positive et les variables de l'efficacité publicitaire entre le groupe d'expérimentation n°1 et le groupe d'expérimentation n°2. Nous pouvons donc conclure que les publicités qui montrent les émotions de manière claire engendrent plus d'émotions positives et provoque des attitudes envers l'annonce des attitude envers la marque et des intention d'achat plus favorable que les annonces qui montrent l'émotion de manière peu claire.

L'effet de la présence d'information visuelle sur le produit sur les réactions émotionnelles et sur l'efficacité publicitaire :

Afin de vérifier l'effet positif de la présence d'information visuelle sur le produit sur les réactions émotionnelles des répondants et sur les variables de l'efficacité publicitaire, nous avons réalisé un test d'égalité des moyennes des émotions positives et des variables de l'efficacité publicitaire entre le groupe d'expérimentation n°2 et le groupe d'expérimentation n°3. En effet, l'expérimentation n°2 est caractérisée par : la présence d'information visuelle du produit, la forte saillance de l'émotion et la non clarté de l'émotion dans l'annonce. Par contre, l'expérimentation n°3 est caractérisée par : l'absence d'information visuelle du produit, la forte saillance de l'émotion et la non clarté de l'émotion dans l'annonce. La seule variable qui différencie ces deux groupes est la variable information visuelle du produit.

Suite au test d'égalité des moyennes, nous remarquons que les différences des moyennes des émotions positives et des variables de l'efficacité publicitaire appartiennent tous à l'intervalle de confiance. L'hypothèse neutre selon laquelle il y a égalité des moyennes est donc rejetée. En effet, il y a bien une différence des moyennes pour la variable émotion positive et les variables de l'efficacité publicitaire entre le groupe d'expérimentation n°2 et le groupe d'expérimentation n°4. Nous pouvons donc conclure que les publicités qui présentent une information visuelle sur le produit de la marque engendrent plus d'émotions

positives et provoque des attitudes envers l'annonce des attitude envers la marque et des intention d'achat plus favorable que les annonces qui ne présentent pas d'information visuelle sur le produit.

Pour conclure, nous pouvons affirmer que l'impact positif de l'intégration émotionnelle sur les réactions émotionnelles des répondants et sur l'efficacité publicitaire est confirmé. En effet, les publicités qui possèdent un aspect intégré engendrent des émotions positives plus fortes, des attitudes envers l'annonce et la marque plus favorables et des intentions d'achat plus importantes que les publicités qui possèdent un aspect ambigu.

Impact des réactions émotionnelles sur l'efficacité publicitaire :

Afin de vérifier l'influence positive des réactions émotionnelles des répondants sur les variables de l'efficacité publicitaire, nous avons calculé le coefficient de corrélation des rangs ou le Rhô de Spearman. C'est un indice statistique compris entre -1 et 1 qui exprime l'intensité et le sens (positif ou négatif) de la relation monotone entre deux variables qualitatives. Il s'interprète de la même manière qu'un coefficient de corrélation de Pearson, mais contrairement à lui, il permet de mesurer non seulement les corrélations linéaires simples mais toutes les corrélations quelque soit leurs formes. Une valeur positive du Rhô de Spearman (maximum = +1) indique une variation simultanée dans le même sens, une valeur négative (minimum = -1) indique une variation simultanée en sens inverse.

Les coefficients de corrélation des rangs ou Rhô de Spearman entre les variables réactions émotionnelles positives, attitude envers le message, attitude envers la marque et intention d'achat sont tous entre 0.6 et 0.9. C'est des coefficients qui sont proche de 1, ce qui dénote des corrélations significatives entre les quatre variables et en plus ils sont positifs, ce qui indique des variations simultanées des quatre variables dans un même sens. Nous pouvons donc conclure que plus une annonce provoque des émotions positives et plus les attitudes des récepteurs envers l'annonce et la marque ainsi que leurs intentions d'achat sont élevées. De même, plus les récepteurs ont des attitudes favorables envers le message plus leurs attitudes envers la marque et leurs intentions d'achat seront élevées. Pour finir, plus les récepteurs ont des attitudes positives envers la marque et plus leurs intentions d'achat sont élevées.

Nous pouvons donc affirmer que plus une publicité provoque des émotions positives et plus l'attitude du récepteur envers l'annonce et la marque, ainsi que son intention d'achat seront favorables. De même plus le récepteur a une attitude favorable envers le message plus son attitude envers la marque et son intention d'achat seront élevées, et plus il aura une attitude favorable envers la marque et plus son intention d'achat sera élevée.

Impact des variables modératrices :

Afin de d'étudier l'impact des variables psychologiques des répondants sur la relation entre la variable Intégration Emotionnelles et les réactions émotionnelles des répondeurs mais aussi leurs impact sur la relation entre les réactions émotionnelles des répondants et les variables de l'efficacité publicitaire, nous avons eu recours à l'analyse de covariance multivariée (MANCOVA).

Cette analyse a permis de dégager une différence significative entre les groupes. Cette différence est relevée au niveau de l'impact des variables modératrices, à savoir le besoin d'émotion, besoin de cognition, le besoin de structuration et la tolérance à l'ambiguité, sur la relation entre les réponses émotionnelles positives des répondants envers l'annonce et les variables d'efficacité publicitaire des répondants, mais aussi sur la relation entre les réponses émotionnelles positives des répondants et les variables de l'efficacité publicitaire. Cette différence significative est montrée par :

- Le Lambda de Wilks : Il s'agit d'une statistique utilisée par l'Analyse Factorielle Discriminante dans le but de tester si plusieurs groupes d'observations multivariées ont des moyennes significativement différentes. Cet indicateur examine donc les différences inter-groupes au regard de l'ensemble des dimensions disponibles et prises en compte par l'analyse. Il joue donc, dans le domaine multivarié, le même rôle que la statistique *F* de l'ANOVA univariée. Les Lambda de

Willks sont tous inférieurs à 0.90 ce qui prouve qu'il existe donc des différences significatives entre les groupes.

- La plus grande racine de Roy : En effet, cet indice est acceptable dans toutes les analyses réalisées et il permet de mesurer les différences inter-groupes sur la base de la variable ayant la plus grande valeur propre parmi l'ensemble des variables.
- La trace de Pillai et la trace de Hotelling : Ces deux indicateurs sont considérés comme des extensions du Lambda de Wilks dans le sens où leurs mesures intègrent l'ensemble des variables et peuvent être approchées par la statistique F.
- Une significativité acceptable pour les relations entre les variables étudiées.
- Une différence remarquable au niveau des scores, des sommes des carrés, entre les modèles qui met en relation les réactions émotionnelles du récepteur et les variables de l'efficacité publicitaire d'une part et les réactions émotionnelles et les variables de l'efficacité publicitaire d'autre part et le modèle où les variables modératrices sont intégrées.

A la lumière de ces résultats, nous pouvons conclure que les variables psychologiques des récepteurs jouent un rôle modérateur dans la relation entre la variable intégration émotionnelle et les réactions émotionnelles des répondants mais aussi dans la relation entre les réactions émotionnelles des récepteurs et les variables de l'efficacité publicitaire.

Afin de mieux cerner le rôle modérateur des variables psychologiques des répondants, nous avons réalisé en premier lieu une classification des nuées dynamiques en fonctions de ces variables, à savoir, le besoin d'émotion, le besoin de cognition, le besoin de structuration et la tolérance à l'ambiguité. Cette classification des nuées dynamiques a permis de diviser les répondants en quatre groupes homogènes qui sont : Les Emotifs, les Cognitifs, les Emotifs/Cognitifs et les Passifs.

Afin de savoir s'il y a une différence au niveau des réactions émotionnelles des récepteurs et des variables de l'efficacité publicitaire et ce, entre les quatre groupes de classification dans les cinq conditions expérimentales, nous avons eu recours au test d'égalité des moyennes. La différence des moyennes des réactions émotionnelles, des attitudes envers l'annonce, des attitudes envers la marque et des intentions d'achat des récepteurs des quatre groupes de classification dans les cinq conditions expérimentales appartiennent tous aux intervalles de confiance. Nous pouvons donc conclure que l'hypothèse neutre selon laquelle il y a égalité des moyennes entre les différents groupes de classification est rejetée dans les cinq conditions expérimentales et ce, pour toutes les réactions émotionnelles et les variables de l'efficacité publicitaire. En effet, il y a bien des différences significatives entre les quatre groupes de classification pour les variables réactions émotionnelles et efficacité publicitaire dans les cinq conditions expérimentales. En suite, et par une étude des moyennes de chaque groupe, nous avons pu établir les conclusions suivantes :

- ***Les Emotifs :*** Ceux sont des personnes qui sont caractérisés par : un grand besoin d'émotion, un faible besoin de structuration, un faible besoin de cognition et une faible tolérance à l'ambiguité. Ils sont donc attirées par les stimuli émotionnels, vu leur fort besoin d'émotion. Ils sont incapables d'élaborer des structures cognitives simples pour comprendre des annonces complexes ou ambigues. Ils n'éprouvent, par conséquent, aucun plaisir à s'engager dans un processus de raisonnement poussé et ils rejettent donc les messages ambigus ou complexes. Les résultats trouvés confirment ce profil, vu que ce groupe a obtenu les moyennes les plus élevées au niveau des émotions positives et des variables de l'efficacité publicitaire suite au visionnage des publicités intégrées. Nous pouvons donc conclure que le groupe des Emotifs sont des personnes, pour lesquelles, la présence visuelle du produit et de son consommateur potentiel exprimant des émotions positives de préférence pendant la consommation du produit, est très importante pour que la publicité génère des émotions positives et pour être efficace. Il s'agit, par conséquent de personnes qui aiment les publicités où l'émotion est montrée de manière saillante, c'est-à-dire, des publicités qui montrent des acteurs qui expriment des émotions positives. Mais il faut aussi que cette publicité soit claire au sujet des conséquences émotionnelles de la consommation de la marque, c'est-à-dire, que l'utilisateur potentiel est clairement montré en train de vivre de l'émotion pendant la consommation de la marque. C'est ce qui explique pourquoi les Emotifs n'ont pas du tout aimé les publicités ambigues. Ils ont éprouvé suite au visionnage de ces publicités le moins

d'émotions positives, le plus d'émotion négatives et d'éveil. Donc, l'attitude envers la publicité, l'attitude envers la marque et l'intention d'achat les plus défavorables. Nous pouvons conclure que les Emotifs sont très sensibles aux publicités émotionnelles surtout lorsqu'elles sont intégrées.

- ***Les Cognitifs*** et les ***Emotifs/Cognitifs :*** les premiers sont caractérisés par : un faible besoin d'émotion, un fort besoin de structuration, un fort besoin de cognition et une grande tolérance à l'ambiguité. Les deuxième ont les mêmes caractéristiques que les Cognitifs sauf qu'ils ont aussi un fort besoin d'émotion. Les individus appartenant à ces deux groupes sont capables d'élaborer des structures cognitives simples pour comprendre des annonces complexes ou ambigues. Ils éprouvent du plaisir à s'engager dans un processus de raisonnement poussé. La seule caractéristique qui différencie ces deux profils c'est que les premiers préfèrent les stimuli émotionnels tandis que les seconds préfèrent les stimuli rationnels. D'après les résultats obtenus, nous avons remarqué que les deux groupes de personnes ont une préférence pour les publicités ambigues, à savoir, la publicité n°5 qui est une publicité dans laquelle l'émotion n'est pas exprimée par une consommatrice potentielle mais par un objet inanimé et congruent avec le produit mais le produit en lui-même n'est pas montré, et la publicité n°3 qui ne montre pas le produit mais une consommatrice potentielle du produit qui exprime des émotions positives. La seule différence entre les deux groupes est que les Emotifs/Cognitifs sont beaucoup plus sensibles aux publicités émotionnelles. Ces derniers éprouvent des émotions positives plus intenses suite au visionnage des publicités que les cognitifs. Ils ont de ce fait des scores plus élevés au niveau des variables de l'efficacité publicitaire. Nous constatons aussi que les Emotifs/Cognitifs sont des personnes qui peuvent apprécier, certes à moindre mesure, des publicités intégrées, pour lesquelles ils ont des moyennes assez élevées, au niveau des émotions positives et des variables de l'efficacité publicitaire. Nous pouvons conclure que les Emotifs/Cognitifs sont attirées par toutes les publicités émotionnelles, surtout lorsqu'elles sont ambigues.

- ***Les Passifs :*** Ils sont caractérisés par un faible besoin d'émotion, un faible besoin de structuration, un faible besoin de cognition et une faible tolérance à l'ambiguité. Ils ont un profil psychologique totalement à l'opposé des Emotifs/Cognitifs. Il s'agit d'individus qui n'aiment pas les situations et les stimuli émotionnels. Ils n'arrivent pas à élaborer des structures cognitives simples pour comprendre des annonces complexes ou ambigues. Ils n'éprouvent, par conséquence, aucun plaisir à s'engager dans un processus de raisonnement poussé et ils rejettent les situations ou les messages ambigus ou complexes. D'après les résultats obtenus, nous avons remarqué que les Passifs ont obtenu les moyennes les plus élevées au niveau des réactions émotionnelles positives et des variables de l'efficacité publicitaire pour les publicités où le packshot du produit est clairement montré, mais où il n'y a pas de consommatrice potentielle du produit qui exprime des émotions. Ces résultats montrent que les Passifs sont des personnes pour qui la présence visuelle du produit est indispensable pour que la publicité soit efficace, vu qu'ils n'aiment pas les publicités complexe et ambigues où l'image du produit n'est pas montrée mais suggérée. Il s'agit de personnes qui préfèrent les publicités avec une faible connotation émotionnelles, où on ne montre pas d'acteurs exprimant des émotions positives. Nous pouvons conclure que les Passifs sont attirés par les publicités faiblement émotionnelles et intégrées.

Discussion, Limites et Voies Futures de Recherche

Conformément à ce que nous postulions, les résultats obtenus confirment l'effet de la variable intégration émotionnelle, à savoir, la saillance de l'émotion, la clarté du rôle de l'émotion et la présence d'information visuelle du produit, sur les variables de l'efficacité publicitaire et ce à travers le rôle médiateur des réponses émotionnelles positives des répondants.

En effet, une publicité Intégrée qui est caractérisée par une forte saillante, c'est-à-dire où les acteurs expriment des émotions positives, où le packshot du produit est mis en valeur et surtout qui montre clairement les conséquences émotionnelles de l'utilisation de la marque en montrant que l'émotion positive exprimée par les acteurs est due à la consommation ou l'utilisation de la marque, est une publicité qui a une

probabilité plus importante de provoquer des émotions positives et par conséquent d'induire une attitude envers l'annonce et la marque, ainsi qu'une intention d'achat plus favorable qu'une publicité ambigue.

Ces relations sont néanmoins modérées par les variables psychologiques des récepteurs. En effet, ces derniers ont des perceptions différentes de la mise en scène de la publicité en fonction de leur besoin d'émotion, leur besoin de cognition, leur besoin de structuration et leur tolérance à l'ambiguité. Afin de mieux cerner l'impact de ces variables modératrices, nous avons réalisé une classification des nuées dynamiques, qui nous a permis de segmenter les récepteurs en quatre segments distincts en fonction de leurs profils psychologiques. Nous avons remarqué que ces quatre segments ont des préférences très distinctes en termes de mise en scène de l'émotion dans la publicité.

Nous avons remarqué que les publicités émotionnelles fortement intégrées sont très appréciées par le segment des Emotifs. Ceux sont des personnes qui préfèrent les publicités qui montrent clairement des acteurs qui expriment des émotions positives suite à la consommation du produit. Les publicités émotionnelles ambigues sont plutôt appréciées par les Cognitifs et les Cognitifs/Emotifs qui préfèrent les publicités qui stimulent leur imagination et qui satisfassent leurs besoins de cognition en remplaçant par exemple la marque ou l'acteur par une atmosphère ou un objet congruent (dans notre cas une boule de lumière, une main tendue, etc.). Le dernier segment qui est composé des Passifs est surtout attiré par les publicités intégrées et faiblement émotionnelles. Ceux sont des personnes qui préfèrent les annonces avec une faible connotation émotionnelle où les acteurs qui expriment des émotions positives ne sont pas montrés mais sont remplacés par un objet congruent (exemple une main tendue) mais il faut surtout que le packshot du produit soit clairement montré pour que la publicité soit efficace.

Les publicitaires ont donc intérêt à bien réfléchir à la mise en scène de leurs publicités émotionnelles et surtout de l'adapter au profil psychologique de leur cible. Cette recherche essaie d'offrir donc une aide précieuse aux publicitaires et ce, pour deux raisons :

- Elle propose une segmentation de l'audience en fonction des caractéristiques psychologiques des récepteurs.
- Elle donne une attribution des préférences de chaque segment pour chaque type de mise en scène de l'émotion dans la publicité, et ce, à travers le concept d'intégration émotionnelle.

Si cette étude permet la compréhension du processus de persuasion des communications publicitaires et ce, par l'intervention des émotions suscitées par les caractéristiques de mise en scène de l'émotion, à travers le concept d'intégration émotionnelles. Il n'en demeure pas moins qu'elle représente quelques limites, qui vont déboucher sur des voies futures de recherche.

Il est à souligner que les conditions d'exposition forcée aux publicités des magazines sont loin d'être des conditions réelles d'exposition, bien que nous avons essayé de se rapprocher de la réalité. En effet, l'annonce étudiée a été incorporée dans un extrait de magazine de divertissement, ainsi que cinq publicités "leurres".

Il est à relever que le média publicité magazine ne permet d'éveiller que le sens de la vue. Tandis que la télévision, par exemple, permet non seulement d'éveiller le sens de la vue mais aussi le sens de l'audition. En effet, dans le cas de média faisant appel à un seul sens, l'appel aux émotions est plus complexe à réaliser.

En outre, dans un souci de clarté, certaines variables influentes n'ont pas été intégrées dans le modèle de persuasion publicitaire. Il semble que plusieurs variables peuvent éclairer de manière intéressante l'impact des émotions, en particulier l'implication du sujet ou son humeur ou son attitude vis-à-vis de la publicité en générale.

En ce qui concerne les variables de mise en scène de l'émotion dans l'annonce utilisé, nous nous sommes limités à la manipulation de la variable intégration émotionnelle avec ses trois composantes à savoir, la saillance de l'émotion, la clarté de l'émotion et la présence d'information visuelle du produit. Une

investigation des autres variables de mise en scène de l'émotion serait une voie future de recherche intéressante.

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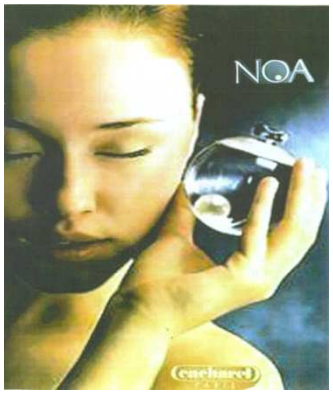
ANNEXE

Publicité 1



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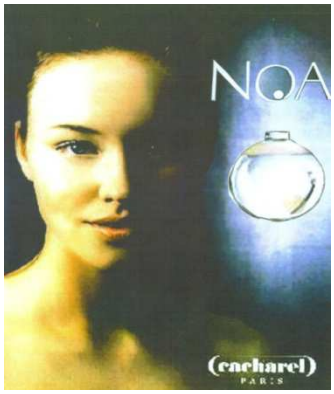

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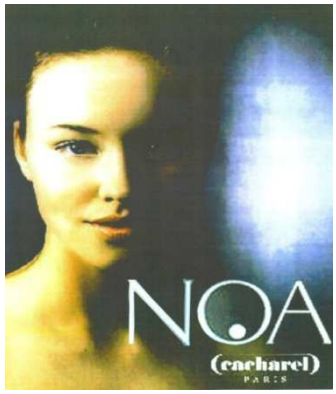

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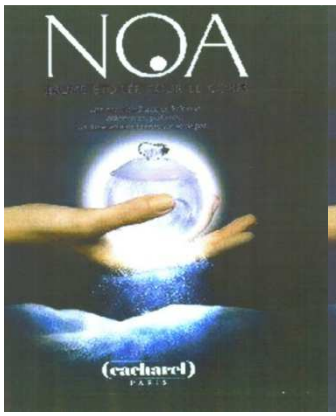

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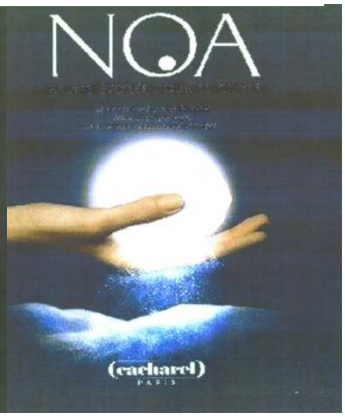

Fuzzy Approach for Evaluation Bank´S Client

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Abstract

Selection, pre-processing, transformation, evaluation and interpretation of information is crucial for nowadays business. One modern approach to dealing with information processing is based on fuzzy theory. This paper suggests the usage of fuzzy approach for evaluating a bank´s client. In the article fuzzy inference systems based on Mamdani implication is offered for this task.

Keywords: fuzzy sets – fuzzy rules – fuzzy inference system – mortgage

Introduction

In the world of business, knowledge of information is becoming increasingly important. Despite living in a world which is very unstable, complex and hardly deterministic, we need to have exact and precise information for decision making. That is why, we need to investigate a better solution for selecting, pre-processing, transforming, evaluating and interpreting data. This paper is aimed at information processing in the banking sector.

Due to a market collapse in 2007 when created credit derivatives allowed banks on the Wall Street worked with the obligation secured by inadequate and poor quality mortgages nowadays banks very carefully chosen their clients. The situation is even more complicated when the Czech National Bank set negative interest rate as its policy again weak Czech currency. Thus banks need very fast and precise evaluation of bond´s and stock´s market to estimate future development as well as evaluating each of their clients.

Employees in the bank make numerous decisions every daily, related with client´s mortgages, loans and investments. In most cases, banks have very imprecise and vague information about the client. For processing and evaluating data, we can use basic approaches based on probabilistic theory and Boolean algebra and algebraic model as vectors, matrices and tuples (Golitsyna & Maksimov, 2011).

Concerning the importance of discussion about evaluating large dataset in banks, it seems necessary to think about using a fuzzy approach method in order to determine all criterions and key factors because the complexity is only increasing and effectively analyze the client data is become key of the bank-client relationship management.

The literature is rich of research used instruments of statistical and econometric type. The paper of Afshari at. al (2011) proposed for evaluating bank´s function in organization balanced score card model. During the evaluation four aspects of BSC were used for evaluating and assessing banks that have been designated through studying perspectives, missions, solutions, banks' aims, overview of research literature, criterions, and sub criterions. After gathering data related to every criterion, decision matrix was formed and banks were ranked by utilization of SAW, VIKOR, and TOPSIS techniques. The paper of Rost and Tlusty (2013) compares two different classification tools for evaluation of the bonity clients. In this paper is compared SRM (mix of neural network, SVM and other modern tools) methodology represents by Knowledge extraction engine analytical network (KXEN) and classical data mining method CRISP (Cross-Industry Standard Process for Data Mining) represents by programming environment R Recently literature brought new approaches based on fuzzy logic and neural networks. The recent work of Magne and Kaymak (2001) discusses extension

of fuzzy clustering algorithm and its next application for example target selection from large databases for direct marketing purposes. The article published by Che, Wang and Chuang (2010) focuses on small and medium enterprises, by using Fuzzy Analytic Hierarchy Process (FAHP) to choose the important index in loaning evaluation, to establish a complete and efficient loaning decision-making module with its weights and Data Envelopment Analysis (DEA), and make effective protection against high ratio of overdue loaning. In the paper by Facchinetti and Mastroleo (2005) it is proposes two fuzzy methods (a fuzzy expert system and a fuzzy cluster method) for bank evaluation of clients in lending credit, based on qualitative attributes. Based on the model of service quality of commercial banks, according to Chinese current situation, the paper from Liu and Chen (2013) puts forward an evaluation method using the FAHP-FUZZY model of service quality evaluation, in order to promote the continuous improvement of commercial banking service quality. Baetge and Heitmann (2000) introduces a fuzzy rule-based expert system that replicates mathematically the expert knowledge of a loan officer. Fuzzy logic (FI) model can be an effective tool in assessing and evaluating of e-banking security performance and quality. Aburrous et al. (2008) proposed an intelligent performance assessment model for evaluating e-banking security websites based on FI operators and produces four measures of security risk attack dimensions: direct internal attack, communication tampering attack, code programming attack and denial of service attack with a hierarchical ring layer structure. The recent work of Rajeh, Koudehi, Seyedhosseini and Farazmand (2014) instroduced a new approach based on fuzzy theory for segmentation customers based on loyalty in Iranian Bank. They proposed a new procedure using the indexes of RFM model with two new additional indexes joining k-means algorithm with k-optimum according to davies - bouldin index in order to estimate customers' loyalty numbers and then classifying customers in for groups based on expanding the Dick- Basu model with using fuzzy concept.

Methodology

The founder of fuzzy theory is Lotfi Askar Zadeh. He introduces fuzzy theory in his paper Fuzzy sets in 1965. Zadeh came up with an idea of using fuzzy logic rather than a probabilistic model for the processing of information (Zadeh, 1965). Nußbaum (1975) wrote in his book proclamation: "Probability does not exist. It is a subjective description of a person´s uncertainty. " Nußbaum (1975) also mentioned calculus of probability which can say absolutely nothing about reality. For this reason interpretation of calculus would lead to an incorrect or misleading solution. The uncertainty within natural language appears because of problems with complexity, ignorance, various classes of randomness, the inability to perform adequate measurements and lack of knowledge or vagueness in the natural language (Ross, 2010). Despite accurately applying uncertain data we achieve dubious results. When Lotfi Askar Zadeh offered fuzzy sets for the first time, the fuzzy theory represented a framework which provided a natural way of dealing with problems in which the source of imprecision is the absence of sharply defined criteria of class membership rather than the presence of random variables (Zadeh, 1965). There are a small amount of problems in the world, which are clearly defined. Hence, fuzzy sets provide a mathematical way to express vagueness and fuzziness in humanistic systems (Ross, 2010). We use fuzzy sets in a situations when we cannot precisely define borders according to which we will decide which set a given object belongs. A nice example is the sorites paradox (the paradox of the heap). The sorites paradox starts with the question asking for how many grains of sand is a heap of sand. Is it one grain? No. Is it two grains? No. Is it three grains? No. etc. So how many grains do we need to have a heap? We cannot mathematically express how many grains we need. Further examples are which of these numbers are close to zero or how many people is a crowd. In contrast to classical sets theory, where elements belong/not belong in a set, and fuzzy theory measures elements in the sets by a membership function. The value of membership function is called membership value (Dubois, Prade & Yager, 1996).

A fuzzy set contains elements with varying degrees of membership to the set and is characterized by the membership function, which assigns each element its degree of membership between zero and one (Zadeh, 1965). If we have element x in the universe 'U' and is a member of fuzzy sets A it is visualized as $\mathbf{A = \{(x, \mu A(x)) \mid x \in U\}}$. The degree of membership is symbolized by $\mathbf{\mu A(x) \in \langle 0, 1 \rangle}$.

Fuzzy rule: IF antecedent THEN consequent, is important for description fuzzy system. Both antecedent and consequent are expressed by fuzzy sets. Hence, IF-THEN rule shows fuzzy implication, which express the relationship between statements. The consequent is a result of fuzzy implication. Statement´s value belongs to <0, 1>. A fuzzy statement consists of two parts. The first part is input for fuzzy variables, the second part is output which is fuzzy set. Statements could contain logical operators such as AND and OR. Thus obtain statements is called complex statement (Holecek, Talasová & Müller, 2012). According to Dubois and Prade (1992) we have four basic types of fuzzy rules.

Fuzzy system

The importance of a fuzzy system is shown in the situation where it is addressed in text in natural language to an intelligent machine based on binary logics. When probabilistic theory will be used during evaluating text, the inherent fuzziness in the text will be removed as well as the statements being precisely defined. Hence, the originality (uncertainty) of nature language will be lost (Ross, 2010). The fuzzy system is specified by fuzzy sets, rules and methods. In fuzzy systems some of the variables (at least one possibly all) gain values, which are not easily characterised by real numbers. Fuzzy systems are very useful on two main situations - we have highly complex systems whose behavior is not well understood and in the situation where an approximate but a fast solution is wanted (Ross, 2010). The most common use fuzzy system is based on Mamdani or Takagi - Sugeno - Kang method (Sugeno, 1985). This article recommends the fuzzy system based on Mamdani fuzzy inference. Algorithm of the fuzzy inference system contains three following steps (figure 1): fuzzification → fuzzy inference → defuzzification. Crisp value is inserted during the first step into the system. Input is in the canonical (atomic) form (Mamdani, 1977).

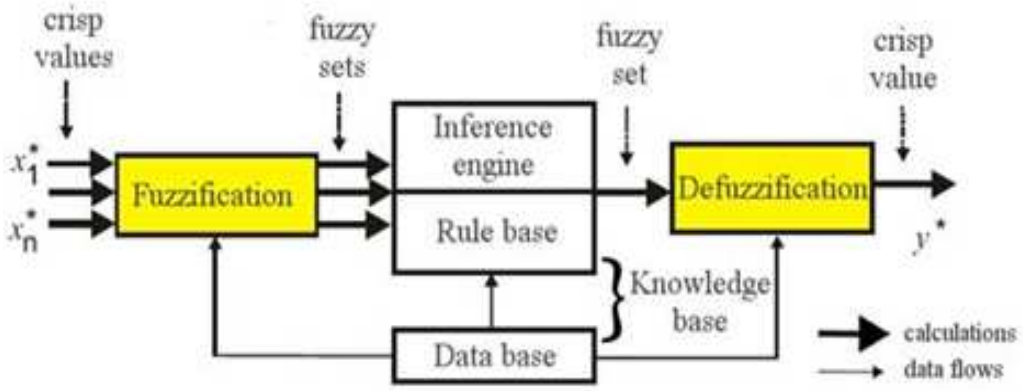

Fig. 1: Fuzzy inference system, Source: Center for inVestigations into Information Systems (Smolova & Pech, 2010)

Fuzzification is a process of taking the inputs and estimating the input´s degree of membership to the appropriate fuzzy sets by a membership function. Thus, the result of fuzzification is a fuzzy degree membership in the qualifying linguistic sets with the interval between 0 and 1. The next step includes the creation of rule bases which describe outputs when the input has the exact value. While using the fuzzy inference mechanism based on Mamdani implication we gain from the fuzzy input and rule base fuzzy value output. Next step, defuzzification is a process where a single number is matched to all fuzzy sets create during fuzzy inference. Despite the fact that in the whole process performing fuzzy sets, the output is a single crisp number. To the most useful methods of defuzzification belong centroid (method returns the center of area under curve), bisector (method returns a vertical line that divide the area into two equal sub-areas, in some cases centroid is the same line as the bisector line) and largest, middle and smallest of maximum (three methods assumed the maximum value by the aggregate membership function). Choosing the methods depends on which input methods have been

used, but generally the centroid method generates adequate results. While using the Fuzzy Logic's Toolbox for defuzzification, you can change the used methods and the results can be seen from a different perspective.

Application of fuzzy system

This paper suggests using fuzzy inference system for evaluation clients who take a mortgage. The potential value of clients is the intangible and prospective value of clients (Zheng and Dong, 2006). There are several aspects of interest to banks such as age (young, productive, retire), height of the salary (low, average, high, very high), property type (house, flat, cottage) and value (low, average, high), additional income (shares, bounds, other), type of employer (small-size business, middle-size business, multinational business, entrepreneurship), type of contract (permanent part-time job, permanent full-time job, fix part-time job, fix full-time job) and previous payments of loans (on time, small delay, big delay). Thus banks have a large amount variation of the value of each aspect. From this combination, the bank can create rules which are used in a fuzzy system. Some rules are shown in table 1. The rule base is growing with every single client. The rule base has IF antecedent THEN consequent character. An example of a rule is: IF client is in a productive age, has average income, has a cottage average value, additional income and works in a small-size business and has fix full-time job THEN his chance to get a mortgage is high. Not all aspects have to be involved in the rule. The rule can be defined by few statements. Antecedent represents complex statement and logical operators (AND or OR) connects each single statements. Chance of getting a mortgage represents consequent.

Table 1: Examples of IF-THEN rule Source: Own work

Age	Salary	Ps' type	Ps' value	Adition. Income	Employer´ s type	Contract type	Paying history	Chance getting mortgage
Retire	Law	Flat	Aver.		Middle-size business	Fix, part-time job		Very law
Youn.	High	Flat	Aver.		Middle-size business	Permanent, part-time job	Big delay	Law
Prod.	Aver.	Flat	Aver.	Other	Small-size business	Fix, full-time job	On time	High
Prod.	Very high	House	High	Bounds	Middle-size business	Permanent, full-time job		Very high

Each bank has its own criteria and evaluation. Table 1 does not cover all variations and aspects of a bank. In Fig.2 is example of evaluating client based on three basic rules (IF - THEN). The evaluating process embodies several stages. Firstly the bank´s employee gains all the data from a client and acquires input for fuzzy inference system. The next step is fuzzification where the input of real numbers is converted to fuzzy sets. The third step is fuzzy inference. During fuzzy inference, all the fuzzy rules are combined or aggregated into a single fuzzy set, whose membership function assigns a weighting for every value of chance of getting a mortgage. During next stage on the gain the fuzzy

set is applied to the chosen method of defuzzification. Hence the bank (client) reachs the single number representing the chance of getting a mortgage as it is shown in fig.2.

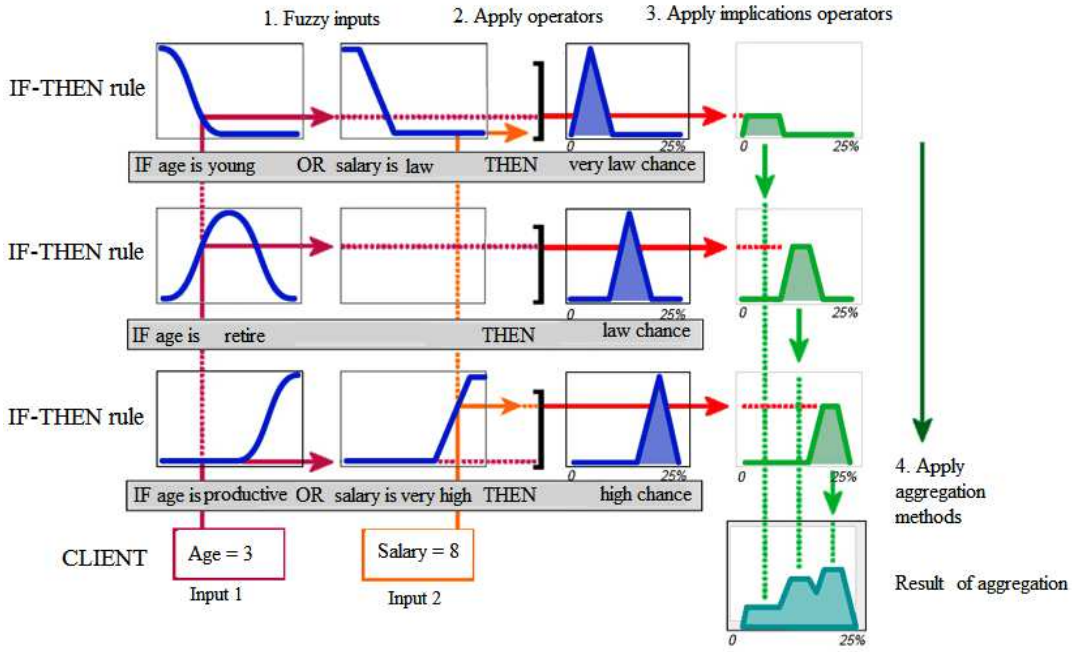

Fig.2: Examples of evaluation client, Source: Own work

Conclusion

The paper introduces an approach based on fuzzy logic to evaluation bank´s client based on their real values instead of based the segmentation of the clients only on their incoming value for the bank (Wu and Guan, 2012). The fuzzy theory has a huge impact for data processing across various industries. The fuzzy approach has been used in marketing (portfolio selection problem), business (investment selection problem), biology (fuzzy sets using genetic algorithm), engineering (expert system, controlling system) and banking (intelligent detection system for e-banking phishing website). The fuzzy theory still has potential to expand. Fuzzy algorithms are already well defined while using data in text format, but what about the database with numbers, pictures, sounds or websites? We should not forget while trying to formulate human´s knowledge and retrieve and exploit information what is a sufficient solution. Each person has the subjective scale of correctness, completeness and efficiency and for some users this can be simple and understandable results, making the best solution. Hence, the utility for users has to be taken into account as well. Thus, we are back to the case of how to measure the linguistic variables and usage of the fuzzy theory. Even the fuzzy systems and it's development are one of these newer tools for data processing, we have to keep thinking about new tools which will provide the better solution in all user´s aspects.

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Energy Markets under MiFID 2 Legislation

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Abstract

The majority of commodity trading companies were excluded from 2004 MiFID 1 legislation package. The European Union's new financial markets regulation, 2013 MiFID 2, redefines exemptions and companies licenced under MiFID 2 will be forced to comply with bank-like capital, capital and liquidity requirements and broad public disclosures. The regulation will force the companies to adopt new risk management and internal capital adequacy procedures as part of their internal processes.

Keywords: Energy markets – MiFID 2 – Regulation.

Introduction

An integrated EU energy market is the most cost-effective way to secure affordable supplies to EU citizens (EC, 2015). EU-wide energy market rules and cross-border infrastructure guarantee that energy can be produced in one EU country and delivered to consumers in another. Common European market keeps prices in check by creating competition and giving consumers choices when it comes to their energy supplier.

Energy trading is at the heart of Europe's liberalised energy markets. European Federation of Energy Traders (EFET, 2012) posited that competitive, liquid, sustainable and transparent wholesale energy markets are essential to deliver low-cost supplies to European energy consumers. They also help energy producers, suppliers, intermediaries and large consumers to reduce risk management costs. Moreover, transparent price discovery not only generates confidence among investors, but also, if properly appreciated, should reassure policymakers, regulators and consumers.

National electricity and gas markets opened up to competition around the turn of this century. The objective of adopted legislative packages was to ensure a functioning market and a high level of consumer protection as well as adequate levels of cross-border interconnections and generation capacities. The main aim of the first two directives was to avoid discrimination rather than improve European cross-border integration.

Boltz (2007) assumed that there was no evidence for natural market integration as potential losses at a national level were in many cases higher than potential gains from competition. Major price differences between markets in Europe sparked a discussion about wholesale markets indicating potential gains from competition. The third legislative package further liberalises internal energy market to avoid cross-border issues, regulates transmission network ownership and ensures more effective regulatory oversight.

EU energy market regulation

History of EU energy market regulation

Vasconcelos (2005) considers regulation as a modern and efficient interface between the public interest, the interests of consumers, the interests of those providing regulated services under monopolistic conditions and the interests of those using the monopolistic infrastructure.

The independent national energy regulators and the foundation of free energy markets are closely related to the 1987 Single European Act, which promoted integration of national markets towards a single European market and the "1992 Internal Market" agenda. The three concepts of liberalization, independent regulation and supra-national integration of electricity and natural gas markets stem from the EU Internal Market project and are inter-related.

Most energy regulatory authorities in Europe were founded in late 1990s when the first internal electricity market directive was approved. With the second internal electricity and natural gas market directives, adopted in 2003, independent energy regulatory authorities became mandatory in all member states.

The Agency for the Cooperation of Energy Regulators (ACER), a European Union Agency launched in 2011, was created by the Third Energy Package to further progress the completion of the internal energy market both for electricity and natural gas and can be seen as the central institution in the creation of a Single Energy Market. ACER is an independent European structure which fosters cooperation among European energy regulators and ensures that market integration and the harmonisation of regulatory frameworks are achieved within the framework of the EU's energy policy objectives (ACER, 2015).

Wholesale energy markets

Companies trading commodities specialise in analysing information that identifies optimal commodity transformations (spatial, temporal or transformation) in response to given price signals. Many of them seek to profit from differentials in prices of the untransformed and the transformed commodities (arbitrage involving the simultaneous purchase and sale of a commodity in different forms) rather than speculate on commodity price risk (profit on expected price movement).

Efficient wholesale markets play a crucial role in market integration throughout the continent. A closer look into price mechanism of natural gas contracts in Europe shows an increasing share of gas-to-gas competition (GOG), where the price of gas contracts is determined by the interplay of supply and demand on the wholesale markets and is traded over a variety of different periods, comparing to Oil-indexed prices of gas contracts (OPE), where the price is linked, usually through a base price and an escalation clause, to competing fuels, typically crude oil, gas oil and/or fuel oil. International Gas Union data demonstrate (IGU, 2015) that GOG contracts rose from 15 % in 2005 to 61 % in 2014 while OPE contracts declined from 78 % in 2005 to only 32 % in 2014.

Competition and increased liquidity on electricity markets led to an increase in cross-border electricity flow, new market-coupling areas were created (interconnection between national grids) to address different prices for electricity across Europe. Liquid wholesale markets also help national systems operators to cope with the massive expansion in renewable energy sources overloading existing grids in Europe.

Recent changes to the regulatory framework sparked a discussion about the future of wholesale markets as new legislation actions imposed additional costs (REMIT) and redefinition of business principles (MiFID 2).

MiFID 2

MiFID 1 (Directive 2004/39/EC on markets in financial instrument) contained generous exemptions (Article 2 (1) k) for companies trading commodities. As a result, the majority of market participants have not had to comply with rules like best execution, financial institutions-like capital requirements and governance requirements.

The non-application of many financial rules to the commodity industry, already started to crumble with the introduction of EMIR (Regulation No 648/2012 on OTC derivatives, central counterparties and trade repositories). Trade reporting and portfolio reconciliation rules imposed by EMIR were new for the energy markets, even if in some cases some best practices were already observed. This step can be seen as the first step to bring the energy and commodity business under increasing financial regulation, shifting the focus away from energy regulators.

New MiFID 2 (Directive 2014/65/EU) package redefines which companies and sectors will be covered with new regulations. The blanket commodities exemption is gone, leaving market participants reliant on the "ancillary exemption", which requires the entity to prove that trading is an "ancillary activity" to the company as a whole in order to keep the exemption. The crucial problem for energy market participants is the definition of ancillary business exemptions, the only way how to avoid legislations bank-like requirements.

The draft regulatory technical standards published at the end of 2014 required two tests: The "capital test" and the "market size" test The capital size test required the trading companies to show that the capital required to support their trading in derivatives consumes less than 5 % of their group capital. The original market size test required the trading companies to show that their trading activity is less than 0.5 % of the total EU market in any of eight types of commodities (gas, power, oil, emissions, coal, agriculture, metals and other). It was calculated by various bodies that a very large proportion of market participants would lose their exemption.

The final draft regulatory technical standards published on 28th September 2015 proposed two tests, that have to be passed cumulatively in order for investment activities to be considered as ancillary (and an exemption from MiFID 2 will apply for them):

a) the "trading activity thresholds" as the relationship between speculative activity and the overall EU market activity in each class of commodity derivatives (firms having a significant share of the market in a particular class of derivatives will not be allowed to benefit from the exemption) and

b) the "main business thresholds" shall determine whether investment activity is large in size relative to what the entity does as its main business.

If trading companies fall under the scope of MiFID 2, they will be treated as investment firms and new capital requirements under the banking regulatory framework (Capital Requirements Regulation – CRR and Capital Requirements Directive IV – CRD) will apply to them.

MiFID 2 together with Capital Requirement Directive and Capital Requirements Regulation, impose on commodity firms new obligations:

a) capital, liquidity adequacy and large exposure requirements;

b) public disclosure and reporting requirements;

c) risk management (ICAAP and SREP, internal risk models).

For companies regulated under MiFID 2 legislation, new bank-like capital requirements - capital disclosure obligations and own capital and liquidity requirements – will apply. Capital requirements legislation requires institutions to comply with capital ratios (capital to risk-weighted assets) for their CET1 (common equity core Tier 1), Tier 1 and Tier 2 capital.

Liquidity adequacy ratios include the liquidity coverage ratio (short-term resilience to liquidity risk) and the net stable funding ratio (available stable funding).

FIA (2015) considers that imposing of capital requirements obligations not suitable for commodity firms may be in conflict with the objectives of key policy frameworks such as the Third Energy Package, to foster liquidity and depth of trading in what were, and in many cases remain, relatively illiquid markets. Additional capital requirements on commodity firms are likely to lead to the withdrawal of many market participants, further damaging liquidity and market efficiency to the detriment of consumers.

Under CRR/CRD IV legislation, institutions are subject to new public disclosure and regulatory reporting. To improve the transparency of investment company activities, legislation requires annual disclosure of profits, taxes, subsidies, return on assets and risk management objectives and policies, leverage ratios and reporting to national regulatory bodies on regular basis.

Risk management based on the companies' own risk models (regulatory reviewed and approved), Internal Capital Adequacy Assessment Procedures (ICAAP), Supervisory Review and Revaluation Process (SREP) impose rules for assessing the firm’s capital and internal procedures for risk management, capital planning and its cyclical revaluation.

EFET (2015) stated, that new rules will impact market liquidity due to anticipated reduction of activity of energy and commodities trading companies. The knock-on effect of reduced liquidity on consumer energy prices would cost consumers in EU around € 6.8 bn yearly for every 1 % increase in final prices (in natural gas and electricity resulting from lower competition).

Discussion

Companies trading energy and commodities will have to be registered under MiFID 2 legislation and fall under scope of CRR/CRD IV, MAD 2/MAR legislation suited for investment companies and banks. New requirements imposed on energy and commodity trading companies will significantly affect their profits, as a result of new internal processes, capital cost, as a result of higher capital requirements and regulatory risk as a result of the bulk of regulatory reporting requirements.

According to various papers published by professional groups like FIA, ISDA or EFET, new requirements may have a very negative impact on market liquidity so important for smooth energy flow throughout Europe.

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Management of Mobile Devices – How to Implement a New Strategy

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Abstract.

Since smartphones entered the market the need for them has exploded, today 85 % believe that their mobile is a central part of their life. Despite the major focus on mobile devices and increased budgets, there are still many organisations missing a strategy for mobile devices. This article investigates the most important steps to take when implementing a mobile device strategy by conducting an empirical study with interviews with CIO or equivalent roles in 13 organisations with 50 to 15 000 employees. The result is an improved framework for mobile device implementation.

Keywords: Information Management, Mobile Device, BYOD, CYOD.

Introduction

Since smartphones entered the market the need for them has exploded, today 85 % believe that their mobile is a central part of their life (Salesforce 2014). Despite the major focus on mobile devices and increased budgets, there are still many organisations missing a strategy for mobile devices. These devices may cause organisational problems including unwanted disclosure of data and a new attack surface. A strategy may include policies and guidelines, but more important is that it aligns with company strategy and the organisational culture. Nevertheless, a recent survey revealed that only 42 % of the responding decision makers have a clear enterprise mobility strategy in place (Matrix42 2015). Even if they have a strategy this does not imply that it is implemented, the research literature shows a major gap when it comes to implementation of mobile device strategies (Brodin et al. 2015).

The use of mobile devices is certain to increase because of social trends. The ability to access information whenever and wherever you want has become very important for most people today (Salesforce 2014). If the organisation does not allow the user to access information outside the office the employees will probably try to find ways to do it anyway, which leads to security issues (Muth 2013; Walters 2013; Silic & Back 2014; Simkin 2013). Employees that are allowed to use mobile devices for both work and private purpose are more productive since they can manage small tasks during private time. There are reports that talk about savings for the organisation with up to 240 hours per year and employee (iPass 2011; Miller & Varga 2011). This gives the employer much to gain from allowing mobile devices in a controlled way.

Absence of implemented strategies in practice is a major problem for public and private enterprises large and small since the greatest threat is security and keeping control. This is something which is also lacking in the literature.

The objective of this paper is to investigate how strategies for mobile devices are implemented in practice through interviews with CIO or equivalent roles. Further an updated version of a mobile device management framework will be presented.

The research questions are therefore:

- What are the most important steps to take when implementing a mobile device strategy?
- How are mobile device strategies implemented in practice?

The study is a pre-structured qualitative investigation combined with a literature review. 13 interviews were conducted with CIO or equivalent roles in in small, medium and large companies and municipalities in Sweden.

The paper is structured as follows. Section two explains how literature looks at mobile device strategy, in section three the research method and analysis model are explained, section four presents the findings from the empirical study and section five introduces an improved version of the

framework. Finally, section six gives the conclusions of the analysis, and offers directions for future research.

Mobile device strategy in literature

Brodin (2015) has developed a framework (figure 1) for managing strategies for mobile devices from the first analysis to completely implemented. The framework is adapted from Johnson and Scholes (Johnson & Scholes 1993) seminal work on strategic management, and the international standards ISO/IEC 27001 (ISO/IEC 2013a) and ISO/IEC 27002 (ISO/IEC 2013b). It divides the tasks into three categories:

- *Analysis* – organisation before a strategy is in place, mostly about risks and opportunities.
- *Design* - dealing directly with strategies, different options and development.
- *Action* - about the implementation of strategies.

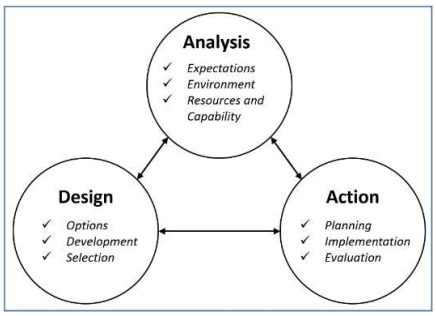

Fig. 1. A framework for implementing a mobile device strategy, adopted from (Brodin 2015).

Analysis

People who do research in this category mostly focus on opportunities and threats. When it comes to possible benefits that comes with the mobile devices the most common ones are increased personal productivity (Miller & Varga 2011; Dhumal et al. 2012; iPass 2011; Barbier et al. 2012), time/space flexibility (Singh & Phil 2012; Harris et al. 2012; iPass 2011; Green 2002; UNICEF 2014) and increased user satisfaction (Miller & Varga 2011; Disterer & Kleiner 2013; Harris et al. 2012).

Threats associated with mobile devices include fear of losing control over information (Pettey & Van Der Meulen 2012; Camp 2012; Walters 2013; Kehoe 2013) and the ability to protect all devices (Disterer & Kleiner 2013; Camp 2012; Walters 2013; Tokuyoshi 2013; Morrow 2012; Skype et al. 2012; Wilson 2012). Another thing that is feared to have a negative effect on the organisation is cost for support (Walters 2013; Harris et al. 2012; Intel 2012) although some argue that there will be no impact (Miller & Varga 2011; Brooks 2013).

Design

Literature that falls under design is about how organisations handle or may handle mobile devices (Mourmant et al. 2013; Harris et al. 2012; Yang et al. 2013; Zahadat et al. 2015; Brodin 2015) and how to design a strategy and selection of strategy. Most articles about designing strategy for mobile devices focus on policies; get one and keep it up to date (Oliver 2012; Harris et al. 2012; Gatewood 2012; Montaña 2005; Yang et al. 2013). When it comes to setting the mobile device strategy, it is up to senior management (Ring 2013; Borrett 2013; Mooney et al. 2014) and it is important to have full support from all stakeholders (Silic & Back 2013).

Action

Apart from some articles that emphasise training (Gatewood 2012; Walters 2013; Markelj & Bernik 2012) we only found two articles dealing with the complete implementation (Brodin 2015;

Zahadat et al. 2015). Zahadat et al. (2015) focus on risk management and propose a way to address the security concerns connected to introduction of mobile devices.

The action part of the framework is the steps to take after selecting a strategy and deals with planning (allocating resources and conducting risk assessment for implementation), implementation (managing change) and evaluation.

In our literature review, we found a major gap when it comes to implementation of a mobile device strategy and as a result of that we conducted an empirical study to adjust the action part to practice.

Method

The empirical work is a pre-structured qualitative investigation (Jansen 2010) where the objective is 'to gather data on attitudes, opinions, impressions and beliefs of human subjects' (Jenkins 1985). Data analysis was conducted using thematic analysis (Braun & Clarke 2006).

13 semi-structured interviews were conducted with CIO, CSO, CFO, CSIO or head of IT in the food industry, manufacturing industry, defence industry, health care, municipality and consulting firms from various sectors (security, IT, management and logistics). The size of their organisations is from 50 to 15 000 employees. All interviews were recorded and transcribed and lasted approximately 45 minutes. The information provided by participants is kept strictly confidential. The coding was conducted using a qualitative data analysis software with codes from the framework, in section 2. The codes from the framework were then complemented with additional codes from trends detected in the qualitative material.

Mobile device strategy implementation in practice

The framework shown in section two suggested planning, implementation and evaluation in the action part, which is derived from the strategic management and ISO/IEC 27 000-series. We have looked at literature about mobile device implementation without finding much support for these sub-categories. While analysing our interviews we instead found three new categories; communication, training and adjustment.

Not planning, but communication

Although our theoretical model said planning, we found that communications is a more central thing in the implementation. A well communicated strategy is very important since the users have to understand the purpose and benefits of the strategy. One of the respondents talked a lot of the importance of making sure that all employees understand the risks and he ended the interview stating that technology will not help you.

"My main message is that it is not about technology but people. You cannot solve methodological problems with technology, you have to solve the method and it must be easy to do right. If you have a very complicated method where you have to start with two backward somersaults, then it would not be used. This is where it often goes wrong, it gets too complicated with too many things you must do. You cannot solve with technology; it must be solved with methods."

Another respondent testified that a policy without anchoring of the staff is useless. "*When we looked at how many actually using mobile email we found 5-600 tablets connected to our network. Even though our policy says no to tablets. So it has been just a paper policy, nothing else."*

How changes in policies are communicated differs a lot from organisation to organisation, but current policies can normally be found on the intranet. New or revised policies are communicated mostly by middle managers or as news on the intranet.

Out of the empirical work we found that communication is a key to success, not so much detailed planning for special activities as the theoretical model indicate.

Not implementation, but training

Although it is not just about communication of a new strategy or policy, the employees also need to understand the core value of it and how they are expected to use their device to gain the most benefits and minimizing risks. One organisation with a lot of employees with low IT skills chose to hand out all devices just before the summer, so that everyone could learn how to use their device during the summer. When everyone was back from holiday the organisation officially introduced the device and taught how the device was supposed to be used to facilitate work. Another organisation introduced tablets to their sales unit together with education in both security and the device itself. "*When we introduced iPad we had people from my department there to educate."* The same tactic was used by another respondents' organisation during implementation of mobile devices, the user received their device and received training on the same day with follow-up sessions to make sure that even persons with low IT skills know how to benefit from their new device.

What type of training users gets differs between organisations, five of the respondents said that their organisation provide training in both the device and security, two in only the device, four in only security and two introduced mobile devices without any training program at all. One respondent pointed out that you cannot just provide some training and think everyone will do as you told them. The users must gain something to embrace the new device in a way that is expected from the organisation. *"…because it's not just education. Here is a tool, and this is an education. They do not care at all, there must also be "what's in it for me". Then all of a sudden we are talking about the change in approach."*

In some cases, the training is done on a regular basis, mostly with a focus on security. Usually the reason behind it are demands of customer or certification organisations. "*We are certified to ISO 27001, not the whole company, but some parts, and it is my responsibility to ensure that we really can this and comply with it. And then we implement programs that everyone should have undergone so that you know what is expected of you. But that does not happen every year, the idea is to do it every five years and in between we got introduction with new employees. We are trying to find ways on how to measure and control this so that you can find deviations."*

Only two did not arrange any kind of training connected to the mobile devices.

Having a subtitle in action called implementation could be confusing since most of the things in action is about implementation. Training on the other hand is an important task that needs to be highlighted and performed.

Not evaluation, but adjustment

Our theoretical model highlights the importance of evaluation, but in our empirical study only four did an evaluation after the implementation. Some did a proof of concept, before the implementation, which were evaluated. Even where there is no formal evaluation some of the respondents felt like they evaluated it by discussions in different forums. "*Yes, maybe we have done this to my unit, we have planning meetings every week and often we have discussions and evaluations of how they use mobile devices. Both the security perspective, practical perspective and support perspective. So I would say that we do frequently."* That could be a way to evaluate, a problem with evaluation is in some case how to conduct the evaluation.

"But just how to evaluate how employees follows a policy. I do not know exactly how to put in such a control mechanism. What I can control is when we have done an education, and have it online on the web can I control how many completed the course and you can put controls on control issues on how well people understand these questions." Since it is so hard to evaluate it is more common to with follow-ups, informal discussions and topic on the agenda at management meetings than a full evaluation and analysis again after the strategy is implemented. Or as one respondent expressed it: "*We have a strategy in place and I think it works quite well. We have not done any proper evaluation, but we discuss the topic from time to time and make adjustments to strategy or people."*

Evaluation is important, but it is not something that is done in general. More common are small, informal evaluations that lead to some adjustment which is then communicated to all employees.

The process

The original Johnson and Scholes model (Johnson & Scholes 1993; Johnson et al. 2008) presents a model which is iterative to the extent that you are intended to go back and forth between the phases. Most of the security literature implies a more linear process - create a policy and then implement it.

Our empirical studies of practice usually reveal processes best described as punctuated equilibrium: an infrequent major strategy/policy development with additional smaller adjustments when needed, with regular training and communication.

"*... but where we notice that there is a problem, many make a mistake or in a way that is not good or if many are beginning to get to me with issues, several questions about the same thing. We see that there is a need to structure the details and make a statement to clarify things.*"

Improved framework

The framework in section two is theoretical and based on standards and well known literature. In literature, there is a gap when it comes to the implementation of mobile device strategies, in this study we have looked at implementation in practice to reduce that gap and with the new insight, we are able to improve the framework.

Our empirical study showed that the steps that organisations take are:

- Training – To increase security awareness, and to gain more benefits from the use of the device itself.
- Communication – To ensure that everyone in the organisation is aware of what the new strategy entails.
- Adjustment – When ambiguities or deficiencies appears in the strategy, adjustments are made.

This gives us the framework in figure 2, were Analysis and Design remain the same as in the original framework. After the initial work with analysis and design the work move into an iterative process where the strategy is communicated and training are arranged. When problems, uncertainties or need for improvement arises adjustments to the strategy are made and communicated. When major changes occur, for instance new mobile devices that not fit in the current strategy or a change in the organisations overall strategy, the process goes back to analysis again.

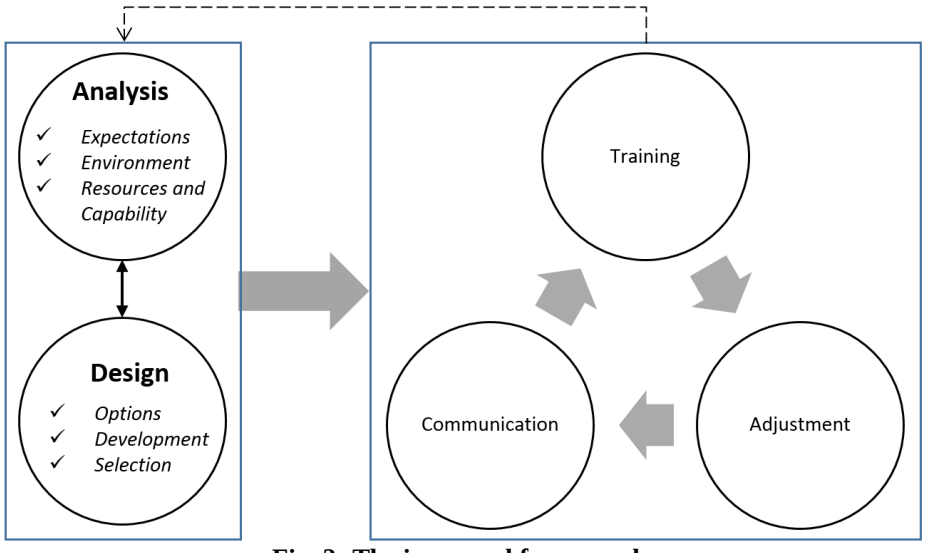

Fig. 2. The improved framework.

Discussion and conclusions

Literature tends to focus on policies and the importance of creating them and keeping them up to date. However, many of the respondents in this study do not have a policy for mobile devices, although they do have a successful strategy. In many cases it seems to be more important to work

with the culture and to educate and communicate. Of course there are policies in the organisation, but they are often short and more general. It is well known from the literature that employees seldom read, understand and follow policies and with that in mind it seems to be a good plan to focus on the humans instead of writing a document if you really want a change.

In our empirical study, we found that the most important steps to take when implementing a mobile device strategy are communication and training. You need to communicate your strategy to all employees and make sure that they understand. However, people understand in different ways and paces and they do tend to forget. That is why the communication needs to be supported with training and this is not just a one-time happening.

There are some limitations in our study; all interviews were conducted within organisations in Sweden, although some of the respondents are responsible for the organisation in all Europe. Further we only conducted 13 interviews, we can see a trend but not make any general conclusions. Future work should investigate if this trend can be applied in other countries and more organisations. This updated framework may help researchers and practitioners to understand the important steps to take when implementing a new strategy for mobile devices.

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L'agriculture pour Répondre aux Défis Alimentaires en Afrique du Nord: Enjeux Théoriques et Empiriques

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Résumé

Les pays de l'Afrique du Nord ont été touchés par trois crises : la crise financière mondiale, la crise alimentaire mondiale, et la crise de la dette de la zone euro. Dans ce contexte de volatilité des prix énergétiques et agricoles et des incertitudes de l'évolution du changement climatique, la capacité de ces pays à assurer leur sécurité alimentaire constitue de plus en plus un enjeu stratégique prioritaire. A cet égard, l'objectif de ce papier consiste à souligner l'importance économique de l'agriculture dans la lutte contre la faim. Les résultats dégagés à partir d'un modèle à effets fixes montrent l'impact positif et significatif de la valeur ajoutée agricole sur la sécurité alimentaire de cette région.

Mots clés : Sécurité alimentaire, secteur agricole, Afrique du Nord, modèle à effets fixes.

Abstract :

The North African countries have been affected by three crises: the global financial crisis, the world food crisis, and the Euro zone debt crisis. In this context of the volatility of the energy and agricultural prices and the uncertainties about the evolution of the climate change, the ability of these countries to ensure their food security is increasingly becoming a crucial strategic challenge. In this respect, the target of this paper is to emphasize the economic importance of agriculture in the struggle against hunger. The results achieved on the basis of a fixed effect model show the positive and significant impact of the agricultural added value on the food security of this region.

Keywords: food security, agricultural sector, North Africa, family farming, fixed effect model.

« La terre n'est pas un don de nos parents. Ce sont nos enfants qui nous la prêtent » [Maxime Amérindienne]

Introduction

Sous l'effet de la crise financière et alimentaire de 2007-2008 et dans le contexte du printemps arabe, et d'une Afrique du Nord en plein bouleversement sociopolitique, la population de cette région devient, de plus en plus, menacée par la sous-alimentation. A ce propos, nous essayerons de présenter une revue de la littérature théorique relative à l'importance du secteur agricole chez les physiocrates et chez les économistes contemporains. Sur le plan empirique, nous nous restreindrons, ensuite, à l'économétrie des données de panel, sur une période qui s'étale de 2000 à 2010. A cet égard, il est désormais intéressant de vérifier empiriquement les conclusions théoriques qui ressortent de ce papier, et de vérifier la corrélation entre l'agriculture et la sécurité alimentaire en Afrique du Nord.

1- Revue de littérature théorique

« Manger du pain ou n'en pas manger n'est pas une affaire de goût, de caprice ni de luxe, c'est une nécessité de tous les siècles et de tous les âges » [Galiani (1770)]. En effet, la nourriture est l'un des besoins humains primaires les plus fondamentaux. C'est un besoin journalier de survie. C'est pourquoi, la question alimentaire a occupé une place privilégiée dans les grands courants économiques depuis le XVI ème siècle (la période mercantiliste), jusqu'au XXI ème siècle [Turki Abdelhedi (2015), p.202-203].

Au contraire des mercantilistes et des classiques qui considéraient le travail comme l'unique source d'enrichissement, les physiocrates au XVIII ème siècle avec Quesnay ont largement démontré que la terre était la première source de richesse, et ont plaidé pour l'intensification [Rastoin et al (2005), p.1709-1716]. En effet, ces derniers prétendaient que les biens de subsistance avaient une certaine particularité, non plus à cause de leur satisfaction d'un besoin vital, mais, plutôt car ces biens étaient une fontaine de richesse et de prospérité, vu qu'ils découlaient de la seule activité productive qui est l'agriculture. Certes, celui qui sème une graine récolte plusieurs d'autres ; c'est ce que confirma Quesnay, F. [1756-1767] : « Que la terre est l'unique source des richesses et que c'est l'agriculture qui les multiplie »[1]. Parallèlement, Riqueti, V., et al [1758] énoncèrent aussi que « l'agriculture est la seule profession véritablement approuvée et chérie de la nature ; c'est la seule pour laquelle elle daigne travailler des mois entiers en récompense de quelques jours de labeur de sa part »[2].

Pour ces économistes, la spécificité des vivres réside donc dans leur provenance, qui est un créateur de richesse, et non car ils remplissent un besoin nutritionnel. Dans la même veine, De Nemours, S.D., [1764] parle de « richesses renaissantes ». En effet, le secteur agricole est ainsi analysé comme une génération, et non une simple addition de richesses, que multiplie la terre nourricière et qui s'assimile à un véritable don gratuit de la nature [Clément (2000)].

Ces derniers se basaient alors sur les dons offerts par la nature, qui pourraient enrichir tout un peuple s'il profitait bien de ces cadeaux naturels. En fait, « la mise en valeur des ressources naturelles, en premier lieu dans le cadre d'une activité agricole, est au cœur de leurs préoccupations. Seule l'agriculture est créatrice de richesses »[3]. Olivier, T. **[**2009] en déduisit la dépendance du système économique envers la nature. Ceci amène à constater que l'école physiocratique considérait les biens agricoles comme une simple marchandise pour multiplier et amplifier les fortunes [Olivier (2009), p.274)].

L'importance du secteur agricole est analysée non seulement chez les physiocrates, mais aussi chez les économistes contemporains. Après l'indépendance de leurs pays, et en se basant sur les économies développées, plusieurs auteurs ont considéré l'industrialisation comme l'unique source du développement [Alpine et al (1993), p.153]. Néanmoins, le choix de ce secteur s'est avéré, par la suite, erroné ; et beaucoup pays en développement ont dû donc se replier sur l'agriculture pour leur survie économique [Farvaque (2005), p.38-51]. Dans ce sens, Irz, X. et al [2006] stipulent que l'agriculture est le moteur de l'économie. De même, Pouch, T. [2002] a mentionné, lors de son examen des définitions de la politique agricole, que «l'agriculture ne serait pas un secteur comme un autre. Il n'y aurait pas une seule mission pour une politique agricole, …car elle est impliquée non seulement dans la fourniture à un coût raisonnable pour la collectivité de l'alimentation, …, mais elle s'accompagne aussi d'une gestion implicite et/ou explicite du territoire et de la répartition géographique des populations rurales, …, elle contribue aussi à l'équilibre environnemental et au bien-être sanitaire des hommes»[4]. En effet, les investissements dans le secteur agricole et dans les zones rurales des pays en voie de développement sont, certainement, nécessaires pour augmenter la production agricole et créer de l'emploi, qui sont des facteurs clés pour réduire la pauvreté

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[HRC (2009)].Plusieurs auteurs stipulent que l'augmentation des revenus agricoles réduit plus efficacement la pauvreté que l'augmentation des revenus non agricoles [Cervantes-Godoy et al (2010) ; BM (2008) ; Bresciani et al (2007), p.232; Christiaensen et al (2007) ; Ravallion et al (2007)], car la majorité des pauvres habitent dans des zones rurales et leur alimentation dépend du secteur agricole.

Saidi [2011] soutient que la production agricole vivrière et l'agriculture familiale jouent un rôle crucial dans la lutte contre l'insécurité alimentaire. D'une part, ce type d'agriculture permet de satisfaire les besoins de subsistance et de générer des revenus à la population pauvre. D'autre part, cette petite agriculture contribue à une alimentation saine et équilibrée qui se caractérise par la faible utilisation des produits chimiques, ainsi à la conservation de la biodiversité agricole, et à l'utilisation durable des ressources naturelles.

A cet égard, la revalorisation de l'agriculture s'est appuyée sur l'agriculture familiale ; cette dernière s'avère comme un élément indispensable, comme l'indiquent plusieurs experts [FAO (2009), p.1; BM (2008)], pour résoudre la problématique de la faim. En effet, cette forme d'organisation a été un déterminant essentiel dans le succès du secteur agricole des pays développés. Dans le même genre d'idées, plusieurs auteurs contemporains soutiennent que l'agriculture dominée par les petites exploitations, et non l'agriculture à grande échelle, représente actuellement la colonne vertébrale de la sécurité alimentaire des pays en voie de développement [Chappel et al (2011), p.3-26; Horlings et al (2011), p.441-452 ; et Tscharnke et al (2012), p.53-59]. Dans le même contexte, la FAO [2015] affirme que l'agriculture à petite échelle pourra aussi contribuer tant à la promotion de l'emploi rural, qu'à la croissance économique inclusive, notamment des ménages les plus vulnérables.

La production agricole est non seulement une source essentielle pour l'approvisionnement alimentaire, mais, elle est aussi la principale source de revenu pour la plupart des ménages [FAO (2003)]. Toutefois, ces derniers sont très vulnérables aux mauvaises conditions climatiques et aux catastrophes naturelles ; au point qu'ils risquent de tomber en insécurité alimentaire saisonnière dans les périodes de soudure [BM (2008)]. De même, la diminution de l'approvisionnement alimentaire et la perte des moyens de subsistance peuvent aussi être provoquées par les investissements fonciers à grande échelle [Sen et al (1990) ; FIAN(2010)].

Néanmoins, dans le continent africain, les investissements dans le secteur agricole ont été relativement faibles par rapport à ceux des autres régions. Tandis que les gouvernements africains ont dépensé, en moyenne, 4,5 % de leur budget total sur l'agriculture, les gouvernements asiatiques ont dépensé le double [Fan et al, (2008)]. Au cours des quatre dernières décennies, la croissance de la production nationale n'a pas pu suivre l'accroissement démographique. Delà, les importations alimentaires africaines ont augmenté [Degraaff et al, (2011), p195-213]. A cet égard, Chabane et al [2013] affirment que les gouvernements des pays les moins avancés (PMA) devraient redonner à l'agriculture sa place entière. En effet, le rôle central joué par le secteur agricole, en tant que vecteur efficient pour la préservation des ressources, et en tant qu'élément fondamental pour lutter contre la pauvreté, la faim et le réchauffement climatique, prouve la nécessité d'une politique de développement plaçant le secteur agricole en première priorité.

En Afrique du Nord, la production agricole demeure insuffisante. Des pays comme le Maroc, l'Algérie et l'Égypte sont, en effet, des zones de « haute sismicité alimentaire », au regard des déséquilibres chroniques entre la production agricole et les besoins des populations [Herview et al (2009), p.9-52]. Cette insuffisance peut être le résultat de l'évolution d'une combinaison de facteurs. En fait, Zolin [2010] met l'accent sur l'accès inéquitable, des agriculteurs des zones rurales et marginales, aux intrants. Cet accès ne pourra que diminuer la production agricole. D'autres facteurs portent sur le désintérêt des travailleurs vis-à-vis de la profession agricole, métier difficile, souvent peu adapté à une vie moderne et à ses loisirs, déconsidéré sur le plan social. De même, l'urbanisation rampante qui capte les meilleurs sols à vocation agricole peut également être cause d'abandon [Padilla (2008), p.231-249]. En outre, l'accélération du processus d'industrialisation a abouti aussi à un recul des superficies cultivables et a amené à négliger les politiques agricoles, surtout que l'aide publique au développement s'est concentrée sur d'autres secteurs que l'agriculture, et que la vision de l'industrialisation en économie ouverte a négligé le secteur agricole [Vindel (2011), p.73].

2- Situation agricole en Afrique du Nord

L'irrigation est un facteur clé de la productivité agricole. Toutefois, une grande partie des territoires du nord de l'Afrique se situe dans des zones semi-arides, voire arides. En effet, le désert occupe une partie non négligente du territoire tunisien et algérien. De ce fait, ces pays sont à moins de 10 pour cent de terres irriguées. D'ailleurs, le changement climatique menace fortement l'agriculture pluviale qui prédomine dans la plupart des pays de la région. Quant à l'Egypte, elle pratique une agriculture à 100 pour cent irriguée grâce au fleuve le plus long du monde [Rastoin et al (2012), p.24].

Les terres arables ne représentent qu'une faible part de la totalité de la superficie surtout en Tunisie, en Algérie, et en Egypte où ce taux est inférieur à 3,5 pour cent [Blanc (2009), p.181].

Face aux contraintes hydriques et foncières (la pression démographique), l'agriculture intensive est concentrée tout au long du Nil en Egypte et dans les régions côtières au Maghreb. Toutefois, ce type d'agriculture fondé sur l'utilisation massive d'intrants chimiques (engrais, phytosanitaires, énergie, semence) est de plus en plus remis en cause [Bony (2011)]. Il devra être substitué par un autre type d'agriculture viable et durable qui vise à réconcilier l'agriculture et l'environnement favorable à la biosphère.

Les céréales représentent la part la plus importante des importations des produits de base dans la région étudiée (de 35 à 40 pour cent) [CIHEAM (2009), p.23]. La dépendance en céréales s'explique par l'importance stratégique de ces produits agricoles dans la sécurité alimentaire et particulièrement le blé (blé tendre et blé dur) qui est à la base de la diète alimentaire des pays d'Afrique du Nord.

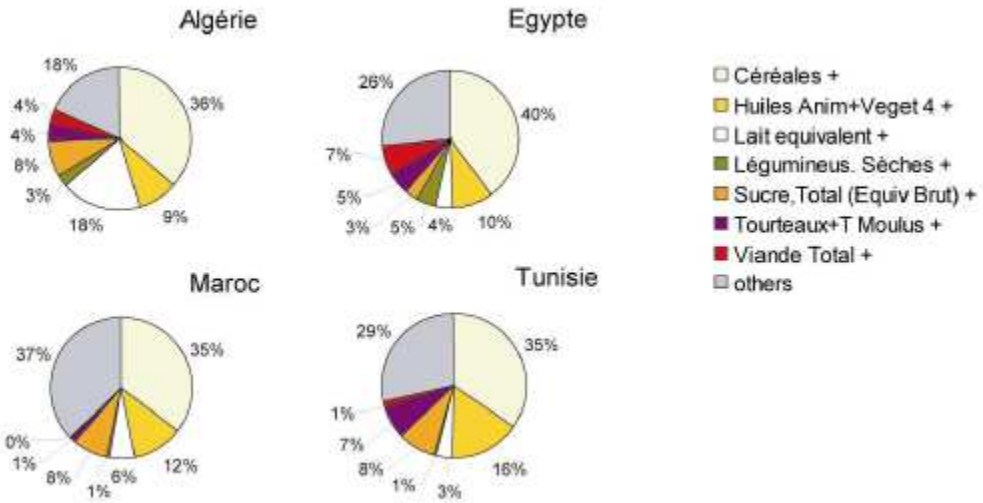

Figure 1 : Répartition en valeur (US dollars) des principaux produits agricoles d'importation (moyenne 2002 – 2006)

Source : Elaboré par le CIHEAM-IAMM à partir des données de FAOSTAT, 2008

La part des exportations alimentaires en pourcentage de la production agricole est presque de 30 pour cent en Tunisie, 20 pour cent au Maroc. Alors qu'en Algérie, elle ne représente qu'une part négligeable (entre 0.8% et 2,3%) au cours de la période 2005-2010 [CEA-AN (2012), p.23] du fait que l'économie algérienne est fortement dominée par le secteur des hydrocarbures. En 2006, les exportations agricoles constituent huit pour cent du commerce extérieur égyptien [Lerin et al (2009), p37].

3- Validation empirique

Dans notre analyse économétrique, nous avons utilisé les données de panel pour déterminer les facteurs de la sécurité alimentaire et répondre à la question principale de ce manuscrit, à savoir si l'impact

de l'agriculture et la priorité de ce secteur stimulent la sécurité alimentaire en Afrique du Nord, et ce en examinant les déterminants de la sous-alimentation dans cette région.

La variable dépendante est l'insécurité alimentaire ; elle est mesurée par la prévalence de la sous-alimentation en pourcentage de la population totale [5](IA) ; cet indicateur de la faim est un indicateur traditionnel de la FAO, il est adopté aussi en tant qu'indicateur officiel du premier Objectif du Millénaire pour le Développement (OMD1, cible 1C). Les variables indépendantes sont au nombre de quatre, à savoir : la valeur ajoutée agricole[6] (AGR_PIB), qui est mesurée par la valeur ajoutée de l'agriculture en pourcentage du PIB. Le pouvoir d'achat (PA), il est mesuré par le revenu national brut en parité du pouvoir d'achat[7]. La croissance démographique (CROISS_DEMOG), qui est mesurée par le taux d'accroissement démographique[8]. La balance commerciale alimentaire (XM) dont l'exportation et l'importation alimentaires, sont mesurées en pourcentage de l'exportation et de l'importation de marchandises[9].

Avant de passer aux données de panel, il est intéressant de faire l'analyse descriptive de nos variables pour avoir des résultats préliminaires sur les variables étudiées, et ce en calculant les statistiques descriptives usuelles (moyennes, écarts types, minimums et maximums), et en calculant aussi les corrélations qui peuvent exister entre les variables explicatives, afin de détecter le risque de multicolinéarité.

Tableau 1: Les statistiques descriptives du modèle

Variable	Mean	Std. Dev.	Min	Max
ia	4.465909	.6826566	4	6.2
Crois-demog	1.339083	.348494	.5901647	1.868865
pa	5509.318	1772.82	2520	8960
xm	-6.045396	12.00713	-28.00338	11.79852
Agr-pib	12.30397	3.378441	6.915571	17.2918

La moyenne de la prévalence de la sous-alimentation en Afrique du Nord est environ de 4,5 pour cent. Les pays les plus vulnérables sont le Maroc (5,6%) et l'Algérie (4,5%). Le signe de la moyenne de (XM) est négatif car les importations alimentaires excèdent les exportations alimentaires dans la période allant de 2000 à 2010. Malgré que l'agriculture ait un rôle majeur dans la réduction du chômage, de la pauvreté, et dans le développement économique, la moyenne de la valeur ajoutée agricole (exprimée en pourcentage du PIB) dans cette sous-région n'est que 12,3 pour cent cette dernière décennie. Elle est de l'ordre de 15 pour cent en Egypte, 15,7 pour cent au Maroc, 9, 8 pour cent en Tunisie et 8,6 pour cent en Algérie [Turki Abdelhedi (2015), p.202-203].

Les données de Panel disposent deux dimensions : une dimension individuelle et une dimension temporelle. Cette double dimension représente un grand avantage acquis par les données de panel, que ce soit par rapport aux données en séries temporelles, ou aux données en coupes transversales. En effet, si les données en séries temporelles ou chronologiques permettent d'étudier l'évolution des relations dans le temps, elles ne permettent pas de contrôler l'hétérogénéité entre les individus. A l'inverse, les données en coupes transversales permettent d'analyser l'hétérogénéité entre les individus, mais elles ne peuvent pas tenir compte des comportements dynamiques, puisque la dimension temporelle est exclue du champ d'analyse [Goaied et al, 2012, p16-18].

Après la vérification des tests (test de spécification de Fisher, test de Hausman, test de normalité des résidus, test d'hétéroscédasticité) et la correction de l'autocorrélation, nous retenons, le modèle à effets fixes suivant :

[5]Source : FAOSTAT, 2012.
[6] Source : WDI, 2012.
[7] Source : BM, 2012.
[8] Source : WDI, 2012.
[9] Source : WDI, 2012.

Tableau 2 : Résultats d'estimation du modèle

Variable dépendante : IA	Coefficients
Agr-PIB	-0,067*
PA	-0,001***
XM	0,004ns
Croiss-Demog	-0,404ns
Constante	-13,845
R^2	0,581

EF : Estimation par Effets Fixes

*, *** : Significatif au seuil de 10% et 1%

ns : non significatif

Les résultats obtenus montrent nettement que la variable d'intérêt de ce modèle (la valeur ajoutée agricole en pourcentage du PIB : AGR_PIB) contribue positivement à la sécurité alimentaire de l'Afrique du Nord. Conformément, à Padilla [2008], l'impact positif de l'agriculture sur la sécurité alimentaire est vérifié aussi pour toute la Méditerranée. En effet, ce dernier souligne que les variables les plus influentes sur la sécurité alimentaire, sont le niveau de la production agricole et alimentaire et la qualité de cette production, la pauvreté relative, les inégalités et l'identité culturelle alimentaire. De même, le principal message du rapport de la Banque Mondiale sur le développement dans le monde, est que le premier des objectifs du millénaire pour le développement (OMD 1), visant à réduire de moitié la proportion de la population vivant dans l'extrême pauvreté et souffrant de la faim chronique, est principalement déterminé par le développement de l'agriculture [BM (2008)]. Ainsi que Fan et al [2008] ont signalé que les hausses des prix alimentaires de 2007-2008 ont contribué à la conscience publique des facteurs de la faim, et par la suite, à de nouveaux engagements internationaux dans l'investissement agricole dans les pays en voie de développement. Évidement, le développement agricole est crucial pour réduire la faim et la pauvreté des zones rurales [Diao et al (2007)]. Ceci indique clairement la conformité de nos résultats empiriques à la littérature théorique.

Conclusion

En guise de synthèse de cette recherche, il est intéressant de proposer des recommandations pouvant favoriser la sécurité alimentaire en Afrique du Nord. A cet effet, il est nécessaire d'orienter, de plus en plus, les dépenses publiques vers le secteur agricole et le développement rural, en mettant l'accent sur l'amélioration de la gouvernance des collectivités rurales de façon à dynamiser l'économie rurale. L'action doit être au niveau du développement de l'agriculture sur les exploitations familiales agricoles. D'ailleurs, les Nations Unies ont déclaré l'année 2014 comme l'année internationale de l'agriculture familiale (AIAF). Le principe de base de cette proclamation est d'accorder à l'agriculture familiale l'importance qu'elle mérite, car elle a un rôle déterminant non seulement dans l'amélioration de la sécurité alimentaire, mais aussi dans la réduction de la pauvreté et de l'exode rural, la diminution du chômage, et la gestion des ressources naturelles… Parallèlement, le Fonds International de Développement Agricole (FIDA) estime que les agriculteurs familiaux ont la possibilité et l'obligation d'être les précurseurs du changement de l'agriculture mondiale. Selon l'Oxfam [2002], la productivité agricole vietnamienne a augmenté de cinq pour cent en moyenne dans les années 90, et grâce à l'agriculture familiale, le Vietnam s'est transformé d'un petit importateur de riz, à un deuxième plus grand exportateur mondial dans une quinzaine d'années. Cette transformation a engendré une diminution remarquable de son taux de malnutrition. De même, l'exemple de la Chine est un exemple révélateur. Ce pays a aussi réussi à éradiquer la malnutrition en mettant la volonté sur le soutien de sa population agricole rurale, et en mettant en œuvre des politiques de soutien à la communauté rurale et agricole. Cependant, pour le cas africain, le gouvernement concentre l'investissement agricole dans les grandes exploitations, au détriment des petits agriculteurs et des consommateurs pauvres, contrairement aux pays qui ont réussi dans leur lutte contre la faim et la malnutrition par l'adaptation de tels programmes, comme la Bolsa Familia (c'est un programme social brésilien d'aide financière qui associait éducation, santé primaire et investissement dans l'agriculture familiale[10]).

[10] Il s'agit d'une allocation en espèces aux ménages pauvres.

L'agriculture présente un instrument crucial pour garantir le droit à la nourriture en Afrique du Nord. Il est désormais, donc, de la considérer comme un secteur à part entière et d'intensifier les programmes de soutien dans ce secteur. Les décideurs politiques devront donc privilégier les programmes de soutien qui permettent aux agriculteurs familiaux de gérer leurs terres d'une manière durable. Pour y parvenir, ils devront mettre l'accent sur les facteurs qui expliquent l'agriculture familiale : faciliter l'accès au marché, aux terres (l'exemption des terres à vocation agricoles louées des droits d'enregistrement et des impôts sur les revenus), rééchelonner les dettes des agriculteurs, promouvoir la recherche dans les thèmes de la sécurité alimentaire et du développement agricole durable, créer une interaction entre chercheurs et importants acteurs dans le domaine pratique, ainsi que les sensibiliser du rôle majeur des petits agriculteurs familiaux dans le développement agricole, et notamment les femmes.

De même, les gouvernements devraient agir à court, à moyen et à long terme, soit par le soutien et les aides pour l'acquisition des semences et des engrais, soit par le biais des programmes de protection sociale tels que l'augmentation des revenus appuyés par des interventions directes en nutrition et des investissements en santé et en eau. A cet effet, il faudrait effectivement concevoir, et de manière adéquate, les mécanismes d'interventions d'urgence, car si ces interventions se perpétuent et se répètent, elles risquent de perturber la production alimentaire intérieure. Certes, ces mesures immédiates devraient être suivies par d'autres mesures à moyen et à long terme qui tentent d'atteindre l'accroissement durable de la production agricole nationale afin de diminuer la dépendance alimentaire envers l'étranger et alléger certaines dépenses publiques (les subventions, les mesures conjoncturelles…). A cet effet, il faut surmonter les obstacles structurels qui défavorisent le secteur pour faciliter l'implication du secteur privé.

Il est aussi important de privilégier l'éradication de la pauvreté, car le lien entre la pauvreté et l'insécurité alimentaire est très complexe et peut être résumé dans un cercle vicieux. Il est donc préférable d'intégrer les stratégies de lutte contre la pauvreté aux politiques de sécurité alimentaire afin de réduire la pauvreté et la faim qui sont étroitement liées.

Malgré que le secteur agricole constitue un pilier fondamental de l'activité économique de la région étudiée, les dépenses publiques accordées à l'agriculture demeurent encore au dessous de l'engagement pris en 2003 à Maputo d'affecter 10 pour cent du budget national au secteur agricole[11]. Dans le même contexte, les investissements dans la recherche agricole ne dépassent pas 0.6 pour cent du PIB agricole (sauf au Maroc : 0.9 pour cent). D'une manière générale, les dispositifs de formation, d'encadrement et d'innovation demeurent encore faibles dans ce secteur. Rastoin [2011] stipule que le projet de Chaire Unesco « Alimentations du monde » (ADM) contribuera à accumuler et à faire progresser la connaissance par la science et la technologie dans un domaine « l'alimentation », où les savoirs scientifiques restent lacunaires. De tels projets, comme l'ADM, pourront sensibiliser, les gouvernants, les enseignants, les directeurs du secteur public et privé, les étudiants, les chercheurs et même les citoyens, de l'importance de la formation sur le thème de l'alimentation et de l'agriculture. Dans le même contexte, il serait intéressant dans le cadre des travaux futurs d'inciter à insérer dans chaque université, dans chaque unité de recherche, dans chaque laboratoire de recherche, une discipline traitant les thèmes de l'alimentation durable, et qu'elle soit aussi élaborée par des enseignants-chercheurs pluridisciplinaires.

La coordination entre les pays de la région est aussi une mesure importante, car on peut réussir seule, mais réussir ensemble est beaucoup plus efficace. Il convient donc de disposer des mécanismes solides de coordination, de mise en œuvre et de surveillance de la sécurité en créant un fond de garantie des prix pour un marché commun. Ce genre de garantie des prix va assurer la stabilité des prix à la production, en créant une réserve régionale. Il faut aussi augmenter le taux de pénétration de l'assurance « multirisque climatique » auprès des agriculteurs, renforcer les capacités et les outils nécessaires de gestion de risque lié aux catastrophes, et créer des banques alimentaires et des infrastructures adéquates, des filières de distribution alimentaire pour réduire les pertes alimentaires.

Enfin, nous soulignons l'importance d'une volonté politique parce que si la volonté politique n'existe pas, rien ne pourrait être entrepris.

[11] En 2009 et 2010, le financement public accordé au secteur agricole est de l'ordre de 4,5 pour cent du budget global en Tunisie et de 4 pour cent au Maroc (CEA-AN, 2012).

Une politique commune agricole maghrébine est une opportunité pour ces pays s'ils mettent les moyens suffisants à la lutte contre la corruption et l'application des droits fondamentaux.

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Customer Relationship Management (CRM) in Small Brick-And-Mortar Retail Shops: Back to the Essence of CRM

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Abstract

The essential thoughts of CRM are sometimes hidden or not fully obvious. Hence, the aim of this paper is to explore the reality of CRM in the form that was mainly typical in the past, i.e. customer relationship management without any software tools, only by using the knowledge in the entrepreneur's head and his/her skills how to build and develop personal relationships with his/her customers. In order to catch the characteristic traits of this approach to CRM, own observation in the chosen small specialised brick-and-mortar retail shops and also semi-structured interviews with entrepreneurs or relevant internal workers of these chosen shops were used. The obtained data were analysed, compared and synthesised. Subsequently, the typical traits of CRM in the chosen small specialised shops were identified: (1) no anonymity, (2) sales interview as a kind of social contact, (3) sales interview as an opportunity to share experience. These traits can be considered as a competitive advantage. It is advisable to keep in mind the fundamental thought of CRM: the genuine personal and friendly approach.

Keywords: customer relationship management; CRM; B2C; retail

1 Introduction

This section briefly presents the definitions of the basic terms mentioned in the title of the paper (i.e. 'customer relationship management' and 'retail').

After this section, there are presented the aim and the corresponding methods that lead to fulfilling the specified aim. Besides this, the authors' approach to the choice of the topic is also explained here.

The next section with results contains the obtained empirical data in a compressed form, including the synthesis of findings.

1.1 Customer relationship management (CRM)

Customer relationship management (CRM) is a part of the relationship marketing – according to Palmatier (2008, p. 7), these "terms are sometimes used interchangeably". Egan (2012) notes relationship marketing is even used as a synonym for terms like direct marketing, relevance marketing or individual marketing etc. – his approach is really broad.

However, there is a difference between these terms. While relationship marketing focuses on relationships with all relevant interest groups of the particular company, the concept of CRM deals only with the customers (customers can be considered as one of the company's interest groups).

Palmatier (2008, p. 7) explains the connection between CRM and relationship marketing in this way: CRM is "the managerially relevant application of relationship marketing". The single words in the abbreviation can be explained as follows: customers (= C) is in the centre of thinking and their relationships (= R) with the company should be managed (= M) (Wessling, 2003).

1.2 Essential thoughts of CRM

CRM is mainly connected with topics like customer loyalty, loyalty programmes/schemes or special software solutions. There are plenty of papers which deal just with these themes, e.g. Slabá (2015) focuses on customer loyalty and factors that influence it, Pícha, Skořepa and Navrátil (2013) deal with factors on loyalty to a particular store, Bednarz (2012) deals with loyalty programmes, Harrigan, Soutar, Choudhury and Lowe (2015) describe the connection of CRM with social media technology etc. Indisputably, such approaches to CRM are useful and their narrow specialisation is welcomed.

However, the essential thoughts of CRM are sometimes hidden or not fully obvious, especially in the retail sector. It was common in the past that the retailer (salesperson) knows his/her customers very well and was able to recommend products appropriately. Such retailer relied on the knowledge in his/her own head – he/she did not have any special software tools that are very common in the today's business practice. He/she simply used the personal approach to the customers and he/she managed to obtain important and useful information through sales interviews with his/her customers. In this sense, the term 'Tante-Emma-Laden' is very common in the German literature (Knoche, 2013).

In connection with it, Román (2014) emphasises salesperson's active listening. It is possible to claim that such active listening can be likened to the today's B2B area where the relationships are more personal than it is in B2C area. Generally, sometimes the kind and hospitable employees of any service provider are enough to have these same clients willing to come again (Švec et al., 2012).

Developing interpersonal bonds between employees and customers in selling contexts can increase sales and positive perceptions of the employees and the store (Jacob et al., 2011). If the salesperson is able to build and develop a meaningful relationship with the customers, it can happen easily what Reynolds and Arnold (2000) describe: the loyalty to the salesperson can "spill over" into the loyalty to the store. According to Pascu, Milea and Nedea (2015), loyal customers are the valuable competitive advantage of every company – customers can be likened to the source of the company's growth.

1.3 Retail sector

Kotler and Keller (2012, p. 447) define retailing as follows: it "includes all the activities in selling goods or services directly to final consumers for personal, nonbusiness use". It is just the 'nonbusiness use' what is the crucial aspect of retailing. Retailing belongs to the area of B2C.

Basically, retailing can be realised either as store-based, or as non-store based (particularly web-based) (Berman and Evans, 2010).

For purposes of this paper, the store-based retailing (realised in brick-and-mortar shops) is important, especially 'specialty stores' that Berman and Evans (2010, p. 132) describe as shops with "very narrow

width and extensive depth of assortment". According to Mulačová, Mulač et al. (2013), the offer of these specialised shops usually contains non-food and the typical feature is the high knowledgeable staff.

2 Aim and methods

The aim of this paper arises from the introduction – i.e. to explore essential thoughts of CRM in the today's world. Based on the authors' experience, these thoughts seem to be hidden, not fully obvious or expressed only implicitly, especially in the retail sector.

Results from searching in scientific databases support the importance of the presented topic. Table 1 shows how many results can be obtained if there are six combinations of keywords (written as lower-case letters), connected with basic boolean operator "AND":

- relationships marketing AND b2b,
- relationship marketing AND b2c,
- personal relationships AND b2b,
- personal relationships AND b2c,
- crm AND b2b,
- crm AND b2c.

Table 1: Results from scientific databases Web of Science (WoS) and Scopus

Keywords	B2B	B2C
Relationship marketing	447 (WoS), 296 (Scopus)	118 (WoS), 75 (Scopus)
Personal relationships	27 (WoS), 31 (Scopus)	15 (WoS), 18 (Scopus)
CRM	53 (WoS), 70 (Scopus)	31 (WoS), 45 (Scopus)
Total	924	302

Source: Own processing.

Table 1 shows there are more results connected with the area of B2B, in comparison with the area B2C. It indicates there are substantial research opportunities in the area of B2C. In other words, the attention has been predominantly paid to the area of B2B in the context of relationship marketing, personal relationships and CRM (own searching in databases Web of Science and Scopus was carried out in February 2016).

The topic about personal relationships with customers in the retail sector has been still underestimated; e.g. Ellis and Beatty (1995) express the same idea. Specifically, these authors focus on customer relationships with retail salespeople (salesperson in the shops).

Hence, the aim of this paper is to explore the reality of customer relationship management in the today's world – customer relationship management in the form that was mainly typical in the past, i.e. customer relationship management without any software tools, only by using the knowledge in the entrepreneur's head and his/her skills how to build and develop personal relationships with his/her customers.

In order to catch the characteristic traits of this approach to CRM, own observation in four chosen small specialised brick-and-mortar retail shops located in the Czech Republic and also semi-structured

interviews with entrepreneurs or relevant internal workers (= hereafter simply referred to as respondents) of the chosen retail shops were used. The research was carried out in January and February 2016.

The reason for using observation was the fact that this research method is able to considerably enrich the findings. However, this method is sometimes neglected (Saunders, Lewis and Thornhill, 2009). Using semi-structured interviews allowed to modify the prepared questions from interview to interview so the specifics of respondents were respected (Saunders, Lewis and Thornhill, 2009). The obtained data were analysed, compared and synthesised.

The choice of particular shops was based on the authors' judgement – there was an effort to find such shops where it was a certain probability to capture the basic essential characteristic traits of the above described approach to CRM: It was also derived from the authors' present experience that this phenomenon is mostly obvious in small specialised shops with hobby products.

3 Results

Table 2 summarises brief characteristics about the chosen brick-and-mortar shops where observation and semi-structured interviews were carried out.

Table 2: Chosen shops for purposes of the research

Case	Brief characteristic
1	▪ A small specialised shop with hobby products (products for modellers) ▪ The respondent was the entrepreneur and the only worker in the shop ▪ Combination of the over-the-counter sale and self-service
2	▪ A small specialised shop with hobby products (electronics for both amateur and professional users) ▪ The respondent was the entrepreneur, there were another three workers who serve to incoming customers ▪ Only the over-the-counter sale
3	▪ A small specialised shop with hobby products (products for amateurs and professional fishing) ▪ The respondent was one of two workers who serve to incoming customers ▪ Combination of the over-the-counter sale and self-service
4	▪ A small specialised shop with hobby products (product for modellers) ▪ The respondent was one worker who serves to incoming customers ▪ Only the over-the-counter sale

Source: Own processing.

All the shops were located in one city in the Czech Republic. They were specialised and in two cases, there was only the entrepreneur, without any additional workers.

3.1 Observation in brick-and-mortar specialised shops

This section contains description of findings, obtained through the own observation in the chosen specialised brick-and-mortar shops (introduced in the above mentioned Table 1).

Case 1

As the research interview with the respondent was realised during opening hours in his shop, there was an opportunity to observe customers and their behaviour (the research semi-structured interview was always interrupted when a customer entered the shop and the respondent started to pay attention to the incoming customer).

The sales interviews between the respondent and the single customers concerned not only requirements on the needed goods, but the interviews contained also personal topics and experience in goods that the customer had bought last time. It was obvious the respondent knows his customers relatively well. It arose from the observation, customers like speaking about their personal experience (in the context of the offered goods) and the respondent likes this kind of discussion.

Case 2

The observation was realised separately (the research semi-structure interview with the entrepreneur was not realised during opening hours directly in the shop).

It was obvious the salesperson (who was different from the entrepreneur) knows his customers very well, sometimes it was clear they know each other relatively deeply. The act of buying was not primal very often, it looked like that the primal reason was sharing the experience.

Among customers, there were both end users (i.e. consumers) and people who buy for the needs of their companies. Nevertheless, the approach to them was the same – there was not any noticeable difference.

The sales interview was very informal; e.g. one customer came in order to buy a product and the subsequent interview was gradually diverted from the particular product to the completely different topic (but this topic did not concern personal matters at all; it was a professional discussion – there was still a certain link to the offered products). The salesperson was knowledgeable, pleasant and helpful.

Case 3

The research semi-structured interview was realised during opening hours in the shop and one worker served to the incoming customers.

There was a customer who was interested in fishing poles. He started to consult with the salesperson (different from the respondent) which one would be suitable for his needs. The interview was highly specialised because the salesperson was knowledgeable and able to give advice.

If there was not any customer in the shop, one of the workers stood at the entrance to the shop and said hello to him known people. It was obvious he is not anonymous in the city where the shop is located.

Case 4

The conditions for research were identical with the case 1: the research semi-structure interview with the respondent was realised during opening hours in the shop and so there was an opportunity to observe customers and their behaviour (the research semi-structured interview was always interrupted when a customer entered the shop and the respondent started to pay attention to the incoming customer).

It was obvious the respondent knows her customers relatively well because she used the very informal address “guys” (in order to address a small group of customers who knew each other evidently).

One of the incoming customers wanted a product that was not available in the shop. The respondent apologised for it and recommended to visit a competitive shop. But the customer asked for ordering it – the customer did not want to go to the competitive shop.

3.2 Semi-structured interviews with entrepreneurs

This section contains description of findings, obtained through semi-structured interviews with entrepreneurs or workers in the chosen specialised brick-and-mortar shops (introduced in the above mentioned Table 2).

Case 1

According to the words of the respondent, he does not consider himself as a salesperson. Naturally, he sells the goods, but through these words he wanted to express he prefers personal relationships with his customers.

Such personal relationships have an influence on the customers' willingness to accept the respondent's prices, although customers could easily order almost all products on the internet and in this way, they could reach better prices. However, customers are used to coming to the shop for advice, for discussion and finally, in order to buy.

From respondent's words, it was evident he attaches great value to the personal interviews with customers. Since his range of the offered goods is specialised (= products for modellers), the respondent educates himself continuously, and then he is able to discuss with the customers and to create space for sharing experience.

Case 2

According to the words of the respondent, there is a group of customers who are simply used to coming to the shop. As a reason, the respondent mentioned that it is usual to order a particular product what a customer demands just now. Customers know, it is functioning in this way, and are loyal, despite the same action of ordering something could be arranged in a competitive shop if a customer comes and makes a request for the particular product. Nevertheless, customers come to the respondent's shop and order the requested products here. It can be explained through the fact that customers grew fond of respondents' workers, they have good relationships with them and so they come to them.

Such relationships with customers can be considered as a result of the particularity (in the sense of the offered range of goods). The offered products are highly specific – they are designed for amateur and professional users of electronics. In the city, where this shop is located, there is not any interest association that would unite these users so this shop functions as an interest association. It means it unites people of a certain "community" – people who like things relating to electronics.

It is typical that a customer who has come for the first time and has been unknown, will be familiar after several visits. According to the respondent's words, it is a pleasure to advise and to check up own knowledge.

Case 3

According to the words of the worker in the shop, incoming customers usually want to ask for a piece of advice – e.g. they say what they have read somewhere and they would like to hear the workers' opinion on it because the worker is considered to be a specialist in the field of fishery. A similar situation is, if customers want to gain specific pieces of advice in the field of fishery.

Another kind of relationship with customers has the following characteristics: customers come in order to brag about their success in the fishery – they bring photos and thank for good advice. It means there is a space for discussing the use of the purchased products.

Case 4

The research semi-structured interview was brief in this case. The respondent admitted the customers want to speak about their private issues, so the respondent feels like their confidant. This is a proof the relationships between customers and the respondent have personal essence.

3.3 Synthesis of findings

This section contains a synthesis of the above presented findings and their integration into a broader context.

Fig. 1 shows the summary of characteristic traits of CRM in the chosen small specialised shops with the traditional personal approach:

- Firstly, customers are not anonymous.
  Workers in the chosen shops know their customers relatively well.
- Secondly, sales interview is considered as a kind of social contact.
  In this sense, a shop is considered to be a place where people meet. Personal or private matters of the particular customers become a part of sales interview.
- Thirdly, sales interview is an opportunity to share specific experience, regarding the offered products.
  Entrepreneurs or workers in the chosen shops educate themselves in order to be able to create space for sharing experience and to discuss about the offered products. It means, they seek for news actively and follow trends in the particular area.

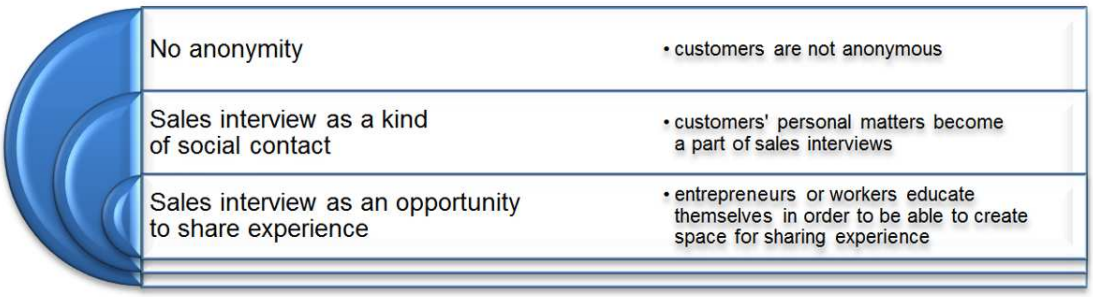

Fig. 1: Characteristic traits of CRM in small shops with the traditional personal approach
Source: Own processing.

Ellis and Beatty (1995, p. 597) connect the idea of customer relationships with the environment of considerable competition between retailers and claim that "creating a competitive advantage is essential to survival of retailing firms". In the context of this paper, extraordinary relationships with the customers can be considered as a competitive advantage. Palmatier (2008) notes that the importance of relationship marketing has grown in the environment of the increasing competition – companies try to look for other distinctions than it is a price.

The approach to the competition shops is interesting: in two of the above presented cases, the customer obtained advice to go to the competition. It indicates the entrepreneur is not afraid of the competition because he/she is probably sure about the loyalty of his/her customers.

Without any doubt, the excellent relationships with customers mean a great benefit for every company (for instance, see case 2: customers grew fond of respondents' workers, they have good relationships with them and so they come to them). However, it is necessary to admit one thing: although customers may have good relationships with workers/salesperson in the shop, their loyalty to the shop itself can be only minimal. In this sense, Guo (2012) deals with the possible risk of customer loyalty when this loyalty is aimed at salespersons.

Through personal sales interviews with customers, important knowledge can be obtained and this knowledge can be further used for development of company's business activities. For instance, according to Tišlerová (2012), it is possible to obtain exploitable knowledge just from customers.

4 Conclusion

The essential thoughts of CRM are sometimes hidden or not fully obvious, especially in the retail sector. Hence, the aim of this paper was to explore the reality of CRM in the form that was typical mainly in the past, i.e. customer relationship management without any software tools, only by using the knowledge in the entrepreneur's head and his/her skills how to build and develop personal relationships with his/her customers.

In order to catch the characteristic traits of this approach to CRM, own observation in four chosen small specialised brick-and-mortar retail shops located in the Czech Republic and also semi-structured interviews with entrepreneurs or relevant internal workers of the chosen retail shops were used.

The characteristic traits of CRM in the chosen small specialised shops with the traditional personal approach can be summarised as follows: (1) customers are not anonymous, (2) sales interview is considered as a kind of social contact, (3) sales interview is an opportunity to share specific experience, regarding the offered products. These traits can be considered as a competitive advantage, as a factor that is able to distinguish individual retailers. It is advisable to keep in mind the fundamental thought of CRM: the genuine personal and friendly approach.

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Visual Appeal of Destination web pages: An Exploratory Eye tracking study on Generation Y

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Abstract

Information and Communication Technologies (ICT) have dramatically changed the provision of tourism destination information. That is the reason it is becoming critical for destination and businesses in the tourism industry to have a strong online presence. In order to achieve this goal, the proper use of online channels is crucial. The goal becomes more difficult when considering different behavior of web page users regarding their age cohort. The article focuses on Generation Y web page users and their evaluation of selected official town destinations´ web pages (5 main tourism attractions in Central Europe). The focus is on visual appeal of the websites. With help of a mix of qualitative research approaches, including an eye tracking study followed by questionnaires, the authors evaluate those web pages from different points of view and try to compare the results. The authors also found several conclusions for positioning of various visual contents of the web page.

Keywords: Destination, Evaluation, Generation Y, Tourism, Visual Appeal, Web page, Website.

Introduction

Any description of the ICT development path must of necessity start from an analysis of the concepts of Web 1.0, 2.0 and the possibilities of future improvements currently grouped under the expression Web 3.0. (Minazzi, 2014) Websites are a major channel to broaden companies´ reach and market share. Thus making websites visually appealing has become of great importance to organizations and also destination. Internet connection is important for this new possibility of new distribution channel. European Commission monitors so called DESI (Digital Economy and Society Index). The findings show that Member States have made progress in areas such as connectivity and digital skills, as well as in public services. There is highlighted the problem with a lack of high-speed internet coverage, cross-border e-government and difficulties in shopping and selling across borders. The leaders of DESI ranking are Denmark, the Netherlands, Sweden and Finland. The fastest growing countries are the Netherlands, Estonia, Germany, Malta, Austria and Portugal (European Commission, 2016b). In DESI 2016, the Czech Republic ranks 17th out of the 28 EU Member States. More people take-up subscriptions to fast broadband and mobile broadband. According Figure 1 Czech citizens have a good level of digital skills and as a result, they engage in a wide variety of online activities. Czech internet users are quite keen on online shopping. Czech Business use digital technologies to improve their efficiency and to access wider markets. But the Czech Republic has not progressed significantly compared to last year so it falls into the cluster of Falling behind countries whose score is below the EU average and which grew slower. (European Commission, 2016a)

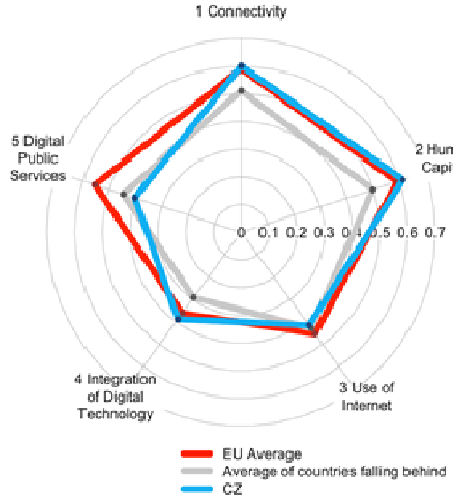

Figure 1: Digital Scoreboard of the Czech Republic
Source: European Commission, 2016a.

Websites are the important interfaces in HCI (Human-Computer Interaction). (Wang et al., 2014). Information on a websites is typically communicated through its perceptual elements, such as text and images. Making web pages more usable is important to organizations because a good web design can keep users from moving away from the website. While users may move away from a website for technical reasons, content reasons and form reasons. (Djamasbi et al., 2010) Visual hierarchy and its creating through arrangement of proper perceptual elements can guide users´ viewing the page. Internet penetration and use of internet are most important factor for use website in communication. World internet population and internet penetration you can see in Figure 2.

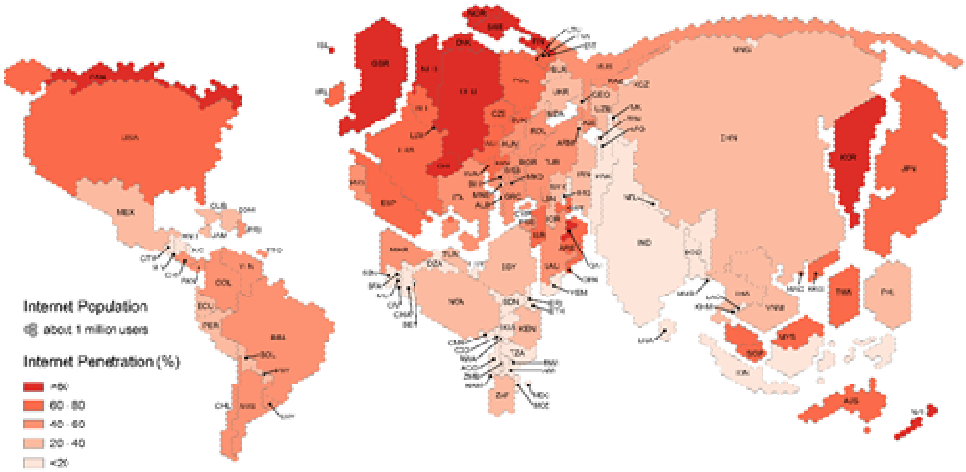

Figure 2: World internet population and penetration
Source: Graham & Sabata, 2013

Generation Y and its behavior

First authors dealing with age cohorts were Karl Mannheim and Paul Kecskemeti (1952). Each generation is socio-culture closed groups of people, mainly selected by year of birth and common behavior. They are defined with help of demography, culture, use of printed or no printed information, market survey and survey of members (Pendergast, 2010). This topic is very interesting in these days in all fields of research. The same situation is in tourism research especially because there is a multi-generation customer. (Leask, Fyall, Barron, 2011). It is important to know the specifics of each generation for providers of tourism services for attract of tourists. Generation cohorts are can´t use for all population. There are some differences between nation, history evolution, politics opinions etc. We focused on young people from Generation Y and their perception of information on the internet pages. First problem of research was to define member of Generation Y. Some authors defined Generation Y quite differently. Solka, Jackson and Lee (2011) deals with people born between 1977-1996, Perdegast (2010) 1982-2002, Neubome and Kerwin (1999 in Leask, Fyall & Barron, 2011) 1979-1994 or Solka, Jackson and Lee (2011) 1981-1995. This generation differs from other in many characteristics. One of them is shopping behavior (Bakewell& Michell, 2006). They use technological progress like e-commerce and use of ITC. Generation Y is one of the first generations to have technology and the internet from a very early age – they are significantly more likely than older internet users to create blogs, download music, instant message and play online games (Dajmasbi et al., 2010). They want to be always connected. They use internet in many activities, which cover sending text message, information capturing, using of social network, podcasting and reading and writing blogs (Nusair, Parsa & Cobanoglu, 2011) People of this generation are more oriented on games. They expect that their job will be a fun and they are focused on success. (Broadbridge, Mawell & Ogden, 2009). Kah and Lee (2014) deal with decision process in tourism and they conclude it in five phases: (1) recognition of needs or desire to travel, (2) searching of information, (3) evaluation of alternatives, (4) finale decision and (5) real purchase. Nowadays tourism businesses can influence phase of searching of travel information. In a networked environment such as the web, all organizations in the tourism sector are facing a dynamic and innovative industry. Multichannel Communication solution can help capture visitors´ attention. Integration of multiple platforms (e.g. blogs, social media) has been identified as a major issues, and specifically multi-channel communication (e.g. Facebook, Twitter, Instagram) and advertisement (Booking, Trivago, Uber) on social web platforms (Fenzel et al., 2016). Generation Y is very important segment for its strong buying power. In 2020 it will be the major segment in tourism consumption. They will also tend to share their unique travel experience (Cohen, Prayag & Moital, 2014). One way to capture visitors´ attention is web page. It has to be professional and with clear focus on target segment. Current generation of young people keeps only 10 % of text information. Two or three times more it keeps in graphic form. They grew up with computer games, TV and multimedia presentation. It is good to use humor in some message in web site presentation (Kipnis & Childs, 2004). Djamasbi et al. (2010) and Hao et al. (2016) found out that there are some different characteristics important for Generation Y in website layout (main large picture, pictures of celebrities, search feature and little text).

Research Methodology

The main goal of this paper is evaluate the visual appeal of official web pages of town destinations. Partial objective is to find specific problems of examined web pages. The selected official web pages of town destinations are five covering main tourism attractions in Central European countries.

Table 1: Cities and websites researched

City	Country	Website Researched
Prague	Czech Republic	http://www.prague.eu/en
Bratislava	Slovakia	http://www.visitbratislava.com

Vienna	Austria	http://www.wien.info/en
Kraków	Poland	http://www.krakow.pl/english/
Würzburg	Germany	http://www.wuerzburg.de/en/

Source: own, 2016

Authors used a mix of qualitative research methods to evaluate the web pages. Result of each method is a ranking of the web pages, also over all ranking has been computed.

Firstly the authors evaluated the main factors of the websites and mobile applications. The methodology is based on Luna-Nevarez and Hyman (2012) approach, but some of the observed factors had been adjusted to correspond with the main goal of the article and its focus to Generation Y. The results (including evaluated factors) are presented in Table 2.

Then an exploratory eye tracking study has been conducted. Eye tracking is a king of neuro-physiological method that can record the eye-movement metrics to objectively reflect participants´ attentions and emotions during the experiment. It is not valid method itself. So this study combined questionnaire (self-report method) and eye-tracking (neuro-physiological method) to measure the user affability. (Wang et al., 2014b) Eye-tracking is widely used in HCI studies since eye movement can reflect the visual search mode, which is important in revealing the cognitive processing mechanism. There are several advantages to using eye-tracking to examine website design. It removes the subjectivity of self-reporting data and it allows tracking users´ reactions without affecting other stimuli and can show which parts of the page captured participants´ attention most (Wang et al., 2014a).

An eye tracking study is conducted using the pages of town destinations. Participant's eye movement is tracked while browsing these pages, providing evidence of what attracts their attentions. Eye tracking for this type of research is used in many studies (Djamasbi, Siegel & Tullis, 2010; Wang et al., 2014a; Bergstrom, Olmsted-Hawala & Jans, 2013; Chu, Paul & Ruel, 2009; Yang & Huang, 2013). Eye-tracking was used by Djamasbi et al. (2011) specifically on Generation Y and its use site experience. Other way to research attention of webpages is eye-tracking measures the size of pupil. Pupils react to certain types of images, colors and designs (Loyola et al., 2015).

The authors used various methods for comparing the destination web pages during the eye tracking using Mangold Vision Eye Tracking solution (VT3 mini eye tracker with desktop computer) study, which has been combined with questionnaire:

- the respondents were monitored while trying to find following information: name of the destination, picture of the destination, language selection option, official contact information and search tool (also the time needed to find the information was monitored);
- the respondents ranked the web pages from the best to the worst according to their observation;
- the respondents evaluated how easy they found name, picture, language, contact information and search tool (1-10 scale, 10 = easy, 1 = difficult);
- the respondents rated the website, its purpose and answered how likely they would recommend the web site (1-10, 10 = best, 1 = worst);
- the pupils diameters were measured during the entire eye tracking process.

First two information (name of destination, picture) had been used for familiarizing with the web page and gathering initial vision focus of the respondents.

For this explorative study we have interviewed 6 Non-European visitors of the Czech Republic. All respondents were male Brazilian university students of Engineering, born between 1991 and 1994 (thus all were members of Generation Y), their native language was Portuguese, but their English language skills were at least at advanced level. Their average family monthly income was about 12 000 USD. This is also the limitation of the conducted research. The research was conducted in January and February

2016 at the University of West Bohemia, Faculty of Economics, Department of Marketing, Trade and Services in its eye tracking lab.

Results

Following results had been achieved. In Table 2 the main factors of destination web pages and mobile applications are compared.

Table 2: Evaluation of main factors of the web pages and mobile applications – 01/2016

Measured variable		Prague	Bratislava	Vienna	Kraków	Würzburg
Website						
Primary focus	Informative/cultural (1 pt.)	3	2	2	2	3
	Commercial/transacional (2 pt.)					
	Informative-commercial (3 pt.)					
Advertising	No (0 pt.)	0	0	1	0	1
	Few: 1-2 brands (1 pt.)					
	Many: > 2 brands (2 pts.)					
Social media (1 pt. if used)	Facebook	1	1	1	1	1
	Twitter	1	1	1	0	1
	Google+	0	0	0	0	1
	Youtube	0	0	1	0	1
	Instagram	1	0	0	0	1
	Flickr	0	0	1	0	1
	Blog	0	0	0	0	0
	RSS feeds	0	0	1	0	1
	Others - 1 each	1	0	1	0	1
City map	No (0 pt.) / Yes (1 pt.)	1	1	1	1	1
Weather information	No (0 pt.) / Yes (1 pt.)	1	0	1	1	1
Calendar of events	No (0 pt.) / Yes (1 pt.)	1	1	1	1	1
Mobile version	No (0 pt.) / Yes (1 pt.)	1	1	1	1	1
Mobile App						
Portability	IOS or Android (0 pt.)	1	1	1	1	1
	IOS and Android (1 pt.)					
Languages	Only local language (0 pt.)	1	1	1	1	1
	Multiple languages (1 pt.)					
Up-dated	Never (0 pt.)	1	0	1	1	2
	Sometimes (1 pt.)					
	Often (2 pts.)					
Focus	Informative/cultural (1 pt.)	2	1	2	2	1
	Informative-commercial (2 pts.)					
Total points		**16**	**10**	**19**	**12**	**22**
Rank		**3**	**5**	**2**	**4**	**1**

Source: own research, 2016

The main differences discovered in Table 2 are the number of social media used for promotion and the primary focus of the website, leading the rank is Würzburg followed by Vienna and Prague, respectively.

As illustration, the first impressions of selected web pages (Vienna, Würzburg) from participants at the eye tracking study are shown in Figure 3. It is clear to see that the interviewees did concentrate on

pictures (photos and also pictures in logo of the destination Würzburg), which confirms the considerations about Generation Y web page consumption.

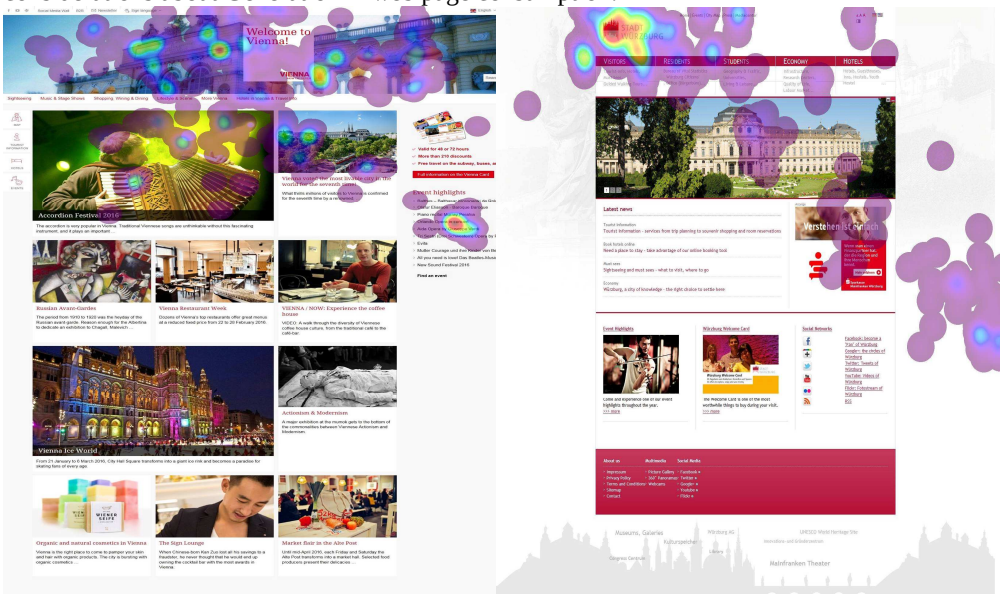

Figure 3: Heat maps for Vienna and Würzburg – first impressions
Source: own research, 2016

For further evaluations, the participants were asked to find the position of five key factors (city name or logo, city picture, language selection option, contact information (or link) and searching tool) on the destination web pages, so some conclusions could be derived. The first two key factors were there to grab participant attention and to get them familiar with the webpage, the other three key factors were fully measured and analyzed.

Some interesting results from eye tracking are showed in the Table 3. The average times to fix the defined information (language selection, contact information, search tool) are presented. Krakow, followed by Bratislava and Würzburg seem to have the best web pages in terms of visual overview. Würzburg has definitely the best position of the search tool. On the other hand the Prague´s website did not rank very well. This might be impact of non-standard layout of the webpage, where the most searched items were predominantly in a centered menu located in lower part of the web page, which is not usual.

Table 3: Time for fixing object

Criteria	Prague	Bratislava	Vienna	Kraków	Würzburg
Language selection	2,4500	1,6933	0,7567	0,4083	0,6325
Contact information	7,0680	5,3580	N/A	5,6280	7,4650
Contact - time to scroll down	5,4720	4,9700	N/A	4,5180	4,4850
Searching tool	1,1983	1,2350	2,3683	1,3967	1,0067
Average	**4,0471**	**3,3141**	**1,5625**	**2,9878**	**3,3973**
Rank	**4**	**2**	**5 ***	**1**	**3**

** contact information were missing, so the web page was ranked as fifth*
Source: own research, 2016

Notes were taken during researching about location of the information on the websites, see Table 4. Those notes might explain the times to fix those objects, which are presented in Table 3.

Table 4: Position of information on the webpage

Criteria	Prague	Bratislava	Vienna	Kraków	Würzburg
Language Selection	Right side in middle line, flag with "en" just under a picture.	Very upper right side part, selection of abbreviations.	Very upper right side part, flag with "english".	Very upper right side part, just flags.	Very upper right side part, just flags
Contact Information	Lower part of webpage - need to scroll; within more menus.	Lower part of webpage - need to scroll; almost alone standing link.	Not available.	Lower part of webpage - need to scroll; within more menus (less than Prague, Würzburg).	Lower part of webpage - need to scroll; within more menus.
Searching Tool	Right on the middle part, just a search button under a picture.	Right on the upper part, just a search button, less visible.	Right on the upper part, search line inside of background picture, out of menus.	Right on the upper part, just a search button.	Middle on the upper part of the webpage (big search line).

Source: own research, 2016

Table 5 shows the participants' rating of the individual key factors (how easy were they to find). Those are presented as overall average for each web page and respondent. The results should correlate with the results in Table 3. The highest variety showed the evaluation of the Kraków web page. In general, the results of objective measurement (time to fix the object according the eye tracker data) does not really correspond with the subjective evaluation of respondents. Obvious objective trouble with searching the proper information in case of Prague web page, were not captured in subjective evaluation.

The interviewees also ranked the webpages according to their overall perception; the results are presented in Table 6. This data are similar to the data in Table 5. In this case we can state, that the respondents subjective evaluations – regarding overall webpage evaluation and evaluation of its individual factors – are almost corresponding.

Table 5: Average based on participant ratings

ID	Prague	Bratislava	Vienna	Kraków	Würzburg
1	8,8750	8,0000	8,5000	9,3750	9,5000
2	8,5000	8,0000	8,2500	8,3750	8,8750
3	8,6875	8,8750	7,6250	7,8750	8,8750
4	9,7500	9,7500	8,5000	9,7500	9,7500
5	9,5000	8,8750	8,6250	7,8750	8,3750
6	8,0000	8,0000	7,5000	7,1250	8,0000
Average	**8,8854**	**8,5833**	**8,1667**	**8,3958**	**8,8958**
Rank	**2**	**3**	**5**	**4**	**1**

Source: own research, 2016

Table 7: Pupils (left-eye) diameter in mm (the bigger the better)

ID	Prague	Bratislava	Vienna	Kraków	Würzburg
1	2,7902	2,7155	2,4870	2,9052	2,5524
2	3,0368	2,9935	2,9272	3,0127	2,9233
3	3,4083	3,3922	3,5005	3,4799	3,3302
4	4,0976	3,8316	3,8402	3,7217	3,5482
5	4,1074	4,0306	4,3436	3,9660	3,8650
6	5,2529	5,2255	5,2479	5,5009	5,0087
Average size	**3,7822**	**3,6981**	**3,7244**	**3,7644**	**3,5380**
Rank	**1**	**4**	**3**	**2**	**5**

Source: own research, 2016

The authors also evaluated the pupil diameters of respondents for each observed web page. The results are showed in Table 7. Using the assumption that the more the participants' likes the web page the bigger is the pupil diameter. Clearly the web pages of Prague and Kraków were the most liked. Prague´s web page works extensively with pictures and isn´t designed in a common way. Its web page has been also evaluated high from the respondents. This is to see in Table 8, which presents the summary of different evaluation methodologies used in this article.

Table 8: Summary of different methodologies results

Method		Prague	Bratislava	Vienna	Kraków	Würzburg
Main factors of web page and mobile application	Table 2	3	5	2	4	1
Times for fixing an object	Table 3	4	2	5	1	3
Average based on participant ratings	Table 5	2	3	5	4	1
Participants' website ranking	Table 6	1	3	5	4	2
Pupil diameters	Table 7	1	4	3	2	5
Average		2,20	3,40	4,00	3,00	2,40

Source: own research, 2016

Average ratings of Prague and Würzburg official destination web pages were the highest ones. Nevertheless, both of them did not mark high in all used methods of evaluation.

Discussion

In this study, the researchers evaluated a small group of destination web pages through five different methodologies that allowed them to derive different conclusions. Although some substantial differences in between the web sites lay-outs and structures, none of them was outstandingly above the average. Even though this study was made on an online topic (website) which by definition is unseasonable and knowing that the big efforts made by tourism managers is to prepare for next season, many people look for information off-season to prepare (perhaps getting some early-bird discounts) and plan ahead their holidays. For a tourism manager, being able to provide Generation Y the information they need all year round, so they can make a proper choice on destination and planning is advantageous.

Table 9: Evaluation on information location

Criteria	Evaluation
Language Selection	Clearly faster times when located on the very upper right side part with flags (graphic).
Contact Information	Long search times due to the need of scrolling; the more menus the slower.
Searching Tool	Clearly Wurzburg positions best, then everything within a menu, no influence of graphic.

Source: own research, 2016

As we can see in this study, tourism marketing plays a big role on strategy. From using social media as a way to connect with potential tourists to a deep analysis on tourism behavior, the tourists look for fast, attention-grabbing, visually appealing and user friendly content. Websites that had these differentials were better evaluated as we can see a great composition in Prague's website.

During the study it was possible to see that the location of information on the website is important and as a conclusion from Table 4, Table 9 specifies the best rated location for the key factors analyzed.

But, Table 9 shows, that different methods used, deliver different (sometimes opposite) results. So for example, would we concern only at eye tracking data (times to fix information), the Prague´s web page would rank very low. Although, subjective evaluations and pupil diameter showed that this web page is ranked high. Bratislava´s web page which uses a lot of pictures and less texts (thus, parameters appealing to Generation Y), but ranks in the middle in most evaluations. So obviously, not only visual factors influence the web page evaluation from the Generation Y point of view, but further factors might need to be investigated.

Finally, the presented results don´t show clear recommendation on how a web page appealing to Generation Y should look like, nor does it show an appropriate evaluation method (some objective observations proofed subjective evaluations, but some did not). On the other hand even such small scale study with limited number of respondents showed interesting conclusions – see Table 9.

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An FCA-Based Information Retrieval Algorithm using Prime Numbers

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Abstract

Lattice-based information retrieval methods have the advantage of providing efficient results. However, the general process of such methods is based on a matching step between each concept of the lattice and the considered query in order to identify the most relevant concept. The matching step is based on the comparison of strings which reflects a relatively high run-time cost. This can be seen as a time-consuming task, mainly when dealing with large corpora. In fact, the complexity of a lattice may grow rapidly with the corpus size. To overcome this deficiency, we introduce a new method of lattice-based information retrieval using Formal Concept Analysis (FCA) and prime numbers, and we propose an algorithm, called *PNBLSearch*, to answer users' queries. We evaluate the reliability of the proposed method using a standard document collection. We have also compared the outcomes provided by our method with those provided by an existing lattice-based information retrieval algorithm proposed by Messai et al. (2006), called BR-Explorer. Experimental results showed that our method reached better results than the Br-Explorer algorithm.

Keywords: information retrieval, formal concept analysis, prime numbers, concept lattice.

Introduction

Information Retrieval (IR) deals with representing, storing, organizing and accessing documents. Sanderson and Croft (2012) mentioned that the key goal of an Information Retrieval System (IRS) is to retrieve information which might be useful or relevant to the user. However, with a large data size, IR systems face the problems of filtering and predicting which documents are relevant to user's information needs. Several studies Nauer and Toussaint (2009); Carpineto et al.(2004); Koester (2006); Carpineto and Romano (2000); Godin et al. (1995a) highlight the need of an appropriate document clustering method that retrieves and accesses information items in order to improve the performance of IRSs . In this case, IR has always been a major concern in Formal Concept Analysis (FCA) Wille (1992); Ganter and Wille (2012); Salton (1989); Safar et al. (2004); Carpineto and Romano (2000); Godin et al. (1995a). Most of the conducted studies dealt with FCA-based applications for the design of information retrieval systems as done by Nauer and Toussaint (2009); Carpineto et al. (2004); Koester (2006). This is motivated, on the one hand, by the obvious analogy that exists between object-attribute and document-term tables Messai et al. (2006). On the Other hand, it is motivated by the fact that a formal concept may be seen as a class of relevant documents for given queries Godin et al. (1995a). This provides a first way for FCA-based information retrieval applications, namely IR by querying Messai et al. (2006). Moreover, FCA allows us to model corpus content through a concept lattice. Lattice structures can be browsed and used for zooming into relevant parts Carpineto and Romano (2000). This provides a second way for FCA-based information retrieval applications, namely IR by navigation Messai et al. (2006).

Indeed, an FCA-based IR application has an interesting advantage which consists in a combination strategy of the two forms of IR using concept lattices (querying-based IR and browsing-based IR). Thanks to this combined strategy, users may submit their queries and get a list of relevant documents. Additional results can be identified by browsing a subpart of the lattice, which provides a synthetic view of the corpus content.

Several studies have proposed lattice-based information retrieval approaches Codocedo et al. (2012); Messai et al. (2006, 2005); Carpineto and Romano (2000); Godin et al. (1995a). A review of these studies shows that the general process of such methods is based on a matching step between each concept of the lattice and the considered user's query in order to identify the most relevant concept. This latter will be considered as a retrieval starting point to build a step-wise outcome by crossing the lattice. The matching step is based on the comparison of strings which reflects a relatively high run-time cost. Thus, this can be seen as a time-consuming task, mainly when dealing with large corpora. Indeed, the complexity of a lattice may grow rapidly with the corpus size. This implies that specialized techniques should be used to speed up the task of matching concepts to queries. To overcome this deficiency, we introduce a new method of lattice-based IR which uses Formal Concept Analysis (FCA) and prime numbers, and we propose an algorithm, called *PNBLSearch*, to answer users' queries. Specifically, we suggest using prime numbers to encode concepts' intents of the built lattice which would yield a new coded lattice. This choice is supported by the fact that the use of prime numbers makes comparison easier and, therefore, allows us to minimize run-time. In addition, we suggest an intermediate representation of the coded lattice as a ranked list of levels according to the cardinality of the concepts' intents. It aims at reducing the number of concepts to be handled which allows us to accelerate the retrieval process. It becomes then possible to answer users' queries in the shortest time by using both the coded lattice and the corresponding intermediate representation as index structures.

This paper is organized as follows. Section 2 presents our FCA-based information retrieval method. The last section is devoted to the conclusion and future work. Please note that because of lack of space, a research report containing more details regarding the state of the art, formal definitions of concepts used in our method, an illustrative example of our algorithm and experimental results can be downloaded from https://goo.gl/PLfhgM.

Design of the proposed method

Following the well-known FCA-based IR studies Carpineto and Romano (2000); Godin et al. (1995a), we start by modeling the corpus content through a formal context from which we calculate the associated concept lattice using the algorithm proposed by Godin et al. (1995b). Thereafter, we suggest using prime numbers to encode concepts' intents of the built lattice, which yields a new coded lattice. In addition, we suggest an intermediate representation, denoted by IRL, of the coded lattice as a ranked list of levels according to the cardinality of concepts' intents. It becomes then possible to answer the users' query in the shortest time by using both the coded lattice and the corresponding intermediate representation as index structures. In the following subsections, we illustrate the main phases of the proposed method.

An FCA-based indexing

Our aim in this subsection is to show how both the FCA approach and prime numbers can be used to formalize the corpus content. At first, we formulate the corpus content through a formal context $K = (D, T, R)$, where D is a set of documents, T is a set of keywords and R is a binary relation, $R \subseteq D \times T$ and $R(d_i, t_j)$ where $d_i \in D$ and $t_j \in T$ means that the document d_i is

indexed by the term t_j . Let us consider a formal context $K1 = (D1, T1, R1)$ describing a given corpus.

Table 1: Formal Context $K1 = (D1, T1, R1)$

	t1	t2	t3	t4	t5	t6
d1	0	1	1	1	1	1
d2	0	1	1	1	1	0
d3	0	1	1	1	1	0
d4	1	1	1	1	0	0
d5	0	0	0	1	1	0
d6	1	1	0	1	0	0
d7	1	1	0	0	0	0

Figure 1 show the corresponding concept lattice which has been built from the formal context $K1$. In order to answer a user's information need, query terms are usually mapped onto the lattice structure in order to identify the most relevant concept that shares more terms with the considered Codocedo et al. (2012); Messai et al. (2006). Obviously, this can be seen as a time-consuming task, mainly when dealing with a large set of concepts. To address this problem, we suggest using prime numbers to encode the intent of each concept of the built lattice. We assign to each keyword (attribute) a prime number, starting with the first prime number 2. As a result, the intent of each concept will be the product of the prime numbers associated with the owned attributes. Figure 2 shows the resulting coded lattice corresponding to the initial concept lattice shown in figure 1. Table 2 represents the set of keywords and the associated prime numbers.

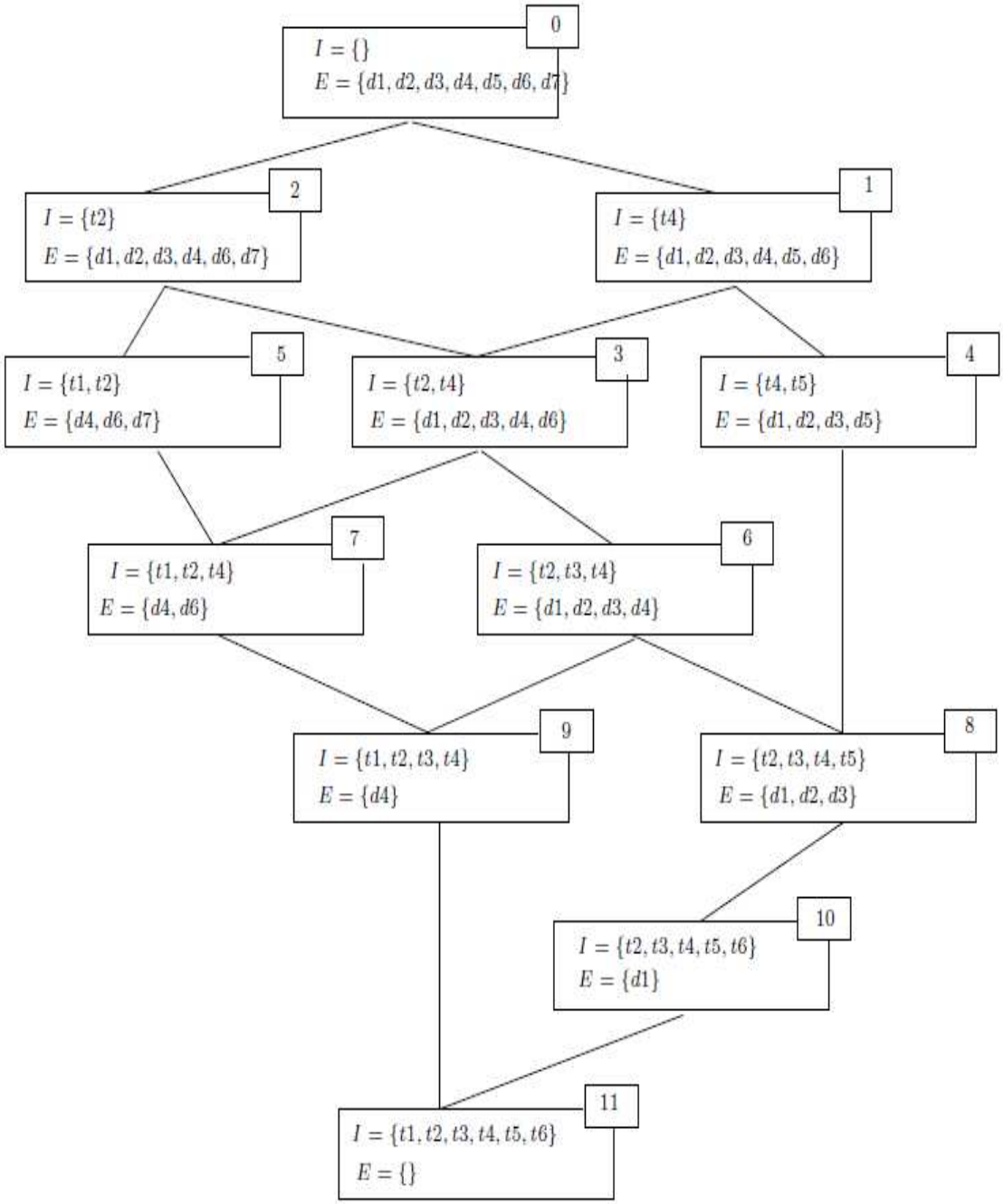

Fig 1. Concept lattice of the formal context K1

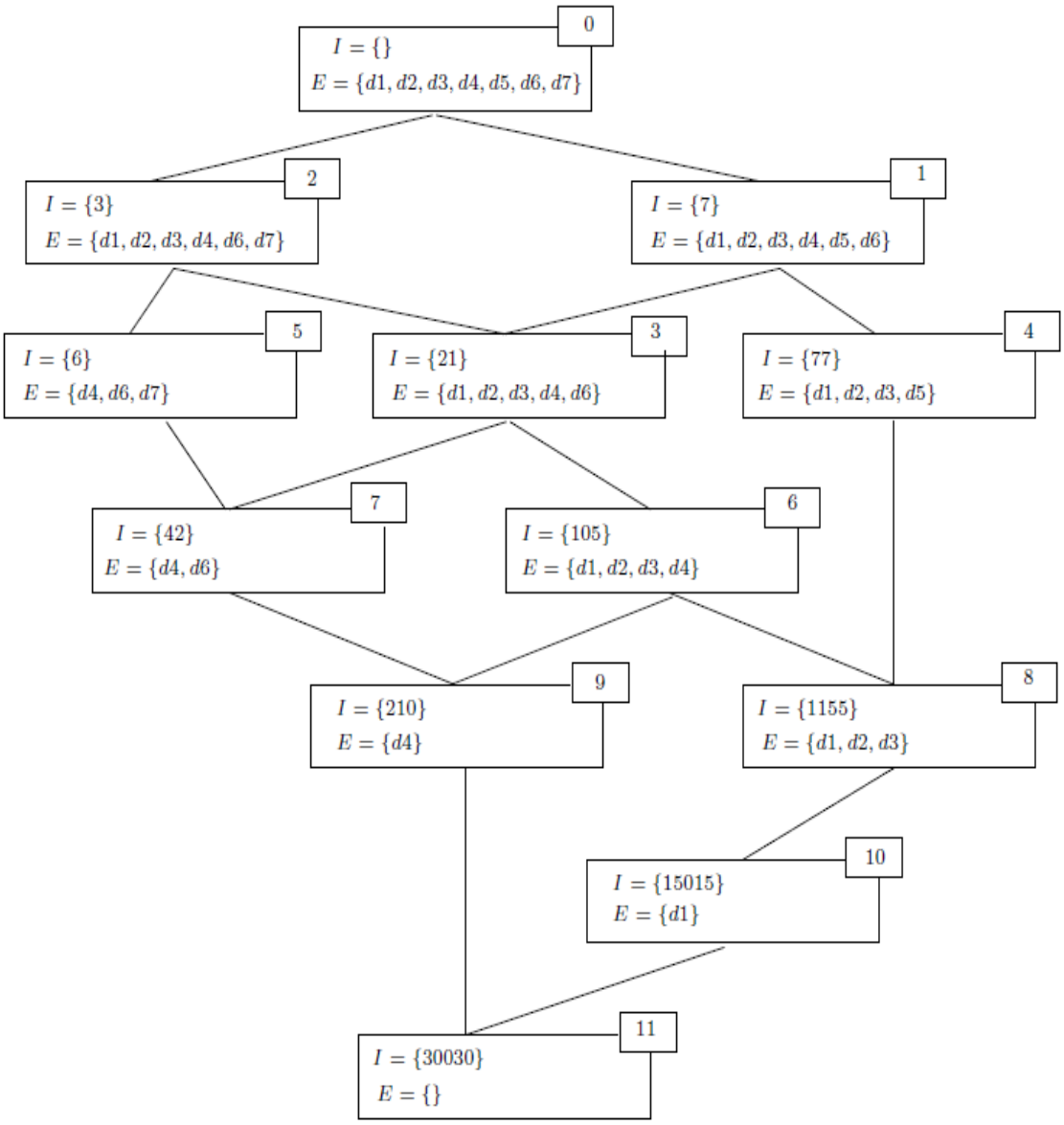

Fig 2. The coded lattice

Table 2: The coded keywords

t1	t2	t3	t4	t5	t6
2	3	5	7	11	13

Once the coded lattice is built, we suggest organizing the coded concept lattice in a sorted list of levels according to the cardinality of concepts' intents. Let us note that in a concept lattice, we can identify several cardinality levels due to the cardinality of concepts' intents. Inspired by the study of GAMMOUDI (2005), we suggest organizing the coded lattice as a ranked list of levels where each level regroups a set of concepts that share the same cardinality level. Each level is a triplet $(code, code - terms, Nodes)$ where $code$ is the cardinality level, $code - terms$ is the product of the prime numbers associated with the attributes (keywords) which constitute the intents of the corresponding concepts, and $Nodes$ is the set of concepts belonging to this level.

As an example, let us consider $C1 = (\{7\}, \{d5, d4, d6, d1, d2, d3\})$ and $C2 = (\{3\}, \{d4, d7, d6, d1, d2, d3\})$ two coded concepts of the coded lattice (see figure 2) which represent $C1 = (\{t4\}, \{d5, d4, d6, d1, d2, d3\})$ and $C2 = (\{t2\}, \{d4, d7, d6, d1, d2, d3\})$ two non-coded concepts of the initial lattice (see figure 1), respectively. Let us note that the coded concepts C1 and C2 share the same cardinality level; the corresponding non-coded concepts share the same intent cardinality (the intent of each concept contains only one attribute). Then, they belong to the same level with a cardinality level equal to 1. At this point, let us note that the intent of each non-coded concept is a subset of the overall set of attributes $\delta = \{t4, t7\}$, which is the union of the different intents of non-coded concepts. By encoding the attributes of the set δ using the corresponding prime numbers in Table 2, this latter will be $\delta = \{7 \times 3\} = \{21\}$. Thus, the intent of each coded concepts is encompassed by the coded overall set of attributes $\delta = \{21\}$. We call the coded overall set of attributes of each level a $code - terms$. Using such a set allows us to determine if the level encompasses or not a concept which shares terms with the considered query, without checking the whole set of the concepts. As a result, this level will be modeled as follows:

$$Level\ 1 = (1, 21, \{C2, C1\})$$

Figure 3 illustrates the ranked list of levels which have been derived from the coded lattice shown in figure 2.

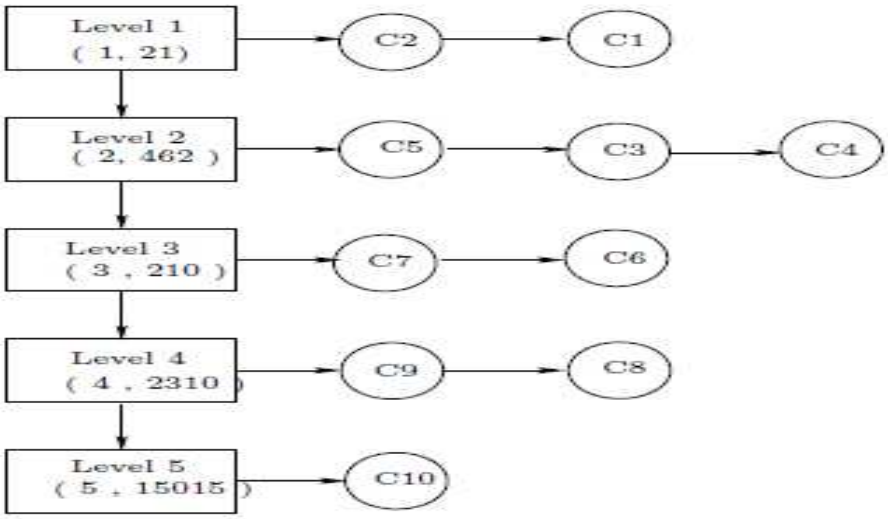

Fig 3. Intermediate Representation of Lattice

This way of representation aims at reducing the number of concepts to be handled which allows us to accelerate the retrieval process. In fact, for a given query, only concepts of the potential level will be handled in order to identify a relevant concept that encompasses the query term among its closed set of attributes. Once both the coded lattice and the corresponding *IRL* are built, we are ready to answer the user query.

Index querying

The proposed algorithm called *PNBLSearch* relies on the coded concept lattice and the corresponding *IRL* generated in the previous step. Our aim is to identify in the shortest time, the relevant objects that match the user's information need.

Let us consider a query *Q* which represents the user's information need. In order to answer the user's query, we suggest dividing the initial query in a set of elementary queries $Q = \{q_1, q_2, \ldots, q_n\}$ where each of them contains only one term of the initial query terms. Then, we suggest encoding each generated-elementary-query using the corresponding prime numbers in the Table 2 which yields a set of coded queries. For each resulting coded query, we sweep the *IRL* in order to first identify a potential level which covers the considered query. We consider a level *L* as a potential level for a given query q_i if and only if it encompasses the query term among its overall set of attributes called $coded - terms$ $(L.code - terms \cap q_i = q_i)$. Thereafter, we sweep the set of the concepts belonging to the potential level in order to identify a potential concept which covers the considered query. We consider a concept C as a potential concept for a query q_i if and only if it encompasses the query term among its closed set of attributes $(Int(C) \cap q_i = q_i)$.

Let us note that in mathematics, more specifically in set theory, a set A is a subset of a set B, or equivalently B is a superset of A, if and only if A is "contained" inside B which means that $A \cap B = A$. The relationship of one set being a subset of another is called inclusion or sometimes containment. Let us consider $A = \{t5\}$ and $B = \{t4, t5\}$ two sets of elements. The inclusion relationship between A and B depends on their intersection. The intersection between A and B noted $A \cap B$, is equal to all elements of A belonging to B which means that $A \cap B = \{x \in A \; and \; x \in B\}$ then $A \cap B = \{t5\}$. By encoding elements of A and those of B by using the corresponding prime numbers from Table 2, A and B will be respectively $A = \{11\}$ and $= \{7, 11\}$. The inclusion relationship between A and B can be obtained by using the modulo operation, denoted by *mod*, between the product of elements of B and the product of elements of $(B \; mod \; A)$. Formally, the inclusion relationship between A and B is represented by the following formula:

$$Inclusion(A,B) = \begin{cases} 1 \; if \; \prod_{y \in B} y \; mod \; \prod_{x \in A} x = 0 \\ 0 \qquad\qquad\qquad\qquad else \end{cases}$$

In the previous example, the inclusion relationship between A and B is calculated as follows:

$$A = \prod_{x \in A} x = 11$$

$$B = \prod_{y \in B} y = 7 \times 11 = 77$$

$$\prod_{y \in B} y \; mod \; \prod_{x \in A} x = 77 \; mod \; 11 = 0$$

$$Inclusion(A,B) = 1$$

Thus, we consider a level *L* as a potential level for a query q_i if and only if there is an inclusion relationship between its $code-terms$ and the corresponding query code: $Inclusion(q_i, L.code-terms) = 1$. Jointly, we consider a concept C as a potential concept for a given query q_i if and only if there is an inclusion relationship between its intent and the corresponding query code: $Inclusion(q_i, Int(C)) = 1$. A potential concept is a triplet $C = (X, level, rank)$ where X is a formal concept, $level$ is the corresponding level of the concept X, and $rank$ is a weight assigned to concept X. At this step, the rank of each identified concept is equal to 1. The analysis of the derived coded queries $Q = \{q_1, q_2, \ldots, q_n\}$ yields a set of individual potential concepts, denoted by IPCS. The corresponding pseudo-code for IPCS identifying is shown in Algorithm 1.

Algorithm 1 Locate_Potential_Concepts

Require: Intermediate Representation of Lattice (*IRL*) and a set of coded queries $Q = \{q_1, q_2, \ldots, q_n\}$

Ensure: A set of individual potential concepts (*IPCS*)

rank ← 1

IPCS ← $\emptyset$

for each query $q_i \in D$ do

for each level $L \in IRL$ do

if $Inclusion(q_i, L.code-terms) = 1$ then

for each Concept $C = (X, Y) \in L$ do

if $Inclusion(q_i, Y) = 1$ then

$IPCS \leftarrow IPCS \cup (C = (X, Y), L.code, rank)$

Break

end if

end for

Break

end if

end for

end for

After identifying the set of individual potential concepts (*IPCS*), the right intuition consists in identifying the most relevant concept, so-called pivot concept that shares more terms with the user's query. Therefore, it is oversimplified to suppose that the user's query may be covered by only one concept that shares more terms with it. In fact, the considered query may be covered by more than one pivot concept where each one of them shares one or more terms with the launched query. However, together they fully cover the user's query. Let us consider a query defined by the user as follows: "*t1, t5*". There is no concept in the lattice shown in figure 1, which fully covers the launched query. Such a query is covered by two potential concepts: concept $C5$ and concept $C4$. As a result, we suggest identifying an overall set of potential concepts covering together the user query. This latter may include one or more potential concepts. The main idea consists in iteratively crossing the coded lattice in order to identify a new potential concept which is subsumed by two or more potential concepts among the set of individual potential concepts. We suggest adding each identified potential concept to the set of *IPCS* and deleting its subsumers among the set of *IPCS*.

Let $C1 = (A1, B1)$ and $C2 = (A2, B2)$ be two concepts where $A1$ and $B1$ are the extent (a set of objects) and the intent (a set of attributes) of $C1$. Jointly, $A2$ and $B2$ are the extent and the intent of $C2$. $C1$ is subsumed by $C2$ if and only if $A1 \subseteq A2$, or, equivalently, $B2 \subseteq B1$ Carpineto and Romano (2000). By encoding the intent of $C1$ (the elements of $B1$) and the intent of $C2$ (the elements of $B2$), using prime numbers, the subsumption relation between $C1$ and $C2$ can be obtained based on the inclusion relationship between the intent of $C1$ and the intent of $C2$. Accordingly, the concept $C1$ is subsumed by the concept $C2$ if and only if there is an inclusion relationship between the intent of $C2$ and the intent of $C1$: $Inclusion(B2, B1) = 1$. Therefore, we employ the following formula to determine if the concept $C1$ is subsumed by the concept $C2$:

$$subsume\ (C1, C2) = \begin{cases} 1 & if\ Inclusion\ (B2, B1) = 1 \\ 0 & else \end{cases}$$

As an example, let us consider the concept $C5 = (\{d4, d7, d6\}, \{t2, t1\})$ and $C7 = (\{d4, d6\}, \{t2, t1, t4\})$, two concepts of the lattice shown in figure 1 where $C7$ is subsumed by $C5$. By encoding the attributes of $C7$ and those of $C5$ using the corresponding prime numbers from table 2, $C5$ and $C7$ will be respectively $C5 = (\{d4, d7, d6\}, \{6\})$ and $C7 = (\{d4, d6\}, \{42\})$ as shown in the coded lattice shown in figure 2. There is an inclusion relationship between the intent of the concept $C5$ and the intent of the concept $C7$: $Inclusion\ (Int\ (C5), Int\ (C7)) = Inclusion\ (6, 42) = 1$, which means that the $subsume\ (C5, C7)$ is equal to 1, suggesting that the concept $C7$ is subsumed by the concept $C5$. We suggest crossing the coded lattice and using the previous formula in order to identify an overall set of potential concepts over the set of individual potential concepts. In this study, we distinguish two cases for the set of individual potential concepts ($IPCS$):

1- If the set of *IPCS* contains only one potential concept, then, this latter represents the only item of the overall set of potential concepts, jointly it is the pivot concept;

2- If we have more than one potential concept, we suggest using the subsumption hierarchy of the coded concept lattice to find an overall set of potential concepts. The main idea is to sort the set of *IPCS* in an ascending order according to the level values of the potential concepts. Then, we suggest crossing the lattice by starting from the *First Individual Potential Concept*, denoted by *FIPC*, which owns the highest level (the top level) in order to identify a new potential concept, which is subsumed by two or more individual potential concepts. Moreover, once the *FIPC* is

identified, early, we consider its bottom cover $SUBS_0 = bottom - cover\ (FIPC)$ and we distinguish the following cases.

(a) If we identify a concept among the set of $SUBS_0$ which is subsumed by two or more individual potential concepts, then this latter will be considered as a potential concept. Each identified potential concept will be added to *IPCS* and all its subsumers will be deleted from *IPCS*, which yields a new set of *IPCS*. Each identified potential concept is assigned a weight that is equal to the sum of the weights of its subsumers among the set of *IPCS*. The assigned weight reflects the number of subsumers among the first set of *IPCS*. Once we have added a new potential concept to *IPCS*, we continue in the same way to identify the new *FIPC* and handle its bottom cover $SUBS_0$ in order to find a new potential concept. Let us note that if we reach an *IPCS* that contains only one element, this means that we have identified the most relevant concept that fully covers the user query, resulting in stopping the retrieving process;

(b) If there is no concept among the set of which $SUBS_0$ is subsumed by two or more individual potential concepts among the set of *IPCS*, then, the next step consists in considering $SUBS_1 = bottom - cover\ (SUBS_0)$ and we handle the emerging set as explained in the first case. Let us note that an empty set of $SUBS_j$ means that the bottom concept $\perp$ is reached, which involves stopping the retrieving process.

We note that the search process of the overall set of potential concepts follows an iterative process. Iterations stop when a fixed point is obtained: the set of *IPCS* contains only one potential concept, or we reach the bottom concept. We call the final kept set of individual potential concepts (*IPCS*) a set of overall potential concepts, denoted by *OPCS*. Let us note that, the pivot concept is an individual potential concept that owns the greater weight. The corresponding pseudo-code for *OPCS* identifying is shown in Algorithm 2.

Algorithm 2 Locate_Pivot_Concepts

Require: A set of individual potential concepts (*IPCS*) and a coded lattice

Ensure: A set of overall potential concepts (*OPCS*)

$OPCS \leftarrow \emptyset$

$FIPC \leftarrow null$

$PVC \leftarrow true$

$found \leftarrow true$

$rank \leftarrow 0$

$j \leftarrow 0$

while PVC do

$j \leftarrow 0$

$FIPC \leftarrow Top-Concept-Level(IPCS)$

$SUBS_j \leftarrow bottom - cover(FIPC)$

$found \leftarrow false$

while $!found\ and\ SUBS_j = \emptyset$ do

for $each\ Concept\ C = (A,B) \in SUBS_j\ such\ that\ B = \emptyset$ do

$rank \leftarrow FIPC.rank$

for $each\ Concept\ C = (X,Y) \in IPCS$ do

if $subsume(C1,C2) = 1\ and\ C2 \neq FIPC$ then

$rank \leftarrow rank + C2.rank$

$IPCS \leftarrow IPCS \setminus C2$

$found \leftarrow true$

end if

end for

if $rank > FIPC.rank$ then

$IPCS \leftarrow IPCS \setminus FIPC$

$IPCS \leftarrow IPCS \cup (C1, C1.level, rank)$

end if

end for

if $!found$ then

$j \leftarrow j + 1$

$SUBS_j \leftarrow bottom - cover(SUBS_{j-1})$

if $SUBS_j = \emptyset\ Or\ |IPCS| = 1$ then

$found \leftarrow true$

$PVC \leftarrow false$

end if

end if

end while

if $|IPCS| = 1$ then

$PVC \leftarrow false$

end if

end while

$OPCS \leftarrow IPCS$

Once the *OPCS* is identified, we are ready to answer the user's query. Each overall potential concept among the set of *OPCS* represents a retrieval starting point. We suggest crossing the concept lattice in order to find the super-hierarchy of each overall potential concept in order to build a step-wise outcome in the same way as in Messai et al. (2006). Our goal is to return a ranked list of relevant documents, denoted by *LD*. At first, the set of *OPCS* will be sorted in a descending order according to the concepts' weights (the procedure *Sort-Concepts-Rank*). The first overall potential concept represents the most relevant concept, co-called *pivot concept*, denoted by P, which shares more terms with the user query. Accordingly, it is subsumed by the majority of individual potential concepts of the initial kept set of *IPCS*. Therefore, we start by handling the pivot concept $(SUP_0 = \{P\})$ by adding all objects forming its extent to the list of relevant documents *LD* with a rank equal to 1 and we increment the rank by 1. The next step consists in considering $SUP_1 = upper - cover\ (SUP_0)$ and the objects that are not yet included in the result (the list *LD*), so-called *emerging objects*, are added to *LD* with the corresponding rank and we also increment the rank by 1. We proceed in the same way for SUP_2 , SUP_3 etc. until an empty set SUP_n is reached. Let us note that if the Top concept is reached and if its intent is an empty set, then the objects in its extent are ignored. In the same way, we handle each potential concept of the ranked *OPCS* while continuing to increment the rank. The corresponding pseudo-code for outcome building is shown in Algorithm 3.

Algorithm 3 Deal_Outcome

Require: A set of overall potential concepts (*OPCS*) and a coded lattice

Ensure: A ranked list of relevant documents (*LD*)

$LD \leftarrow \emptyset$

$DOC \leftarrow \emptyset$

$rank \leftarrow 1$

$j \leftarrow 0$

$List \leftarrow Sort - Concepts - Rank(OPCS)$

for $each\ Concept\ C = (A,B) \in List$ do

$j \leftarrow 0$

$SUP_j \leftarrow C = (A,B)$

$DOC \leftarrow A \setminus LD$

if $DOC = \emptyset$ then

$LD \leftarrow LD \cup (DOC, rank)$

$rank \leftarrow rank + 1$

end if

$j \leftarrow j + 1$

$SUP_j \leftarrow upper - cover\ (SUP_{j-1})$

while $SUP_j = \emptyset$ do

$DOC \leftarrow \emptyset$

for $each\ Concept\ C2 = (X,Y) \in SUP_j\ such\ that\ Y = \emptyset$ do

$DOC \leftarrow DOC \cup X$

end for

$DOC \leftarrow DOC \setminus LD$

if $DOC = \emptyset$ then

$LD \leftarrow LD \cup (DOC, rank)$

$rank \leftarrow rank + 1$

end if

$j \leftarrow j + 1$

$SUP_j \leftarrow upper - cover\ (SUP_{j-1})$

end while

end for

We note that, thanks to the way our algorithm proceeds to retrieve relevant objects for a given query, we are able to achieve high performances in term of recall and precision. In fact, unlike the most FCA-based IR algorithms Carpineto and Romano (2000); Godin et al. (1995a); Messai et al. (2006, 2005), a distinctive highlight in our method consists in identifying not only the most relevant concept but also in suggesting to identify each potential concept that allows us to fully cover the considered query. In order to answer a user's query, our algorithm identifies a ranked set of overall potential concepts according to the concepts' weights. Then, it keeps the relevant objects from each overall potential concept and its superconcepts according to their order. In this way, our algorithm allows us to increase recall without decreasing precision.

Conclusion and Future Work

In this paper, we described our method of lattice-based information retrieval using FCA and prime numbers, and we proposed an algorithm, called *PNBLSearch*, to retrieve relevant objects for a given query. Specifically, we used prime numbers to encode both the concepts' intents of the lattice and the user query in order to make comparison an easier operation. This allowed us to minimize run-time. In addition, we suggest an intermediate representation of the resulting lattice (coded lattice) as a ranked list of levels according to the cardinality of concepts' intents. We call this way of representation an *Intermediate Representation of Lattice*, denoted by *IRL*. It aimed at reducing the number of concepts to be handled which allows us to accelerate the retrieval process.

The proposed algorithm starts by dividing the user query into a set of elementary queries and coding them using the corresponding prime numbers yielding a set of coded queries. The retrieval process is comprised of three steps. The first one consists in identifying a set of individual potential concepts, denoted by *IPCS*, as a direct response to the set of coded queries, one per query. The second step consists in identifying a set of overall potential concepts, denoted by *OPCS*, by crossing the coded lattice over the set of *IPCS* which represents a set of retrieval starting points. The final step consists in building the final outcome by crossing the lattice over the set of *OPCS* which contains the set of retrieval starting points. Let us note that, thanks to the way our algorithm proceeds to retrieve relevant objects for a given query, we are able to achieve high performances in term of recall and precision.

As a perspective to this study, we might include the following. First, a desirable future research should focus on the way of sorting or ranking the retrieved documents in order to enhance the quality of the returned ranked-list of documents. This would allow for making retrieval more precise. Second, we are also planning to consider complex formal contexts such as multi-valued and fuzzy formal contexts.

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Monitoring System through Improved Governance and Audit: The Case of Malaysian Public Universities

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Abstract

Recent transformational change in higher education of Malaysian National Higher Education Strategic Plan was in response to the globalization era and the internationalization of higher education. In order to fulfill the aspiration of achieving its seven strategic thrusts, higher education institutions have now become the objects of greater public scrutiny. The seventh strategic thrust has stressed on effective implementation and monitoring for best delivery systems in the education system. Unlike public companies, higher education institutions do not have a regulatory requirement that mandates such changes, so there is no direct incentive to implement them. However, improved governance and control benefits all organizations. Unfortunately, in achieving the effectiveness of internal audit function in the higher education institutions, internal audit departments need to face various challenges. This paper serves as a discourse on the debate regarding the role of internal auditing in the public sector by focusing on the practice of internal auditing in Malaysian public universities, highlighting on the effectiveness of its practice. This study attempts to examine the effectiveness of internal audit function in Malaysian public universities by considering the impact on internal audit quality, management support, organizational setting and auditees' attributes. The paper examines 82 survey questionnaires applicable to the main issue focused by this study. The survey questionnaires are distributed by mail or delivered in person to head of internal auditors, internal auditors and assistant auditors in 19 Malaysian public universities with an established internal audit department. The paper concludes that auditees' attributes is the major factor influencing the effectiveness of internal audit function in Malaysian public universities. The paper highlights and serves as a wake-up call for practitioners in auditing of public universities to work towards a paradigm shift from the current auditing practice to a more effective practice. This paper also offers practical help to regulators, higher education institutions and auditors in providing a direction of existing transformation strategies for higher education and to formulate future strategies in enhancing the internal audit effectiveness in Malaysia public universities.

Keywords: Internal auditing, Management support, Organizational behaviour, Higher education institutions.

1. Introduction

In response to the globalization era and the internationalization of higher education, the Malaysian Ministry of Higher Education (MOHE) has put in place strategic goals for the transformation of higher education in Malaysia. This transformational change of higher education has been put forward through the National Higher Education Strategic Plan (NHESP), which outlines a number of strategies that will be adopted to reinvigorate Malaysian higher education in order to provide a solid foundation for the future. There are seven strategic thrusts under the NHESP, which was published in August 2007 for planning and strategizing higher education sector in order to meet the country's aspiration in transforming Malaysia as a regional hub for educational excellence providing world-class university education. In order to fulfill this aspiration, higher education institutions have become under greater public scrutiny since none of Malaysian institute of higher education secured a position in the Top 100 in the recent Times Higher Education (THES) World University Ranking 2012 – 2013[i].

The seven thrusts of the NHESP 2007 are certainly broad-based: widening access and enhancing quality; improving the quality of teaching and learning; enhancing research and innovation; strengthening institutions of higher education; intensifying internationalization; enculturation of lifelong learning; and reinforcing of MOHE's delivery system. The seventh strategic thrust has stressed on effective implementation and monitoring for best delivery systems of MOHE[ii]. For the purpose of monitoring quality of higher education, the MOHE also setting up an audit unit as it need an independent assessment of higher education institutions and subsequently promoting good governance (Sirat, 2010). Thus, in the higher education institutions, the internal audit function in strengthening the corporate governance cannot be denied.

In Malaysia, the need to establish an internal audit function within the public sector including statutory bodies has been set out in Treasury Circular No. 2/1979 (Implementation of Internal Audit in a Government Agency of Federal Territory). However, in 2004, Treasury Circular No. 9 (Implementation of Internal Audit in Ministry/Federal Department and State Government) has been issued by the Government to replace the 1979 circular. There is no circular issued specifically for higher education institutions. However, as part of the statutory bodies, public universities are tied by law to abide by this circular.

Internal audit is not an easy undertaking within higher education. Unlike public companies, higher education institutions do not have a regulatory requirement that mandates such changes, so there is no direct incentive to implement them. However, improved governance and control benefits all organizations. Unfortunately, in achieving the effectiveness of internal audit function in Malaysian higher education institutions, internal audit departments are facing various challenges. Among others, lack of auditors with competency on auditing techniques, insufficient support obtained from management of the institution, lack of compliance (Protiviti, 2008), lack of cooperation from auditees, superfluous bureaucratic procedures on to a system and difficult relationship between the institutions and MOHE (Sirat, 2010).

Mihret and Yismaw (2007) developed a model of potential factors that could influence an internal audit effectiveness consisted of four interrelated factors, which are internal audit quality, management support, organizational setting and auditee attributes. Based on this model, this study intends to investigate the effectiveness of internal audit function in Malaysian public universities by considering the impact of internal audit quality, management support, organizational setting and auditees' attributes.

The remainder of the paper has four main sections. First section discusses on the issues of internal auditing in higher education institutions followed by theoretical discussion and hypotheses development. Next, the research methodology is described. Subsequently, the results are analyzed and presented. Finally, there is a discussion of the findings and a brief conclusion.

2. Literature Review and Formulation of Hypotheses

The landscape of global and national higher education is in constant changes. As a result, the following challenges are likely to become trends in higher education in many countries such as shaping the knowledge society, generating employability, internationality, and development of teaching and learning (Sirat, 2010). This global diversity of challenges has called on governance and accountability awake in which case the internal audit departments also playing the vital role (Ahmad et al., 2009).

The objective of internal auditing is to assist all members of organization in the effective discharge of their responsibilities by furnishing them with analyses, appraisals, recommendations and valuation comments concerning the activities reviewed. This involves going beyond accounting and financial records to obtain a full understanding of the operations under review. Previous studies on the factors influencing the effectiveness of internal audit have obtained different outcomes.

In public sector, Van Gansberghe (2005) suggested that the effectiveness of internal audit could be judged by the extent to which its function ensure the efficient and effectiveness of service to customers. This situation is directly demanding the commitment of internal audit to serve better. Montondon and Fischer (1999) stressed that the credibility of the internal audit function is significantly more important in public entities as compared to private entities. This fact are supported by Khoury (2011) who stated that internal audit function in public sector must have greater competency and professionalism to minimize and manage risk due to larger and more complex operations. An effective internal audit function helps organizations to add value and strengthen their operations (Ahmad et al., 2009). In addition, internal audit function could serve as a monitoring device and part of the corporate governance mosaic (Cohen et al., 2002). According to Dominic and Nonna (2011), internal audit function is well placed to provide internal assurance on corporate governance processes, including internal control and risk management.

Varieties of approaches are used to determine appropriate criteria to evaluate the effectiveness of the internal audit function. For example, the degree of compliance with standards, the objective of internal audit function as well as the independence of internal auditor are among the factors will affects internal audit performance. Khoury (2011) suggested that the effectiveness of the internal audit function depends upon several factors, such as: true independence; a good understanding of issues facing the organization; responsiveness to management's needs; proactive communication with management; implementation of recommendations; matching of skills set to needs; and use of technology to work more effectively. In addition, there are five main pillars that are considered critical for building an effective internal audit function in the public sector. These are perception and ownership, improved processes and governance, legislative support, improved incentives and a commitment to change.

A study by Albrecht et al. (1988) on 13 best internal audit departments in the US indicated that corporate environment, support from management, quality of internal auditors, and quality of internal auditor work have contributed to effective internal audit. Meanwhile, Van Gansberghe (2005) has identified six key factors that influence the effectiveness of internal audit namely the improvement of professionalism, conceptual framework, resources, perceptions and ownership, legislation, and organization and governance framework.

Differently, apart from legal requirement and the competency of internal audit's staff, Sterck and Bouckaert (2006) discovered that management’s support, the existence of the audit committee as well as special unit for enhancement of the internal audit function which contributed significantly to the effectiveness of the internal audit function. Mihret and Yismaw (2007) explained that internal audit quality consist of the expertise of staff, scope of service, effective audit planning, fieldwork, controlling and effective communication. In addition, they also found that apart from the quality of internal audit, management support is also a major factor affecting the effectiveness of internal audit.

Recently, Ahmad et al. (2009) found the similar factors like Mihret and Yismaw (2007). A study by Ahmad et al. (2009) revealed that support from management is the second most important factor influencing the effectiveness of the internal audit function in the public sector. Ahmad et al. (2009) also found that the competence of internal audit, quality of work performed and objectivity as the factors in evaluating the internal audit quality.

The above studies motivate this study to carry out a similar study, but in the context of the Malaysian public universities. Using a model developed by Mihret and Yismaw (2007), this study conjecture that internal audit quality, management support, organizational setting and auditee attributes may have a positive influence on the internal audit effectiveness in Malaysian public universities.

2.1 Formulation of the Hypotheses

i) Internal Audit Quality. The literature advanced the argument that the quality of internal audit is the major factors influencing the effectiveness of the internal audit function in the public sector (Mihret & Yismaw, 2007; and Ahmad et al., 2009). Past studies reported that among the qualities of internal audit is the competency of internal audit's staff and their works (Albrecht et al., 1988; and Sterck & Bouckaert, 2006) and improvement in professionalism (Van Gansberghe, 2005). These studies have supported the significant relationship between internal audit quality and internal audit effectiveness. The quality of internal audit is examined by the following hypothesis:

H1: *There is a significant positive association between internal audit quality and internal audit effectiveness in Malaysian public universities.*

ii) Management Support. Past studies found that management support contributed significantly to the effectiveness of the internal audit function (Albrecht et al., 1988; Mihret & Yismaw, 2007; and Sterck & Bouckaert, 2006). Reporting in the Malaysian public sector, Ahmad et al. (2009) observed management support to be the second important factor in the effectiveness of internal audit since with such support, sufficient resources are usually allocated to the function and its recommendations implemented. This study suggests that interaction between internal audit department and management on a close and regular basis is needed since, the character of the function is determined completely by the management support. In addition, the involvement of management in formulating the audit plan is both necessary and unavoidable since it is through the management that internal auditors are empowered to secure access to the various departments in the organization. This implies that this study expect a positive relationship between management support and internal audit effectiveness. Consequently, the effect of management support is examined by the following hypothesis:

H2: *There is a significant positive association between management support and internal audit effectiveness in Malaysian public universities.*

iii) Organizational Setting. Organizational setting criteria that indicates the context in which internal audit operates consist of the profile of organization, budgetary status of the internal audit departments and internal organization. The organizational policies and procedures are also significant criteria that guide operation of auditees (Mihret &Yismaw, 2007). Organizational setting includes the status of internal audit in the organizational structure; the probity of internal audit office's internal organization; budgetary status of the internal audit office; and the existence of sound established criteria to evaluate auditees' practices. Most of prior studies have supported the significant relationship between organizational settings on the internal audit effectiveness. The hypothesis to test the organizational setting is as follows:

H3: *There is a significant positive association between organizational setting and internal audit effectiveness in Malaysian public universities.*

iv) Auditees' Attributes. The criterions of auditees' attributes that influence on the internal audit effectiveness may involve the auditees' proficiency to attain organizational sub-goals, their character towards internal audit and the cooperation level that they gave to the auditor. Mihret and Yismaw (2007) found that internal audit effectiveness relates to the auditee's capability to achieve its intended

objectives. This notion is supported by Ahmad et al. (2009) that stated the important of having cooperation from auditees to enable the internal auditors to have full access to all records, assets and activities, thus, help internal audit function provides significant findings and recommendations for auditees' improvement. Dittenhofer (2001) suggested that the sustainability of internal audit department towards internal audit quality will lead to the correctness of auditees procedures and operations, and subsequently will directly influence the effectiveness of the auditees' organization. It is tested by the following hypothesis:

H4: *There is a significant positive association between auditees' attributes and internal audit effectiveness in Malaysian public universities.*

3. Research Methodology

The purpose of this study is to examine the effectiveness of internal audit fuction in Malaysian public universities by considering the impact of internal audit quality, management support, organizational setting and auditees' attributes. The empirical data presented in this paper was collected by the way of questionnaire survey setting. 19 out of 20 public universities in Malaysia[iii] with an established internal audit departments are chosen as the focus of this study. A survey of 166 internal audit practitioners such as head of internal auditors, internal auditors and assistant auditors who are involved directly and/or indirectly with the process of auditing from various public universities in Malaysia was conducted. The interested respondents for this study are chosen in consistent with Calder et al. (1981, p.199) that pointed out "when effects application (in this study, the current practices of internal auditing) is the goal, correspondence procedures require that research participants match individuals in the real world setting of interest". Out of 155 questionnaires distributed by mail or delivered in person and collected back at a later date, only 82 (49.4 percent) responded to this survey.

The questionnaire instruments inclusive of 28 information items adapted from Mihret and Yismaw (2007), Ahmad et al. (2009) and The Institute of Internal Auditors Malaysia (2009) were used in this research survey. The questionnaire is divided into two parts. Part I relates to the respondent's profile, while Part II consists of 28 questions regarding internal audit effectiveness. The respondents were instructed to indicate the relative importance of each item of information on a five-point likert scale. The point values range from 1 as strongly disagree to 5 as strongly agree.

One issue that has emerged related to the internal auditing practices is the proper and sound measurement of the internal audit effectiveness. Barrett (1986) noted that an effectiveness of internal audit can be described. However, it is difficult to quantify and finally it is determined by the perception of auditees. Thus, following Arena and Azzone (2009), this study measures the internal audit effectiveness as the percentage of internal auditors' recommendations implemented by the auditee (PIARIA). This dependent variable was measured though a 5-point Likert type items. The point values are as follows: 1 – no implementation action (0 percent); 2 – low level of implementation action (below 20 percent); 3 – medium-low level of implementation action (between 20 to 50 percent); 4 – medium-high level of implementation action (between 50 to 80 percent); and 5 – high level of implementation action (more than 80 percent). Table 1 depicts the measurement for the independent variables of this study.

Table 1: The Measurement of Independent Variables

Variables	Measurement
Internal Audit Quality	Focusing on staff expertise; effective audit planning; fieldwork and controlling; and effective communication.
Management Support	Focusing on response to audit findings; and commitment to strengthen internal audit.
Organizational Setting	Focusing on organizational profile; internal organization; organizational policies and procedures; and budgetary status of internal audit department.

Auditees' Attributes	Focusing on auditees' attitude towards internal audit and level of cooperation to the auditor.

The findings of the research are achieved through the analysis of the responded surveys using the relevant statistical tests. To examine the impact of internal audit quality, management support, organizational setting and auditees' attributes on the effectiveness of internal audit function in Malaysian public universities, the ordinary least square (OLS) regression model was adopted in the analysis. The OLS regression model is defined by the following equation:

$$IAE_i = \alpha + \beta_1 IAQ_i + \beta_2 MS_i + \beta_3 OS_i + \beta_4 AA_i + \varepsilon$$

Where *IAE* is an internal audit effectiveness; *IAQ* is an internal audit quality; *MS* is management support; *OS* is an organizational setting; *AA* is auditees' attributes; α is a constant; β is a coefficient; and ε is the error term.

4. Findings and Discussions

The analysis commences with the demographic profile of respondents. Next, if followed by descriptive statistics of internal audit effectiveness, internal audit quality, management support, organizational setting and auditees' attributes. Finally, this study presents the results of OLS regression model.

4.1 Demographic Profile of Respondents

Table 2 presents the summary of demographic profile of the respondents segregated by designation, highest level of education, professional qualification and working experience.

Panel A shows that most of the internal audit department in Malaysian public universities having more internal audit assistants as compared to internal auditors in performing the internal audit. In addition, Panel B depicts that more than 50 percent of the respondents are holding a bachelor degree. There are only eight respondents (less than 10 percent) who hold the highest level of academic qualification which is master degree. Overall, this indicates that the respondents are equipped with good academic qualification in performing the audit work. However, majority of the respondents (80.5 percent) did not have professional accounting/auditing qualification from professional bodies such as Institute Internal Auditors of Malaysia (IIAM) and Malaysian Institute of Accountants (MIA).

Table 2: Demographic Profile of Respondents

	N	Percentage	Cumulative Percentage
Panel A: Designation			
Head/Chief of Internal Auditor	16	19.50	19.50
Internal Auditor	26	31.70	51.20
Internal Audit Assistant	40	48.80	100.00
Panel B: Highest Level of Education			
Master Degree	8	9.80	9.80

Bachelor Degree	44	53.60	63.40
University/College Diploma	30	36.60	100.00
Panel C: Professional Accounting/Auditing Qualification			
Yes	16	19.50	19.50
No	66	80.50	100.00
Panel D: Working Experience			
5 years and below	30	36.60	36.60
Between 6 to 10 years	26	31.70	68.30
Between 11 to 15 years	14	17.10	85.40
Between 16 to 20 years	7	8.50	93.90
21 years and above	5	6.10	100.00
TOTAL	**82**	**100.00**	**100.00**

Meanwhile, Panel D of the Table 2 depicts than less than 50 percent of respondents are above ten years in seniority while servicing in the internal audit departments of Malaysian public universities. Besides that, 30 percent of the respondents are working less than five years.

4.2 Descriptive Statistics on Internal Audit Effectiveness

Table 3 presents the descriptive statistics on internal audit effectiveness for this study. Panel A reveals the information on the type of audit assignment that the respondents carried out in the organization.

Table 3: Descriptive Statistics on Internal Audit Effectiveness

	YES (Percentage)	**NO (Percentage)**
Panel A: Type of Audit Assignment Carried Out		
Financial Audit	89.00	11.00
Compliance Audit	89.00	11.00
Management Audit	90.20	9.80
Performance Audit	84.10	15.90
Information & Communication Technology Audit	64.60	35.40
Special Audit / Investigation	82.90	17.10
Others	7.30	92.70
Panel B: Type of Audit Planning		
Strategic Plan (5-Years Plan)	29.30	70.70
Annual Plan	100.0	0.00
Individual Audit Assignment Plan	59.80	40.20
Others	2.40	97.60

This study reveals that majority of internal audit departments in Malaysian public universities have been extended their scopes of audit assignment not only on the financial and compliance audits, but also on performance and information and communication technology audits. The highest percentage of audit assignment carried out by the respondents is management audit (90.20 percent), followed by financial and compliance audits, both 89.00 percent. Moreover, a total of 64.6 percent respondents indicate that they have carried out an information and communication technology audit. Finally, there are only 6 respondents (7.3 percent) stated that they also carried out other assignments such as verification of data. The extended of the scopes of audits perhaps could lead to the effectiveness of internal audit function by improving the organizations' internal control and governance process.

Panel B of Table 3 deals with the type of planning in internal audit departments of Malaysian public universities. The result shows that among various types of audit planning, all Malaysian public universities have an annual audit planning for their internal audit department. In addition, more than 50 percent of respondents have their own individual audit assignment plan. However, there are only 29.30 percent of respondents stated that they had strategic audit planning for their internal audit department. This may indicate that there is lack of awareness of the importance of having strategic

long-term audit planning for the public universities organizations. By having strategic long-term audit planning, it is not only will guide the path of internal audit departments, but it may contribute to proper improvement of audit plan strategies for future.

4.3 Descriptive Statistics on Independent Variables

Table 4 presents the information on the mean, minimum and maximum scores of the internal audit quality, management support, organizational setting and auditees' attributes of this study. Based on the 5-points Likert scale, the score value of three and above indicates that the internal audit quality, management support, organizational setting and auditees' attributes are effective in contributing to the internal audit effectiveness in Malaysian public universities. Table 4 exhibits that all the factors are effective in contributing to the internal audit effectiveness with the mean score of 3.9085 (management support) and above. The organizational setting shows the highest mean score at 4.1777 while the internal audit quality and auditees' attributes shows the mean score of 4.1069 and 4.0061, respectively. The maximum score for all of the variables are 5.00 and the lowest minimum score is 1.5 which is recorded by management support.

Table 4: Descriptive Statistics on Independent Variables

Variables	N	Mean	Minimum	Maximum
Internal Audit Quality	82	4.1069	3.00	5.00
Management Support	82	3.9085	1.50	5.00
Organizational Setting	82	4.1777	3.14	5.00
Auditees' Attributes	82	4.0061	2.00	5.00

4.4 Ordinary Least Square (OLS) Regression Results

The OLS regression analysis is performed to consider the impact of internal audit quality, management support, organizational setting and auditees' attributes on the internal audit effectiveness. Table 5 portrays an OLS regression results conducted in this study. To investigate the existence of multicollinearity in the estimation for the regression analysis, the tolerance (TOL) values for each of the independent variables are computed. As reported in Table 5, the TOL are always more than 0.1, suggesting that multicollinearity problem is not likely to be a major factor driving the results of this study.

Table 5: Ordinary Least Square (OLS) Regression Analysis Result

Independent Variables	TOL	Model 1	
		Coeff	*t*-stat
Internal Audit Quality	0.460	0.254	1.741*
Management Support	0.567	0.059	0.442
Organizational Setting	0.540	0.083	0.610
Auditees' Attributes	0.643	0.529	4.452***
Constant		1.858	3.847***
R-square		19.90%	
Adjusted R-square		18.90%	

Note: Association is significant at the *** 1 percent level; ** 5 percent level; * 10 percent level, respectively,
using two-tailed test.

The OLS regression model is significant; however, the explanation power of the model is quite low, with an adjusted R-square value of 18.90 percent. This indicates that 18.90 percent of the variation in the internal audit effectiveness of Malaysian public universities can be explained by the variables specified in the model. In comparing the contribution of each independent variable to the prediction of dependent variable (internal audit effectiveness), the Beta value under Standardized Coefficients is referred to. Results from Table 5 shows that the auditees' attributes makes the strongest contribution to the prediction of internal audit effectiveness in Malaysian public universities (Beta = 0.529), while management support is the least contributor (Beta = 0.059).

Focusing on the linear relationship, the result shows that the auditees' attributes has a significant positive relationship with internal audit effectivess at 1 percent level. This results is consistent with Ahmad et al. (2009), Dittenhofer (2001) and Mihret and Yismaw (2007), suggesting that auditees of Malaysian public universities have given proper cooperation to internal audit departments when needed. Building upon such a fundamental relationship, internal auditors and auditees should develop a professional and mutually trusting relationship, resulting in a more effective and quality-oriented audit. In such good relationship, auditees may also have provided enough access to all relevant records, documents and properties for auditing purposes. Trusted and comprehensive information provided by the auditees have assisted the internal audit functions staff in evaluating the auditees' control and governance processes effectively, which in turn contributed positively to the auditees' organization improvement. Hence, this provides support for the alternative hypothesis (H4) that auditees' attributes is positively associated with internal audit effectiveness.

Internal audit quality has a marginal significant positive association with internal audit effectiveness. The positive association is similar to previous studies by Ahmad et al. (2009), Albrecht et al. (1998), Dittenhofer (2001), Mihret and Yismaw (2007), Sterck and Bouckaert (2006) and Van Gansberghe (2005), which revealed that the internal audit quality influenced the internal audit effectiveness. This suggests that a quality internal audit works in the internal audit department could produce significant findings and recommendations for the auditees to take action for universities' improvement. This result provides support for the alternative hypothesis (H1) that there is a significant positive association between internal audit quality internal audit effectiveness.

Management support and organizational setting variables are not significantly associated with internal audit effectiveness. Internal audit functions require the involvement of everyone in the organization. This calls for commitment from management to integrate the internal audit results and recommendation into the organization activities and in all function under the control of other departments clearly linking internal audit to the objectives. However, this study did not show enough evidence for the association between management support and internal audit effectiveness. Perhaps, management support or reactions to the internal audit report depend on their pattern of general attitudes and behaviours. According to Hogwood and Dunne (1984), personal objectives are the prominent factors for their behaviours and statements, which are concerned with social objectives and sustainability of organization. In the absence of such fruitful interaction between the management and internal auditors, effectiveness of both parties is damaged. Hence, the insignificant association between management support and internal audit effectiveness failed to accept the alternative hypothesis (H2).

Contrast to Mihret and Yismaw (2007), this study also failed to accept the alternative hypothesis (H3) since there is no association between organizational setting and internal audit effectiveness in Malaysian public universities. This study discovers that organizational setting did not contribute to the internal audit effectiveness even though most of the internal audit department in the Malaysian public universities has been given high status in the organizational structure by reporting functionally directly to the university's board and administratively to the Vice Chancellor.

5. Conclusion

This study provides evidence on the current practice of internal audit function in Malaysian public universities. This study embarks to provide evidence on the association between internal audit quality, management support, organizational setting and auditees' attributes with internal audit effectiveness in the context of Malaysian public universities. Using survey questionnaire distributed to the sample of 82 internal audit practitioners in Malaysian public universities, the analysis is done using OLS regression model. Overall, this study confirms a significant positive relationship between auditees' attributes, internal audit quality and internal audit effectiveness. This means that, in Malaysian public universities, committed auditees are self-driven and are directed to organizational internal audit goal achievement and subsequently contributes to internal audit effectiveness. The result is consistent with the argument that coordination and cooperation are essential between auditees and internal auditors in order to facilitate the overall process of audit and to raise the professional profile of the function (Messier et al., 2011). On the other hand, the results for variables of management support and organizational setting are in contrast with the previous studies.

In this regard, it is vital for universities' management to give adequate attention to the factors that did not contribute to internal audit effectiveness such as internal audit quality, management support and organizational setting. Considering that the variable of management support could drive the universities' pathway, the universities should aim at creating a committed management work force for better support on internal control audit function. More research could be carried out on the effectiveness of internal audit function and employee attitude on organizational performance as a whole. This study propose for more research to be extend on the effectiveness of internal audit function in other government agencies as well as private sectors.

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Endnotes

[i] http://www.timeshighereducation.co.uk

[ii] Source: http://www.mohe.gov.my/portal/en/info-kementerian-pengajian-tinggi/pelan-strategik.html

[iii] Malaysian public university which does not establish an internal audit department is Universiti Malaysia Kelantan (UMK). List of public universities is retrieved from the official portal of MOHE.

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Achieving Effective *Waqf* Management through Compliance with *Shari'ah* Governance Practices

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Abstract

The renaissance of Islamic finance indicates that people are increasingly concerned with the Shari'ah-complaint nature of commercial and non-commercial activities. Conventional financial institutions are immersed in elements of interest, uncertainty, and gambling, all of which are forbidden in Quran and Sunnah. Shari'ah-complaint finance is thus at the core of Islamic financial institutions; it is the distinguishing factor between Islamic and conventional finance. With due diligence, international organisations such as the Accounting and Auditing Organisation for Islamic Financial Institutions (AAOIFI), Islamic Financial Services Board (IFSB), and Bank Negara Malaysia (BNM) have formulated a Shari'ah governance framework; Malaysia is thus positioned at the centre of the global Islamic finance and takaful industries. The Shari'ah governance framework monitors Islamic financial institutions with regards to their functioning within the framework of the Shari'ah. Current research on Shari'ah governance mainly focuses on financial practices within profit-oriented organisations (i.e. Islamic banks, takaful, and Islamic capital markets). There is limited research on governance practices within non-profit organisations, especially in Waqf (Islamic endowment) institutions. The practice of Waqf is encouraged in Islam, and the establishment of the Prophet's mosque in Madinah set the precedent for such deeds. Waqf can play a significant role in improving a country's economy and in uplifting the living standards of Muslims. However, the effectiveness of the management of Waqf assets has deteriorated over time due to several factors. Two of the major factors for this are lack of Shari'ah governance guidelines and lack of a framework for Waqf institutions. This paper proposes to introduce Shari'ah-based governance for Waqf institutions with the expectation that the proposed governance system will structure the management of Waqf assets so as to comply with Shari'ah requirements related to Waqf assets, and to foster accountability and transparency in practices and disclosures.

Key words: Accountability, Management, Islamic financial institutions, *Shari'ah* governance, *Waqf*

1.0 Introduction

The management of Waqf assets has deteriorated over time due to numerous factors. Two of the major factors affecting the effectiveness are: absence of Shari'ah governance guidelines, and the absence of a framework for Waqf institutions. Since the success of any business organisation depends on the efficacy of its management, it is essential to streamline management in the case of Waqf institutions for the latter to be successfully revived.

Currently, some of the challenges facing Waqf institutions are: unqualified Mutwallis (Waqf managers), absence of planning, lack of funds, inadequate awareness of Waqf, and land issues. Ineffective utilisation of Waqf assets means that even operating costs are barely covered; the salaries that Waqf institutions pay to their staff are very unsatisfactory; there is insufficient income to distribute among beneficiaries (Abdullah, 2010 & Chowdhury, et al., 2012). Misused of Waqf assets, lack of management skills of Waqf (Noor Aimi et al., 2014). Legal issues pertains to land (Mohamad et al., 2012). Fiqhi issues in management (Kahf, 1999). Accountability issues and challenges in Waqf (Sulaiman, 2015; Ramli and Muhamed, 2013; Daud et al., 2011; Osman, 2010; Ihsan et al., 2009). Disclosure issues and problems in Waqf (Sulaiman et al., 2009; Daud et al., 2011). The best way to tackle these problems and issues is to introduce Shari'ah governance guidelines and a framework for Waqf institutions to improve financial management as well as to enhance Shari'ah-compliance.

2.0 Prevailing Shari'ah Governance Models for Islamic Financial Institutions

Since Shari'ah-compliance is the foundation of Islamic financial markets, organisations such as AAOIFI and IFSB have issued their guiding principles for Shari'ah governance. In addition, many countries which encourage the development of Islamic finance have their own Shari'ah governance models in practice. In Malaysia, Bank Negara Malaysia (BNM) has taken the initiative to implement the Shari'ah governance framework. At the national level, the Shari'ah Advisory Council (SAC) has the highest authority, and each individual Islamic financial institution is required to have its own Shari'ah advisory board. The members of SAC are not allowed to serve as Shari'ah advisors at the institutional level. Similarly, Pakistan, has its own SACs at the State Bank and Shari'ah advisory boards at the institutional level.

In Kuwait, there is no central Shari'ah governing body at the central bank level, but there is a "Fatwa Board" in the Ministry of Awqaf and Islamic Affairs, to which any conflict in Shari'ah issues can be referred. This board is external to the central bank, and members of the Fatwa Board can be members of a Shari'ah board at the same time. There is also no restriction on as to how many separate institutions they can provide their Shari'ah advisory services to. In Bahrain, there is an SAC at the Central Bank, and each institution is required to have its own advisory board. In terms of restrictions regarding board members, the practice is similar to Kuwait. In the case of governance guidelines, Bahrain has adopted AAOIFI governance standards. In the United Arab Emirates, there is an SAC at the central level, and each institution has its own Shari'ah board. There are no restrictions on the Shari'ah advisors. In Qatar, there is no SAC, but if there is any dispute, the Supreme Shari'ah Council will appoint a Shari'ah scholar to resolve it. There are no restrictions on Shari'ah advisory structures in terms of what institutions they can provide their services to (Hasan, 2007; Hasan, 2010).

We see, then, that countries employ various approaches to achieve the objectives of Islamic finance, i.e. Shari'ah-compliance. However, to the extent of our knowledge, there is neither a Shari'ah framework nor guidelines for Waqf institutions in place. It is owing to this that Waqf institutions throughout the Muslim world have ineffective managerial bodies.

One of the means to achieve Shari'ah-compliance and to increase the accountability of management is to have a good Shari'ah governance structure with effective implementation. To this end, there is no Shari'ah governance framework for Waqf institutions although the establishment of Waqf framework is very crucial and essential.

Consequently, this paper proposes some principles as the building blocks for preparing the Shari'ah governance for Waqf institutions. These principles are drawn from the primary sources of Shari'ah and referring to the standards, framework and guidelines issued by AAOIFI, IFSB, and BNM. The proposed principles are: Islamic accountability and responsibility, independency and objectivity, commitment, consistency, Shari'ah audit and review, transparency, disclosure, and ethicality.

3.0 Conclusion

This paper has given an account of Shari'ah governance practices in selected countries. We have proposed principles which we think ought to form the foundation for good Shari'ah governance in Waqf institutions. These principles are derived from the Shari'ah, and are seen as suitable in the context of corporate governance. It is hoped that the practices proposed in this paper will be of interest to industrial players, regulators, investors, and to the public in general. Since this paper is written based on reviewing literature, future research needs to explore the expert opinion of regulators and Shari'ah advisors as to which practices would be the most suitable for Waqf institutions.

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Program for monitoring subsidence phenomena of areas located above former mines in Maramureş, Romania

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Abstract

One of the richest areas in minerals in Romania is the North West where there are six counties, namely Cluj, Maramureş, Satu Mare, Sălaj, Bihor and Bistriţa. Ferrous and non-ferrous deposits, salt, uranium and coal have been found and exploited here, and such deposits still exist. These mineral resources have been exploited by surface and underground mining works, production being obtained mainly through underground excavation which meant mining methods consisting of remaining voids, subsidence and backfilling. The environmental impact assessment is not known, which is also the main objective of this project. Currently Romania does not have a management plan for monitoring the effects of underground mining on the surface The paper presents a proposal of monitoring program called IMMINENT which will integrate advanced monitoring and analytical techniques in new, coordinated and innovative ways in order to improve our understanding of land deformation above former mines from the NW of Romania and it's effect on the environment related to the development of an integrated system of monitoring land degradation and risk assessment, built as a unique referred database on the IMMINENT platform; a novel model for Romania's former mines regions.

Keywords: monitoring, subsidence, integrated system.

Introduction: The research questions and the hypotheses made in the project

Currently, all mining activity in the northwest of Romania has ceased, and the mines are in preservation. But we can still see how, 10 years after the closure of the last mine in the area, no one is concerned about the effects of underground mining or what remains: mines that were closed through a more or less properly coordinated process. The execution of the closing projects was performed inadequately and superficially, leaving an adverse impact on the environment. Also, the postclosure monitoring activity was done partly and superficially, thus ignoring the most elementary rules of engineering (Radulescu, 2011).

At present, there is no project or program to monitor the effects on the surfaces of former mines and poorly preserved mines that remained after the closing. Under these circumstances, the project would constitute a milestone in a complex action meant to analyze all the negative effects on the surfaces of former mines and poorly preserved mines that remained after closing throughout Transylvania and then across Romania.

This proposal comes amid an acute lack (with few exceptions mentioned in the paper) of concern from authorities on this subject and the imminent danger that these areas pose for the population, goods, flora, and fauna, thus the whole eco-system in general. The project has been called

IMMINENT (Integrated Model of Monitoring Land Degradation near Former Mining Areas from the NW of Romania). This paper presents a summary of this project.

From the practical point of view this project will deliver an operational demonstrator that can be adapted to other degraded land regions in Romania and elsewhere around the world. This will be achieved through the combination of innovative science, implementation of modern technologies for environmental monitoring risk and data acquisition, coordinated and cohesive operational planning, and control of environment through communications networks.

Currently, all mining activity in the region has ceased, and the mines are in preservation. But we can still see how ten years after the closure of the last mine in the area, no one is concerned about the effects of underground mining or what remained. The ultimate goal of the proposed project initiated by our team is to correct this dangerous aspect of environmental protection in the area by proposing effective solutions to identify, monitor, control and report the disastrous effects that mining has on the surface. The research questions that arise in a first analysis of the problem are as follows:

1. Did the underground voids of the mines closed in Maramures have effects that can be assigned to subsidence phenomena?

Over time, while performing underground mining activities, monitoring programs have been established for surfaces located above the underground voids created by the exploitation of minerals, which were more or less backfilled, numerous subsidence phenomena being identified for the majority of mines. These monitoring programs were developed through the establishment of observation stations that functioned by taking constant data through annual measurement cycles until the closure of mines.

2. Where are these undesirable effects? What are the risk areas?

In the Maramureş mining basin, as part of the National company for precious and non-ferrous metals REMIN Baia Mare (formerly RAPb.Zn., former Mining Station until 1989), operated the following nine companies: 1. Ilba, 2. Nistru, 3. Săsar, 4. Baia Sprie, 5. Şuior, 6. Cavnic, 7. Baiuţ, 8. Răzoare, 9. Baia Borşa, which carried out their work in 57 mines with underground mining activity. All these show imminent danger of subsidence phenomena.

3. How serious is the current situation and can we estimate its progress for each identified case?

The behavior of the land above the underground voids is extremely unpredictable, and continued or low-intensity subsidence or collapse phenomena may occur, with unforeseeable effects and evolution, and also high amplitude spontaneous phenomena with effects that can be catastrophic. Figure 1 shows a case concerning the effects of subsidence from one of the mines, considering that in the county there are hundreds of such cases that we consider serious.

4. It is possible to apply modern methods to monitor the areas identified?

Tracking the evolution of subsidence and landslides with classic surveying technologies, precision angular intersections and levelling, continues to solve a number of problems of subsidence phenomena analysis. The application of modern spatial technology such as INSAR, Interferometry, Remote Sensing, Laser scanning, various sensor technologies, GNSS-GPS technologies, robotic total topographic stations, digital photogrammetry and videography technologies, is still in its early pioneering stage.

5. Are the data and information gathered in previous analyses suitable for use as a sound Geographic Information System (GIS) type management system?

The advantages of GIS in territorial spatial data management are undeniable and are proven by numerous examples coming from most countries worldwide. Since the entire analysis of the presence

and evolution of subsidence phenomena occurs in a georeferenced managed space in a given system, and the information is easily stored in informational layers, the answer to this question is affirmative.

6. Is it possible to create predictive mathematical models of the phenomena analyzed?

The development and definition of the components of a program to monitor affected land must be made keeping in mind the necessary data that would be sufficient and relevant in the construction of mathematical models on actual behavior, which could be compared with the estimates made in the definition of operating procedures for each case.

Based on what has been said, the hypotheses made in this project are the following:
Hypothesis 1. Underground mining in north-western Romania, currently closed and preserved, shows constant and lengthy danger, for surface areas above the underground voids created during operation, of subsidence phenomena of variable severity, from case to case.

Hypothesis 2. Analysis of the danger posed by each case can only be done by defining a full and comprehensive monitoring program of these areas.

Hypothesis 3. The use of different classical and modern technologies, previously presented, is not only possible but mandatory in order to cover the whole phenomenon with various dynamics of evolution and a highly volatile risk.

Hypothesis 4. The only current, modern way, with an effective price-result ratio, for the management of so much information, is GIS.

2. Theoretical aspects regarding subsidence phenomena

2.1. Subsidence in specialized literature The main body of the paper

Monitoring and analysis of deformation of land and buildings located above underground voids (subsidence, term that was coined in specialized literature), began about 150 years ago in the mining regions of Central Europe. In the first half of the twentieth century, in Central Europe, various empirical methods of modeling and prediction of deformation of land and buildings located above underground voids were applied (Radulescu, 2013; Radulescu & Radulescu 2013).

The impact of mining subsidence on the surface can occasionally be catastrophic, destroying property and resulting in loss of life (Madan, 1986).

The existence of the phenomenon of subsidence due to underground mining is a major problem in many countries with mining activity. Such phenomena exist both for coal mining, as well as mining of metals or other categories of minerals (Barry, Whittaker & Reddish, 1989).

Measurements on establishing the extent and evolution of the phenomenon of subsidence are made by determining the vertical and horizontal movements performed on the affected Earth crust (Blodgett & Kuipers, 2002).

Based on complex research in the field, various programs for prediction and decision support were launched, based on topographic determinations in situ, an example being Mining Subsidence Predication and Assistant Decision Support System (abbreviated MSPADSS) which uses object-oriented programming and the development of GIS technology components (Wang & Wu, 2004).

2.2. Subsidence management plan

Subsidence management must be flexible and able to cope with unexpected changes or uncertainties (Oszczak et al., 2003; Technical Guide to Mine Subsidence, 2011; Bell, Stacey & Genske, 2000). The management process of the mentioned phenomenon and the approvals requested by governmental authorities in the activity of exploitation of mineral resources, means that mining operators need to have a management plan for the subsidence phenomenon (Subsidence Management Plan – SMP), which must include:

- Full description of the area proposed to be monitored, affected by mining activity;
- Forecasts on expected magnitude of the subsidence phenomenon;
- Evaluation of economic and social benefits and impact of the proposed project;
- Description of the subsidence phenomena expected and actual associated impact;
- Details on proposals for consulting the affected or potentially affected communities.

The final review of the SMP project must take into account all the potential impacts on landowners and the environment. The views of the community and government agencies need to be considered during the evaluation process. The key principles that underpin the SMP are (Subsidence Management Plan – SMP; Hartman, 1992; Kratzsch, 1983):

- Transparency,
- Existence of own capital,
- Certainty.

Introduction of new management policies regarding subsidence phenomena, worldwide, was an important step in managing the environmental impact of the underground mining industry.

2.3 The criteria of rock stability in the study of subsidence phenomena

A massive underground rock excavation results in a redistribution of the natural state of tension. If rocks around mining works have sufficient strength to take the newly created tensions, then there will be no major cracks and fractures, the rock will not change its capacity and the excavations will not need supporting. Since it is difficult to achieve a comprehensive correlation of all factors influencing stability, literature provides several stability criteria, which take into account some of the factors of influence. Of those, the study takes into account those that best characterize ore exploitation. The following describes two methods for defining the stability of rocks in studying subsidence phenomena, used for stability analyzes in metalliferous deposits specific to the region analyzed (Chindriş, 2002).

Stability criterion "n". The stability of rocks according to this criterion is estimated based on the geo-mechanical features of rock by a n coefficient given by:

$$n = \frac{\sigma_{rc} \cdot \eta \cdot \xi \cdot K}{\gamma_a \cdot H \cdot K_1 \cdot K_2} \tag{1}$$

where: H - is the depth of location of mining works; γ_a - bulk density, and σ_{rc} - monoaxial compressive strength; η - coefficient according to the degree of cracking; ξ - long-term coefficient of resistance; K - coefficient of influence of moisture; K_1 - coefficient of stress concentration; K_2 - coefficient of influence of coal mining; u – rock movement. Placing rocks in a stability class according to criterion ”n” is done in accordance with **Table 1.**

Table 1: Placing rocks in stability classes according to the stability criterion *"n"*

Stability coefficient, n	Stability class	Assessment of the stability of mining works
> 1	I	Mining work is stable
0.7 <n <1	II	Average stability
0.35 <n <0.70	III	The work is becoming unstable
0.25 <n <0.35	IV	High degree of instability
n <0.25	V	The work is totally unstable

Stability criterion "S". The assessment of stability under this criterion is related to the characteristics created by the geological and tectonic phenomena and geo-mechanical characteristics of the rocks. *S* stability criterion is shown analytically by the expression:

$$S = f \cdot \frac{K_M \cdot K_r \cdot K_w}{K_N \cdot K_t \cdot K_A \cdot K_\alpha} \quad (2)$$

where f - strength coefficient of rock; K_M - coefficient depending on the fissures of the rocks; K_N - coefficient depending on the number of crack systems; K_R - coefficient depending on the shape of the walls in the mine; K_W - coefficient depending on rock moisture; K_A - coefficient depending on the cement deposited in the cracks; K_t - coefficient depending on the openness of cracks; K_α - coefficient depending on the α angle formed by the direction of mining and direction of cracks. Depending on the stability criterion *S*, rocks are grouped into several classes shown in **Table 2.**

These calculation methods allow us to create forecasts on the possibility and extent of the subsidence phenomena, which can then be validated, or not, by measurements taken in the immediate future after the production of the underground void, and then throughout the operation of the mine by installing observation stations, and finally in the post closing phase.

Table 2: Assessing stability according to criterion *S*

The value of the stability index, S	Stability class	The degree of stability of mining works
> 70	I	Completely stable
5-70	II	Stable
1-5	III	Average stability
0.05 - 1	IV	Unstable
<0,05	V	Very unstable

We already mentioned that the closure of mines in the area analyzed, Maramureş County, did not fully observe the provisions of conservation projects and the consequences can be seen and analyzed: subsidence cones, embankment landslides, slope collapses, etc. (Figure 1) (Radulescu, 2013; Radulescu & Radulescu 2013; Stefan & Badescu, 2012).

Figure 1: Effects of the phenomenon of subsidence on the surface, Săsar mine, Borcutului Valley area, outskirts of Baia Mare, a. Subsidence cone with the destruction of vegetation, b, c, d, Collapses of banks, slopes and hillsides with the destruction of vegetation

2.4. Systems for monitoring land affected by underground voids and structures in the area

Currently, monitoring the stability of land prone to subsidence and the safety of mining constructions potentially affected can only be conceived by adopting a management system for close static, quasi-static, quasi-dynamic or dynamic monitoring of the behavior over time of affected structures. In time, new systems, methods and technologies have emerged to verify the geometry, taking into account all factors, which lead to a new field, namely cinematic topography. The terms of representation of the data recorded in the monitoring process are (Radulescu, 2013):

- Determine the exact causes (climate factors), correlated with exact recording of their effects (movements or oscillations);
- Continuity of recordings in various combinations of stress conditions;
- Overview of cumulative effects;
- Detection of the influence of each stress factor;
- Minimizing errors in recording;
- Removing-reducing the effects of the environment on measurement methods;

3. Case Study: Program to monitoring the subsidence phenomenon in underground former mining areas in the Northwest of Romania: project initiation and design

Our research is based on a conceptual model of monitoring the subsidence phenomenon above the former mining industry areas from Nothwest of Romania. This project is called IMMINENT. (Figure 2)

The overall objective of the project is the development of an integrated system of monitoring land degradation and risk assessment, built as a unique referred database on GIS Type Information System platform ;

3.1 Description of the model

The model is designed as a comprehensive Systemic approach of land degradation phenomena in the former non-ferrous mining areas from the NW of Romania.The phases of monitoring system are performed gradually through specific activities (Monitoring Tasks).
Subsidence phenomenon's monitoring which occurred in former sub-terrain mining exploitation areas, now closed and preserved, can be performed through an integrated monitoring programme; methods used in this program combine from geometrical perspective the topo-geodetic methods and specific environmental methods with respect to quality assessment. The program can be fulfilled by transposal of collected data into a predictive model which can be continuously improved by the upgrade of database from the MDB GIS Platform. Our program proposal is presented below, as a set of monitoring phases:

Phase 1: Database development and programming GIS platform, presents the concept of the Deformation Information System to supported facilitate studies of mining ground deformations. The proposed modular structure of the system includes data collection and data visualization components, as well as spatial data mining, modeling and classification modules. In addition, the system integrates interactive three-dimensional models of the mines and local geology. The system is used to calculate various parameters characterizing ground deformation in space and time, i.e. vertical and horizontal displacement fields, deformation parameters and input spatial variables for spatial data classifications. The core of the system in the form of an integrated spatial and attributive database will be described. The development stages and the functionality of the particular components will be presented and modeling functions will be shown. The system created, named IMMINENT MDB-GIS platform will host as well the intranet communication site.

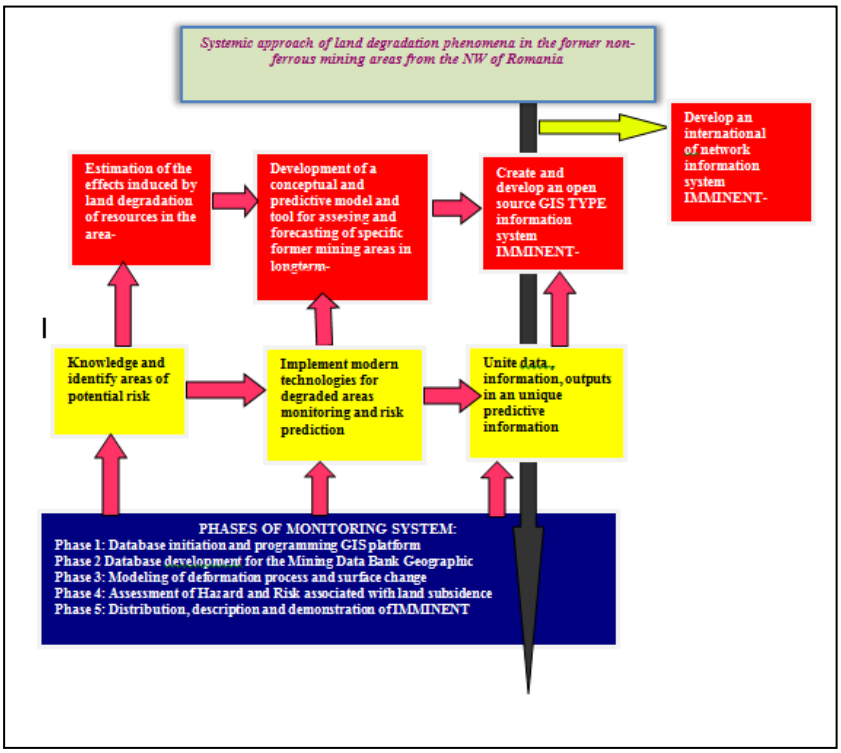

Figure 2: Model of Monitoring System of Land Degradation

This phase is operational under the following tasks (Radulescu et al., 2015):

Task 1.1.: Requirement analysis, Will analyze the volume and nature of the analytical data and graphs that will, in time, be accumulated and used in the project, the links and access to data, their classification. Similar cases of data banks, the software available in the industry, the possibility of linking in a single database all such information and the implementation of a GIS platform will be analyzed.

Task 1.2.: Data system design and development, Starting from Task 2.1.the system will be designed in detail, given the introduction, classification and sorting of data, storage and output of data. It will take into account the logical structure of the data from the data bank, quality control and data validation, analysis of access procedures and policies. Continuing the work begun in previous stages, the system will create, build and grow, acquiring software and drives required. We will initially create a demo that will be implemented, validating the design solutions developed in this task . Based on an adopted data protection policy, data will be available to partners and all members of the project team as well as external actors related to the project.

Task 1.3.: Early stage data, Until the MDB GIS data bank is adopted and implemented, data will be acquired, classified and stored on a common platform of communication, to which all members of the project team will have access under the provisions of the data protection policy. In this data bank all consortium members will load data for each activity contributing to the formation of thematic data bases, which will be then represent the base for the MDB GIS data bank.

Task 1.4.: Open source Database Maintenance, Once identified in Task 3.1., the nature, volume and sources of the data created Task 3.2., the data bank having available the data banks built in Task 3.3., the system will be developed and updated permanently, based on new data and update with the specific speed of all data in the computer system created.

Phase 2: Long term behavior tracking of degraded land

develop a new conceptual and experimental integrated monitoring system ,based on modern technologies for subsidence phenomena and associated phenomena, based on the mixed use of technologies considered classic with modern technology and with the unconventional .

Within Phase 2, the Diagnosis of the main effects of underground voids on the surface above or near former mines, especially ruptures, collapses (subsidence cones), landslides and the physic effects produced on land in the area will conduct to the identification of the most affected areas .All the information collected will be processed and catalogued. For this, a cycle of measurements shall be done - by classical but highly accurate methods named cycle « 0 »- in order to highlight the main features, the negative effects of underground mining in these areas, making it possible to classify them in terms of potential risk factors.

Phase 2 is the main fund of information that will represent the base for the Mining Data Bank Geographic Information System (MDB GIS). We will adopt and use the latest methods for structural monitoring and acquisition of physical data for land degraded by underground mining. Initially, for the five test areas chosen to collect the information necessary for the design of systems considered technology monitoring models, we shall apply the methods mentioned in the solutions of Phase 2. Thanks to the all this data we will set - for each group of case studies examined - the causes and the features-parameters that produce degradation of the surfaces above or near former underground mines; finally we will critically compare the monitoring methods used, and create technology models suitable for each situation that could occur in such monitoring actions.
Task 2.1.: Cycle "0" geometric and environmental measurements of areas in NW Romania affected by underground mining activity. This cycle will use traditional precision methods for surveying affected areas, making large scale topographical plans, and creating databases that include the parameters of environment factors caused by the mentioned activities. For the studied territories listed a catalog-database(Catalogue of the degraded land areas by underground mining in North West of Romania) will be edited (in analytical and graphical form), implemented on a GIS platform, referred to as the MDB GIS, including all areas that have undergone various changes due to underground mining, especially due to the existence of underground holes.

The test area "Masca"(figure 1) will be included in every measuring cycle (both in cycle "0" and the current cycles "1", "2", "3", cycle "4" reshaping and final cycles "5" and "6"). This area has been studied for many years by the specialized team at Technical University of Cluj Napoca(TUCN). It is an area located above the old Iara mine in Cluj County. There is a large cone collapse, and the last measurements showed that this zone is still active. So, if during the measurement cycles there will not be any spectacular moves for the other four locations chosen as test areas, the measurements from "Masca" will not only validate the new methods but will continue the previous research of the project team members.

Task 2.2.: The influence of underground mining on physical status of soils, For the same areas (except that there may be areas where previously identified mechanical effects were not produced, but there were physical effects instead) the MDB GIS database shall be filled, analytically and graphically, the data including the physical effects of such lands due to underground mining, In this stage we will define the main parameters of the effects of underground mines on the surface and describe four possible scenarios for the nonferrous metals mining activity, starting from facts, with a probability analysis for the production and the destructive cases known in the field.

Task 2.3.:New structural monitoring methods and performing of cycles measurements. We will analyze the latest structural and physical monitoring means adaptable to the analysis of degradation produced in time by the activity and then non-activity (underground voids left behind) of former mines in NW Romania. Based on the software and tools which make up these methods we shall perform test measurements for the installation, sampling and validation of each method. Starting from the classical method of observing (monitoring) the behavior of land and buildings over time,

settlements are checked with a high level of precision with optical micrometer and invar rod, through the method of middle geometric leveling, and slides are recorded through the method of angular intersection achieved with a precision theodolite. The new methods developed in this task are :

a. Structural monitoring with topographic equipment from digital generation : level, robotic total station, GPS.

b. Development of structural monitoring unconventional methods, near real-time: InSAR and Interferometric Radar Processing, Synthetic Aperture Radar (SAR) is a microwave imaging system. It has cloud-penetrating capabilities because it uses microwaves. It has day and night operational capabilities because it is an active system. Finally, its 'interferometric configuration', Interferometric SAR or InSAR, allows accurate measurements of the radiation travel path because it is coherent. Interferometric Radar Processing is a highly innovative technology for 2D monitoring of displacements and movements in slopes and structures. Monitoring of terrain movements is an increasingly important task for today's geotechnical experts required to prevent or forecast natural disasters that could affect human lives. Interferometric Radar Processing based on SAR interferometry, can remotely measure the simultaneous displacement of thousands of points over large areas (natural reflections of the slope), without the need for any kind of access to the slope under observation. IBIS-FL provides a Displacement Time Series for each point with an accuracy of up to 0.1 mm. Thanks to the high number and the spatial density of good measurement points, IBIS-FL can also provide Displacement Maps to clearly distinguish stable and moving portions of the area under investigation. The automatic acquisition and processing of Interferometric Radar Processing data enables the device to provide early warning alerts if movements exceed a selected threshold.
c. Development of structural monitoring unconventional methods, near real-time: Video gauge Digital Image correlation system, A Videography (vision based) system that can track under conditions displacements of an accuracy up to 1/100-1/200 of pixel. This for a monitoring structure translates to several millimeters (or even less). Such a system is suitable for isolated structures, mainly in the dynamic regime. The Video Gauge technology can measure multiple points on any structure, without complicated installation or re-sitting of sensors or delicate machinery

Through presented methods this task ensures also the measurement cycles which will be performed in three cycles : « 1 » ; « 2 » ; « 3 », with one month and respectively tree month periodicity between them.

The cycles of measurements allow the design of new technology models for structural monitoring and shall provide sufficient data to determine the causes that produce the degradation of land above the underground exploitations and the gravity of the analyzed situations.

General observation : All the 3 methods allow development and processing 3D digital plans, profiles and models of the measured lands. InSAR and Interferometric Radar Processing measurements of travel path variations as a function of the satellite position and time of acquisition allow generation of Digital Elevation Models (DEM) and measurement of centimetric surface deformations of the terrain.

Task 2.4.: Comparative analysis of monitoring advanced technologies; having the data from Task 2.3. will make a comparative analysis of the modern methods used, setting the possible destinations and expected performance for each. Based on this analysis will design new technology models of monitoring for both the geometrical structural part and for the environmental component. Simultaneously with the comparative analyzes made in this task we will identify, based on the data obtained, the main causes which produced the current state in terms of geometry and physical properties. These analyzes will be performed on types of extracted ore, geological structures, etc.
Phase 3: Modeling of deformation process and surface change

The observed deformation measured in the IMMINENT project and available from previous studies will be modeled in this work package, both using analytical and numerical models. The suitability of available data sets and observations of land change will be evaluated against models to be applied,

and a prioritized list of most appropriate approach to modeling decided. The purpose is to provide an understanding of the physical processes involved. Tasks proposed are:

Task 3.1: Analytical models of observed deformation

A number of analytical models are used model volcanic and tectonic deformation. Task 5.1 will consider how such models, or extended versions of these, can be applied to deformation over mining areas, considering to correspondence between subsurface pressure decrease due to mining operation, and pressure decrease due to material transfer of natural causes, such as magma flow in volcanoes. Subsidence over mining areas may be comparable to formation of pit craters on volcanoes, or scaled version of volcano deflation due to withdrawal of magma from within the volcanoes.

Task 3.2: Numerical models of observed deformation

In many cases deformation processes are complicated and require numerical models to be carried. For this purpose will use the finite element modeling using the ABAQUES software.

Phase 4: Assessment of Hazard and Risk associated with land subsidence

The scope of Phase 4 is to evaluate the likely future evaluation of deformation in the study areas, and the associated hazards and risks.

Task 4.1: Improving understanding of hazards associated with land subsidence
For each of the cased studies addressed in Phase 4, an evaluation of the likelihood of continuing movements of ground above mining areas will be evaluated, considering the deformation and the outcome of modeling.

Task 4.2: Risks related to hazards cause by land subsidence

We will consider infrastructure, housing and population in the areas of land subsidence hazards in order to evaluate the risks involved (how the hazards cause l. The aim is to understand the potential losses in a disaster that they take place

Phase 5: Distribution, description and demonstration of IMMINENT

In order to achieve the overall objectives of the project it is necessary to demonstrate that the IMMINENT system and strategy is functional, current, containing the latest tools, methods and technologies in the world. This requires testing of the database developed in Phase 1, ensuring that data flows from previous phases can be incorporated properly in the system, processed, sorted, cataloged and made available within appropriate time frames.
This phase contains the following tasks:

Task 5.1.: Validation of Technological Models, At this stage it must be proved that decision support tools are efficient for end users, including local authorities for emergency interventions. The system will be designed following a series of three cycle (« 1 »;« 2 » ;« 3 »)of measurement, performed in Phase 2, then corrected, adjusted after one more cycle tests(« 4 ») which will be done in Task 5.2.and two more cycle(« 5 » ; »6 ») tests which will be done in Task 5.3.

Task 5.2.: Test of Adjusted Technological Models, consists of:

a. Monitoring Technological Models analysis, is done by performing monthly cycle « 4 », critically analyzing each feature, parameter, result and accuracy of each model.

b. Synthesizing near and far-field data of degraded land products, This step is meant to synthesize all the IMMINENT products and, based on Task 5.1.a., the redesign, correction, adjustment elements.

c. Critical evaluation of current information flow, In conjunction with Phase 2 we will initially make a critical evaluation of new proposed technologies and then of the data flow, in the simulations of accidents caused by the worsening of the situation, in the case of pronounced subsidence phenomena.

In this process we will identify current weaknesses in information chains, making all necessary adjustments to adopted technologies and to the computer system. Outside members of the project team, the operations of this task will also be attended by an independent group of experts who will critically evaluate the effectiveness and appropriateness of new technologies adopted and the data flow and decision-making within the MDB GIS information system. We will thus create the prerequisites for the appropriate adjustment of technologies and the information system, designed to closely match the intended purpose.

Task 5.3.: Demonstration Exercise and Monitoring pilot phase,, The IMMINENT project's integration ability in real life, i.e. to monitor the situation on the ground of land in various stages of degradation due to the effects of underground mines on the surface will be done through a series of six tests, four measurement cycles, as mentioned before, after which we will design the new technology and information system, two more tests cycles : « 5 », « 6 » carried out with tree month periodicity between them, for the adjustment and correction of the system. The entire system, for both the technological part of the model methods created to monitor (using multi-criteria) lands degraded by underground mining will be related to the MDB GIS information system.

Specific Project objectives are as follows (Radulescu et al., 2015)**:**

O1. Estimation of the effects induced by land degradation on resources near the area of former non-ferrous mines from the NW of Romania, which aims to accomplish a diagnosis of land deformation (LD) in an area of abandoned mining. The LD is a process that is influenced by multiple factors associated with underground mining. The studies and description of the deformations that occur on the surface require analysis of the relationships between these factors and the registered ground movements. The relationships between these factors are complicated; therefore, their influences and combinations need to be systematically analyzed. Thus, this objective's result is to catalog degraded areas of underground mining of nonferrous metal of northwest Romania. This catalog will include two documents that will enable the test areas (test) that will continue the research, namely:

- Influence of underground mining on the physical status of soils;
- Probability density functions for land deformation parameters.

O2. Development of a conceptual and predictive model and tool for assessing and forecasting of land degradation at former mining areas in long term, which aims to develop a new conceptual and experimental integrated monitoring system, based on modern technologies for subsidence phenomena and associated phenomena, which is further based on the mixed use of technologies considered classic with modern technology and the unconventional, along with the development of new algorithms in the form of geophysical models of assessing hazards, risk, and early warnings in the event of the occurrence of disasters.

O3. Create and develop an open source information system, which aims to develop data processing and data merging in a unique database and operational platform; develop an exportable PLATFORM, procedural system and strategy for future monitoring, involving international participants datasets. Integrating this database on a GIS (geographic information system) platform. Create the MDB GIS support (mining data bank geographic information system) for the areas analyzed.

The specific objectives of the project will lead to end results consisting of the development and demonstration of geo-hazards monitoring/observing systems, and establishing comprehensive informational systems in a unique integrated database which helps stakeholders, end-users,

authorities to improve compliance with environmental legislation and prevent injury or adverse environmental effects caused by hazards.

3.2.Expected results of the IMMINENT project

- Development of a conceptual and predictive model and tool to unite knowledge of different areas of geodesy, physics soil management and simulation math in an unique predictive information (Blachowski & Stefaniak Paweł, 2013; Dubois et al., 2008; Eliasson et al., 2006; Elske et al., 2012).
-Through the research carried out in the project we will determine the most appropriate monitoring technology for LD phenomena generated by the mining activity on the surface (Erol, 2010; Geirsson et al., 2010; Gikas, 2008; Roberts, 1999; Rzepecka et al., 2011).

-Forecasting and evaluation of specific former mining areas in long-term dynamics under the action of various environmental factors. The project fills the lack of information on the devastating effects that mining activity has had in the counties in North-West Romania by studying all the affected areas, collecting data that allows both the creation of a database on the effects of mining on the environment but, also an analysis of its extent. For this purpose a database of all these phenomena will be created and implemented (graphic and attribute) on a GIS platform (Radulescu & Radulescu, 2013; Blachowski, 2013).

- Estimation of potential effects induced of soil physical degradation condition on resources in the area and assess the potential risk of degradation of environment condition of land management in the term (Blachowski, 2013; Chrzanowski & Chrzanowski, 2004; Radulescu, 2011; Trota, 2006). The project will propose and establish priorities for the authorities to intervene in order to relieve and stop the phenomena mentioned, and to correct the relevant legislation with reference to the former mining areas, how they are closed down and preserved. The project will enable us to know the phenomena in general, the mechanisms that produce and expand them, by building mathematical models that will reflect their history, establishing the causes and the contribution of each to the current state of each studied phenomenon. Multi-criteria simulation of these phenomena will form the basis for forecasting of the likely evolution of LD phenomena.

3.3. Establishing the appropriate evaluation and success criteria to determine the end-of-project results.

The comprehensive and integrated approach of IMMINENT (Radulescu et al., 2015) represents one of the main strengths of the project, because it joins all the important links in the chain from observations to end user, which is necessary to ensure the sustainability and completeness of the Romanian and European abandoned mining fields phenomena. This systemic approach can be fulfilled by a combination and equillibrum between the power of the research team, the power of technology and an. information flow to stakeholders.

3.4. Original and innovative contributions of the IMMINENT Project

By Assessment of the comparative advantages of the project outcomes with respect to the known performances of existing products, technologies and/or services.

1. No monitoring methods for the geo-mechanic –geometric phenomena were applied in kinematic regime, only in static regime.

2. There is no database on the current situation of the effects of mining on the environment in Maramureş and Cluj) - there is only analytical, descriptive data, completely isolated.

3. Lack of coherent analytical and numerical models of the studied phenomena

4. Lack of existing monitoring technological models; the measurements have been carried out only in isolated cases, using traditional static technology only.

5. The application of GIS (Geographic Information System) in this area is poor, and there is no way of implementing data (coming from monitoring the effects of mining) onto GIS platforms.

6. In general, there is lack of coherent action of managing the phenomena caused by mining, there is no value chain of communication; all information conveyed is disparate and only apply to extreme situations.

3.5. The expected impact of the IMMINENT monitoring program

The result of the project could contribute to a better quality of life due to mitigation of capital risk induced by land degradation, surface deformation and subsidence of former mining areas, which are located near human settlements. Quality of life is directly related to the impact factors regarding project contributions, which are divided mainly into:

A. Environmental impact, A historical investigation of data will allow a understanding of the real situation of land degradation due to the subsidence phenomenon. For example, proposals to reopen a mine will be analyzed and evaluated critically, regarding likely threats to the environment and the impact expected based on data obtained from the monitoring of subsidence phenomena in the area.

B. Economic impact, Sectors of the economy, such as civil engineering, energy, transport, forestry, agriculture and tourism are the most exposed to this type of degradation.

C. The impact on the government, Governments require efficient civil protection, emergency planning, effective early warning systems, access to data on all aspects of land movements, and a mechanism by which they can seek specialized advice during a crisis. The project will make available data in due time, to facilitate the drafting of national risk evaluations in the studied area.

D. Impact on social awareness. Abandoned mines have had serious social consequences, such as loss of jobs, isolation, poverty, etc. In underdeveloped areas, such as these abandoned mines, all organizations responsible must work to improve the lifestyle of people. Also, prevention made because of the project regarding disasters created by land degradation could cover significant negative effects on living conditions and contribute to the prevention of loss of lives, homes, property and goods due to the effect of land subsidence, landslides or erosion of soil.

4. Conclusions

Underground mining produces voids which have reversible and irreversible effects on surfaces and flora, fauna, constructiona, the environment in general and housing in areas located above former mines. In Soliman's (1998) vision, subsidence is "a natural and man-made phenomenon associated with a variety of processes". "Subsidence is an inevitable consequence of underground mining that may be small and localized or extend over large areas" (Hartman, 1992). Horizontal and vertical movements of the surface, even the collapse of volumes from the surface until reaching equilibrium with inner masses, damaged by exploitation, are related to the geometric component of subsidence, which is analyzed in the paper.

This paper is sounding the alarm over the lack of concern in determining the hazard presented by former underground mines in the county of Maramureș, in terms of surface movements

IMMINENT will explicitly encourage interaction and knowledge exchange between different scientific disciplines, in particular between geodesic sciences. All data gathered in the project will be made available through an open-access policy, in particular to facilitate improving national expertise and capacities in environmental advanced studies, in monitoring and data processing for developing

sound solutions for a sustainable management of sediments and soils quality and other natural resources.

From the practical point of view this project will deliver an operational demonstrator that can be adapted to other degraded land regions in Romania and elsewhere around the world and the advantage is a useful, rapid, homogenous and cost saving tool for a large category of end-users.

This will be achieved through the combination of innovative science, implementation of modern technologies for environmental monitoring risk and data acquisition, coordinated and cohesive operational planning, and control of environment in context of climate change communications networks.

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A Short Survey on Non-Maturity Deposits Modelling in Slovakian Banking Sector

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Abstract

The risk management of non-maturing deposits (NMDs), like savings deposits, sight deposits and deposits redeemable at notice, is complicated by the unknown options that customers may exercise. Given the significant amounts of NMDs in the balances of retail banks, a sophisticated management of the interest rate risk becomes a critical issue. Understanding the characteristics of a bank's deposit base is crucial to determining how interest rate changes may affect the bank's liquidity, profitability and exposure to these changes. In the current low-rate environment, limited alternative investment opportunities, and general risk aversion, the pricing of deposits and modelling the elasticity of savings volumes is a major concern for all retail banks (Moser et al., 2015).

In view of these developments and the importance of NMDs, we have conducted a survey of Slovak banks' attitudes toward NMDs modelling with the intention of determining and characterizing best practices. Especially, we concentrated our efforts on the question, if the current modelling is adequate with respect to the strategic importance of deposits. This paper aims to present the results of this survey and is based on the interviews conducted on a total of 28 banks doing business in Slovakia.

Keywords: non-maturing deposits, interest rates, modelling

Introduction

The banking environment in Slovakia has been subject to significant change since the start of the financial crisis (Majerčáková and Mittelman, 2014) and the cost of liquidity has now become an increasingly more important factor than was previously the case. The Slovakian market comprises approximately EUR 48.9 billion in deposits by households and companies. A large percentage of the balances of Slovakian banks (Papík, 2015) consists of positions without contractual maturity, the so-called non-maturity deposits (NMDs), like savings deposits, sight deposits and deposits redeemable at notice.

At first sight, the NMDs product looks relatively simple. But, on more careful examination, this product's characteristics appear difficult to capture when one tries to manage interest rate risk on the balance sheet. This is due to the following two features:

- ✓ the client holds the option to change the notional at any time,
- ✓ the financial institution holds the option to change the interest rate at any time.

How these two options are incorporated into a specific method largely determines the degree of complexity of that method. Without a defined maturity date, a defined notional and a defined interest rate, incorporating such a product correctly into measures used for the management of the balance sheet poses a big challenge. Herein lies the ambiguity of the modelling problem, and its potential unfavourable consequences when evaluating NMDs from a risk measurement perspective.

One of the most important sources to address funding needs have always been NMDs. The impact of financial crisis on the cost of liquidity and funding has strongly intensified also Slovakian banks'

motivation to simulate the long-term funding value of these shorter-term liabilities using modelling. Traditionally, NMDs are assumed to be less volatile than other funding sources. As a consequence, many interest rate risk models assume that NMDs exhibit longer durations and lower price sensitivities to rate changes than other funding sources.

To determine the duration of NMDs the replicating portfolio approach has already been described in many academic papers in the past (von Feilitzen, 2011, Džmuráňová and Teplý, 2015). This approach consists in determining the portfolio of fixed income securities (risk-free zero-coupon bonds) with different maturities and different weights and the related investment strategy that best replicate the cash-flows of NMDs. The duration of NMDs is then determined as the duration of this replicating portfolio which can be computed analytically. The maturities and the weights applied in the investment rule are to be determined by the optimalisation such that the rule performed "best" (which could be defined as the lowest standard deviation of the margin between investment return and client coupon).

Modelling Non-Maturing Deposits

Before the financial crisis, deposits were considerably cheaper than interbank lending as a source of financing for banks. But, largely due to the financial crisis, the opposite is true (Colmant et al., 2013). Today, NMDs are generally the primary source of funding for banks in Europe, representing over 50 % of their liabilities, so the manner in which they are modelled has tremendous implications when estimating their value and their impact on interest rate risk exposure measures.

Modelling and valuing NMDs is not a simple task, principally because they are not market traded. A review of NMDs modelling literature (KPMG, 2014) indicates numerous approaches for their inclusion in economic value risk assessments. The basic objective of any NMDs modelling method is to project accurately, for a given interest rate scenario, future deposit rates and balances. Regardless of the degree of complexity and sophistication applied in modelling NMDs, all methods require assumptions about how the deposits will behave in the future.

A widely-used method of NMDs modelling is the construction of the replicating portfolio (Konings and Ducuroir, 2014) by an analysis of the historical evolution of the NMDs position in the banks' balance sheet. Of course, such a method requires a set of historical data of customer rates, volumes and market rates that may be used for reinvesting or financing. The portfolio structure is determined under the assumption that the cash flows of the fixed income securities used for replication match those of the NMDs as close as possible. In other words, the average yield on the portfolio moves parallel to the client rate, and a drop in the volume is compensated by maturing instruments. In practical implementations the resulting portfolio weights remain constant over time; therefore, this method has a static character. Such method is commonly used by many European banks and has already been described in several academic papers in the past.

Affected by seasonal factors, accidental factors and cycle factors, total deposits are in the process of continuous change. A main idea behind a more advanced approach is to split the volume of total deposits into a core (stable) part and a volatile (temporary) part, where we assume that the stable component has a long maturity and the volatile part a short maturity (Figure 1).

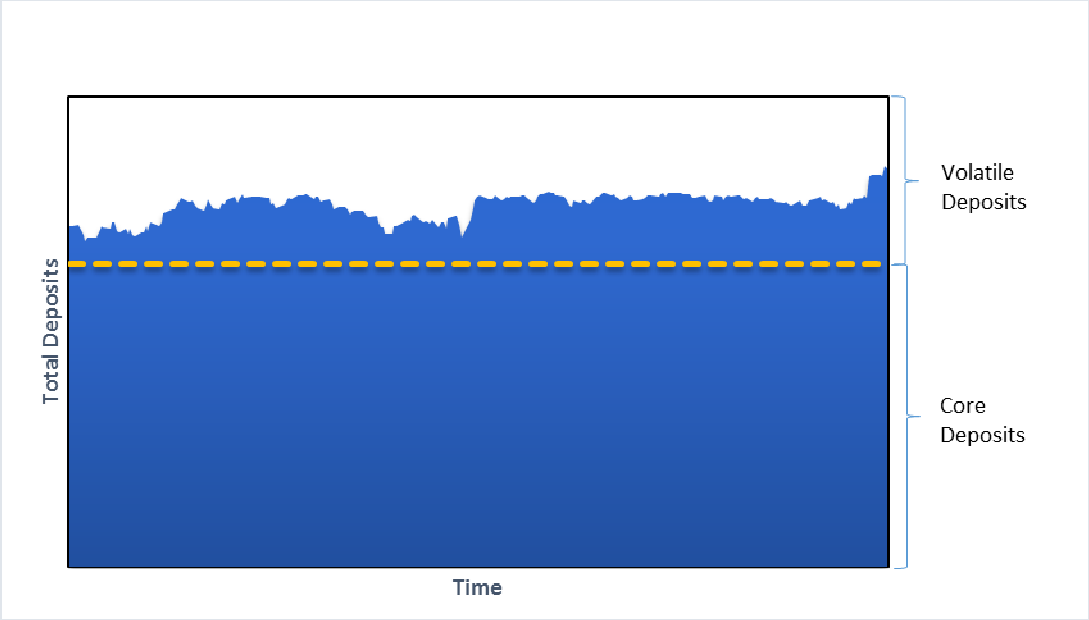

Figure 1: Example of core vs. volatile deposits

Source: own calculations

To overcome the obvious deficiencies of the conventional static replication approach, Frauendorfer and Schürle (2006) have suggested:

- ✓ instead of a constant portfolio composition and identical maturities (up to the next readjustment), the weights and also relevant maturities at which maturing instruments and a volume change are reinvested or financed have to be recalculated frequently,

- ✓ the replicating portfolio is not derived from a single historical scenario but from a large number of scenarios for the possible future outcomes of the relevant risk factors, i.e., market rates, client rate and volume.

After Frauendorfer and Schürle (2006) the motivation of the first point was to exploit the newest information from the markets and from the client behaviour; the second point requires a quantitative model that describes the stochastic dynamics of market rates, client rates and volume over time together with the dependencies between them for specific retail products.

Majority of the NMDs modelling methods that are used today, are deterministic in the sense that there is no randomness involved and only one possible scenario is considered in which the calculations are based on the historical data. In stochastic models the evolution of interest rates is described as a stochastic process. Certainly, this approach requires more computation time than analytically solvable models, but this drawback is offset by a more realistic description of risk factor dynamics. An example can be seen by Frauendorfer and Shürle (2006) who specify such a dynamic replicating portfolio approach based on stochastic optimization and compare the approach to a basic static replication.

Main Results

We conducted our survey between August and November 2015. It is based on a total of 28 banks located in Slovakia. For confidentiality reasons, in this paper neither the identity of each bank nor the category to which each bank belongs can be revealed. The surveyed institutions represent a mix of banks with:

- ✓ balance sheet size above EUR 5 billion (5 banks),
- ✓ balance sheet size between EUR 1 billion and EUR 5 billion (7 banks), and
- ✓ balance sheet size below EUR 1 billion (16 banks).

All of the surveyed banks have very similar range of business activities and statistics shown within the survey are not broken down by the size of institutions.

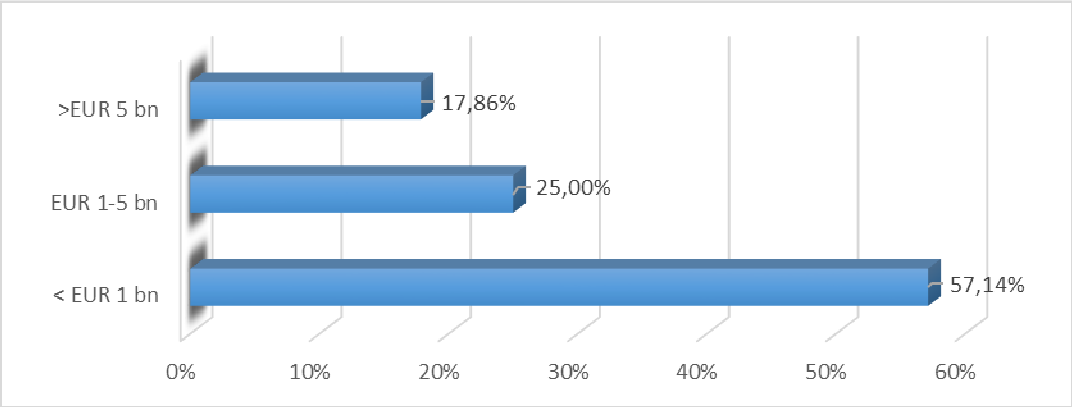

Figure 2: Size of surveyed banks, 2015

Source: own calculations, National Bank of Slovakia

Historical trend analysis of NMDs growth rates is a good start to begin when evaluating exposure to interest rate risk (Bohdalová and Greguš, 2015). Figure 3 demonstrates this analysis performed on the entire banking sector in Slovakia. Year-end 2015 shows that NMDs represented 58.9 percent of total deposits compared with a historical average (the figure uses an 8-year average as the basis for historical comparison) of 39.3 percent before the financial crisis. This shift may have resulted from clients reacting to the low interest rate environment, risk aversion, or limited alternative investment opportunities.

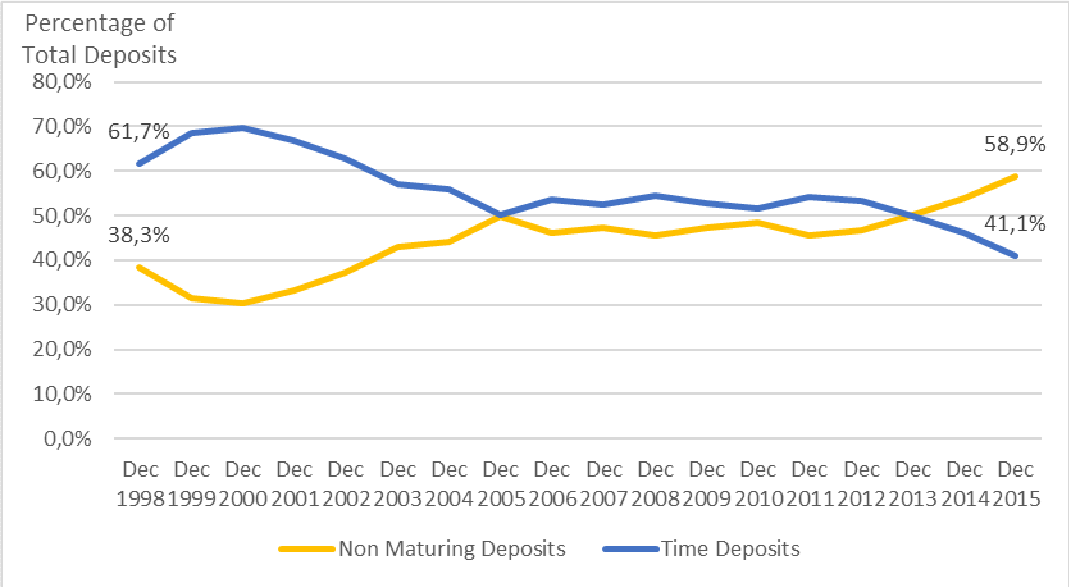

Figure 3: NMDs versus Time Deposits, 1998 - 2015

Source: own calculations, National Bank of Slovakia

As one can see from Figure 3, depositors have historically preferred to lock in higher yields through instruments with stated maturities, such as time deposits, during higher-rate environments. Since the low interest environment started in 2009, an increasing number of clients have been incentivized to move from fixed-term into NMDs and from mid-term into longer-term mortgage products. Recent central bank decisions have further intensified this development. Although NMDs are classified by the European Central Bank and the National Bank of Slovakia as so-called core deposits for regulatory reporting purposes, the inflow over the last years must not exhibit the same characteristics that traditional core deposits have demonstrated in the past (Stachová and Medo, 2013).

Figure 4 displays the evolution of the average saving account base rate in Slovakia. For illustrative purposes the evolution of the short term (3M EURIBOR rate) and long term (5Y EUR swap rate) interest rate have also been included.

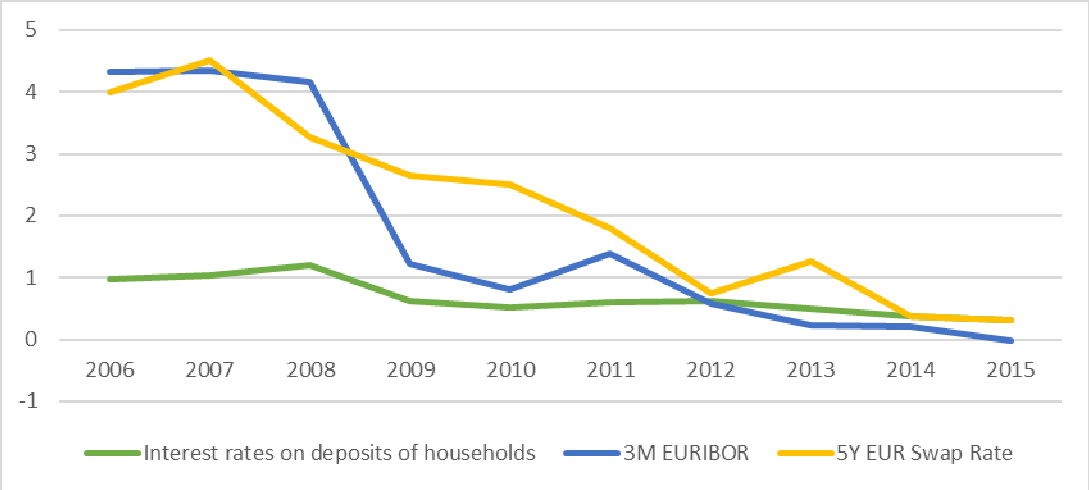

Figure 4: Average saving account rate, 2006 – 2015

Source: own calculations, National Bank of Slovakia

Among the banks where the survey was done, we have found that the risk management departments serve as a unit responsible for measuring interest and liquidity risks while finance departments have the responsibility for covering cost/benefit allocation. The importance of the NMDs models can be documented by the fact that assets-liability committees of the Slovak banks are unique bodies that approve both the initial model as well as any changes. We were able to find out the fact that the banks are trying to increase the consistency between their liquidity risk measurement and liquidity cost/benefit allocation with the objective to create a single assessment of liquidity.

All respondents agreed that all behavioural components of the NMDs models should be reviewed and tested regularly, as part of a structured back-testing framework; the implementation of objective and independent validation was seen as an important step to verify the appropriateness of all assumptions, explicit and implicit. Several of the respondents commented that implementation of this validation process could be difficult and labour intensive. Concerning the frequencies of updates and validation of analyses, our survey indicates that majority of the banks (approximately 53 percent) currently updates their NMDs models at least on a quarterly basis (Figure 5).

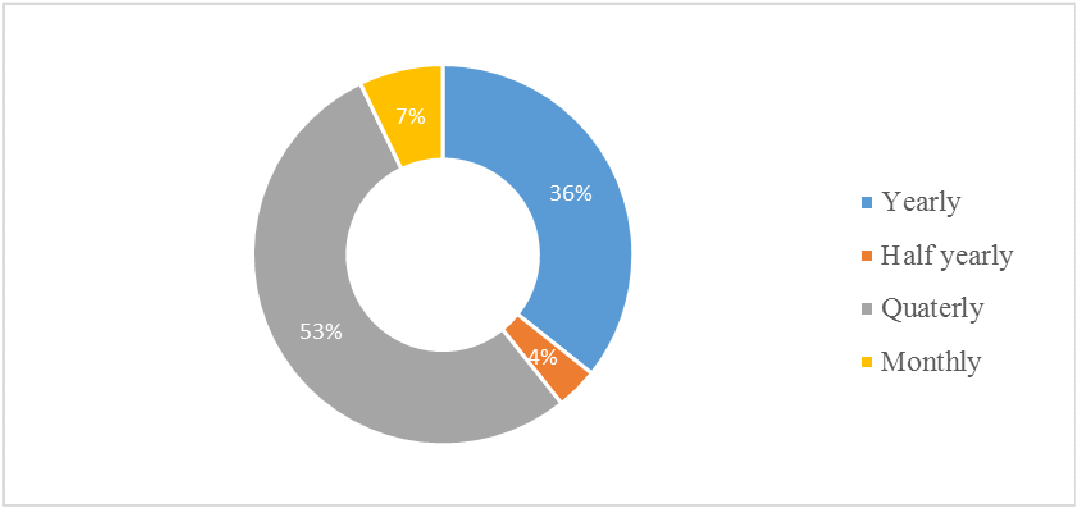

Figure 5: Frequency of NMDs updates

Source: own calculations

The model risk management process should be included in a formal policy that should be reviewed and approved by the appropriate board function. The policy should specify the management roles that are responsible for model oversight, evaluation of results and development of validation procedures. Regardless of the bank size, expert judgement is a valuable source of information in risk management. Especially, risk based decision making relies significantly on quantitative risk assessment which requires numerical data describing the initiator event frequencies and conditions probabilities in the risk model. This data is seldom found in data base and has to be elicited from qualified experts. At majority (71 percent) of Slovakian banks are NMDs models based on both expert judgment and quantitative data analysis (Figure 6). The largest of the surveyed banks never rely purely on data analysis as a basis for their NMDs models.

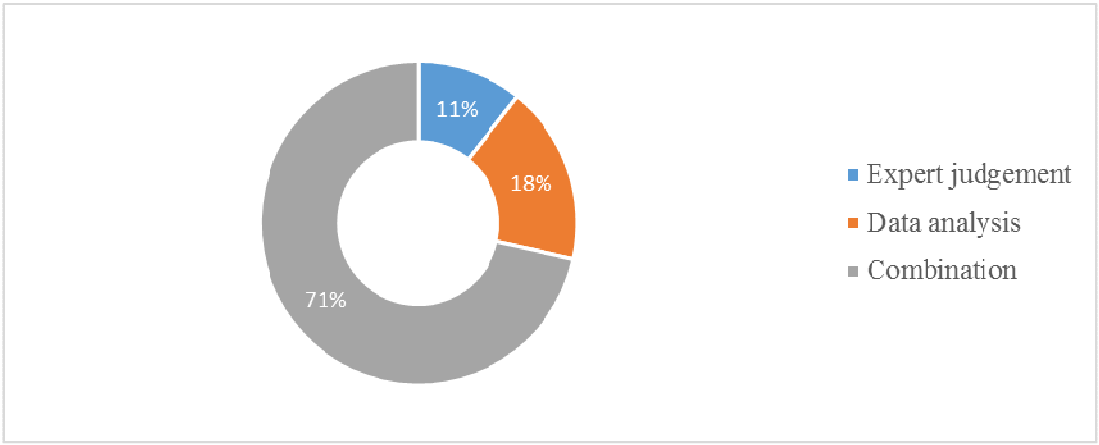

Figure 6: Input basis for NMDs models

Source: own calculations

Data analysis on the deepest level (on the account or even lower) requires a highly granular database together with a very powerful IT infrastructure. Most respondents are intimidated by high costs and high complexity of account-level modelling and therefore prefer to perform data analysis on the portfolio level (Figure 7).

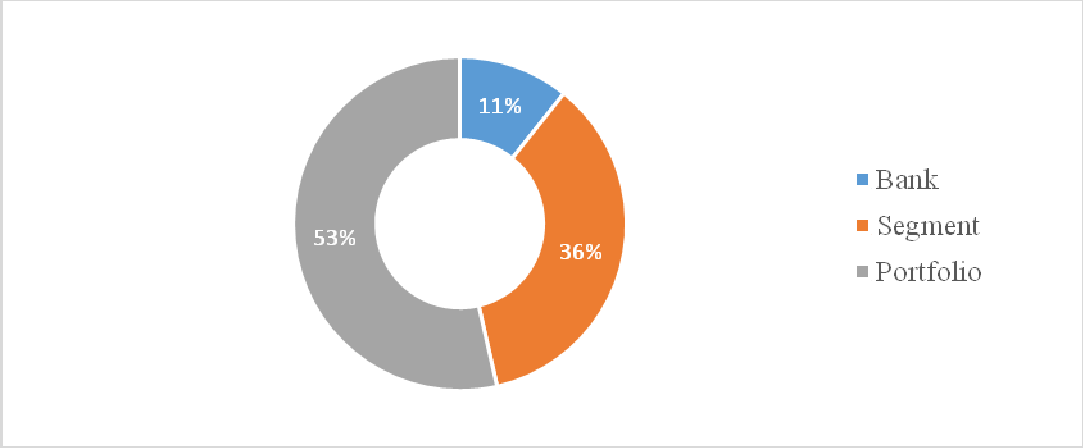

Figure 7: Granularity banks are conducting their data analysis on

Source: own calculations

Conclusion

Non-maturity deposits play a critical role in the profitability of retail banks in Slovakia. These deposits account for approximately 39,5 % of the industry total funding, directly impacting a bank's ability to lend, invest and drive earnings. Models designed to measure interest rate risk and liquidity through various rate scenarios can provide valuable forward-looking predictions. However, models results are only as useful as the embedded assumptions. Because NMDs are a very important source of funding for most Slovakian banks, assumptions related to how deposits respond to changes in interest rates are important drivers of each model results. The above results imply that senior management and the departments in charge of planning and risk management should fully understand the characteristics and problems regarding NMDs modelling to properly gauge and manage interest rate risk. Our survey shed some light on the range of practice of the NMDs modelling process for liquidity risk measurement in Slovak banking sector.

Summary

Our survey shows that most large Slovak banks rely on a static replicating portfolio approach to handle the interest rate risk of their NMDs. Some banks use or have been experimenting with more complicated modelling approaches such as dynamic replicating portfolios and models based on stochastic analyses. However, these models turn very advanced to capture the difficulties involved in this problem and the Slovak banks tend to be reluctant to implement such relatively complicated models and instead stick to less complex ones.

Our survey shows also, that NMDs are modelled on a fairly high aggregation level and banks' expert judgement as well as quantitative analysis is a significant driver for the derivation of the model parameters. The hedging portfolios for the run-off of NMDs are typically static and based on a linear regression function, though more advanced approaches can also be identified by larger banks. Our analysis also revealed a relatively broad range of NMDs modelling methodologies and practices, which, in general, we still consider to be in its infancy with significant room for improvement.
We would like to express our thanks to all the participating banks and our individual contact persons.

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Rapid Impact Assessment Matrix(RIAM) as a method of selection of the optimal Urban Regeneration variant, Case Study: Brownfields of Baia Mare City, Romania

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Abstract

The disappearance of the mining industry in many parts of Eastern Europe, and with it the the industries which developed horizontally and vertically brought many towns in the situation of many former large industrial centers in Europe, changing the economy and local identity and leaving behind areas that are destroyed and polluted, mostly abandoned, so-called Brownfield sites. Restructured, these vast areas may lead to the creation of spaces that represent a support for current activities of life, work and recreation of exceptional quality. The environmental, social, cultural and economic problems as components of the decision system support, regarding to a new urban regeneration project, should be analyzed to measure the overall impact of the new project. In this study, Rapid Impact Assessment Matrix (RIAM), which is one of the options for assessment of environmental impact (Environmental Impact Assessment - EIA) of urban regeneration actions, was used to determine the optimal variant of the two proposed for a more efficient use of the former industrial metallurgical platform CUPROM – PHOENIX, and neighboring industries in Baia Mare, Romania. Different components were used to produce a cumulative score, that is, an average score (ES) for each of the two options proposed in the project. By comparing the possible positive and negative effects produced by the adoption of each of the two versions we established a totalizing score indicating the optimal solution based on the criteria entered, the components considered for each criterion and score for each.

Keywords: former large industrial centers, Rapid Impact Assessment Matrix, urban regeneration, Brownfields

1. Introduction

One of the most serious problems facing many municipalities in Eastern Europe is that because of the excessive industialization which took place during communism, made useless by the new world order, vast areas of partially demolished industrial buildings have remained, now called Brownfield sites, black holes in any city, for which viable uses will need to be found, in view of their inner city position, coupled with explosive urbanization facing Europe today. In this regard, there are arguments stating that urban regeneration should occur by complete demolition, decontamination of resulted land and use thereof for different purposes, from green areas, deficient in most former communist towns, where providing housing to all residents was crucial, to construction of cheap housing, social cultural spaces, small traditional industries etc.

The costs are very high and, although they are justified, few municipalities have the capacity to access funds without support from outside the community or easily integrate them into a broader perspective. The authors consider that this was the real reason why brownfield land conversion has not been a very important factor in reducing consumption of new land in urban development due to the increase in population. Besides this reality also results from a report from the European Environment Agency published in 2010 which also showed that the expansion of residential areas was more pronounced than the regeneration of brownfields while the built up areas have increased more than the population growth [http://www.eea.europa.eu/ro/highlights]. This was why the concept of reuse of areas within cities has evolved over time from those interventions which initially targeted costly recovery of soil quality for reuse covering a whole range of areas in which environmental objectives are only an aspect of the intervention [http://www.urbact.eu/useact]. The new perspective was made possible by adopting integrated urban regeneration models such as CABERNET, CLARINET, RESCUE, REVIT, etc. [Norrman J. et al., 2015] which allowed a broader perspective and a useful exchange of experience in urban regeneration areas including Brownfield type areas. Thus, as shown by the Cabernet model [http://www.cabernet.org.uk/], economic affordability of "brownfields reuse" may differ depending on the direct / indirect costs of regeneration; expected / returned revenue; type of financing and financial risks involved; national and local taxes and risks related to fluctuations; development agreements between the landowner and / or municipality and developers. Each of these parameters should be evaluated carefully in the action to start an urban regeneration project.

In these circumstances the priority for 2014-2020 of the European Commission is increasing territorial cohesion by supporting Urban Development, focusing on urban regeneration.

In relation to the Baia Mare Metropolitan Area, which integrates the city and surrounding areas to the level of about 25% of the county of Maramureş, in the USEACT [http://urbact.eu/useact] project one of the most important initiatives on European urban regeneration highlighted was: "The high number of brownfields (mostly mining settlements), due to changes in the industrial sector, after the communist period". In this context, the Local Action Plan of Baia Mare has the major theme of "sustainable rehabilitation" of brownfield sites, due to the decline of the mining industry [AGENDA LOCALÃ 21]. This work is part of the concerns of the authors [Rădulescu 2016] to contribute logistically and cognitively to address this much-needed action, especially regarding urban regeneration of the Phoenix-CUPROM brownfield, the main former industrial area in Baia Mare, currently fully demolished except the tallest building in Romania, a 351,5m smoke chimeny, the third in Europe and 8th in the world, included in the current urban regeneration projects.

2. Literature Review

The concept of "Urban renewal" ("Urban Regeneration" in the United Kingdom), "Urban Revitalization" in the United States) [http://portal.hud.gov/]] has deep roots in the history of urbanism stemming from a need of redesigning crowded urban areas or areas in various stages of degradation, and it has experienced both successes and failures. The modern version began in the late 19th century in developed European countries and experienced an intense phase in the late 1940s in the work of reconstruction of cities bombed during the Second World War. Urban renewal requires relocation of businesses, demolition of structures damaged or no longer needed, population relocation and purchase of private property in order to implement urban development projects initiated by local authorities. This process is also done in rural areas [Chigbu, U. E.,2012] and implemented by territorial systematization tools, but in this case, even if the intention is the same - to reshape the current layout - the content of the actions and the means differ. Development of the concept of "Urban renewal" has been strongly driven by increasing the share of people living in cities, from 30% in the mid-19th century to 50% today; it is estimated that by 2050 every region of the globe will be predominantly urban, as regards the functional characteristics [UN-Habitat, 2008]. In urban regeneration projects special emphasis was put on creating more efficient urban structures, able to combine multidimensional interventions and promote new forms of collaboration between stakeholders involved, and create new planning and management strategies [Fernandes, J.A., Chamusca, P., 2009; Sassen, S., 2006]. Worldwide, urban regeneration has developed despite being

confronted with doubts and uncertainties due mainly to the inability to predict the future. Therefore, now, measures are being taken to ensure appropriate conditions for the personal interests of individual citizens, interest groups, and entire communities [Fernandes, J.A., 2010; Connell, D., 2009; Hall, P., 1992; Soja, E., 2009].
Over time, several versions of the concept of brownfield sites have been developed, but analyzing them one can see that dressed in other words the essence of the concept remains. Thus, Alker et al. [Alker, S., et al., 2000] has proposed a definition from a multidisciplinary perspective, defining the brownfield site as: " any land or premises which has previously been used or developed and is not currently fully in use, although it may be partially occupied or utilized. It may also be vacant, derelict or contaminated" and Dixon's version [CEQ 1978; CEU, 1997] is: "any land, which has been previously developed, including derelict and vacant land, which may or may not be contaminated". US Environmental Protection Agency (EPA) defines the term as "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant" [Hao W., Chuan C., 2012].

Regarding the impact of urban regeneration of browfield sites on urban policies, a simple finding may explain fully: "About 60% of households in urban areas in the UK are built on brownfield sites and with slight variations the situation is similar in the Member States of the European Union, the United States and more recently in major cities of China [Syms, P., 1997; Adams, D., Watkins, C., 2002; Hao W., Chuan C., 2012].

Environmental Impact Assessment (EIA) is a tool used in projects aimed at the implementation of development and planning strategies being adopted and incorporated into territorial planning regulations in several countries or regional groupings, being used in most countries [CEQ, 1978; CEU, 1997; DANIDA, 1994; EBRD, 1996]. Since its introduction in the United States in the late 1960's, EIA was adopted and implemented by many developed and developing countries [Sowman, M., Fuggle, R., Preston, G., 1995; Leu, W.S., Williams, W.P., Bark, A.W., 1996; Barker, A., Wood, C., 1999; Tran, L.T. et al., 2002; Alper B., 2007]. EIA has developed as a useful tool in improving planning decisions, but has always suffered from subjective evaluations, the final conclusions of the analyzes of this type are difficult to quantify and may in the absence of analysis tools having a "domino effect", which was criticized, EIA being often seen as an instrument which lacks transparency. [Introduction to RIAM, 1998] To overcome these shortcomings in the execution and reporting of EIA Rapid Impact Assessment Matrix (RIAM) was developed. This system is based on the knowledge that specific criteria provide, that are common to all impact assessments, and by scaling these criteria, becoming possible to record the values of assessments. RIAM operates with both positive and negative potential effects [Introduction to RIAM, 1998]. RIAM has seen diverse applications in environmental impact assessment, thereby Environmental Impact Assessment of hydroelectric installations [Paulo S. F., Naim H., 2007] in various projects is aimed at environmental protection in Turkey [Alper B., 2007], feasibility studies on the analysis of urban traffic in India [Bindhu K. Jipin S., Vishnumaya K.V., 2013] or strategic environmental assessment of urban planning in China [Norrman J. et al., 2015].

3. Urban regeneration in Baia Mare analyzed in the current world juncture

Integrated urban development planning of Baia Mare for 2007-2013 materialized in the Integrated Urban Development Plan of Baia Mare in which were highlighted as priority intervention areas the neighborhoods Vasile Alecsandri and Old City, comprising the former industrial platform "Phoenix", subject to submission of projects under ROP Romania 2007-2013, Axis 1 Integrated Urban Development Plans, Sub-field "Urban Development Poles". Thus, in the context of urban redevelopment of functions of territorial units in Baia Mare, they identified five areas of urban regeneration (according to the Strategy for Sustainable Development of Baia Mare), respectively:

- Urban Regeneration Area 1 - Baia Mare Centre (Săsar River)

- Urban Regeneration Area 2 - Baia Mare North (Ferneziu neighborhood). The quarter presents major problems due to degradation, as SC Romplumb SA operates here, in an area of great landscape value, without taking into account natural and environmental risks.
- Urban Regeneration Area 3 - Baia Mare East (Old Town neighborhood), where Old Town quarter, in terms of historical, urban, architectural and environmental value, includes over 44 historical monuments of national interest (in the center), developing the most important industrial area in Baia Mare, represented by Cuprom - Central Flotation – IMMUM area.
- Urban Regeneration Area 4 - Baia Mare South (Alecsandri neighborhood) with about 40,000 inhabitants.
- Urban Regeneration Area 5 - Baia Mare West (Train Station / Warehouses neighborhood).

Now, in 2016, two years after the end of this cycle, it appears that some of the projects were completed successfully, such as the individual project "Increasing urban accessibility by modernizing Grănicerilor Street in Baia Mare", interventions in the east industrial area (of the Old City neighborhood), interventions in the cultural-historical area of Baia Mare (belonging to the Old Town neighborhood), new interventions in the center of Baia Mare (Vasile Alecsandri neighborhood). Millennium III Business Center is the greatest achievement - architecturally - in Baia Mare after December '89. By implementing the Phare project Millennium III Business Centre, the historic center of the county seat city was almost totally revitalized and was reintegrated into the local and regional economic and tourist circuit.

Besides rebuilding urban infrastructure, the project helped to rehabilitate three important buildings in the old town area, including the headquarters of the former court house. Two main problems are still unresolved, in draft form, after completing extensive and relevant feasibility studies, in terms of the urban regeneration of the city, namely two Brownfield areas, i.e. the area presented in the paper, Cuprom-Phoenix and Ferneziu-Romplumb. To better understand why these projects could not even be initiated, we must refer to the situation of contaminated sites in Romania, where there are a number of 1183 contaminated / potentially contaminated sites, currently inventoried by the National Agency for Environmental Protection. Maramureș occupies third place in the national hierarchy of contaminated sites with 109 units. These lands are public or private property, still in operation (current activity) or scrapped (past activity) suspected of being "contaminated". In this context, the National Strategy and National Action Plan for the Management of Contaminated Sites in Romania was created to address the problems of contamination of soil and groundwater as a result of human activities - past and recent - conducted on industrial sites, and to eliminate or limit (potential) risks to human health and the environment.

4. Case Study: Variants of urban regeneration of the area concerned

Variant 1. Industrial park and business incubator, SEPA

The project SEPA[SEPA, 2012] aims to promote the concept of sustainable production defined as "Community of manufacturing and services companies" which, within functional areas and through cooperation, wants to improve economic and social performance, purchase specific instruments of organization, management and infrastructure" - creating a business support area. The project SEPA aims to facilitate the regeneration of a number of production areas in accordance with sustainability criteria, thus increasing the attractiveness of these areas for Romanian and foreign investors. The project is innovative since it focuses on planning environmental sustainability of production since the design stage of organization of the production sites, rather than at the time when each individual company is determining its specific location. This approach may prove extremely beneficial for SMEs who generally do not have the scale necessary to organize sustainable and efficient production sites in terms of cost. Based on best practices and experience exchanges, the project will test a model of "sustainable production site for SMEs", applicable in any field of production, based on environmental protection and the use of renewable resources, and specific local circumstances. To implement the project, Baia Mare has initiated a feasibility study, its theme being handling and

applying the SEPA issue on the East industrial platform of the municipality, i.e. PHOENIX / now CUPROM, with a total area of approx. 55 hectares, where currently there are many buildings and installations once used for extracting metals from ferrous ores, activity which was suspended in 2009 when CUPROM went into insolvency [SEPA, 2012]. The project was also analyzed in other works of the authors [Anghel C. et al., 2013; Radulescu C., 2015].

Variant 2. Joining the IMMUM + IMUAS platform in achieving a whole, including a residential neighborhood, under the concept of new urbanism

The area in question is the one which comprises two platforms Phoenix / Cuprom and IMMUM + IMUAS, the first in a current vision of demolition and full decontamination and the second remodeled under the new urbanism principles and practices. The result would be an autonomous neighborhood, close to the old city center, 300m, about 400m from the central square, so it would fit the theme of new urbanism both internally as well as in terms of integration in the city community. The smoke chimney would be preserved as an emblem not only for the Phoenix neighborhood but the whole city. Its structure is strong enough to allow a supra-structure with upper floors comprising restaurants with rooms overlooking the surroundings, access elevators, etc. The central idea of the project, in this version, is to build housing and the necessary facilities according to distances mentioned in the above list, on the land resulting from the demolition of the CUPROM platform and remodeling of the former industrial halls of the IMMUM + IMUAS platform with other facilities which do not require a maximum distance, expanding urban planning to general urban regeneration, so these new features would satisfy both aforementioned urbanism ideas[MDLPL, 2007; FSE , 2007; Alpopi, C., Manole C., 2013].

5. Comparative analysis of the two variants of urban regeneration using the Rapid Impact Assessment Matrix (RIAM) method

5.1. Materials and methods

The process of selecting components for an impact assessment on the environment (Environmental Impact Assessment - EIA), which are then evaluated according to criteria is known as "scoping". The components are defined in four categories: PC, Physical / Chemical; BE, Biological / Ecological - BE; SC, Sociological / Cultural; EO, Economic / Operational[Wei L., Yuanbo X., Fanghua H., 2014; Hoveidi H.,et al., 2013; Pastakia, C. M. R. and Jensen A.,1998; Jensen, K. (ed). 1998; VKI, 1998; Pastakia, C,. 1998].

Important evaluation criteria are divided into two groups:

- (A) Criteria that are important for the state, and that can individually change the scores obtained;

- (B) Criteria that are of value to the facts, but which individually should not be able to change the score.

Group (A) of criteria of importance to the state

(A1) - spatial limits or human interests: 4 great importance for national / international interests; 3 great importance for regional / national interests ; 2 important for areas immediately outside the local state; 1 important only for local conditions; 0 no importance.

(A2) - Magnitude of the effect of change - measure of the magnitude of the benefit / dis-benefit of an impact or a condition: 3 major positive benefit; 2 significant improvement in the status quo; 1 improvement in the status quo; 0 no change / status quo; -1 negative change to the status quo; -2 significant negative change or dis-benefit; -3 major dis-benefit or change.

Group (B) of criteria

Permanence (B1) - a measure of the temporal state of the condition: 1 no change / not applicable; 2 temporary; 3 permanent.

Reversibility (B2) - a measure of the control over the effect of the condition: 1 no change / not applicable; 2 reversible; 3 irreversible.

Cumulative effects (B3) - a measure that reflects whether the effect will have a direct or single impact, whether there will be a cumulative effect over time, or a synergistic effect with other conditions: 1 no change / not applicable; 2 non-cumulative / single ; 3 cumulative / synergistic.

Based on these criteria, both the positive and the negative impact generated by each alternative is evaluated based on environmental, ecological, social, and economic indicators. Scores based on these ratings are calculated as follows (Pastakia and Jensen, 1998):

$$(A1) \times (A2) = AT \quad (1)$$
$$(B1) + (B2) + (B3) = BT \quad (2)$$
$$(AT) \times (BT) = ES \quad (3)$$

Where: (A1) and (A2) are individual scores for criteria in group (A); (B1) to (B3) are individual scores for criteria in group (B); ES is the evaluation score for the status quo.

To use the rating system described we create a matrix for each option in the project. The matrix contains cells that used criteria established for each defined component. ES is calculated from the above equation. If the individual ES scores can be compared they are transposed in the range (Range Values: RV).

To use the rating system described we build a matrix for each option in the project. The matrix contains cells that represent the criteria used, established for each defined component. ES is calculated from the above equation. If the individual scores can be compared, ES are transposed in intervals (Range Values: RV)

The indicators were selected by a group of experts from the Technical University of Cluj Napoca after consulting stakeholders, performing field trials on the site concerned as well as its surroundings, as well as a comprehensive analysis of future proposed urban regeneration projects. In these approaches, four basic principles were considered to guide the selection of indicators that underpin the analysis conducted in this paper:

- The requirements of the Local Urbanism Regulation correlated with the General Urban Plan for the site concerned,
- The environmental objectives set by environmental authorities at state and municipal level for the study area or the category of facility to be carried out by the project,
- The main effects identified for each of the two proposed investments possible, and
- Current environmental characteristics of the area concerned and its surroundings.

We have drawn up a questionnaire that was filled in by the residents of the area analyzed regarding their opinion on the future of the area and the last two points above mentioned and all the documents produced to date on the site were read, starting with the SEPA project to URBACT, USEACT, Integrated Urban Development Plan of Baia Mare, etc.

Based on these principles we identified 35 indicators; 11 in the PC category, 10 in the BE category, 7 in the SC category and 7 in the EO category.

Table 1: Input values and RIAM scores for Physical/Chemical(PC) components

Physical/Chemical factors (PC)		Criteria - Variant A. Industrial park						Criteria - Variant B. Res. neighborhood New Urb.					
Components		A1	A2	B1	B2	B3	ES	A 1	A2	B1	B2	B3	ES
PC1	Air quality in the area	2	-1	1	1	3	-10	1	2	1	1	1	6
PC2	Emissions of pollutants into the atmosphere	2	-1	1	1	3	-10	0	2	1	1	1	0
PC3	Odour emissions into the atmosphere	2	0	1	1	3	5	0	2	1	1	1	0
PC4	Emissions of greenhouse gases (e.g. CO_2 and methane)	2	0	1	1	3	5	0	2	1	1	1	0
PC5	Water quality in the area	2	-1	1	1	3	-10	2	2	1	1	1	12
PC6	The quality of drinking water from the municipal network	1	0	1	1	3	5	1	0	1	1	1	0
PC7	The volume of pollutants in rivers	3	-2	2	1	3	-36	0	0	1	1	1	0
PC8	Volume of pollutants in the sewage system	2	-1	3	1	3	-14	1	1	1	1	1	3
PC9	The volume of liquid pollutants that require treatment other than the one made by the sewerage network	1	-1	2	1	3	-6	0	0	1	1	1	0
PC10	Quality of soil from the site	1	0	1	1	3	5	1	1	1	1	1	3
PC11	Production of industrial solid waste	2	-1	1	1	3	-10	0	0	1	1	1	0
PC12	Safe disposal of hazardous waste	2	0	2	1	3	-12	0	0	1	1	1	0
PC13	The production of sounds in the area that can affect the quality of the environment in general	2	-1	2	1	3	-12	0	0	1	1	1	0
PC14	The noise levels for sensitive areas (e.g., habitats, residential areas, schools, hospitals)	2	-1	1	1	3	-10	0	0	1	1	1	0
PC15	Aesthetics and quality of the landscape	1	3	3	3	3	27	2	3	3	3	3	27

Table 2: Input values and RIAM scores for Biological / Ecological (BE) components

Biological / Ecological factors (BE)		Criteria - Variant A. Industrial park						Criteria - Variant B. Res. neighborhood NewUrb.					
Components		A1	A2	B1	B2	B3	ES	A1	A2	B1	B2	B3	ES
BE1	The health of the ecosystem in the area	2	3	1	1	3	30	1	2	3	3	3	18
BE2	Biodiversity or the ecological integrity of the area	2	0	1	1	3	0	1	2	3	3	3	18
BE3	Connectivity between the most important ecological units	2	1	1	1	3	10	1	2	3	3	3	18
BE4	Maintaining or improving its existing environmental status	2	1	1	1	3	10	1	2	3	3	3	18
BE5	Index of vegetation cover	1	1	1	1	3	5	1	2	3	3	3	18
BE6	Impact on groundwater by pollutants (infiltration)	2	1	1	1	1	6	1	2	3	3	3	18
BE7	Negative impact on soil quality	1	1	1	1	1	3	1	2	3	3	3	18
BE8	Impact on the ecosystem in general	2	1	1	1	1	6	1	2	3	3	3	18
BE9	Effects due to decomposition of waste	0	0	1	1	1	0	1	2	3	3	3	18
BE10	Risks regarding open landfills	0	0	1	1	1	0	1	2	3	3	3	18
BE11	Risks of soil erosion	0	0	1	1	1	0	1	2	3	3	3	18

Table 3: Input values and RIAM scores for Sociological / Cultural (SC) components

Sociological / Cultural factors (SC)		Criteria - Variant A. Industrial park						Criteria - Variant B. Res. neighborhood NewUrb.					
Components		A1	A2	B1	B2	B3	ES	A1	A2	B1	B2	B3	ES
SC1	Increasing incomes of local people	3	3	3	3	3	81	2	1	3	3	3	18
SC2	Job growth in the area	3	3	3	3	3	81	1	1	3	3	3	9
SC3	Increasing public welfare (health, education, public safety, etc.)	3	3	3	3	3	81	1	1	3	3	3	9
SC4	Residents health (physical and mental)	2	3	3	3	3	54	1	1	3	3	3	9
SC5	Disturbance of cultures, traditions and local customs	4	3	3	3	3	108	1	1	3	3	3	9
SC6	Accessibility to public facilities, traffic and recreation	3	2	3	3	3	54	1	1	3	3	3	9
SC7	Adaptability to climate change	0	0	0	1	1	0	1	1	1	1	1	3
SC8	Public comments on the use of recycled materials	0	0	0	1	1	0	1	1	1	1	1	3

Table 4: Input values and RIAM scores for Economic / Operational (EO) components

Economic/Operational factors (EO)		Criteria - Variant A. Industrial park						Criteria - Variant B. Res. neighborhood NewUrb.					
Components		A1	A2	B1	B2	B3	ES	A1	A2	B1	B2	B3	ES
EO1	Industrial production and its revenue	4	3	3	3	3	108	1	1	1	1	1	3
EO2	Polluted lots per unit of industrial land use	0	0	0	0	0	0	3	3	3	3	3	81
EO3	The intensity of pollution per unit of industrial added value	1	1	3	3	3	9	1	1	1	1	1	6
EO4	Freshwater consumption per unit of industrial added value	1	1	3	3	3	9	1	1	1	1	1	6
EO5	Energy consumption per unit of industrial added value	2	1	3	3	3	18	1	2	3	3	3	18
EO6	Interventions in environmental risk control and emergency response	2	1	3	3	3	18	1	1	3	3	3	9
EO7	Development and use (e.g., wind, solar, and tidal) of energy from renewable sources	2	1	3	3	3	18	1	1	3	3	3	9
EO8	Unit cost of investment	2	1	3	3	3	18	1	1	3	3	3	9
EO9	Total investment cost	2	1	3	3	3	18	1	1	2	3	3	8
EO10	Industrial production and its revenue	2	1	3	3	3	18	1	1	2	3	3	8

We prepare the summation table of scores for both variants (Table 6 and Table 7) based on the significance and inclusion in band ranges and average scores are shown in Table 5. We then draft the summarizing table with negative and positive elements (Table 8).

Table 5: Conversion of environmental scores to range bands

Nr.	Description	Range bands	Environmental score (ES)
1.	Major positive change/impacts	+ E	+72+ ÷+108
2.	Significant positive change/impacts	+ D	+36 ÷+71
3.	Moderately positive change/impacts	+ C	+19 ÷+35
4.	Positive change/impacts	+B	+10 ÷ +18
5.	Slightly positive change/impacts	+A	+1 ÷ +9
6.	No change/status quo/not applicable	N	0
7.	Slightly negative change/impacts	-A	-1 ÷ -9
8.	Negative change/impacts	-B	-10 ÷ -18
9.	Moderately negative change/impacts	-C	-19 ÷ -35
10.	Significant negative change/impacts	-D	-36 ÷-71
11.	Major negative change/impacts	-E	-72 ÷ -108

Table 6: Table (summing scores) for Variant A - Industrial park

ES	-108 ÷ -72	-71 ÷ -36	-35 ÷ -19	-19 ÷ -10	-9 ÷ -1	0	1÷ 9	10 ÷ 18	19 ÷ 35	36 ÷ 71	72 ÷ 108
Range bands	-E	-D	-C	-B	-A	N	A	B	C	D	E
PC	0	1	0	8	1	0	4	0	1	0	0
BE	0	0	0	0	0	4	4	2	1	0	0
SC	0	0	0	0	0	2	0	0	0	2	4
EO	0	0	0	0	0	1	2	6	0	0	0
Total	0	1	0	8	1	7	10	8	2	2	4

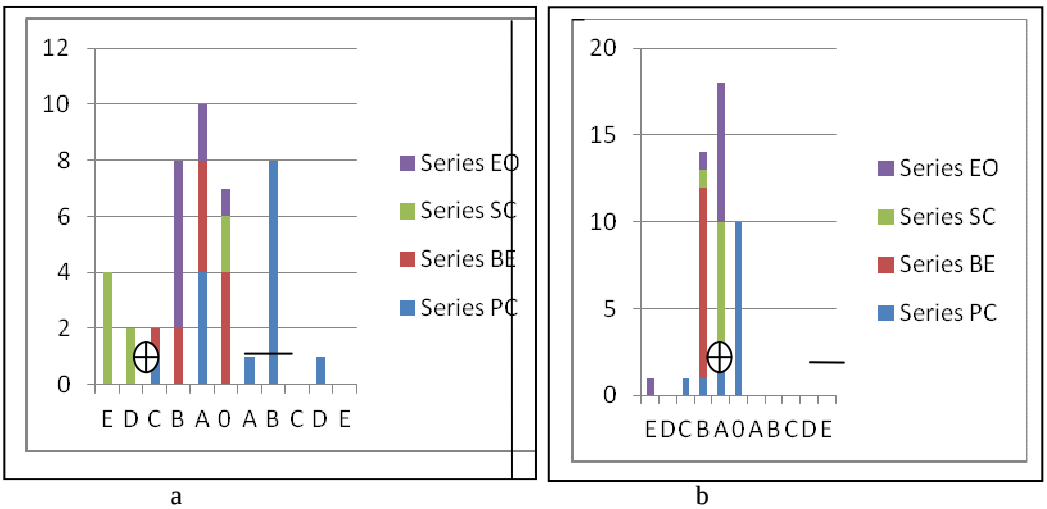
Table 7: Table (summing scores) for Variant B. Res. neighborhood NewUrb

ES	-108 ÷ -72	-71 ÷ -36	-35 ÷ -19	-19 ÷ -10	-9 ÷ -1	0	1÷ 9	10 ÷ 18	19 ÷ 35	36 ÷ 71	72 ÷ 108
Range bands	-E	-D	-C	-B	-A	N	A	B	C	D	E
PC	0	0	0	0	0	10	3	1	1	0	0
BE	0	0	0	0	0	0	0	11	0	0	0
SC	0	0	0	0	0	0	7	1	0	0	0
EO	0	0	0	0	0	0	8	1	0	0	1
Total	0	0	0	0	0	10	18	14	1	0	1

Table 8: Summary table is made with negative and positive elements

The solution	Score on the positive effects	Score on the negative effects	Score on the zero effects (N)	Total score
Variant A Industrial park	26	10	7	16
Variant B Residential neighborhood	44	0	6	44

Based on the results presented in Tables 6 and 7 we create graphs (Figure 5) representing the results of assessments made, represented graphically in a comparison.



a b

Figure 5: Representing assessment result of the first (a)and the second(b) scenario by RIAM method

5.1. Results and discussions

Whichever solution is chosen, one of the two proposed herein or any other, these steps much be taken:

1. A wider public consultation through discussions organized at municipal level of representatives of the population, especially those living near the targeted area, stakeholders interested or potentially affected by the new investment, possible investors, etc., on the future of this area, including the chimney located on the platform, which ranks third in the European ranking of the highest industrial building with 351.5 m.

2. Acquisition by local authorities of the entire land or association with banks holding land in the area or investors interested to take over the land and then participate in the project.

3. Application, in a first phase, for projects of European funding to address the following two actions further mentioned.

4. Decontamination of the area using excavated volumes, over one million cubic meters !, particularly toxic, from underground mines of Maramureş, for which no another use was identified.

5. Leveling the entire platform, after excavating the contaminated volumes.

6. Application, after bringing the area to a state of normality, in terms of the ratio between the land and environment, for projects of European funding to initiate and complete the project chosen.
It is obvious that regardless of any indicators taken into account, either of the two urban regeneration methods would only benefit the area. Starting from the current look of the area, shown in Figure , from the finding that over 100 years of metallurgical processing in the area with cyanide, sulfur dioxide and sulfuric acid, chlorides, dust containing heavy metals, lead, cadmium, etc. plus various toxic waste from the processing of results over time, any intervention to correct the status quo can only be beneficial. From the comparison of the RIAM analysis results of the two urban regeneration proposals we can establish that the winner is the second one, which does not bring - in the light of the criteria here proposed - any negative effect, achieving a favorable score compared with the other proposal that has many negative effects. Of course, the comparative analysis of the two variants stops now, because the first is already a proposal that falls, as I mentioned, in a European project, for which a documented feasibility and environmental impact study has been conducted, while the second variant is an alternative which will be considered at future analysis sessions for this large, unhealthy and highly polluted area located about 300 m from the historic center of the city.

6. Conclusions

Urban regeneration in general and urban regeneration of browfield sites in particular are mandatory actions to bring the city to a state of adequate housing. These actions are extremely expensive, financially risky, and adopting a solution to replace spaces which are vacant, abandoned, contaminated with residential, industrial, exhibition or mixed premises, following the concept of new urbanism, should be done in compliance with the natural steps of any investment, prefeasibility studies, feasibility studies, engineering design, permits, etc. The area proposed to be reshaped by regeneration, it is possibly one of the most contaminated areas in Europe and it is clear to authorities, residents and even current land owners that it cannot be kept in this state anymore.

The Rapid Impact Assessment Matrix (RIAM) is a tool used to organize, analyze and present the results of a comprehensive assessment of the impact on the environment (Environmental Impact Assessment - EIA) of projects that are proposed to be made in the analyzed environment (Pastakia, 1998). RIAM has the capacity to build more "series" to compare different options. RIAM is able to compare (on a common basis) different projects and allows both qualitative and quantitative analysis of data to be evaluated. RIAM's flexibility makes it a powerful tool for making and evaluating impact assessments. RIAM it is transparent, easily able to test various options, and still able to obtain an

overview of the solutions. The results of the various options are easy to see, which makes RIAM become a useful tool for policy makers.

Regarding the study discussed in the paper it is rooted in the area of concerns of the team at the Department of Land Measurement and Survey of the Construction Faculty of the Technical University in Cluj Napoca, to help improve life in the North West of Romania by proposing greening projects (abandoned mining areas), reuse of surface mining areas and especially underground areas, as in the case of this project, of human regeneration.

The fact that New Urbanism has won the competition in this RIAM analysis against the older and much-discussed SEPA Project should not be a surprise. Baia Mare, a former mining and metallurgical industrial center needs housing built in a modern and functional context, which only this new urban stream can bestow.

Regardless of the solution to be adopted in the end, the authors consider that Baia Mare authorities' agenda of running as European Capital of Culture for 2021 must also include urban regeneration of the Brownfields CUPROM-PHOENIX.

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Current Approaches to Risk Management in Business in the Context of Globalization

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Abstract

In the current economic context marked by globalization phenomena, we can observe an emphasis on keeping business risk under control, therefore being developed some risk management systems, better adapted to different areas of activity. This paper highlights some results of a study made by the authors, based on literature review, the objectives being: 1) highlighting the current approaches to risk management in business; 2) identifying specific business risks. For this purpose, the current approaches are highlighted previously on the model of business risk management systems. At the same time, there are analyzed risks in various fields. Following the study, the authors clarify specific aspects of risk management systems and argue the importance of identifying specific risks from companies.

Keywords: risk management, business, global economy

Introduction

Nowadays, the business world is in a continuous process of changing, characterized by complexity, uncertainty and risks.

According to Stewart (2000), his vision about the implication of risk in business is the following: "*Risk – let us get this straight up front – is good. The point of risk management is not to eliminate it; that would eliminate reward. The point is to manage it – that is to choose where to place bets, and where to avoid betting altogether*".

Throughout time, the characteristics of the current business environment had an important role in the introduction of risk management in organizations.

The reasons for integrating risk management are mainly related to the increasing number and complexity of the risks and the organizations need for security. These possible risks cannot always be completely eliminated, but at least can be controlled so that will not affect the company (Hohan et al., 2011).

As businesses are in a continuous change, the risks are the same, so we can achieve the need of stakeholders for companies that can identify and manage their business risks.

The concerns for an efficient risk management had been intensified in the last years. It has resulted in the establishment of an appropriate risk terminology and methods supported by modern and efficient management tools.

In order to normalize the process through which it can perform the risk management, organizational structure of risk management and objectives, have been developed a series of standards, guidelines and methodologies.

In contrast with projects for which have been developed a large number of internationally recognized methodologies, in business field there is still no universally accepted procedures for risk management. The disaster management or technological field is good represented because each country creates their own standards or intervention plans, some of these being adopted as risk management procedures in business.

The risk management procedures developed for the public sector are very well detailed and formalized. Beginning from these ones, many specific elements can be adapted and used in risk management in business (Ciocoiu, 2014).

For the purposes of this article, the authors will concentrate on the current approaches related to risk management systems and from existing risks typology they will identify the specific business risks.

Research Methodology

To achieve the first objective – namely to highlight the current approaches to risk management in business – the authors have analyzed some theoretical considerations regarding the importance of the risk management in business.
Also, based on the research, the authors identify in the literature, some specific methods of identifying risks.

To achieve the second objective – namely to identify specific business risks – the authors have made a comparative analysis of the existing literature in this field.

The research was conducted in the period 2014-2015 with the support of Doctoral School from The Bucharest University of Economic Studies.

Research Results Regarding the Current Approaches to Risk Management In Business

Given the global economy and current trends, organizations face more often with various threats to their activity level. For this reason, the integration of risk management system at organization has become a necessity dictated by the business complexity and the multitude of risk factors (Bostan, 2012).

Another reason, why risk management is included in sustainability strategies, is related to the new environmental dynamics which has strongly affected the performance of the companies, in general (Mateescu, Olaru et al., 2015).

To overcome possible risks, firstly is needed their identification and analysis. Risk analysis has three steps: risks identification, risk assessment and business impact analysis (Gibb & Buchanan, 2006). The risk is present in all areas, but we will focus further on risk analysis in business.

To have control over risks in business, it appears a new concept called business continuity risk control defining the application of appropriate controls in order to achieve a balance between operational and recovery services (Nosworthy, 2000).

There is a variety of approaches in terms of stages of the process, but in a large vision, risk management supposes four interrelated processes: continue and systematic investigation of exposure to various risks and losses; assessing their nature, frequency, severity and potential impact; planning and organizing some adequate risk control techniques that minimize losses and capitalize opportunities; implementation of such techniques, internally (at department and top management level of the organization) and externally (in collaboration with organizations specialized in loss control, insurers and other specialists in the area of risk management) (Ciocoiu, 2008).

The existing business risks in the context of global economy have led to the appearance of specific standards in this field. The purpose of these standards is subjecting companies to the same rules to achieve the desired performance.

Kogan and Nikonov (2009) believe that although organizations manage different categories of risks, risk management structure is the same everywhere and a unique standard which can help reduce the risk of "*too many risk standards*".

Several approaches were investigated, ranging from alignment of management practices to full integration approaches, based on the principles of Total Quality Management. The role of The European Foundation for Quality Management (EFQM) Model for Business Excellence and Risk Management practices outlined by the international standard ISO 31000 as integration factors were investigated (Hohan, Olaru et al., 2015).

One of the standards that treat the risk management is ISO 31000:2009. According to the mentioned standard, the process of risk management begins with the establishment of external and internal context in which will take place the trial.

Figure 1 presents the risk management process which includes seven iterative elements, according to ISO 31000: 2009.

To determine the external context, it is necessary to define the company relationship with its environment, including strengths, weaknesses, opportunities and organization threats (SWOT analysis). This context includes also various stakeholders and the communication policies used with them.

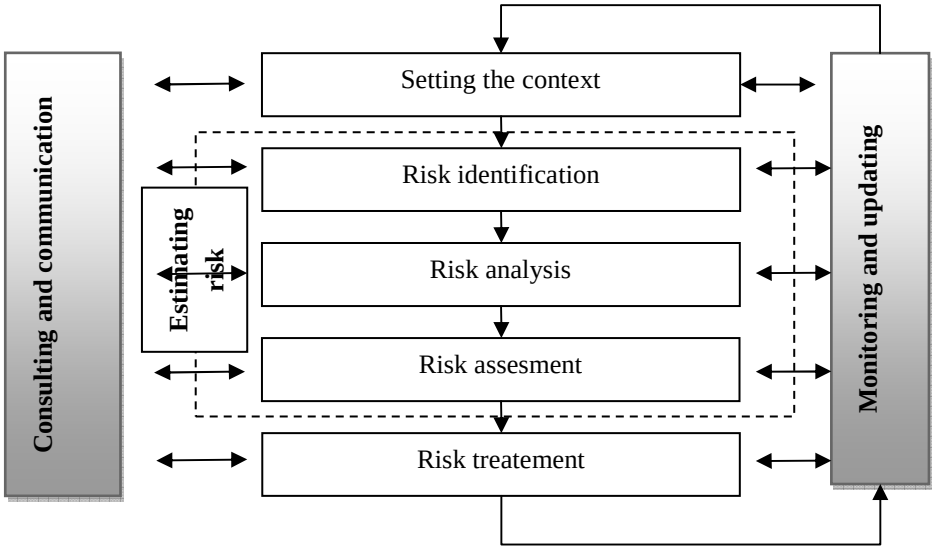

Figure 1: Risk management according to ISO 31000: 2009

Establishing internal context begins with understanding all the objectives of the company strategy to achieve these objectives and key performance indicators, the organization's mission and management structure. Also during this stage, it is advisable to identify the organization's attitude to risk. Another important aspect is the importance given to risk management and to the size of resources allocated to this process.

This stage ends the definition of risk management or risk categories with relevance to the company, departments and activities involved in risk management and its range of application, criteria underpinning risk assessment and the objectives pursued by organization during the analysis (Olaru et al., 2014). The objectives set will be used in describing the risks impact.

The risk identification involves documentation on the conditions and events that are important in achieving the organization's objectives or represent exploitation areas for competitive advantage. For their identification there are recommended the following methods: lists of risks, the experience of those involved, brainstorming, scenario analysis, flow charts and systems engineering techniques (Ciocoiu, 2014). Identifying the risks involves equally a good knowledge of the organization, of the market, the legal, social, political and cultural environment in which it operates, as well as organizational objectives (operational and strategic), including critical success factors and threats and opportunities which can arise in achieving these objectives (IRM, AIRMIC, ALARM, 2002).

Risk analysis aims to estimate risk probability of occurrence and impact. This process allows decision-makers to do a more accurate and complete assessment of the relationship between risk and potential loss or gain.
This can use several methods such as: qualitative analysis, quantitative and semi-quantitative. The characteristics of qualitative and quantitative analysis of the risks are presented in the following table:

Table 1 : Qualitative analysis vs. Quantitative analysis

Qualitative analysis	Quantitative analysis
• Estimates the probability and the impact of the risks identified to determinate their magnitude and priority. • Estimating the probability and the impact is achieved through verbal expressions or scale of values. • Tools and techniques: Matrix (graph) probability-impact; Top 10 risks; Expert opinion.	• It is often done after qualitative analysis or can replace it; • The probability and impact are determinate by mathematical models and complex computer applications; • The big and complex projects, involving advanced technologies require also a thorough quantitative analysis of risks; • Tools and techniques: Decision tree analysis; Sensitivity analysis; Scenario analysis; Simulation.

There are followed four steps in risk analysis: determine the frequency of occurrence of each risk, granting a degree of occurrence using a scale, impact assessment of that risk occurrence, scaling the severity of consequences.

Risk assessment is the stage in which are taken the decisions on the risks that require a specific treatment, by comparing the analysis results with criteria set by the organization in the setting stage of risk management context.

The most active stage is establishing how to deal with risks. Now, they are set strategies to minimize the possibility of such risks or impacts and actions to be taken otherwise.

The risk identification process involves also anticipated determination of events that may affect the organization objectives and the establishment of their characteristics.

The basic condition for the functioning of the risk management system is the correct identification of these ones. If the risk is underestimated, the level of protection would be insufficient to cover losses, and if it is overvalued, the cost of protection in excess will diminish gains from that activity. The process of risk management is defined so that all material risks can be identified, prioritized and effectively managed.

Taking into account the EFQM, DNV (2005), the process of risk management is presented in Figure 2 with the three phases.

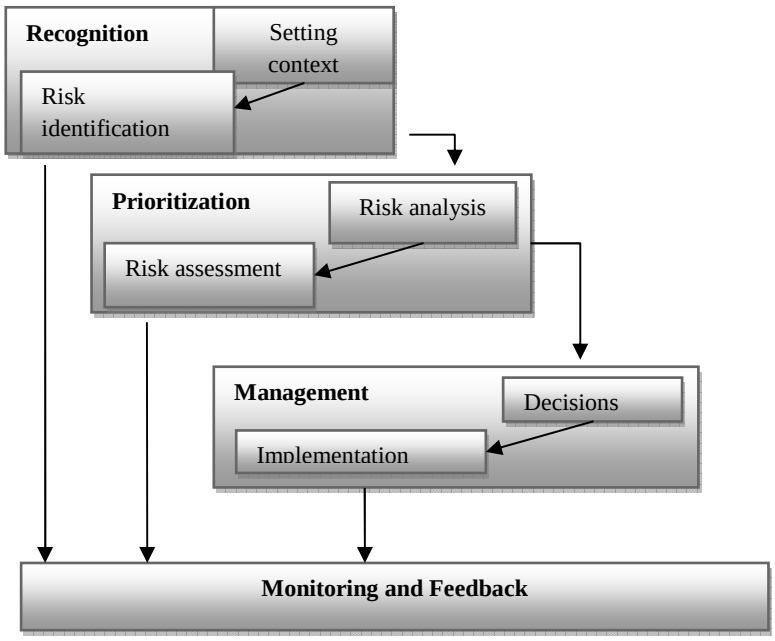

Figure 2: Risk management phases

The risk identification aims the exposure to the risk of property, rights and human resources and the hazard and potential threats that causes these exposures to risk. It involves two steps: the perception of the fact that a certain risk threatens the organization and the proper risk identification.

First of all, the risk classification is important to eliminate the confusion between the causes, effects and consequences in risk analysis. Therefore, in the following, we present the risk classification depending on determinant factors.

The 5 categories of risk resulting from risk analysis in relation to the strategy of an organization (Ciocoiu, 2014): 1) strategic risks - from the activities in a particular economic sector or in a particular geographic area; 2) operational risks - derived from various operational and administrative procedures used to implement the strategy; financial risks - come from the financial structure of the company, transactions with third parties and the used financial systems; conformity risks - derived from the necessity of compliance the laws, rules and other less formalized social expectations; environmental risks – it can be included in the conformity risks but in certain fields are very important and need to give a special attention to this category.

Depending on where the risks can be located, there are: risks related to property, risks related to staff, market risks and risks affecting consumers.

Because till now, we treated the risks depending on their specific features, we made also a classification from different criteria, and in the following will be presented some risks identification methods.

The principal stage in risk management is represented by their identification, made in different methods and using a various sort of information.

Regarding the risk identification methods, the intuitive use of manager's experience was proved to be a useless and unsatisfactory technique because manager's experience and specialization are not sufficient in this process. However, this method can be useful when it is used with other methods.

Company experts can identify a small number of risks because of their involvement in several businesses, avoiding in many cases to discuss the risks with members of other departments. They adopt this attitude to the rest of the organization just disregarding the possible impact on others. The method is recommended for companies with a risk-taking culture that propagates and uses other methods of identification.

Structured interviews were used a long time to get information from staff consultants and firms, and project or risk managers to identify risks associated with projects.

Brainstorming is a very efficient method to identify risks and establish response strategies. Specialists involved in carrying out the activity or project company, must know very well the functional and operational aspects.

Using external specialists/experts is a highly recommended method, but involves more time for the experts to become familiar with the project, organization and procedures.

The *development of some standard questionnaires* dedicated to people involved in carrying out activities is an effective method if they are adapted to each type of activity and operational area.

Another similar method is represented by *risk control lists.* These start from potential sources of risk: the framework in which it operates, personnel participating in the implementation, changes in law and economy, wrong estimates of budget and execution term.

Risk table is another method similar with risk control lists. In this table, information is structured in: threats, resources, consequences and factors which may act to modify the undesirable effects of events.

Expert systems are modern methods of risk identification, but are very expensive. Their usefulness is high for many common business risks.

Charts can be used to describe graphic and sequential the activities of a process to identify exposures, dangers and hazards. There are a variety of methods that can be used: *flowcharts, process mapping, product analysis, dependency analysis, location analysis, critical path analysis*.

These methods can show the existing interdependencies within the organization, can identify bottlenecks and determinate a critical path. They do not indicate frequency or severity of the impact, but show the minor processes with major potential of loss. A characteristic of these is that they have a limited applicability to other types of risks than that one's of the process and in most cases are too oriented toward process.

Flowcharts are represented as icons processes using predefined symbols. These separate the process in steps in order to facilitate its understanding and identifying risks.

Mapping process is similar with flowcharts, but it can use representative images to describe the process stages, and to show how are correlated the risks.

The advantages of using flowcharts or mapping processes are represented by the fact that: it provides a simple and clear visual representation of the steps involved; facilitates understanding, explaining and analyzing complex processes and associated risks and it is a precondition for using other tools.

The *analysis of fault tree* starts from a product defect or process that produces losses and presents the necessary conditions to determine the event. It highlights situations that sometimes do not present risks by themselves, but in combination it becomes dangerous for product, process and for organization. The graphical representation allows identifying risk factors, requirements or incompatible specifications, events or common risk factors (Ciocoiu, 2014).

After the presentation of these risks identification methods we conclude that there is a variety of tools that can identify risks. The condition is that we have to know these methods and choose the most suitable for our organization.

This study was realized after an analysis of the specific literature and current articles from the risk management field.

Research Results Regarding the Specific Business Risks

Through this paper, the authors clarify mainly aspects of risk management systems and show the importance of identifying specific business risks.

Before presenting the results of the analysis conducted by the authors, we first identify some considerations regarding the application levels of the risks management and management involvement.

The risk analysis is often neglected, although it has the biggest impact on business continuity. It consists in predicting the probability of risk occurrence and effects and use of obtained information to quantify the risk value. This process allows decision makers a more accurate and complete assessment of the relationship between risk and potential loss or gain.

Depending on the level of implementation risk management (basic, intermediate, advanced), risk analysis may be qualitative and quantitative or the combination of these two types. Risk management knows a multilevel implementation within organizations, depending on certain criteria. The most important criterion is the size of the organization.

In Figure 3, there are graphically represented the application levels of the risks management and management involvement.

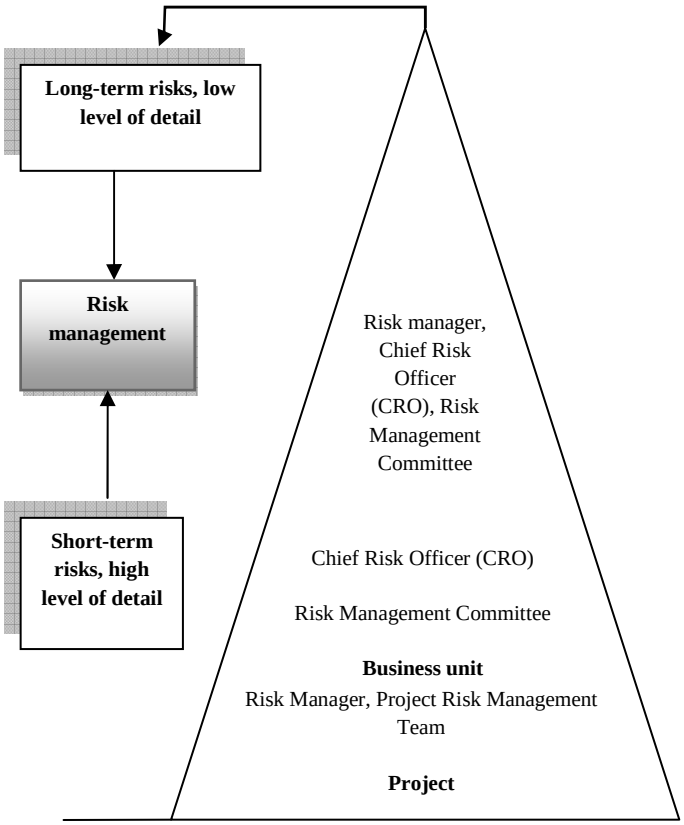

Figure 3: Application levels of the risks management and management involvement

As we can see in the figure above, there are ranked the different levels of risk management depending on the developed level: project level, business unit or corporation. Considering all items previously discussed, among companies from different fields, is established a lack of awareness related to importance of implementing risk management.

Conclusions

The results of the research undertaken showed that the risk management consists in a knowledge process of potential factors that threaten the organization's security, the measuring of their severity, reducing the effects by prevention and protection and transfer of these effects that cannot be managed at the specialized companies in risk management. It has resulted that due to a lack of awareness regarding the importance of implementing risk management in organizations, these do not face the risks.

Also be noted that we identified at the level of different enterprises the main risks: strategic risk, compliance risk, financial risk, operational risk, reputational risk and other risks.

To categorize other risks is more difficult, but here can be located the risks from the environment such as natural disasters, employee risk management and the political and economic instability which can also affect the enterprise.

Research results showed that regarding the formal organization of risk management, we cannot speak of a clear separation between general management, management of different fields (production, finance and marketing) and risk management.

On the other hand, a result of the research showed that most companies manage risks in individual management departments. Although, in the biggest companies there is a specialized department in evaluation, analysis and risk management, the newly created position serves as an intermediary for traditional functions of the organization management.

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Information and Communication Technologies in Tourism: Challenges and Trends

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Abstract

The integration of Information and Communication Technologies (ICT) in the tourism industry is an essential element for the success of any tourism enterprise. ICTs provide access to information of tourism products from anywhere and at any time. Tour companies may also reach out to target customers around the world through a series of emerging technologies.
This paper aims to make a review of the main key factors of ICT in Tourism. Aspects such as the quality of the website, Digital Marketing, Social Networking, Multimedia, Mobile Technologies and Intelligent Environments are discussed.

Keywords: ICT; tourism; e-tourism; m-tourism.

1 – Introduction

Analyzing the whole process involving the tourism sector, we can see that its evolution over time is based on technological advances, as well as other social, economic and geographic factors.
Tourism is an important economic activity for any nation and to the world economy and it is not indifferent to technological progress, making use of it for the optimization of its business. Perhaps it was the sector that has suffered the most changes due to technological developments.

The rapid development of ICT in general and the Internet in particular has dramatically changed the tourism industry. It is widely accepted that the Internet serves as an effective marketing tool for tourism. It is a tool of importance both for suppliers and consumers for the dissemination of information, communication and procurement of goods and services online. The rapidly increasing number of users and online transactions provide clear evidence of the popularity of the Internet.
The Internet has forced the reorganization of the tourism sector through the disintermediation and re-intermediation (Machado & Almeida, 2010).

According to (Buhalis, 1998) ICT is the driver of the tourism industry:

- Cost: increases efficiency; low distribution, communication, and labor costs; flexible pricing.
- Market: satisfaction in the upmarket demand; flexibility in operating time; expertise and support differentiation; provides last minute deals; accurate information; It supports relationship marketing strategies for frequent / invited passengers; rapid response to demand; multiple integrated products; profit management (marketing strategy for profit maximization through overbooking, differentiation in the price); business intelligence; market research.
- Competition: business networks management; training of value-added; flexibility; acquisition of knowledge; strategic tool; barriers to entry.

In the following sections we present a set of technologies and ICT applications which are evidence for the tourism industry, being considered as challenges and trends.

2 - Website Quality

In recent years nothing seems to have changed the tourism sector more than ICT and the Internet. The massive diffusion of e-business and increased competition at the global level caused a dramatic rethink the ways in which the tourism business is thought, with destinations come into this competition. ICTs have become a key factor in competitiveness, not only of organizations but also of the destinations, since a wide range of technological developments caused this evolution. Apart from this fact, the availability of more effective ICT will strengthen businesses and destinations, efficiency and renewal of their communication strategies (Salgado, Godinho & Milheiro, 2012).

For Rababah et al. (2011), and a wide range of academics, quality, web-design and usability are the three main types of evaluation to be made to the websites. According to Rababah et al. (2011) a website should try to meet the customer's needs to ensure visitors and gain their loyalty. The quality factors on the web seem to have an impact on the acceptance of the user, since these factors influence the beliefs and behavioral intention of the user. In addition, the company can have control over these factors.

According to Jung et al. (2000), an electronic trading system is a type of information system. Recently, a number of studies have approached the development of applications for e-commerce and identified a number of features to be taken into account. For example, Liu et al. (2000) identified some key factors in the development of e-commerce sites. These key factors consist of the quality of information, quality of service, the playful character, the quality of the system design, and system usage. In this study, Liu et al. (2000) found that a well-designed Website would lead to better memory by the user and the recognition and a positive attitude to the Website and its products.

In recent years, several authors have been working on models for assessing the quality of Web sites, including methodologies (Bevan, 1999) (Brajnik, June 2001), (Oehler & Biffignandi, June 2008), (Signore, September 2005), (Zhang Zhu, Greenwood, & Huo, November 2002), frameworks for quality (Cornelia, Craig, Angus & Paul, May 2001), (Olsina & Rossi, 2002) (Yen Jen-Hwa Hu, & Wang, 2007) estimative models (Li, Li & Li, Sept 2009), (Olsina, Lafuente, & Rossi, May 2001), standards (W3C, 2006), usability criteria (Nantel & Glaser, 2008), metrics (Calero, Ruiz & Piattini, April 2005), (Liburne, Devkota, & Khan, 2004) (Nielsen, 1993) and web assessment tools (Ivory & Hearst, 2001) (Jati & Dominic, 2009).

3 – Digital Marketing

Currently, the market segmentation is such that tourism producers have to know how to adapt their offer almost at the moment of the reservation, so it is necessary to constantly adjust the product to the huge range of niches and existing market segments. IT tools help to thoroughly explore the tourism product, as they provide a use of space with almost no restrictions, showing all the characteristics of the products, through videos, personalized space, possible configurations and decorations, different meals, leisure packages. And further, allowing it to be up to the customer himself to 'draw' the product tailored to your needs, selecting a menu with all the possibilities that those best suited to their profile. Given that a Website can be the "packaging" of the tourism product, its presentation is often responsible for the purchase decision, so it must constantly innovate content and make the site what the customer really demand, so as to convert, the first click, a query in an effective sale (Machado & Almeida, 2010).

The best way to think about the use of ICT in the tourism industry is to discuss the tourism product characteristics and specificities of the tourism marketing. Typical for the tourist product is primarily its complexity, unique ability to meet consumer needs, dependence on time and place, a broad spectrum of quality, price relationships, dependency cooperation and the human factor. All aspects of

the tourism product characteristics and specificities of the tourism marketing are strongly influenced by the use of ICT. ICTs are changing the tourism market by supporting the tourism marketing.

ICT change the way organizations distribute their tourism products on the market (Buhalis & Licata, 2002), (Buhalis, 1998), (Frias, Rodriguez, & Castaneda, 2008).

ICT is a powerful tool for market research, neural networks are used for market segmentation, it is common to use software to analyze the historical guest / preferences on web pages.

The ability to forecast the demand of tourism can provide an advantage of important market. Song & Li (2008) proposed a detailed study of the different approaches to achieve a tourism demand forecasting through modeling and forecasting. They analyzed studies and articles on modeling and forecast published tourism since 2000 and concluded that:

- Quantitative forecasting techniques can be divided into three categories: time series models, econometric approach, and other methods, including techniques for artificial research;
- New trends to increase the accuracy of forecasting further include a combination of quantitative approaches and the integration of quantitative and qualitative approaches;
- Future development: better calculation based on seasonality, unexpected events, life-cycle assessment of tourist destinations;
- According to the authors, "there is no single model that consistently exceeds other model in all situations."

4 – Social Networks

Social networks ceased to be just the meeting place between friends who have not seen each other for some time, or a place to make new friends. Social networks grew and became something enormous in terms of interaction and communication. Social networks have a crucial role in the voyages of users, from planning the trip to sharing the experience. Formerly, the vacation destination was chosen through the catalogs of tour operators and the reliance on travel agents. That changed, now people seek on the Internet all the information about the place or places they want to visit before traveling and often seek suggestions of places to go on holiday, thus creating the vacation package that really satisfies them.

According to Digital Marketing (2015), Social Networks are one of the most powerful tools of today in tourism. Using these tools for travel related purposes has grown considerably, with Facebook, one of the most popular on number of monthly visitors. In tourism and travel, the views and recommendations of the tourists are of great importance for the growth of a company, for people to travel, take pictures, make videos of a particular locality that when added on Social Networks can arouse interest other users. According Brusha in (DigitalMarketing, 2015), there are some opportunities that should be considered in the use of Social Networking in tourism:

- New clients: Using new channels different from the usual increases the probability of reaching new people, and may well gain new customers;
- Effective communication: Knowing what they say about themselves on social networks, and participating in the communication, the company attracts and enhances its relationship with current and potential customers, through an image of credibility and trust;
- Pass the word: The so-called "word of mouth", a powerful source of dissemination in tourism. People who are on Social Networks related trips are eager to relevant and original information. When obtained, it is easily passed to others, thereby obtaining a "viral effect";
- Management of online reputation: through being present in social networks and constantly monitoring and controlling them, the company can manage the image of your brand on it;
- Fun Technology: the tourism area has an excellent opportunity to use all the tools and applications online that can help you create unique and entertaining content (videos, articles,

photo albums, discussion groups, online events, contests, etc.) that, in turn, can help attract potential customers;

- Partnering with brands that complement their own services: Depending on the area, making partnerships with online travel agencies, transport companies, restaurants, activities companies, hotels, etc., can complete their presence and offer on Social Networks;
- Disseminate a region: Any business in the tourism sector is set in a particular region that people want to visit and meet, so it is important to awaken the visitor's curiosity, so it is not confined to knowing your hotel or restaurant. Social networks should also be used to promote and advertise your region, stimulating the Internet user greater curiosity by visiting the same.

According to the study "Digital Channels in Travel" conducted by Deloitte leisure travel companies are failing to fully capitalize on the business opportunities offered by social networking platforms. The work of Deloitte, to Facebook, recommends that the travel companies that integrate digital channels into their overall business strategies to reach consumers more effectively. The study results are based on analysis that Deloitte performed the data from a global survey, sponsored by Facebook, involving 10,500 users of social networks.

5 – Multimedia

The Multimedia is also one of the development of key areas that influence tourism. The information on tourism needs a great representation of pictures and graphics, in order to provide a tangible image or experience for those planning trips. The use of animations and videos can enhance the wealth of information and interaction. Unlike information offline, which is unilaterally exposed to travelers, the Web allows people from around the world can interact virtually with a destination using the three-dimensional concept (3D) virtual visits. Experience in computer-mediated environment can simulate actual visits and virtual experience can provide almost real experiences. Interactive websites have been adopted by online merchants to attract online consumers, encourage online shopping, and to create loyalty (Fiore, Kim, & Lee, 2005). Tourists can obtain tourism information displayed from digital maps with aerial and satellite images in two dimensions and even three dimensions.

Tourist services, given their intangible nature, cannot be made available or experienced prior to their acquisition, so the review is dependent on the existing information in the printed and audiovisual forms. A tourism product of success will depend on an extensive and targeted marketing, leading to the creation of new distribution channels. ICTs provide opportunities to expand the business in a geographical, operational and marketing level. Virtual exhibits and digital photographs, based on multimedia and interactive nature of the Web, give a new dimension to the marketing of tourism destinations (Buhalis, 2003). A multichannel and multimedia system Destination Management serves goals, not only distribution and information planning for travel, such as education and entertainment, essential for sustainable development of tourism. In this sense, Hadzic (2004) argues that every tourist destination must be accessed through an integrated Web portal rather than a fragmentation of individual web pages of the different stakeholders (travel agencies, tour operators, hotels, services).

Not replacing presential tourism, Virtual Tourism has recently started to appear. This phenomenon has become possible by the combination of some technological material such as increasing Web access speeds, showing in recent years the appearance of increasingly powerful compression codecs that have decreased considerably the weight of the contents. In addition there are techniques and tools able to create immersive environments where it is possible to manipulate the visitor viewing the interactive space, seeing him in a highly personalized way. This phenomenon led to Google Company investing in Google Earth and Google Street View. The virtual tours are not a relatively new technology, however, only recently has there been a more extensive use of this kind of services and they are being used by various types of industries such as the housing, restoration and museums. The virtual tours are still relatively little interactive, using multimedia can make this an even more enriching experience. Taking as an example the Smithsonian natural history museum in the city of New York, you can make a virtual visit appealing by making use of various multimedia resources. To better engage with people power, they would use sound effects in each of the dinosaurs showing them

how they would sound at the time. Using videos or simulations would be possible to show how they walked and finally through textual elements and images the user can consult information on the subject that you certainly arouse even greater interest (Santos, 2014).

6 - Mobile Technologies

The progress of mobile technologies, especially in recent years, has enabled the emergence of new mobile services (Martin, Alzua, & Lamsfus, 2011). Mobile phones are now used to access the Internet, to create and view images and videos, to locate people and places and as learning tools and social share information with friends. The mobile phone has evolved from a traditional voice communication device to an instrument that facilitates interaction (Kenteris, Gavalas, & Economou, 2011).

The rapid growth in the use of mobile devices (mobile phones, Personal Digital Assistant (PDA), portable computers) and increasing wireless network coverage have been promoting the access to the internet via mobile devices, making it possible to suppress the space limitations time access to internet. A report from the Pew Internet & American Life Project predicts that by 2020 mobile devices will become the world the primary means of Internet access (Anderson & Rainie, 2008):

- The information models adapted for mobile guides - making use of user profiles and / or collaborative filtering techniques to deliver customized content and services; ease of updating of the information model;
- The architecture used - the chosen technology platform for the implementation of the application; they can be distributed massively to the current mobile devices;
- The communication infrastructure type used (eg, Wi-Fi, Bluetooth and 3G) - Application adaptability to changes in the network; the cost of use for users;
- Positioning technologies and map systems used to support users - if the maps support the search paths and the dynamic adjustment of routes; types of location-based services that are available; the navigation technology provides information according to the user context;
- The mechanisms used for input and output of data; typology of content available; multilingual support;
- Available differentiating services and how services are implemented based on standard or proprietary frameworks.

The evolution of mobile technologies and infrastructure has increased the requirements for ubiquitous access to tourist support systems. With advances in ubiquitous computing, the proliferation of wireless communication technologies and the increase in data transmission rates, the availability of processes of multimedia content on mobile devices has increased and become more efficient and effective (Biuk-Aghai Fong, & Si, 2008).

The use of mobile devices in tourist activities gave rise to the m-Tourism. The m-tourism has been designing in various aspects such as (Doller, Kockerandl, Jans, S., & Limam, L., 2009):

- In support of travel, allowing access to the target route and the time required estimates;
- In location-based services (LBS), enabling the maps query, store location, weather and tourist destinations in a given region;
- In electronic tour guides, allowing access to travel tips, prices, features and tourist attractions;
- In alerts about events systems, such as the opening of the boarding gates or performing scheduled activities for a certain time;
- In traffic services, enabling the consultation of traffic conditions and alternate routes.

7 - Intelligent Environments

An intelligent environment (Aml) is a vision that has promoted the enrichment of space, making it dynamic, adaptive, transparent, where the traditional computer and its traditional inputs and outputs disappear (Sadri, 2011). The first reference to Aml was introduced in 2001 by the European Union (Ducatel, Bogdanowicz, Scapolo, Leijten, & Burgelman, 2001), as an evolution of technology. And recalling the history of the computer, it was an object initially very expensive, difficult to understand and use, a rare and precious resource, and each one was used by various individuals. From the 80s we witnessed the massive use of this resource, and each individual wore one or more.

There are several projects that attempt to explain this concept in several areas, including home, office, transport, industry, entertainment, tourism, recommendation systems, health and safety (Cook, Jakkula, & Augusto, 2009). With regard to tourism, we can see projects that explore public spaces equipped with different technologies to collect, analyze and make decisions. We can also find scenarios to support the tourist during his visit, either to museums or historic sites or even those who help planning a visit to a city. And considering that the tourism activity can be divided into three phases (Watson, Akselsen, Monod, & Pitt, 2004), planning, tourism and souvenirs, the concept can also be explored in these three stages, either helping the tourist to do planning or guiding tourists during their activity, and even promoting and enriching their memories that can later remember and share.

Public spaces embedded with technology offer added value to the tourist, for a person who moves out of its usual area of residence, making it more interesting, more sociable, more beautiful and effective (Veenstra, Kanis, Groen, Meys, & Slakhorst, 2011). The project Itour (Alizadeh, Veenstra, & Kanis, 2012) is an example that explores this concept, and it investigates the potential and the acceptance of the use of technology to collect, discover and interpret data on the movement of tourists, their behavior and experiences in the city of Amsterdam, in order to provide tourists with better services.

Sadri (2011) describes in his work the use of the Aml concept in the context of museums, historical sites and in the context of a visit to a city.

Associated with the concept of Aml, and research in tourism, we find references to smart cities, and another concept called the Internet of Things (IoT) (Buhalis & Amaranggana, 2014; Wang, Li, & Li, 2013). These data show a path, trying to not only create discussion on the subject, but also to present results about experiments conducted with users as residents or tourists. In this context, services are installed in different places in the city, for example, an airport or a hospital or hotel services which contribute to the local economy and its development, tourism, the environment, energy and transport. And in the tourist level, smart cities can also offer information and infrastructure to achieve a set of solutions related to tourism. Moreover, from the physical and virtual integration (Conti, Das, Bisdikian, Kumar, & Zambonelli, 2012) and services of smart cities, tourism can take advantage of the fully integrated market with the tourist attractions, government departments and information and services relevant companies in order to promote tourism development (Kehua, Jie, & Hongbo, 2011).

8 – Conclusions

The survival of touristic organizations depends in large part on the appropriate use of new technological applications. However, the biggest challenge these will overcome is the traditionalist view that these new applications serve only large companies, focusing all their attention on applications and solutions appropriate to its size and its position in the market.

ICT plays a crucial role in the operation of the internal management of the organizations, however, establishing relations with its external environment, allowing in the case of tourism coordination between all stakeholders in the tourism system is possible.

The future of tourism will naturally be focused on technologies centered on the user that will support organizations to interact with their customers in a dynamic way. Consumers are increasingly

powerful in the developing and are increasingly able to determine elements of its tourism products. They are also much more sophisticated and experienced and therefore are much harder to please. Innovative tour companies must have the ability to divert resources and knowledge for consumers and provide greater added value to transactions. The development of new applications enables suppliers and destinations to improve their efficiency and streamline their communication strategies. Innovative technologies support interoperability, customization and constant presence. Agile strategies are needed both at strategic level and tactical management to ensure that the opportunities and challenges driven by ICT have advantage for tourism organizations to increase their capacity for innovation and competitiveness.

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Motivation, a key variable within brand management

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Abstract

Motivation within the consumtion of products or services plays a very important part in brand management, because this variable can be one of the keys towards understanding and attracting consumers towards a brand. Motivation represents a key element of consumer behavior, an element that can determine whether a product is bought or not. Motivation is determinded by the existence of an unsatisfied need (Cătoiu și Teodorescu, 2007), being the result of economic, social, political and psychological factors. It is based on memories, experiences regarding the buying process, recommendations, elements that determine individuals to keep buying products or services for which there exists a motivation of consumption (Arnould, 2002). This paper's fundaments consist in an ongoing qualitative research regarding motivation, that has as its objective the study and understanding of certain motivational aspects regarding luxury clothing buying behavior. This study will present a series of atributes that luxury consumers or nonconsumers take into consideration when they decide to wear a unique clothing item. In order to put the subject at hand into perspective model has been constructed that shows the importance of motivation within brand management, a model that can be correlated with later results from the ongoing qualitative research.

Keywords: motivation, brand management, consumers, relations, personality, brand.

Introduction

Along with economical development buying behaviour has become harder to measure. Brand managers have to create marketing strategies adapted to each market segment so that their brands become more competitive, earning market shares and notoriety. Understanding consumer motivation is undoubtedly essential when increasing loyalty through advertising or growing a brand's personality or improving a brands reliations with consumers. There are a large number of questions to which motivation can offer answers. Why isn't motivation stable? Why do people so ofthen change consumption behavior? What are the decisions that a marketer must make when there is a need for increasing market share for a brand? What resides in the consumers „black box" and how can the motivational centers be triggered? All these questions are in fact parts of the process through which brand management tries to attract more consumers.

Consumer motivation through the perspective of brand management

Motivation refers to the behavioural manifestations of an individual in the process of buying and consumption of goods or services that can be determined by the appearance of a state of tension, due to the existence of an unsatisfied need. Motives represent variables that can influence buying behavior, in the same time representing the result of biological, social and physical factors (Cătoiu and Teodorescu, 2003). Motives are characterized at a multidimensional level, are delimited by the biological and social, by states of internal tension and knowledge. Buying or non-buying motivation is influenced by the individual's needs: the need for safety, food, self-improvement, understanding or empathizing, the need to explore and learn (Maslow, 1943). Motivation can represent the ability to make right decisions when individuals have relevant information and have high hopes for a products

or service (Hoyer and MacInnis, 2010). Consumers also have social needs: social experience, the need to communicate with others, the need to belong to a group, the need to gain a certain status or position within society, the need for authority, safety, but also the need that results from the pleasure of negociating. (Foxall and Goldsmith, 1998). Motivations can be, on one side, aspects of the individuals' uniqueness, and on the other side, a social and cultural variable. The structure of motivations can also be determined by other characteristics such as the amount of positive or negative experiences of an individual that influence buying behavior (Arnould and others, 2002). Motives can be utilitarian when individuals wish to satisfy immediate needs or hedonist, when the client regards the buying experience from a positive perspective and enjoys any activity related to shopping (Fischer and Arnold, 1990; Hirschman, 1983). Taking into account the hedonist motives, 5 segments of buyers have been determined: minimalists, collectors, suppliers, enthusiasts and conservatives (Arnould and Reynolds, 2003). Motivation can result from an acquisition that is based on the product's identity and significance. The purchase is concentrated on the logic followed by each individual: the influence from friends and family, social and economical pressure, advertising and unique design (Levy's, 1959). The challange in brand management comes from the impossibility of knowing if a consumer needs a certain product and creating a need where none exists, eventually causing pleasure as a result of use.

Motivation can make brands stronger than established competitors, because consumers prefer to use products that respect international standars of quality, morality, but also satisfy their needs (McClelland and Burnham, 2000). A strong brand needs a strong image that captures the essential, the story of a brand. Achieving a high degree of loyalty towards a brand is the main objective in the management process. Loyal consumers are very important for the company because it is much more costly to recruit new customers (Keller, 2003) and that is why motivation is key. Consumers can also be motivated to consume a certain brand if the brand's personality is humanized, or if they perceive the brand as a trustworthy partner in consumption. Brands are created to influence potential users through their identity, image or reputation (Balmer and Greyser, 2003).

Conceptual model and hypotheses

The ongoing qualitative research has as its objective the identification of variables that influence the buying motivations of luxury clothing items. In order to study consumer behavior through a motivational perspective a conceptual model has been established in order to analyze motivation in relation to the process of brand management.

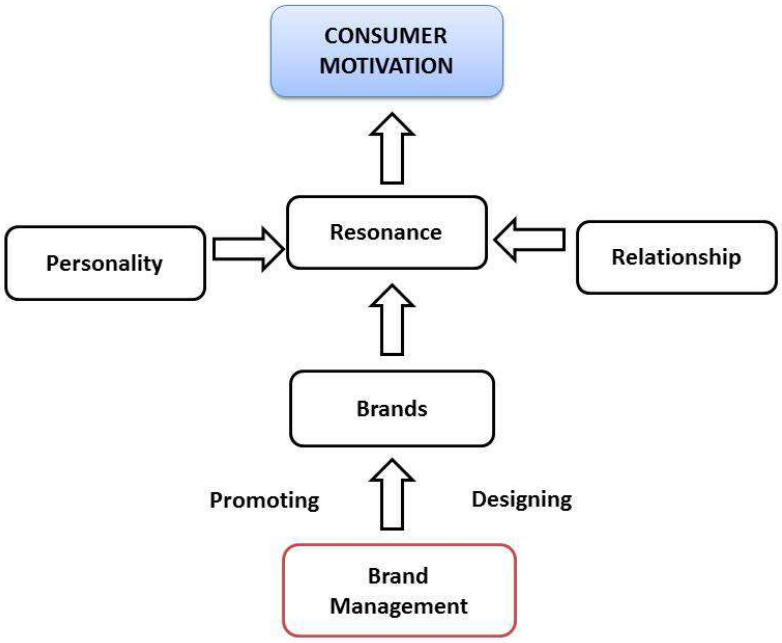

Figure 1: Conceptual model of analysis of consumer motivation from a brand management perspective

The conceptual motivation found in figure 1 illustrates the manner in which consumer motivation influences brand management. The process starts from the primary phase of creating a brand going up to the way in which the brand resonates with consumers. The brand's identity has to be strong in order for people to remember it and want to buy it or return to that certain company (Keller, 2013). After this stage, the key attributes that differentiate the brand from its competitors must be identified, because this way the decisions behind the buying process can be identified along with a pattern in which brands are classified. In order to show these aspects a communication and promotional strategy must be elaborated in accordance with the brand's identity and personality. Regarding the brand's personality, consumers tend to be closer to brands with human personalities (Keller, 2001). Furthermore, the relationships between brand and consumers must not be neglected because they need to be established as bonds of trust between partners. The moment a brand has reached peak levels of resonance with the client, one can say that a profound bond has been created at a psychological level, one that can include repeated purchases, the adoration of the brand's products, the feeling of belonging to a group but also the feeling of active implication.

Research results

The paper at hand briefly conveys a first point of view of the qualitative research regarding the purchase motivation of luxury clothing items. The qualitative research was conducted through 20 in-depth interviews with respondents within the social categories A, B, C1, women and men, with average or above average incomes, age between 21 and 60. Responses have been interpreted with a content analysis taking into account several criteria such as the 5 personalities of a brand (Aaker, 1997): emotion, sincerity, cognition, sophistication, inflexibility.

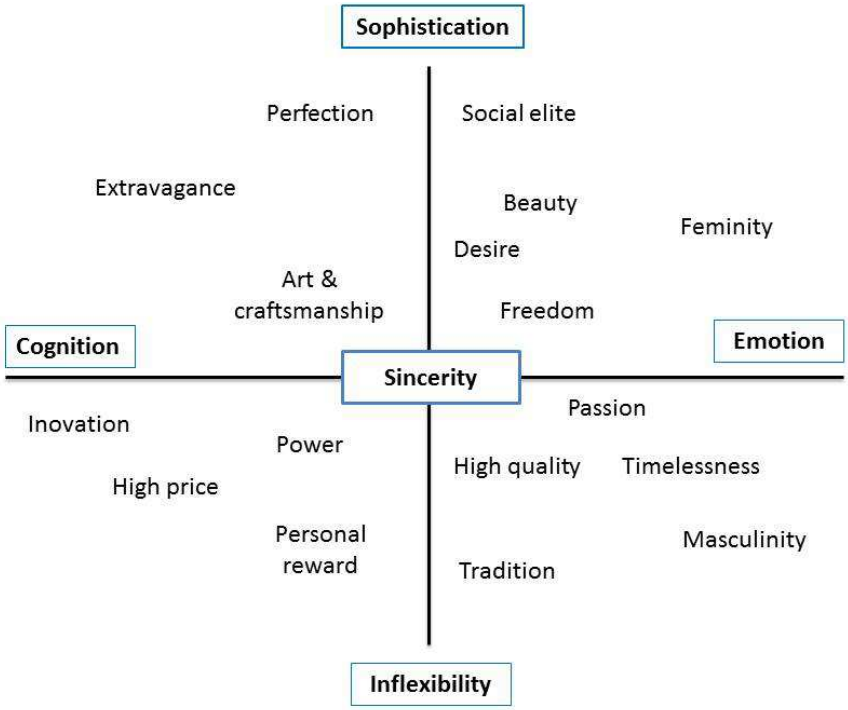

Figure 2: Personality type map

According to the figure above it can be deduced that the respondents of the qualitative research can be sorted according to the 5 types of brand personality. The attributes that were mentioned the most as being taken into account by the individuals were the ones positioned closest to the center: freedom, art and craftsmanship, passion, power, innovation, high price and desire. Given the fact that the subject was related to luxury products, respondents highlighted different motivations than the ones attributed for common goods. Even though at the beginning of the interview participants were quiet and unsure, once the discussion went on they became relaxed and interested, even identifying themselves with the research's resulting projections.

Conclusions

Consumer motivation represents the key variable in brand management because knowing the behavior of potential clients can determine the success or failure of an existing or newly created brand. Using the results of a content analysis brand managers can capitalize on the obtained information and make the necessary decisions for improving or developing their brand's image. Consumers are much more receptive to changes that take place within the market and are careful to choose the brand or product closest to their needs and expectations. They are heavily influenced by emotions, past experiences but also the media. Thus the results of the qualitative research can be a real support for brand managers in establishing marketing plans and strategies, because motivation can offer them essential information about the consumer's „black box".

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Family Business Succession and Its Tax Effects in the Czech Republic

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Abstract

For the entrepreneuers and his family is a transfer of the family business to his successors an important strategic challenge. Family business succession process is specific for each family and is influenced by many different factors. Due to the historical development of the Czech Republic, which in the Communistic period did not allow private property, the Czech entrepreneurs stand before a completely new challenge for them, how to transfer their family businesses to the next generation? The paper is focused on the issue of family business succession, with an emphasis on its tax effects. The choice of the family business succession form has on the predecessor and his successor significant tax impacts. The aim of the paper is to identify and compare the tax effects of the family business succession from the perspective of the currently valid legislation in the Czech Republic. The research findings show a significant impact of the legislation on the tax liability of family businesses in the succession process.

Keywords: Family business, family business succession planning, tax effects, SMEs

Introduction

Family businesses are an engine of a healthy economy and hold a significant position in world trade Hnátek (2015). The family businesses are closely related to the process of family business succession planning. The issue of family business succession is according to (Cabrera-Suarez et al, 2001) a crucial and in many cases long lasting process that may absorb the attention and resources of a family for years. Mussolino and Calabro (2014) state numerous examples around the world show that succession is also a challenging process that may businesses struggle. The reason of these fights may be according to Wilson (2013) the fact that there are involved two fundamental elements, the financial and the sentimental elements, which may not be always consistent.Wilson (2013) claims it is important to attempt to preserve both the family harmony, or at least status quo of same, and the future vaue of the company. Sharma (2004) states it is difficult to establish, in particular, the right timing, finding the right successor, and managing the succession process in a fortunate way. A number of authors (Harris, 2007; Wilson, 2013; Michel and Kammerlander, 2015) stress the need for the use of experienced and trusted advisors in the process.

The issue of family business succession is very current in the Czech Republic, because the vast majority of entrepreneurs, who started their business after the Velvet Rebolution in 1989, has reached or is conciderably closed to retirement age. For Czech entrepreneurs is the family business succession process an entirely new challenge, because in the duration of Communism was not private property allowed. The issue of family business succession is very difficult, because in each case has its own unmistakable specifics related to the family relationships among the participants of the process. The family business succession process has besides to a variety of other factors also significant tax effects, which is paid the main attention of authors in the paper. There entered into force the New civil code (Act No. 89/2012 Coll, civil code), since 1st January 2014, which significantly influenced and changed the taxation of family business succession. Our research questions were:

- What are the tax effects of family business succession?
- Are there different tax impacts according to the choice of the ownership transfer?

The main aim of the research is to identify and assess the tax effects of family business succession process from the perspective of the currently valid legislation. The summarized information should help to Czech entrepreneurs in solving these specific situations, which have so far not able to meet in the condition of the Czech Republic.

Family Businesses

The definition of family businesses is currently one of the most debated issues. Authors across the approaches agree that family businesses may be small, medium or large. There are also approaches that examine the involvement of individual members of families, their shares on the ownership or control of the company.

Barnes and Hershon (1976) point to the fact there is something most deeply rooted in transfer of power than impersonal business interests. The human tradition of passing on heritage, possessions, and name for one generation to the next leads both parents and their children to seek continuity in the family business. Beckhard and Dyer (1983) characterize the family business as the system that includes the business, the family, the founder and such linking organizations as the board of directors. Chua et al (1999) state the family firms can be defined as a business governed with the intention to create a vision-driven business, which is helded in the framework of the dominant coalition controlled of the same family. Furthermore, it is also reflected in the behaviour and potentially sustainable across generations. Poutziouris et al (2006) define the family business as a business run by the founder of a descendet and with the intent of keeping the business in the family. Miller et al (2007) define that "*family business the ones in which more members of the same family are involved as the principal owners or administrators, simultaneously or in the course of time."*

Family business succession planning

Ward (2011) claims the main reasons of many family business failures are the errors in the process of family business succession planning. Harris (2007) point out to the fact that if potentional succesors are unmotivated, uncooperate and disinterested in the family business in the business when it is still governed by the current owner, then with high probability the transfer of ownership to these individuals end up for the family business as disaster. Coleman (2011) points out to the statistics, which show that 30% of family-owned businesses survive into the second generation, 12% into the third generation and only 3% into the fourth generation.

Barton (1993) states the family business succession planning can be divided into 10 partial steps, which significantly simplifies this process. These steps include: (1) gather and analyse financial and legal data; (2) contact the client´s attorney; (3) determine the value of the business; (4) compute projected estate and transfer taxes; (5) gather personal and personnel information; (6) identify dispositive and financial goals; (7) analyse the needs of family members; (8) identify potential ownership and management successors; (9) make recommendations, modify goals and provide methodologies and (10) assist the client in implementation.

Family business according to Ward (2011) do not succeed, mainly because: (1) markets and technology change; (2) competitors quickly copy successful strategies; (3) overtaking with outside buyer willing to pay more to acquire the company than it is worth and owners are unable to resist the premium to sell out; (4) lack of financial capabilities, and (5) lack of staff skills.

The issue of family business succession Schwendinger (2011) defines as transition of ownership and leadership from one member of the family to another. Schwendinger (2011) also points out that the family members must be satisfied with the process but so should non-family members'

employees. The main aim of the research was to investigate the role of the non-family employee in the succession process of family businesses. Solomon et al (2011) focused the qualitative research study, which analysed life-story obtained from 10 family business. The main aim of the interviews was to identify experiences of businesss owners and better understanding the complexities of family business succession. Gilding et al (2015) stated that issue of family business succession planning contained in literature is focused on two main motives: family business continuity across generations and family harmony. As a key theme in the context of family business research literature is very often occurs in succession planning, which is the central theme and which puts particular emphasis on ensuring the contiuity of business. Liu et al (2015) focused their research on the nepotism in the succession decisions in the context of family businesses. According to the authors of the succession often leads to a decline in performance because leaders frequently choose family members as their successor, a form of nepotism. Giarmarco (2012) states family business succession planning involves complex questions of law, tax, and business planning. The only way to find the best business succession strategy for a particular family business is to work closely with a lawyer, accountant, and a financial advisor experienced in business succession planning. According to Giarmarco (2012) is succession planning critical if the owner plans to retire in 10 years or less. In connection with family business succession are also often struggles between various interest groups and the sucessors themselves.

A number of authors (Miller, 1998; Avloniti et al 2014) are devoted to the sibling struggles or the role of gender (Wang, 2010; Koffi et al 2014a; Koffi et al, 2014b). Miller (1998) on case studies points to the fact that filling the shoes of a good leader is never easy and that this difficult situation may be even more complicated thanks to fights about the position of successor between siblings. According to Wang (2010) in family businesses, succession is very much biased by gender and daughters are almost always excluded as candidates. In the paper author provided a review of the literature on daughter succession in family businesses. Avloniti et al (2014) deal with siblings' rivalry and its impact on the succession outcome within family enterprises. Authors point to the fact that, sibling rivalry plays a critical role in the succession process, but there is only limited literature that addresses to this important issue. Authors defined the main areas that the most affect this rivalry, which include: the parental behaviour and attitude during childhood, sibling characteristics and the perception of parental fairness by the successor. Koffi et al (2014b) in their research reveal the key factors of a successful succession. The attention of the research was focused solely on the men (the predecessors) and ways to increase the legitimacy of his successor. The predecessors focus especially on the supporting the development of the successor skills, on the transfer of responsibility on his shoulders, on the support of his authority and on the efforts to demonstrate the ability to be a successor and to be respected. Koffi et al (2014a) focused their research to the issue of family business succession planning. The authors point to the fact among the factors influencing the success of the generational transition is the credibility that must be earned by the successor in the eyes of the employees. Such credibility appears to be the determining factor for ensuring a lasting success of the business. Based on this premise, a comparative study involving seven cases of succession was conducted by authors. The research findings show that men and women business owners adopt different behavioral strategies in order to bring credibility to their successors.

The tax effects of family business succession

Dascher and Jens (1999) stress the family business succession is also a significant taxing challenge. It is therefore surprising that only a small part of authors (Dascher and Jens, 1999; Tralka, 2003; White et al, 2004; Giarmarco and Grassi, 2008; Giarmarco, 2012; Walny 2012; Gillis, 2012) is interested in the issue.

Tralka (2003) state there is two main methods of the transfer of ownership. One of the methods is a method, when the transfer of ownership shall be object of taxation, and the second method - tax-advantegeous method. Although it may sound obvious, which is the more attractive option, the most appropriate transfer method actually depends on several factors, including owner´s personal plans and the business´s financial situation. White et al (2004) emphasize that devising and implementing

an effective family business succession strategy requires much more than simply estimating the value of the business and buying life insurance to cover any transfer taxes due or to "equalize" the estate among all heirs. This approach according to White et al (2004) skips too quickly to identifying and solving the liquidity need. According to Giarmarco and Grassi (2008) it is necessary to ensure at the same time the five leves of family business succession plan. One of these important levels is also minimizing the transfer taxes and to prepare an appropriate estate plan.

Giarmarco (2012) states every family business owner is going to have to decide when it will be the right time to step out of the business and how he will do it. The family business succession can be according to Giarmarco (2012) devided into three main issues: management, ownership, and transfer taxes. The research is addressed to all of these issues and describes many of the techniques business owners can use to transfer their businesses to the next generation while minimizing both family discord and transfer taxes. According to Giarmarco (2012) it is estimated that more than 70 % of family-owned businesses do not survive the transition from founder to second generation. Focused on the third issue of family business succession planning the author state that estate taxes alone can claim up to 35 % of the value of the business, frequently resulting in a business having to liquidate or take on debt to keep the business afloat. To avoid a forced liquidation or the need to incur debt to pay estate taxes, there are a number of lifetime gifting strategies that can be implemented by the business owner to minimize (or possibly elimitate) estate taxes. The research summarizes the fundamentals of business succession planning to help family business owners assess their goals and consider the economic, legal, and tax implications of various plans. According to the author is important to focus primarily on minimizing the gift and estate tax. An effectively developed succession plan provides for a smooth transition in management and ownership with a minimum of transfer taxes.

Gillis (2012) defines the 10 steps to successful family business succession from the predecessor to his successor. One of these key points is also taxes and legal form of the business. Author emphasize that the choice of the legal form can be the decisive factor for the optimal timing of the ownership transfer and the business tax burden. Walny (2012) invites the family business owners to well-timed transfer of their businesses, because if they fail it can be according to author "targadeddon" for their business.

Research design and methodology

In order to achieve the defined aims of the research were used logical methods and comparasion method. For the purposes of the research was used the legislation valid to 1st January 2016. In connection to the fact it is also necessary to mention that, due to the repeal of Act No. 357/1992 Coll., on inheritance tax, gift tax and real estate transfer tax, which entered into force from 1st January 2014, there were covered interitance tax and gift tax to the Act No. 586/1992 Coll., on income tax.
The comparison method was used in the research especially for the purpose of comparison the tax effects of different ways of ownership transfer in the process of family business succession. For the purpose to make possible to compare the tax effects of various types of family business succession, it was first necessary to define the criteria that has to be submitted. The selected criteria, which were tested in the research, are following: legislation, taxpayer, object of taxation, tax base, tax rate, tax calculation and tax exemptions. The selected criteria were further divided for better orientation in the issue into three main areas (table 1).

Table 1: The main areas of selected criterias

Tested areas	General information	Calculation	Others
Selected criterias	Legislation Taxpayer Object of taxation	Tax base Tax rate Tax calculation	Tax exemptions

Source: authors

Results

In the framework of the research the main attention was focused on a comparison of the tax effects of different ways of the transmission ownership in family businesses succession in the Czech Republic.

The current legislation of the Czech Republic allows the conversion in following ways, namely: purchase, donation or other agreement, inheritance, decision of a state authority or under other circumstances prescribed by law. The results of the research are summarized in table 2.

Table 2: Tax effects of different family business succession forms

Areas	Selected criterias	Inheritance	Donation or Purchase	Real estate transfer
General information	Legislation	Act No. 586/1992 Coll., income tax	Act No. 586/1992 Coll., income tax	The legal measures of the Senate No. 340/2013 Coll., on tax of the acquisition immovable property
	Taxpayer	The heir (natural person or legal person), who acquirer the gratuitous income.	Natural persons, legal persons	The transferor of the real estate ownership; acquirer of the ownership
	Object of taxation	The natural persons: Incomes from employment, incomes from entrepreneurship, incomes from capital property, incomes from rental and other incomes. The legal persons: incomes from all the activities and from the loading with all assets.	The natural persons: Incomes from employment, incomes from entrepreneurship, incomes from capital property, incomes from rental and other incomes. The legal persons: incomes from all the activities and from the loading with all assets.	The paid acquiring real estate ownership, that is: parts of the grounds, building, a part of engeneering net or civil engeneering unit on the area of the Czech Republic, law construction by grounds on the area of tze Czech Republic, a co-owner share on the real estate.
Calculation	Tax base	The natural persons: the amount by which the taxpayer´s incomes exceed the expenses to achieve, maintain, and provide incomes* The legal persons: The difference between incomes excesses the expenditure. In the case of a taxpayer which is an accounting unit, it is a difference between revenue and costs, which must be further modified according to the Income Tax Act.	The natural persons: The amount by which the taxpayer´s incomes exceed the expenses to achieve, maintain, and provide incomes.* The legal persons: The difference between incomes excesses the expenditure. In the case of a taxpayer which is an accounting unit, it is a difference between revenue and costs, which must be further modified according to the Income Tax Act.	The acquisition value reduced by the accepted expenditure.
	Tax rate	The natural persons: 15 % of the tax base** The legal persons: 19 % of the tax base.	The natural persons: 15 % of the tax base The legal persons: 19 % of the tax base.	4 % of the tax base
	Tax calculation	The natural persons: Tax base x tax rate*** The legal persons: a modified tax base x tax rate.	The natural persons: Tax base x tax rate *** The natural persons: a modified tax base x tax rate	Tax base x tax rate

Others	Tax exemptions	The natural persons: § 4a paragraph 1 (a) Income Tax Act – the gratuitous income obtained from the inheritance or in disposition. The legal persons (business)*: § 19b paragraph 1 (a) Income Tax Act – the gratuitous income obtained from the inheritance or from the disposition.	According to § 10 paragraph 3 (d) Income Tax Act are tax exempt the gratuitous incomes from a relative in the straight line and from the indirect line**** In case of purchase: According to § 4 exemption from income tax is based on the time test. *****	The exemption can be used for new buildings and for units in compliance with the conditions.

Source: authors

*(Note: * if it is not in § 6 to § 10 otherwise specified;** the solidarity increase of tax amount is 7 % of the positive difference between the sum of incomes of the partial tax base from § 6 and partial tax base from § 7 of Income Tax Act; ***in the calculation of the final tax liability may still enter the so-called solidarity tax increase defined in § 16a of Income Tax Act; **** in terms it is sibling, uncle, aunt, nephew or niece, husband/wife, a child of spouse, the parents of spouse or husband´s / wife´s parents. Also from a person, whom the taxpayer lived for at least one year before getting the gratuitous income in the common household and for this reason he took care or was refrred to this person.; *****.* If it is filled with determined time by law, income from the purchase of movable or immovable property is exempt from tax.)

For better understanding of the research results there is added an elementary case study (table 3). The case study is focused on a self-employed person (a predecessor) passing his entrepreneurship to his descendants (a successor). The case study is oriented especially on the issue of the gratuitous transfer in family business and its tax effects. It is important to mention that the case studies come under the Income Tax Act competence since 1st January 2014.

Table 3: A case study on tax effects of family business succession

A case study	Tax effects	Notes
A self-employed person (a predecessor) passes the family business (as whole) to his son (a successor).	According to the Income Tax Act the gratuitous incomes obtained from the transfer of assets is not the object of the tax from the perspective of both persons (a predecessor and a successor) participating in the family business succession process.	The self-employed person (a predecessor) provided his business according to self-employed authorization. The son (a successor), who do not provide a business activities, has to gain his own self-employed authorization to provide further running of the business according to Act No. 455/1991 Coll., on trades.
A self-employed person (a predecessor) passes the family business to his two sons (sucessors).	For the both sucessors it is not possible to use the exemption of other gratuitous incomes from a relative placed in § 10 paragraph 3 of Income Tax Act. The gratuitous incomes in this case belongs to the cathegory of *„Incomes of separate activity“* placed in § 7 Income Tax Act, where the exemption of gratuitous incomes can not be used.	The both sucessors have their own businesses (in the legal form of self-employed persons) and for the Income Tax purpose lead the taxation evidence.

Source: authors

Discussion and conclusion

Family business succession represents a very large and complex issue. Authors across the approaches agree that transition ownership from one generation to the next generation is a difficult process, which has a whole range of incommutable specifics. Many authors also points to the fact that define a universal solution are not possible, because each process of succession is specific. The issue of family business succession is nowadays very current in the Czech Republic, because a large part of entrepreneurs that launched their business after the Velvet Revolution in 1989, has (or is fast approaching) retirement age and is forced to deal with the selection of the suitable successor. Selection of a suitable successor is absolutely crucial and must ensure further maintaining of the often successfully running business. The most so far realized research deals with the comparion of the selection of a suitable successor among certain groups. The part of authors (Wang, 2010; Koffi et al 2014a; Koffi et al, 2014b) compares, whether it is more appropriate as the successor to a man of woman, or whether it may struggle to post a successor between siblings put the running of the family business in danger (Miller, 1998; Avloniti et al, 2014)

Based on an extensive literature research, it was found out that in family business succession, the tax effects of this significant change is neglected and only a few authors (Dascher and Jens, 1999; Tralka, 2003; White et al, 2004; Giarmarco and Grassi, 2008; Giarmarco, 2012; Walny 2012; Gillis, 2012) pay attention to the issue. In the framework of the research was thoroughly explored taxation of different family business succession forms and it tax effects according to the legislation of the Czech Republic valid to 1st January 2016.

To obtain the results was necessary to define criteria, which were tested in the currently valid legislation. The comparison method was used for the purpose of the research.

The findings of the research have highlighted the specific area of the family business taxation and tax effects of different forms of family business succession, which is according to authors nowadays the main challenge in the family business succession process in the Czech Republic. The research findings show a significant impact of the currently valid legislation on the tax liability of family businesses in the succession process. The further research will be oriented on the taxation specifics of family businesses operating in the Czech Republic. The attention will be paid especialy to self-employed persons, different types of legal persons (allowed by the Czech legislation) and a copmetly new institute *"family factory"* defined by the new Civil code.

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E-learning Critical Success Factors (CSFs) and Motivation to Learn: A Study at Universiti Teknologi MARA (UiTM)

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Abstract

Globally, e-learning has become the fastest growing sub-sector of the global educational market, as seen in the US market, because the demand for post-secondary education is increasing. Concurrently, the demand for post-secondary education is increasing because employment opportunities are decreasing. Most higher learning institutions implemented e-learning either as blended learning or as online learning services. Against this background, this study was undertaken to examine the relationship between the instructor's characteristics, university's support, system quality, information quality and service quality with the motivation to learn. Adopting the survey research method involving 250 respondents in a university setting, the study found that all hypotheses are supported.

Keywords: e-learning, instructor's characteristics, university's support, system quality, information quality and service quality

1.0 Introduction

In Malaysia, e-learning is no longer a new phenomenon, but it has not ceased to be a hot topic either (Adora et al., 2012). E-learning has been integrated into university courses as a component of the IT explosion and in fact, IT is the engine that drives the e-learning revolution (Selim, 2007). Therefore, this phenomenon has been occurring for about a decade, since the economic transition toward a knowledge-based economy. The implications of a knowledge-based economy are closely related to the roles of knowledge itself, as well as technology, which contributes to economic growth. Adora et al. (2012) added that a knowledge-based economy focuses on the development of human capital as the major contributor to a holistic development. Consequently, knowledge-intensive service sectors, such as higher learning institutions, incur heavy pressure to support this new environment. However, using technology in disseminating intensive information and knowledge, it will help sustain and accelerate the economic growth as well as support the pressure they face. In fact, this paradigm shift brought a new method in education. Thus, e-learning could be one of the new methods for institutions of higher learning to deliver their services to society, in which there is an extreme demand for knowledge. Most higher learning institutions implemented e-learning either as blended learning or as online learning services. Universiti Teknologi MARA (UiTM) for example, takes part in the implementation of e-learning with the existing i-Learn Center (i-LeC) as a supportive role (Nursyahidah et.al ,2012). Currently, i-LeC has formally launched the i-Learn Portal as a medium for e-learning, hoping it could be the solution for the growth of the student population in the university

within the time given and for the promotion of lifelong learning by taking advantage of the technological opportunity (Adora et al., 2012). The implementation of e-learning at UiTM was intended to provide more effective learning methods, as well as to increase learning motivation among learners through interactive learning styles.

In relation to the use of e-learning in Malaysian higher education, Adora et al. (2012) opined that e-learning could be the solution that caters to the growth of the student population with a variety of courses in multiple disciplines at various geographical locations. E-learning could also be a solution for the promotion of lifelong learning by taking advantage of the technological opportunity. Apparently, e-learning is an attractive alternative for this problem, which requires more classrooms at institutions with the prohibitive costs of building new facilities. Besides providing financial benefits, many higher learning institutions in Malaysia implemented e-learning because they believe in its effectiveness as an alternative learning approach (Maslim Masrom, 2008).

Despite the significant results and financial benefits that the adoption of e-learning provides for organizations, educational institutions still face significant challenges in ensuring that this technology is satisfactory and digestible for learners (Zaharias, 2008). In fact, a bundle of problems is associated with e-learning adoption, which either come from learners, instructors, systems, or management. According to Borotis, Zaharias, and Poulmenakou (2008), the main problem associated with e-learning adoption is the dropout rate of e-learning courses among learners, which fundamentally affected frustrated and non-motivated learners toward the e-learning system. This problem might have arisen because it is difficult to direct learners' attention to using the e-learning system due to human resistance, in which it is able to create unnecessary barriers for learners to complete the course (Ramakrisnan et al., 2012, Nurhizam (2007).

Therefore, poor quality of the e-learning system and the inappropriate use of technology also contributed to the poor usability of e-learning courses. The issue here is due to the poor usability of e-learning systems and ways to motivate learners as well as support them with a high quality of teaching. According to Zakariah et al. (2012), without making learners understand what technology is and how to use it to make them more comfortable with using it, it is difficult to create a positive learning experience that can motivate them to learn more. Thus, it is important to understand the factors that are embedded within e-learning that encourage learners to interact with the system and resulted in effective learning. That is why many researchers carried out a study of the critical success factors of e-learning in order to measure the success components of e-learning. Even though there are large numbers of literature on e-learning critical success factors, however, no systematic work exists on characterizing a collective set of vital factors for implementing successful e-learning environments, which contributes to the difficulties in identifying which factor is more important. Hence, identifying these vital factors is important in order to encourage learner's motivation to learn, as well as the factor playing a key role in the success of e-learning. This study seeks to answer the following research questions:

- Is there a relationship between the learner's characteristics and the motivation to learn?
- Is there a relationship between the instructor's characteristics and the motivation to learn?
- Is there a relationship between the university's support and the motivation to learn?
- Is there a relationship between system quality and the motivation to learn?
- Is there a relationship between information quality and the motivation to learn?
- Is there a relationship between service quality and the motivation to learn?

2.0 LITERATURE REVIEW

E-learning

Several definitions of e-learning have been discussed throughout the literature. Haron et al. (2012) stated that Agboola (2005) confines the notion of e-learning to using the computer and Internet technology to disseminate knowledge to learners effectively and to enhance the performances of both

the teacher and the learner by utilizing information and communication technology (ICT) for the purpose of instructional delivery. Therefore, according to Nor Zalina et al. (2012), e-learning is defined as the teaching and learning the approach that uses network technology as an important medium to support conventional class activities. In general, e-learning can be concluded as technological use in learning activities to deliver fast and reliable services.

Learners' characteristics

Learners may perceive the e-learning system differently. Normally, it depends on their characteristics. Bhuasiri et al. (2012) mentioned that Volery and Lord (2000) indicated that there are various learners' characteristics that may influence e-learning system adoption and usabilities, such as computer self-efficacy, Internet self-efficacy, computer experience, Internet experience, computer anxiety, and attitudes towards the e-learning system itself.

Instructor's characteristics

According to Bhuasiri et al. (2012), Webster and Hackley (1997) stated that instructor's characteristics refer to the instructor's attitudes toward technology, teaching styles, and technology control, influencing learning outcomes. In addition, Bhuasiri et al. (2012) stressed that many of the past studies showed that relevant instructor characteristics include timely responses, self-efficacy, technology control, a focus on interaction through the system with learners, attitudes toward e-learning, attitudes toward students, distributive fairness, procedural fairness, and interaction fairness. These set of characteristics seem critical for instructors to ensure the effectiveness of e-learning system.

University's support

The university's support is also one of the critical factors of e-learning mentioned in past studies. According to Selim (2007), the university's support refers to the items that were related to any kind of e-learning initiatives available, including library services, the help desk, computer labs and facilities, and the training center. All these initiatives would enhance the users' satisfaction when using the systems.

From the previous study, Hassanzadeh et al. (2012) concluded that system quality refers to the performance of the system in terms of reliability, ease of use, and other indicators of systems. Bhuasiri et al. (2012) argued that system quality relates to a learner's belief about e-learning performance characteristics. Therefore, DeLone and McLean (2003) added that system quality could be measured by functionality, ease of use, reliability, flexibility, data quality, portability, integration, and importance. System quality would enhance learning motivation because the performance of the system would encourage learners to participate in the learning system as well as contribute to learning effectiveness.

Information quality

Information quality is reflected in the well-designed course, curriculum, and learning materials that facilitate the learning process. Information quality can be defined as the accuracy, completeness, ease of understanding, and relevance of online course materials (Bhuasiri et al., 2012). DeLone and McLean (2003) stated that information quality could be measured in terms of accuracy, timeliness, completeness, relevance, and consistency.

Service Quality

Bhuasiri et al. (2012) defined service quality in e-learning research as the overall support delivered by the e-learning system to the learners who use the system. Service quality is important because it influences users' satisfaction. Through providing support, management, training, equipment, facilities, accessibility, and delivery methods, users' needs could be fulfilled and they would be able

to get positive feedback from their users. Therefore, in terms of measurement, DeLone and McLean (2003) proposed that the five dimensions of SERVQUAL, which are tangibles, reliability, responsiveness, assurance, and empathy, could measure service quality.

Table 1: Summary of the previous study

Author	Aim of study	Research Method	Main Findings
Nurhizam Safie (2007)	To investigate the relationship between usability attributes and motivation to learn	Quantitative	Ten new usability attributes representing as motivation to learn construct which grouped into three categories which is web usability, pedagogical usability and universal usability
Hassanzadeh, Kanaani & Elahi (2012)	To survey and present a model for measuring success of e-learning systems	Quantitative	Technical system quality, education system quality, content and information quality, service quality, user satisfaction, intention to use, user loyalty to system, benefits of using system and goals achievement, are suitable component for measuring e learning systems success.
Bhuasirri et al. (2012)	To identify the critical success factors that influence the acceptance of e-learning systems	Quantitative – Delphi methods	Results reveal six dimensions and 20 critical success factors (CSFs). Technology awareness, motivation and changing learners' behavior are prerequisites for successful e-learning implementations.
Hassan M. Selim (2007)	To specify e-learning critical success factors (CSFs) as perceived by university students.	Quantitative – survey instruments	Results revealed 8 categories of e-learning CSFs, each included several critical e-learning acceptance and success measures
Othman Zainon, Maslin Masrom & Rosdina Rahiman (2008)	To determine the critical success factors with regards to the acceptance of e-learning from the students' viewpoints.	Quantitative – survey instruments	Instructor characteristics factor is the most critical factor in e-learning
Zaharias (2008)	To identify the usability constructs with instructional design which influence motivation to learn	Interpretation of Keller's ARCS model	Twelve new usability parameter were identified which influence motivation to learn

Table 2: Summary of main theories and model applied in past studies

Theories/ Model	Core constructs
DeLone & McLean IS Success Model (DMISSM)	System quality Information quality Organizational impacts
E-learning Critical Success Factors (CSFs) Model	Learner's characteristic Innstructors' characteristic Extrinsic motivation System dimensions Environemnet dimensions
Measuring E-Learning System Success (MELSS) Model	Technical system quality Educational system quality Content and information quality Service quality User satisfaction Intention to use Use of the system Loyalty to system Benefit of using e-learnig systems Goal achievement
Hierarchical E-learning Critical Success (CSFs) Model	Learner's characteristics Instructors' characteristics Institution and service quality Insfrastructure and system quality Course and information quality Extrinsic motivation
Technology Acceptance Model (TAM)	Perceived usefulness Perceived ease of use Subjective norm
Confirmatory Factor Model	Learner's characteristics Instructors' characteristics Technology support University's supports
Motivational Theory	Intrisic motivation Extrinsic motivation

Theoretical Review

As this research is concerned with clarifying the most critical factors that could be influence a learner's *motivation to learn* when using e-learning system, it is important to examine the models and theories used in the e-learning literatures. The DeLone and McLean IS Success Model (DMISM) have received the most attention by researchers in justification of e-learning critical success factors. The construct of this model is based on system quality which measures technical success, information quality in term of accuracy, timeliness, reliability, format etc and organization impact which measures effectiveness success in the context of e-learning environment. Most of authors argued that the success of using technology was derived from information and system quality (Bhuasiri, et al. (2012), Hassanzadeh, et al. (2012) & Selim (2007)). Likewise, Hassanzadeh, et al. (2012) revised this model of Delone and McLean for measuring success of e-learning systems and come out with new model called as Measuring e-Learning System Success (MELSS) Model. Otherwise, Technology Acceptance Model (TAM) which is adopted from Theory of Reasoned Action (TRA) also discussed in several literatures. Technology acceptance model were employed by several authors to support their proposed e-learning Critical Success Factor (CSFs) Model.

In relation to motivation to learn, it is identifies that most of researcher were used Motivation Theory in their study. This theory stated that there are two types of motivation which is intrinsic

and extrinsic. Bhuasiri, et al. (2012) claimed that both intrinsic and extrinsic motivation had a significant positive effect on student self-efficacy. Likewise, Armenterous, et al. (2013) agreed with this point. Otherwise, he also makes the point that both intrinsic and extrinsic motivation can be one other kind of factors which influence users' intention to use the systems. Moreover, Nurhizam (2007) and Zaharias (2008) in their study relied on Keller's Arcs Model of Motivational Design (1983) in order to analyze and interpret motivation to learn constructs. From this model there are four constructs such as attention, relevance, confidence and satisfaction were used in their study.

Theoretical Framework

The proposed research framework for this study was constructed from an adaptation of four key models as been discussed in the theoretical review which is DeLone and McLean IS Success Model (DMISM), e-Learning Critical Success Factors (CSF) Model, Measuring E-Learning System Success (MELSS) Model and Motivational Theory.

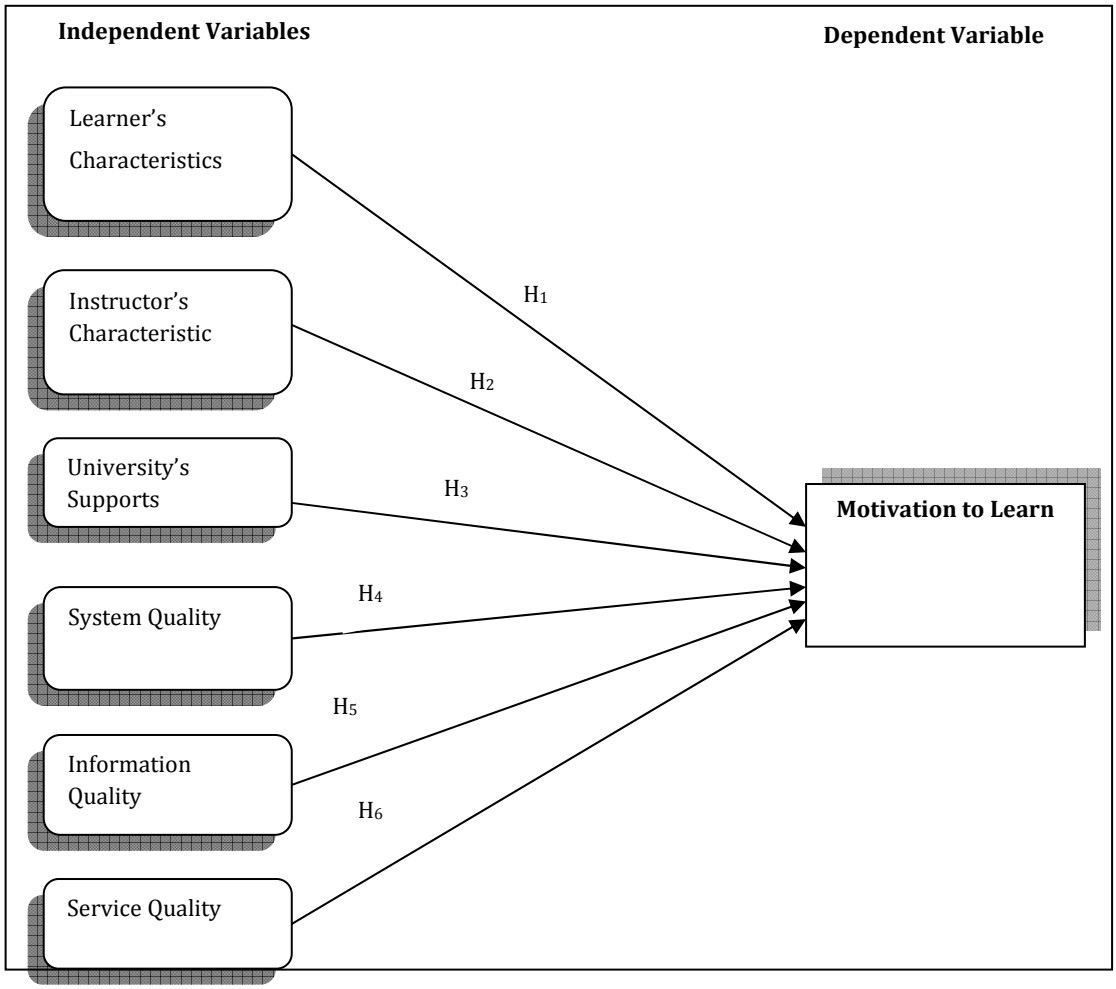

Table 3: Summary of e-learning critical success factors (CSFs)

Past studies	E-learning critical success factors (CSFs)
Hassan M. Selim (2007); Bhuasiri, et al. (2012); Othman Zainon, Maslin Masrom & Rosdina Rahiman (2008);	Learner's characteristic
Hassan M. Selim (2007); Bhuasiri, et al. (2012); Lee, et al. (2009); Othman Zainon, Maslin Masrom & Rosdina Rahiman (2008);	Instructor's characteristic
Hassan M. Selim (2007); Bhuasiri, et al. (2012);	University's support
Hassan M. Selim (2007); Bhuasiri, et al. (2012); Hassanzadeh, et al. (2012)	System quality
Bhuasiri, et al. (2012); Hassanzadeh, et al. (2012);	Information quality
Bhuasiri, et al. (2012); Lee, et al. (2009); Hassanzadeh, et al. (2012);	Service quality

Based on the above, this study proposed the following hypothesis:

H_1: There is a positive relationship between learner's characteristics with motivation to learn
H_2: There is a positive relationship between instructor's characteristics with motivation to learn
H_3: There is a positive relationship between university's supports with motivation to learn
H_4: There is a positive relationship between system quality with motivation to learn
H_5: There is a positive relationship between information quality with motivation to learn
H_6: There is a positive relationship between service quality with motivation to learn

3.0 Research Methodology

The research process which involves several steps in the planning for actual study which include 1) problem identification; 2) theoretical framework; 3)_hypothesis formulation; 4) data collection;5) data analysis and interpretation, deduction;6) report writing and report documentation. 250 questionnaires were distributed . Respondents were selected based on their usage toward i-Learn Portal for their studies. Only 203 questionnaires were returned and analysed.

Research Instrument

Questionnaires will be used as the research instrument in gathering data for this study that adopted from the previous studies on CSF and motivation to learn. A questionnaire is a pre-formulated written set of questions to which respondents record their answers. It is an efficient manner of obtaining data due to its nature in that it can be easily distributed and measured. Furthermore, the data collected have the highest probability of being valid, as respondents can take more time to answer the questions at their convenience. As a result, they can provide the best information to the researcher. In this study, questionnaires will be distributed to the respondents. The questionnaire used will obtain data on:

- Demographic information of the respondents (using a nominal scale of measurement).
- E-learning critical success factors by the respondents (using a 10-point scale ranging from 1 as strongly disagree to 10 as strongly agree).

- Motivation to learn among the respondents (using a 10-point scale ranging from 1 as strongly disagree to 10 as strongly agree).

4.0 Findings

The Reliability Analysis for the Measuring Variables

Table 4 provided the values of Cronbach's alpha for all tested variables were higher than 0.7. It was important to note here that all reliability measures have achieved the accepted "desirable" level of 0.80 for social science research as recommended by (Money & Turner, 2004).

Table 4: Reliability Statistics for Questionnaire Items

Variables	Number of items in a component	Cronbach's Alpha
Learners' Characteristics	7	**0.802**
Instructors' Characteristics	6	**0.927**
University Support	7	**0.884**
System Quality	5	**0.938**
Information Quality	6	**0.896**
Service Quality	6	**0.962**
Motivation to Learn	6	**0.937**

The Mean Analysis for the Measuring Variables

The next step was to transform the individual score of independent variables into its individual mean for preferred factor comparison by the respondents. The same procedure repeated for other variables respectively. Table 5 illustrated the mean scores and standard deviations for the measured variables. It was found that System Quality variable had the highest score for the response, with mean = 7.4158 and standard deviation = 1.62595 which indicated the most preferred factor among the others to motivate e-learning among the respondents.

Table 5: Mean Comparisons for the Measuring Variables

Variables	Mean	Standard Deviation (SD)
Learners' Characteristics	7.2126	1.18592
Instructors' Characteristics	6.6626	1.74923
University Support	6.8331	1.60148
System Quality	**7.4158**	**1.62595**
Information Quality	7.1502	1.58114
Service Quality	6.5619	1.77660

The Analysis to Determine the Normality of the Data

After obtaining the mean scores for each component, the researcher must show that the distribution of these data also did not depart from normality. As stated earlier, one of the measures which reflected the distribution of data was skewness. The measure of skewness between -1.0 to 1.0 indicated the data did not depart from normality. Hence, the parametric statistical analysis could be employed.

Table 6: The Measure of Skewness of the Data

Variables in the Model	min	max	skewness	kurtosis
Learners' Characteristics	3.71	10.00	**-0.137**	0.120
Instructors' Characteristics	1.83	10.00	**-0.311**	-0.436
University Support	2.71	10.00	**-0.428**	-0.411
System Quality	2.20	10.00	**-0.735**	0.686
Information Quality	1.83	10.00	**-0.559**	0.287
Service Quality	1.00	10.00	**-0.375**	0.078
Motivation to Learn	1.17	10.00	**-0.618**	0.673

Since all measures for the skewness were closer to 0.0 and within the range between -1.0 to 1.0 the study concluded that the distribution of data was almost symmetry or bell-shaped. The bell-shaped distribution indicated the data was normally distributed. Hence, the data obtained in the study fulfill the required assumption for employing the parametric statistical analysis that data came from a normal distribution. Among the parametric statistical analyses that could be employed were t-test and F-test depending on the hypothesis test proposed for the study.

Parametric Statistical Analysis

Hypothesis 1

Ha1 : There is a positive relationship between learner's characteristics and motivation to learn.

Table 7: Correlations Test for learner's characteristics and motivation to learn.

		LEARNERS_ CHARACTERISTICS	MOTIVATION_TO_LEARN
LEARNER'S_CHARACTERISTICS	Pearson Correlation	1	**0.580****
	Sig. (2-tailed)		**0.000**
	N	203	203
MOTIVATION_TO_LEARN	Pearson Correlation	**0.580****	1
	Sig. (2-tailed)	**0.000**	
	N	203	203

**. Correlation is significant at the 0.01 level (2-tailed).

The Pearson correlations test was performed to determine if there was a significance relationship between learner's characteristics and motivation to learn (see Table 7). Learner's characteristics were positively correlated with motivation to learn ($p < 0.01$, $r = 0.580$) but moderate. Hence, the results revealed that there was a significance positive linear relationship between variables and alternative hypothesis was supported. This conclusion was made at the significance level, $\propto = .05$ (5%) or confidence level (95%).

Hypothesis 2

Ha2 : There is a positive relationship between instructor's characteristics and motivation to learn.

From Table 8, it was found that instructor's characteristics were highly correlated with motivation to learn ($p < 0.01$, $r = 0.706$) and null hypothesis was rejected. Hence, the results revealed that there was

a significance positive linear relationship between variables. This conclusion was made at the significance level, ∝ = .05 (5%) or confidence level (95%).

Table 8: Correlations Test for Instructor's Characteristics with Motivation to Learn

		INSTRUCTOR_ CHARACTERISTICS	MOTIVATION_TO_LEARN
INSTRUCTOR'S_CHARACTERISTICS	Pearson Correlation	1	**0.706****
	Sig. (2-tailed)		**0.000**
	N	203	203
MOTIVATION_TO_LEARN	Pearson Correlation	**0.706****	1
	Sig. (2-tailed)	**0.000**	
	N	203	203

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis 3

Ha3 : There is a positive relationship between university support and motivation to learn.

A Pearson correlation analysis performed to test the relationships among tested variables (see Table 9). The correlations between university support with motivation to learn ($p < 0.01$, $r = 0.726$) were also high and positive at the .05 (5%) level of significance. Therefore, alternative hypothesis was supported.

Table 9: Correlations Test for University Support with Motivation to Learn

		UNIVERSITY_SUPPORT	MOTIVATION_TO_LEARN
UNIVERSITY_SUPPORT	Pearson Correlation	1	**0.726****
	Sig. (2-tailed)		**0.000**
	N	202	202
MOTIVATION_TO_LEARN	Pearson Correlation	**0.726****	1
	Sig. (2-tailed)	**0.000**	
	N	202	203

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis 4

Ha4 : There is a positive relationship between system quality and motivation to learn.

As demonstrated in Table 10, system quality was positively correlated with motivation to learn ($p < 0.01$, $r = 0.656$) but moderate. Hence, the results revealed that there was a significance positive linear relationship between variables at the .05 (5%) level of significance and null hypothesis was rejected.

Table 10: Correlations Test for System Quality with Motivation to Learn

		SYSTEM_QUALITY	MOTIVATION_TO_LEARN
SYSTEM_QUALITY	Pearson Correlation	1	**0.656****
	Sig. (2-tailed)		**0.000**
	N	202	202
MOTIVATION_TO_LEARN	Pearson Correlation	**0.656****	1
	Sig. (2-tailed)	**0.000**	
	N	202	203

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis 5

Ha5 : There is a positive relationship between information quality and motivation to learn.

A Pearson correlation analysis conducted to test the hypotheses. Table 11 illustrates positive and significant relationships between information quality and motivation to learn. It was indicated that the correlations between the variable were high and positive ($p < 0.01$, $r = 0.760$) at the significance level, $\propto = .05$ (5%) or confidence level (95%) and alternative hypothesis was failed to be rejected.

Table 11: Correlations Test for Information Quality with Motivation to Learn

		INFORMATION_QUALITY	MOTIVATION_TO_LEARN
INFORMATION_QUALITY	Pearson Correlation	1	**0.760****
	Sig. (2-tailed)		**0.000**
	N	202	202
MOTIVATION_TO_LEARN	Pearson Correlation	**0.760****	1
	Sig. (2-tailed)	**0.000**	
	N	202	203

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis 6

Ha6 : There is a positive relationship between service quality and motivation to learn.

The highest positive relationship was found between the service quality and motivation to learn. As showed in Table 12, the results revealed that there was a significance positive linear relationship between variables ($p < 0.01$, $r = 0.767$) and null hypothesis was rejected. This conclusion was made at the significance level, $\propto = .05$ (5%) or confidence level (95%).

Table 12: Correlations Test for Service Quality with Motivation to Learn

		SERVICE_QUALITY	MOTIVATION_TO_LEARN
SERVICE_QUALITY	Pearson Correlation	1	**0.767****
	Sig. (2-tailed)		**0.000**
	N	202	202
MOTIVATION_TO_LEARN	Pearson Correlation	**0.767****	1
	Sig. (2-tailed)	**0.000**	
	N	202	203

**. Correlation is significant at the 0.01 level (2-tailed).

Summary of Hypotheses Test Results

No	Hypothesis		Data Analysis Technique	Result
1	**Ha1**	There is a positive relationship between learner's characteristics and motivation to learn.	Pearson correlations test	**Supported**
2	**Ha2**	There is a positive relationship between instructor's characteristics and motivation to learn.	Pearson correlations test	**Supported**
3	**Ha3**	There is a positive relationship between university support and motivation to learn.	Pearson correlations test	**Supported**
4	**Ha4**	There is a positive relationship between system quality and motivation to learn.	Pearson correlations test	**Supported**
5	**Ha5**	There is a positive relationship between information quality and motivation to learn.	Pearson correlations test	**Supported**
6	**Ha6**	There is a positive relationship between service quality and motivation to learn.	Pearson correlations test	**Supported**

5.0 Discussion

1. The positive relationship between learner's characteristics and motivation to learn.

The finding was consistent with the previous study by Selim (2007) who agreed that identifying the learner's characteristics is important to the successful of e-learning acceptance. Volery and Lord (2000) supported that there are various learners' characteristics that may influence e-learning system adoption and usabilities, such as computer self-efficacy, Internet self-efficacy, computer experience, Internet experience, computer anxiety, and attitudes towards the e-learning system itself. The result also was agreed by Lim, Morris and Yoon (2006) which revealed that learner's motivation to study was affected by characteristics of learner such as demographic information, learning preferences and technical skills. Therefore, another study by Lim and Kim (2003) stated that learner's characteristics such as demographic information, computer experience, and previous online learning experience may influence online learning performance and satisfaction as well promote online learning motivation among learners.

Moreover, Olasina (2012) study also found that students with IT knowledge, technical skill, and computer experience were motivated to use e-learning. When relating to learning motivation, Chua and Don (2013) mentioned that motivation is the most important driving force to explain online students' ability to pass exams that are the only variable that shows a direct, positive and significant effect on students' achievement. Shih (2013) et al. confirmed that self-development and social contact are the two significant variables among motivation factors to predict online learning satisfaction. From the findings, it was found that more than 50% of respondents have good knowledge in using the i-Learn portal and are motivated in their learning process.

2. ***The positive relationship between instructor's characteristics and motivation to learn.***
Ozkan and Koseler (2009) stated that learners' attitudes and instructor's quality are the critical predictors for learners' satisfaction. Specifically, Bhuasiri et al. (2012) explained that instructor's characteristic measures in term of the timely response, self-efficacy, technology control, focus on interaction, attitude toward students and interaction fairness are the critical determinants of e-learning success. It was found that lecturers who taught Information Management courses also have good IT knowledge and skills and delivered the lecture contents using ICT tools during the classes. This was agreed by Webster and Hackley (1997) that instructor's characteristics refer to the instructor's attitudes toward technology, teaching styles, and technology control is influencing learning outcomes.

3. ***The positive relationship between university support and motivation to learn.***
Bhuasiri et al. (2012) also agreed that providing support, equipment accessibility, and training by the university are important issues for e-learning acceptance. Similarly, Lee (2008) found that providing computer support and training to learners by the universities are strongly influenced a learner's perceived ease of use and usefulness of the system. Changchit (2007) further supported that learners' on-line learning satisfaction is affected by factors like learners' technology acceptance behaviors, quality of institutional support, academic environment and instructional interaction. Wagner et al. (2006) confirmed that technological infrastructures placed in the institutions such as course management systems, technology equipped classrooms, sufficient bandwidth and adequate computer facilities for student use play a vital role on how effectiveness of e-learning offerings may be assessed and this may be effect the return on investments (ROI) of the institutions. It was found that most of Information Management core courses were taught in conductive computer laboratory provided by the university. Thus, to improve e-learning skills, before the semester begins, the students have to attend two i-Learn workshops organized by i-Learn trainers namely 'Go i-Learn Day' and 'Blended Learning'. The aim of 'Go i-Learn Day' is to meet the students and train them on how to use the portal while blended learning refers to courses that combine face-to-face classroom instruction and online instruction with reduced classroom contact hours containing a variety of learning activities with the use of technology, lecturer and peer interaction (Md Noh et al., 2012).

4. ***The positive relationship between system quality and motivation to learn.***
Maldonado et al. (2011) said that technology characteristics such as ease of use and effort expectancy should be considered for the students to be motivated to use the e-educational system. Bhuasiri et al. (2012) verified that system quality has a strong positive effect on learners' satisfaction. DeLone and McLean (2003) added that system quality would enhance learning motivation because the performance of the system. Otherwise, Hsiu and Su (2012) revealed that system functionality, response, and interactivity factors may influence student satisfaction and motivate them to continue in lifelong e-learning course

Bhuasiri et al. (2012) indicated that information quality has a strong positive effect toward learners' satisfaction because learner's satisfaction influences learning motivation. Then, DeLone and McLean (2003) defined that information quality could be measured in terms of accuracy, timeliness, completeness, relevance and consistency. Teo (2011) further described that the way in which e-learning course is delivered has affected the e-learners' perceptions toward their motivations.

5. ***The positive relationship between information quality and motivation to learn.***
Bhuasiri et al. (2012) indicated that information quality has a strong positive effect toward learners' satisfaction because learner's satisfaction influences learning motivation. Then, DeLone and McLean (2003) defined that information quality could be measured in terms of accuracy, timeliness, completeness, relevance and consistency. Teo (2011) further described that the way in which e-learning course is delivered has affected the e-learners' perceptions toward their motivations.

6. ***The positive relationship between service quality and motivation to learn.***
Law, et al. (2010) found that there is a positive relationship between motivation and performance among students taking computer programming courses in an e-

learning setting. In addition, Bhuasiri et al. (2012) stated that service quality is important because it influenced users' satisfaction from the positive feedback. Sun (2008) discovered that service quality measurement tools have been developed in e-learning environment in which the quality of e-learning teaching materials affected e-learners' satisfactions. Chen, Lee and Chen (2005) added that high-quality teaching materials motivate learners to use e-learning through the development of learner-centered teaching contents. For that purpose, an e-content project known as Subject Matter Experts (SME) was developed via i-Learn to promote knowledge sharing, content standardization, accessibility as well as to simplify learning process (Md Noh et al., 2012).

Conclusion

This study verified the factors for e-learning and the relationship with motivation to learn. These correlations are measured from the hypotheses tests and, therefore, supported the conceptual framework. Among these factors, service quality was found to be the highest significant correlated with motivation to learn while learner's characteristics were found to be the lowest significant correlated with motivation to learn. The system quality was identified as the most preferred determinant to motivate the students to use e-learning. It could be regarded that the e-learning has played the significant roles for motivating the students throughout their research and studies.

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The Everyday Life Information Seeking (ELIS) Among Malaysian Young Adults in News Media Consumption

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Abstract

Young adults are exposed to extensive options of news media which available for free, fee based, printed or online. News media undergo drastic change and obviously has change the way young adults perceived and apply in their daily routines. In Malaysia, news media consumption among young adults is not new. It usually associated with conventional printed media such as newspaper. However, with the emerge of the information technology (IT) and high level of literate young adults, it is believe that there are other options adopted to be well informed. The study explored the everyday life information seeking (ELIS) of Malaysian young adults news media consumption. Overall, this research intends to further understand of the everyday life information seeking (ELIS) behavior of young adults, which include how they apply or seek information for personal development and growth. The study adopted survey research method and instrument used was self-administered questionnaire. The sample size suggested for the study is 335. Findings show that the young adults news consumption in Malaysia has change literally from printed towards digital platform. Schools and parents have started with subscription into e-news which can be accessed anywhere and at anytime.

Keywords: everyday life information seeking, young adults, news media consumption, news media contents , news media format/sources and value of news

1.0 Introduction

Young adults are exposed to extensive options of news media which available for free, fee based, printed or online. News media undergo drastic change and obviously has change the way young adults perceived and apply in their daily routines. Young adults are believed to read less printed newspaper compared with other age groups (Edmonds, Guskin, & Rosenstiel, 2011).

Most news experts assume young people have less interest in reading print newspapers and prefer to go for online news (Kaufhold, 2010). Therefore, it is widely phenomenal of news media to adopt online version to support their business, marketing strategy and advertisements. Thus, it is crucial for newspaper firms to involve and participate heavily in extensive news delivery platforms. They willing to invest and experiment latest trend of social media in order to catch and retain young readers' interest (Graybeal, 2011). Studies conducted by Chyi & Chang (2009) and De Waal, Schoenbach, & Lauf (2005) agreed that printed newspaper is most preferable option as people find it more useful, reliable, friendly and enjoyable compared to online version. Somehow, it shows printed newspaper has close relationship bound where user naturally able to feel and touch them. The Online Publishers Association (2004) survey produced the same opinion as well. . They willing to invest and experiment latest trend of social media in order to catch and retain young readers' interest (Graybeal, 2011). Studies conducted by Chyi & Chang (2009) and De Waal, Schoenbach, & Lauf (2005) agreed that printed newspaper is most preferable option as people find it more useful, reliable, friendly and enjoyable compared to online version. Somehow, it shows printed newspaper has close relationship

bound where user naturally able to feel and touch them. The Online Publishers Association (2004) survey produced the same opinion as well.

However, later on as technology takes place, the newspaper experts in the industry believed that young people is a trendsetter. Young people aged 18-24 also known as *digital natives* is likely to adapt the Web, social media, or mobile applications in their daily routines. This will affect news and information searching behavior simultaneously. It is therefore important to revise the trend toward online and print media among young readers' attitudes. The phenomenon of online news are easy acceptable by young people around the globe. Geographical, language and time are no longer considered as barrier. Facility such as tools and internet would be among small percentage for young reader not to get in touch with online news media. It is believed that, user with no internet and technology devices will eventually has one from various social media account. Thus, it has been a part of social life regardless of age, gender, race, religion and nationality. Where else, traditional printed media has been seen reducing its volume, size and content due to high cost but lower usage. However, the newspaper industry has served the world for years and contributed benefits in term of information and knowledge sharing. As to date, the industry has taken bold and aggressive approach to reach its users and clients. The changes are according to trend and users' preferred interest. Today newspapers are no longer plain and text oriented. It has been transformed into eye-capture images, courageous text and interesting typography to set the mood, feel and fresh look. They come in compact size and online version as well. On the bright sight, the study will help information provider to evaluate and consider youth preferences to access news. Ito (2008) found that social network sites and other supporting application tools have great impact of youth culture. Studies have shown that young adults and indeed the Generation Z appear to have a massive influence on the survival evolution of news delivery platforms. Thus, the situation today and the emergence of internet have largely shown that the conventional printed newspaper has less contact with young adults (Qayyum et al., 2010).

Besides than investigating local young adults 'adults' news media consumption, the study would able to produce real lifestyle of young adults in urban location of Malaysia. The study would eventually generate information behavior among young adults towards news consumption.

In Malaysia, news media consumption among young adults is not new. It usually associated with conventional printed media such as newspaper. However, with the emerge of the information technology (IT) and high level of literate young adults, it is believe that there are other options adopted to be well informed.

Qayyum et al., (2010) suggested that age divide would critically affect on behavior as maturity level increase their confidence and needs to explore different type of news media platforms. Technology has taken the place and introduce social networking using smart phones, tablets and laptops.

The study explored the everyday life information seeking (ELIS) of Malaysian young adults news media consumption. Overall, this research intends to further understand of the everyday life information seeking (ELIS) behavior of young adults, which include how they apply or seek information for personal development and growth. This study seeks to answer the following research questions:

(i) What are the news media consumption among young adults in Selangor?
(ii) What are the news media contents among these young adults ?
(iii) What are their preferred news media format/sources?

2.0 Literature Review

Preferences

Preference or reading preference is defined as reader's prior choice, favorite and most like reading matter from different range of formats namely books, magazines, books or newspaper. The

preferences could also range from genre, subject and author. The preference may influence by several factor such as lifestyle, psychological, background, interest and career development.

Interest

Freeman (2013) emphasized findings of her study that most Malaysian young adults prefer the internet as their main source of news. Additionally, their news interest mostly from news online, blogs and social media tools. They make active media choices particularly about the type of news and media they prefer to access.

News media

There are varieties of conventional media such as newspaper, books, magazines, radio and television have adopt new platform using digital media and blend harmoniously with interactive media and social network. The on-the-go phenomenon such as blogs, podcasts and social networks have proven to reach different walk of life and reduce geographical divide within users. It has enhances communication which incorporates digital productions, streaming media, typography and less complicated.

Young adults

According to The United Nations young adults are defined as persons between the ages of 15 and 24. The group is also refer as a heterogeneous group in regular development and the experience of 'being young' varies extremely across regions, culture and within countries. In Malaysia, youth are defined as person between ages of 18 and 25, while the Commonwealth's is between 15 and 29.

Everyday-life information seeking (ELIS)

The term ELIS pioneered by Savolainen (1995) to refer to the behavior, practice and habit of information seeking that people spend to adopt themselves in daily life or to solve problems indirectly. Savolainen also emphasized the practice much influenced by culture, background and lifestyle.

The Evolution of News Media

The newspaper industry worldwide started experimenting with online delivery in the mid-1990s when many newspapers launched electronic editions on the Web. Since then, newspapers have come in two distinct formats: online and in print. Newspaper companies once hoped that their dual product offerings would go hand in hand; however, the online edition has failed to generate sufficient revenue to make up for the deficiencies on the print side, as evidenced in the US newspaper crisis in 2009 (Karp, 2007)

Young adults and Everyday life information seeking (ELIS)

Today, ELIS has been practiced at early age to nurture them as efficient, independent and productive in future. The skill will assist them to make the maturation process easier for young people. Therefore, public and school libraries are in ideal positions for providing reliable information through collection, services and reading facilities. School and public libraries are equip with edutainment collection for teaching and learning process. Whilst, academic libraries would cater larger and professional information resources to fulfill their needs. However, there are also youth-centered researches exists to serve either the basic information-seeking behavior of teenagers, or reference and information services for young adults (Shenton & Dixon, 2004).

News Consumption among Young Adults

The Pew Research Center for the People and the Press (2010), mentioned about 46% of those over the age of 65 reported reading a print newspaper while those ages range 18-24, only 7 % consume

from printed newspaper. Consequently, the results have pointed the news consumption among young adults has existed before internet became the major medium. The behavior later been further investigated in 2011 study by the Pew Research Center's Internet & American Life Project. The survey concluded 94% of young adults in US spent most of the times browsing the internet to seek information and news. The environment most likely happened as the country is well equipped with technology and ICT facilities plus, the younger generation are exposed to employ internet in their daily lives.

Kaufhold (2010) suggested that 90% of survey results believed that young adults chose online news compared to print news. As technology takes place and Internet become necessity, news media industry hinting at the future of print newspapers would be no longer common information sources. Variety of news media available 24/7 via online has replace news consumption around the globe at great pace (Penenberg, 2004).

The technology trend believed has largely shaped the news industry now and future (Chyi & Lee, 2012). As a result, newspaper industry has reduced its volume and concern to invest more in digital online business. The significant transformation in the industry created added value for advertisement business as well. It created aggressive and strong market industry especially to penetrate young adults age group. This has been proven by a survey conducted by Graybeal (2011) which indicated that interactive web and digital media as main concern today. There were more research findings also widely accepted assumption that young people use the Internet to seek news and information.

On the other hand, Mindich (2005), disagreed oppose other research mentioned above regarding young adults preference to go news online. Young adults approach towards technology and internet are doubted to consume news and information. They are likely to browse entertainment, online shopping, online banking and games.

An important term initiated by Chyi (2009) referring to generation gap in news consumption is news fatigue. As likely to support the theory, Chyi emphasized news fatigue as the environment where young adults receive tones of news in extensive resources. The problem occur when young adults fail to differentiate the news credibility, accuracy and authenticity as news gone viral and anonymously. The situation created by the advances of internet, high-tech gadgets such as smart phones and technology savvy among young adults nowadays. The news delivery has shifted from paper based to wireless plus able to reach users just in seconds.

In Malaysia, young adults have spoken their preferences towards news media consumption. They opt to choose online media compared to printed media and entertainment would be their main interest in news searching. According to a research by Freeman (2013), the scenario in two universities show young adults spend most of their daily routine browsing internet either for academic purposes or personal interest topic. This behavior followed by Google as the most popular search engine nowadays. Additionally, young adults favor sports, crime news, famous celebrity or icon and latest events happening in their community.

Format Preference: Print vs. Online

Some of the studies found that printed newspaper are more preferable by young adults (Chyi & Chang, 2009; De Waal et al., 2005)

Despite the overwhelming acceptance of news online, essentially printed version still maintain its reputation and able to survive nowadays. For this reason, it can be seen that, news industry taken major transformation to blend printed and online packages. These may very useful for large organization, schools and libraries. Most specifically it helps to save space and environment friendly.

The Conceptual Framework for the study is shown in Figure 1 and the past studies that determine the variables of the study is in Table 1.

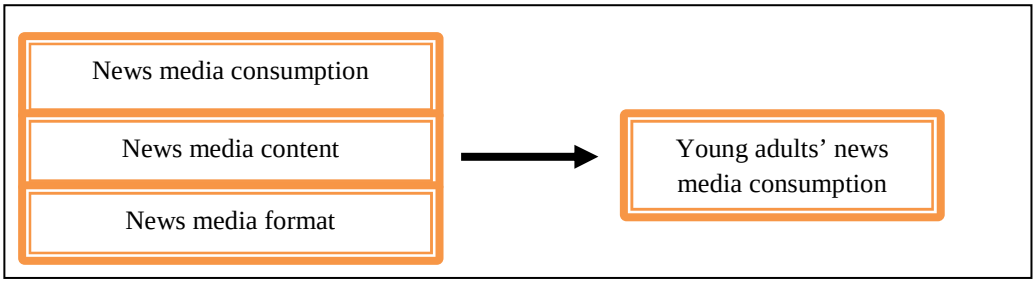

Figure 1: The Conceptual Framework

Table 1: Past Studies

Past studies	Young adults' news media consumption
The Pew Research Center for the People and the Press (2010), Kaufhold (2010), Penenberg (2004), Chyi & Lee (2012), Graybeal (2011), Mindich (2005), Chyi (2009), Freeman (2013).	News media consumption patterns
Kaufhold (2010), Penenberg (2004).	News media content
Chyi & Chang (2009; De Waal et al.(2005)	News media format

Dependent variable

Young adults news media consumption

Basically, the study would like to investigate the trend of news media consumption happening among young adults. Today, young adults are surrounded with the emergence of news media either via online or printed version. News industry been aggressive and all out to reach young adults interest as this group will shape future news media development respectively. At this age, conventional news media has ventured into online news in order to keep in track and maintain survival.

Independent variables

The independent variables consist of four components: news media consumption patterns, news media content and news media format. Each of these components will be briefly discussed in the remainder of this paper.

3.0 Research Methodology

Research Design

The research design of the study is shown in Fig. 2.

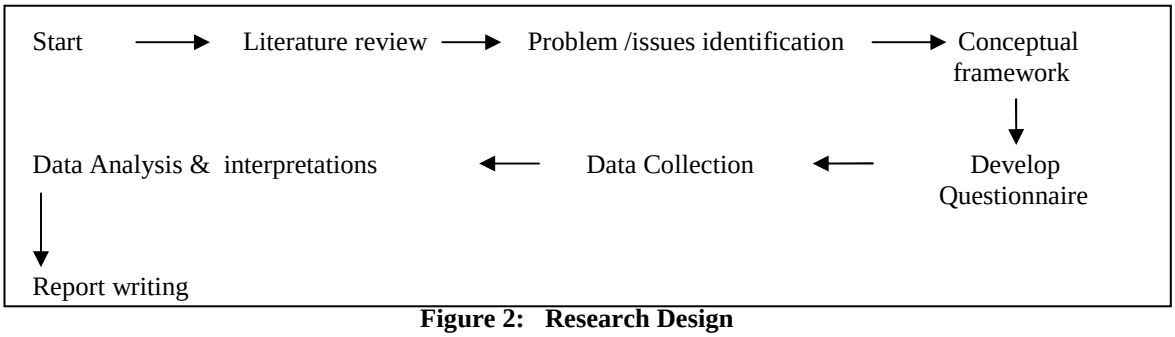

Figure 2: Research Design

Self-Administered. Questionnaire

The study adopted survey research method and instrument used was self-administered. questionnaire and the development is in Fig 3.

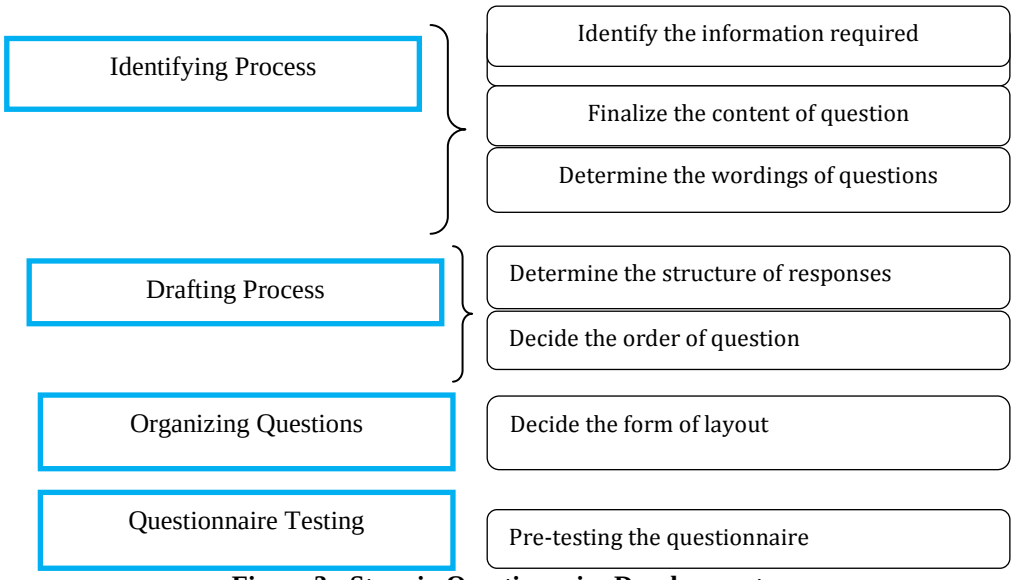

Figure 3: Steps in Questionnaire Development

Population and Sample Size

According to the sampling size guideline table by Krejcie and Morgan (1970), the 2500 young adults in the Selangor Public Library population is close to 2600, therefore the sample size suggested is 335. Thus 100 questionnaire were distributed to the each groups:

Age	No. of questionnaire	Types of respondents
15-17	100	Secondary school leaver
18-21	100	Pre-University/A-Level students
22-25	100	Diploma/Degree/Post Graduate
26-29	100	Part-time/Full time worker

The variables used the Likert Point scaling with five anchoring being 1 for Strongly Disagree and 5 for Strongly Agree. The questionnaire was segmented into six parts with Part 1 capturing demographic information. Part 2 capturing news media consumption patterns , Part 3 capturing news media content, Part 4 capturing news media format /sources, Part 5 on value of news and Part 6 the open ended questions.

Data analysis and discussions

Part 1 Demographic profiles of respondents

This section summarizes the demographic profiles of the respondents by gender, age and academic status. All these variables have been analyzed and interpreted separately as described below.

Table 2: Demographic profiles of respondents

		Frequency	Percent %
Gender	Male	169	50.4
	Female	166	49.6
Age	15-19	67	20.0
	20-24	135	40.3
	25-29	133	39.7
Academic status	Secondary school leaver	67	20.0
	Pre-University/A-Level students	67	20.0
	Diploma/Degree/Post Graduate	133	39.7
	Part-time/Full time worker	68	20.3

Part 2 News Media Consumption Patterns

Table 3: News Media Consumption Patterns

		Responses	
		N	Percent
Types of news media preferred	Search engines	234	26.9
	Printed newspaper	167	19.2
	Social media	167	19.2
	Television/radio	167	19.2
	Online newspaper	135	15.5
Factors influences reading	Being well-informed	335	34.5
	Satisfy own curiosity	235	24.2
	To enhance knowledge	201	20.7
	Daily routine	201	20.7
Devices use to access news	Smart phone	235	29.1
	Television/radio	235	29.1
	Desktop/laptop	169	20.9
	Printed newspaper	168	20.8
Reading materials Sources	Library/friends /family	335	40.0
	Internet	335	40.0
	Bookstore	167	20.0
Most Preferred News	National	166	49.6
	Entertainment	101	30.1
	Sports	68	20.3

Majority of respondents (26.9%) prefer search engines such as Google and Yahoo to attain updated news. This represents merely quarter of respondents have been practicing to obtain news and information via online. Meanwhile, the term 'Go Google' has been used widely to emphasize information searches online. The findings are supported by Ito (2008) and Qayyum et al.,(2010) This largest internet browser yet a powerful search engines in the world has won in terms of sophisticated search results. It able to hosts millions of data and information which accessible from any part around the world and created a phenomenal nowadays. Besides Google, Yahoo also a feature which provides latest ranking news based on worldwide searches. Meanwhile, highest rank factor that influences the respondents to read or consume news is to be being well informed (34.5%) and equipped themselves

with up-to-the-minute information. The smart phones and television/radio are the favored device to access news. 40.2% of the respondents agree to retrieve reading materials from library/friend/family and internet sources. The most preferred news among the young adults in Selangor are the national issue followed by entertainment and least preferable is sports.

Part 3 News Media Contents

The respondents agree to frequently browse the internet for news reads during free time. This has matching the earlier statement of devices use to consume news. They read thoroughly or discuss with friends and family (60.3%) on particular news. Merely half of respondents (59.7%) ensure that they will always get access to e-sources materials such as online news, social media and television/radio rather than printed materials. This represents the needs of news is very important which also refer as news anxiety. The syndrome explains as craving towards news and information which will cause the feeling of being left out from friends/colleagues/family. The highest mean score is to read online news as they are accessible, portable, environment friendly and convenient. (4.3015) which is supported by Kaufhold (2010) and Penenberg (2004).

Table 4: News Media Contents

Statements of News media content	Mean
I prefer to read online news as they are accessible, portable, environment friendly and convenient.	4.3015
I prefer to make a discussion with friends and family about particular news	4.2
The transformation of printed newspaper to online news give a good impact towards my news seeking and retrieval.	4.0955
I am satisfied with online news services and application nowadays.	3.6985
I always get access to e-sources materials such as online news, social media and television/radio rather than printed materials.	3.597
I frequently browse the internet for news reads during free time.	3.3672
I subscribe to news alert applications via emails and SMS.	2.203
Total	**3.6375**

Part 4 News media format/sources

Studies shows that 67% of respondents agree online news is a trend in news consuming and also 40% practice will flip through printed newspapers if only no other choice. Other ways to get news resources are from family, friends, colleagues. Additionally, the format of news sources that most preferred represented by 49.6% is via online as they provide other features such as audio news, eye-catching graphics, interesting typography and entertaining advertisements. Online news able to provide these features and feed the young adults with visual information simultaneously. Apparently, the researcher also highlights over the issue of environmental friendly sources. There is also great concern show from 30.4% respondents agree printed newspaper consumes paper wasting and mess. The findings of this study are not similar to Chyi & Chang (2009) and De Waal, Schoenbach, & Lauf (2005).Table below shows the highest mean score received from the statement of online news is a trend in news consuming.

Table 5 News media format/sources

Statements of News media format/sources	Mean
Online news is a trend in news consuming.	3.8
I will flip through printed newspapers if I have no other choice.	3.797

Printed newspaper consume paper wasting and mess.	3.7075
I prefer to opt online news as they provide other features such as audio news, eye-catching graphics, interesting typography and entertaining advertisements.	3.597
I prefer to seek news through internet browsing.	3.4985
Other ways to get news resources are from family, friends, colleagues.	3.397
Total	**3.6328**

Recommendations

General

Many studies conducted in modern country agreed the best highlight to understand young adults information behavior is learning by experience and practice. Most researchers work on focusing their needs and how far the young adults response towards their information need. In this particular study, young adults in Selangor retrieve news needs from digital format and less preferred printed news media.

Authorized parties, government, non government agencies, school and parents play crucial role in order to ensure news accessible via online are filtered, as negative news content easily contagious plus misinterpreted. As been practiced in many Asia and Middle East countries due to internet censorship are such as Turkmenistan, Vietnam, Tunisia, Syria, Iran, Saudi Arabia, Republic of China, Cuba, Burma and Iran. Meanwhile, top of the list is North Korea where only 4% of total population able to access to internet. Basically young adults news consumption in their daily lives are mostly extent to several area namely entertainment, sports, leisure readings, education and edutainment. Thus, news are being shape according to one's background and interest. Young adults in Malaysia should be educate from early age to read, segregate, appreciate information in order to create later knowledgeable generation.

Building Libraries for a Better Tomorrow

Majority of Malaysian found library as sacred place, passive, plain and not interested in any of activities organized as compared to other side of advanced countries, young adults been nurtured to visit library often and utilized any services provided. Most local young adults would only turn to libraries as second option to consume news and information. At this point, young generations of librarian and information specialist are well trained to help young adults information avoidance towards libraries. The brand new librarians or information specialists are more aggressive, approachable, IT savvy and creative.

In light of the rise of social media and internet, information seeking via online has taken over the libraries as main source of knowledge. Accordingly, the outright planning for libraries out there to face this challenge is to build collection and services to suit for people in the community. People tend to pay attention to something new, vibrant and spacious place which totally provide fresh environment and feels. Additionally, technologies are in and out of favor quickly. In this case, libraries should apply advertising as number one rule which is to participate generously in community activities so that people around will remember their presence and build its branding simultaneously.

Malaysia should address major consideration of building future libraries based on users information behavior in order to build great collection as well as services. According to YALSA Research Agenda 2012–2016, the best way to build a library is to have better understanding of users behavior in a way of how they seek, manage and use information. This strategy has been used in advance

countries to build libraries purposefully based on sociological, living routine and information practice of the community.

Young Adults' Information Practices

From Dervin (1983), Ellis (1989), Kuhltau (1989) to Wilson have proposed regarding information behavior models across areas and found common results which user will engage with information seeking process when there is emerging interest or needs. Since that, recent researchers have been working to study information behavior to suit according latest lifestyle which requires less seeking process especially in internet era. As to date, there are few researchers been using the earlier information seeking process to develop latest model of everyday life information seeking as practice socially and culturally by young adults. Recent models apply digital information from various sources involve during this process such as television, newspapers, radio and Internet. For that reason, many researchers suggested young adults are increasingly mixing online and offline sources, which integrating technologies into their everyday information practice.

Future Research

As many studies found were mainly focusing on adults or children, there are limited considerations on young adults Information Behavior (IB) happening in today's world. Other researchers may pay attention more towards either on elderly generation or kids to suit themselves with advance technology. Nonetheless, researchers would work and concentrate on different perception on young adults information behavior. The term young adults itself is defined in many category which also affected by country, religion and background.

For future research, this study would perhaps to be covered in other location as well. This study was conducted in urban area where internet and devices are available easily. Meanwhile in other location or community, the survey could reveal the exact behavior among young adults towards news consumption in their daily lives. Moreover, the framework of this study could be used as platform to conduct future studies and provide value-added results.

This study was conducted in public library using quantitative research method to measure the fundamental situation of Malaysian young adults. The method used could be enhanced by using qualitative research methods such as focus group, interviews in order to gather better view and unlimited response. Thus, may provide other new discovery while involving verbal communication. Additionally, quantitative method is very structured whilst quantitative will provide wide possibility of results but may need longer time.

Future researcher could also take into consideration of young adults preferences of libraries role as their ultimate option to seek information and knowledge. Some may not interested to visit the library as the usual and traditional building are plain, quiet as well as bored.

Conclusion

Apparently, young adults news consumption in Malaysia has change literally from printed towards digital platform. Schools and parents have started with subscription into e-news which can be accessed anywhere and at anytime. Besides, news are easily available via online and provide more updated, reliable and less time consuming. Kids and young adults nowadays can be seen using gadgets and smart phones in their daily lives to access internet, games and social networking. However, there are partial of young adults prefer printed newspaper as there limited access and devices in remote area. All the research objectives were successfully achieved at this stage of this study.

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Consolidated Group of Taxpayers in Different Countries: Conditions and Restrictions Comparison

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Abstract

One of the key objects for modern society is the social and economic well-being of the population. State tax policy is a powerful regulatory tool for social and economic development. In this sense, it is not just fiscal but also a variety of other regulatory objectives - economic, social, environmental, international. In this article we analyze state tax policy on example of consolidated groups of taxpayers. We classify requirements and conditions for the consolidated groups of taxpayers used in developed countries with special focus to the Russian model. We examine the strengths and weaknesses of existing models of big business taxation. Special World practice shows that in economic globalization, transnational corporations are a vital tool in competition of developed countries for international markets and leadership in the world division of labor.

Keywords: tax, consolidated group of taxpayers, taxation, tax revenue, regions, profits tax.

Introduction

The origins and implementation of consolidated taxpayer system in developed countries cover the period from the beginning of the 20th century to the present. In particular, consolidated tax regime was introduced into tax legislation in Austria – in 1902, 1972; in the UK – in 1967; in Denmark – in 1936, 1960; in Spain – in 1942; in Italy – in 2004; in Luxembourg – in 1981; in the Netherlands – in 1940, 1969; in Portugal – in 1987; in Finland – in 1987; in France – in 1971; in Sweden – in 1965; in the United States – in 1917. By 2014 year trend of the introduction of consolidated taxpayers spread virtually worldwide (table 1).

In Russia institute of the consolidated group of taxpayers (CGT) exist from January 1, 2012 according to Federal law of Russia dated 16.11.2011 № 321 «On amending parts of the first and second tax code of the Russian Federation in connection with the establishment of the consolidated group of taxpayers». However, already in the year 2014 was imposed a moratorium on creating new groups until 2016, and then until 2018.

Table 1: Implementation of consolidated taxpayer system

	Country	consolidated taxpayer system	
		applies	does not
1	Austria	yes	
2	Australia	yes	
3	Belgium		yes
4	Bulgaria		yes
5	United Kingdom	yes	
6	Hungary		yes
7	Germany	yes	
8	Greece		yes
9	Denmark	yes	
10	India	yes	
11	Ireland		yes
12	Spain	yes	
13	Italy	yes	
14	Cyprus		yes
15	China		yes
16	Latvia		yes
17	Lithuania		yes
18	Luxembourg	yes	
19	Malta		yes
20	Mexico	yes	
21	Netherlands	yes	
22	New Zealand	yes	
23	Poland		yes
24	Portugal	yes	
25	Russia	yes	
26	Romania		yes
27	Singapore	yes	
28	Slovakia		yes
29	Slovenia		yes
30	United States	yes	
31	Finland	yes	
32	France	yes	
33	Croatia		yes
34	Czech Republic		yes
35	Sweden	yes	
36	Estonia		yes
37	South Korea		yes
38	Japan	yes	

The criteria for creation of consolidated group of taxpayers

We consider in more detail the criteria for creation of the CGT for Russia, USA, France, UK, Japan (table 3). France, Japan, UK and USA are major countries using the consolidated taxation since the beginning of the 20 century. Their experience could be sufficient to correct Russian model.
We compare requirements to companies according to:

1. Actors-participants in CGT.
2. Basis of association (obligatory or voluntary).
3. Equity participation in the capital of subsidiary companies.
4. Requirements to the total cost of assets in a group.
5. Requirements to the amount of the total revenue for the calendar year preceding the year in which companies are submitted to the tax authority the registration documents for the Treaty on the establishment of CGT.
6. Requirements to the total amount of value added tax, excise tax, corporate profit tax and mineral extraction tax paid during the calendar year preceding the year in which companies are submitted to the tax authority the registration documents for the Treaty on the establishment of CGT.
7. Characteristics of a group.

Table 2: Requirements to companies in CGT

1. Which companies may create CGT:	
Russia	Only Russian companies
USA	Can be virtually all companies registered in this State, except in the case of certain types of companies. For example, companies that is exempt from tax
France	Resident companies of France
UK	The principle of «Group tax credit» (analogous to a CGT). Get under this principle have the right to virtually all companies, regardless of whether they are resident in the UK or not. However, there are exceptions, such as gas and oil industry companies are unable to obtain this benefit to income derived from oil and gas extraction, and a life insurance company can apply group tax relief only to income taxed at the main shareholder
Japan	All kinds of Japanese corporations, as well as cooperatives, representing blue tax return (Japanese income tax returns are subdivided into two types: white and blue. All taxpayers may apply to the territorial tax office for permission to represent the blue tax return. To obtain the right to use this declaration a taxpayer must agree on the use of certain special accounting rules. In doing so, the taxpayer gets a number of advantages: the possibility of applying accelerated depreciation rules, shifting losses recognized for tax purposes in future periods). Cooperatives can enter the CGT only as head of the organization, but not as a dependent.
2. Obligatory or voluntary basis of association	
Russia	Consolidation is the right, but not an obligation. The degree of consolidation: a) when creating the CGT on the basis of a decision of the head of the organization of the group should be composed of all the subdivisions of the head organization; b) when creating the CGT on the basis of the contract on the occurrence of all of the subsidiaries in the group is not required.
USA	Voluntary basis of association.
France	
UK	
Japan	Decision on the establishment of the CGT cannot be cancelled. The group is required to enter all companies, totally dependent on the head.
3. Equity participation in the capital of subsidiary companies	

Russia	Not less than 90%
USA	80% (participation in the general meeting of shareholders and cost)
France	Not less than 95%
UK	75%
Japan	100 %
4. Total cost of assets in a group	
Russia	Not less than 300 billion rub
USA	No limits
France	
UK	
Japan	
5. Total revenue of a group	
Russia	Not less than 100 billion rub
USA	No limits
France	
UK	
Japan	
6. Total amount of paid taxes by a group	
Russia	Not less than 10 billion rub
USA	No limits
France	
UK	
Japan	
7. Characteristics of a group	
Russia	Possible unification of gains and losses of the entire group and the fulfillment of tax obligations on behalf of the group of the parent organization.
USA	No data
France	Possible association of gains and losses of the entire group and the fulfillment of tax obligations on behalf of the group of the parent organization.
UK	The costs taken into account in the taxation (reduce profits) can be moved into the group up and down vertically as well as horizontally. The operation to move assets between members of the group are not taxed.
Japan	Each participant first CGT computes its own taxable income and adjustments based on the current law on profit tax corporations. Then headache organization unites taxable income of all participants and performs adjustments on the basis of the consolidated group is already based on the rules of consolidated taxation.

We can see that advisability of setting any quantitative indicators of CGT activities is doubtful.

Equity participation in the capital of subsidiary companies in consolidated group of taxpayers

Analyze the international practice of requirements to the companies to become members of the consolidated group of taxpayers shows, that in every country there are restrictions of equity participation in the capital of subsidiary companies. The limits of this criterion for countries range from 50% (Germany) to 100% (Australia, Denmark, New Zealand, Japan), taking into account both direct and indirect ownership. The criteria for the minimum equity capital for companies seeking to use the group mode of taxation in different countries are represented in the table 3.

Table 3: Criteria for equity participation in the capital of subsidiary companies

Country	Minimum equity threshold for associated enterprises, %
Australia	100
Austria	75
United Kingdom	75
Germany	50
Denmark	100
India	100
Spain	70–75
Italy	50,1
Luxembourg	95
Mexico	50
Netherlands	95
New Zealand	100
Norway	90
Portugal	90
Russia	90
Singapore	75
United States	80
Finland	90
France	95
Sweden	90
Japan	100

In Russia this principle is discriminatory and contrary to article 3, paragraph 1 of the Tax Code, which provides for the universality and equality of taxation. The establishment of the right of use depending on the consolidation of absolute indicators for financial and economic activity (value of tax liabilities, revenues, total assets) are actually supported by preferential taxation of major companies. Studies by Russian scientists, according to the results of the year 2014 is actually created on 16 CGT, which included more than 398 organizations (mostly large companies, oil gas, oil refining, iron and steel industry and the communications industry). However, most countries, including Russia, create a special simplified tax regime seek to support small and medium-sized businesses. In addition, this approach leads to a violation of market competition: the dominant industry group of companies will have an even greater advantage because competing companies, which do not meet the criteria, will not be able to use this mechanism.

To reduce the discriminatory impact we suggest reducing participation in capital of the subsidiaries of the group in Russia from 90% to 84%. This value is the average value among countries applying consolidated group of taxpayers (fig. 1). The change in share would allow a broader range of companies qualify for merging with other companies not only in companies in the gas, oil, petrochemical, metallurgical industries, etc

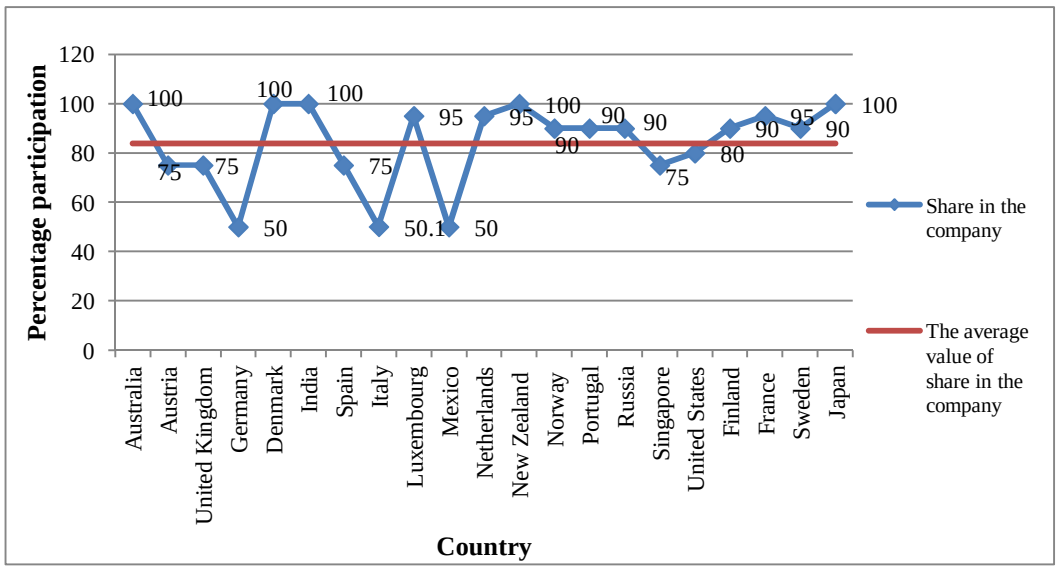

Figure 1: Percentage participation in consolidated group of taxpayers

Conclusion

State tax policy is a powerful regulatory tool for social and economic development. In this sense, it is not just fiscal but also a variety of other regulatory objectives are economic, social, environmental, and international. Implementation of state fiscal policy, taking into account all the interrelated fields of public and economic life cannot be carried out offline. These activities should be based on the basic principles that take into account the current economic situation, both in the state and in the world. Fiscal policy should take into account numerous factors of an economic, social, legal, organizational order affecting the normative functioning and development of tax relations for large organizations.

We propose to reduce the share equity participation in the capital of subsidiary companies in consolidated group of taxpayers in Russia from 90% to 84%. The change in share would allow a broader range of companies create CGT. The main reason the legislator limits the range of potential users of this system of taxation is «fear» of uncontrolled abuse of consolidation and striving to determine in advance the list of companies that will be able to take advantage of its benefits. To avoid potential abuse of consolidation, in our view, it is appropriate to ensure proper monitoring of the activities of the group on the basis of the creation of the methodical providing of tax administration, accounting and auditing of CGT.

Acknowledgement

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Transfer of Technology towards the Internet of Things Paradigm

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Abstract

The research aims to reflect the changes the paradigms in the context of internet technology development. There were taken into consideration realities and current economic conditions, development of the Internet as a global technical architecture and interaction between producers, industry and consumers, all contributing to a new form of collaboration, distribution, promotion and global business. The present research emphasizes the issues brought by innovation to a particular industry and the switch of paradigm in terms of business trend when assessing producers, consumers and the industry itself. The internet offers a wide variety of platforms, applications, websites, online discussion forums, specifically built for each dimension of the industry, delivering products and services to those interested to use them either for business or private purposes. Within the context of the present paper, the transfer of technology refers particularly to change between two generation of technology, not to transfer of intellectual property

Keywords: downloading, internet of things, transfer of technology, streaming

Introduction

Business dictionary states that transfer of technology represents the movement of innovations, knowledge, and techniques from one organization or country to another through assistance, investment, licensing, trade, or training. However, within the context of the present paper, transfer of technology is analyzed only in terms of transition from one generation of technology to another generation (an improved version or a newer one).

Taking into consideration the development of internet technology and the informational society across the planet, there is a confirmed trend to implement several activities in cyberspace, common and accessible by anyone, anywhere, anytime. From socialization and communication among people up to doing online business and everyday activities due to the easy access to information, the Internet has become a vital factor for personal and professional development. This has resulted in a wide variety of applications and platforms, specifically designed according to each industry and activity. Cyberspace has managed to capture much of the public interest by providing everyone the opportunity to be able to promote and manage activities in the digital environment. Unlike classical promotion, the Internet is still an experimental environment where there are no clear rules of operation, but has a strong development trend of substitution and the future of classical promotion. The totality of efforts to promote a brand, a product, service, artistic or cultural value creation, customer relationship management, delivering messages to consumers has become easy and almost instant

According to technopedia.com, the Internet of Things (IoT) is a computing concept that describes a future where everyday physical objects will be connected to the Internet and be able to identify themselves to other devices. The IoT is significant because an object that can represent itself digitally becomes something greater than the object by itself. No longer does the object relate just to you, but is now connected to surrounding objects and database data. When many objects act in unison, they are known as having "ambient intelligence."

Given this, all types of industry should switch the main activity in order to include the new technologies. The present study took under analysis the entertainment industry as the online environment allows rapid and complete presentation of services and products for the selected industry as well as an effective, quickly and directly interaction with consumers, promoting ongoing communication, analytical systems, explanations and comments, results measurement and boosting productivity growth for actors in this field.

Key concepts regarding entertainment industry within "internet of things"

Downloading music from online music retailers like iTunes, Amazon or Google Play means that the files are transferred and stored directly to the own device. Once the files are stored, there is no need for an internet connection. A fee will be paid per song or per album and it is then free for someone to transfer to other devices as desired.

Streaming music is a different approach, because the music is not owned. It is consumed via the internet, Wi-Fi or mobile data networks. Most online streaming services offer a free option with advertisement support and/or metered listening, while pushing the client towards a premium tier that offers ad-free, unlimited access to libraries of over 20 million songs and the ability to download music for offline listening.

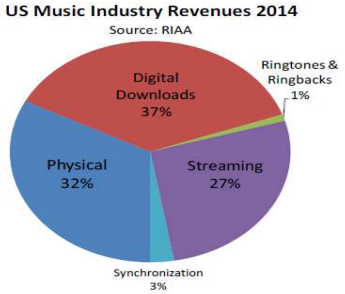
"Streaming" is a common word that is largely used when referring to shared media (audio/video). It describes the act of playing digital online media on one device while the media is saved on another, for example, a portable device. The digital media could be stored on a computer, media server or network attached storage device (NAS) on your home network, an iPod, Tablet or a Smart Phone.

A network media player can access a particular file and play/stream it on your home audio equipment. That particular file doesn't have to be moved or copied to the specific device that is playing/streaming it. Music sites like Pandora, Rhapsody and last.fm, are websites that stream video (i.e. movies, video clips) and audio (i.e. Music) to your portable device, computer and/or network media player/streamer.

Situation awareness

The international company Apple took over Beats Electronics investing over 3 billion USD, fact revealed by statistics that show that Apple's revenues out of the audio streaming services surpassed the digital downloads sales, according to Warner Music Group official.

In 2014, the United States Music Industry was registering a revenue increase by 2%, up to 4.86 billon USD in the first quarter and in the second quarter, small decreases by -0.5%, achieving a total of 6.97 billion USD. The ratio between revenues was of 37% from the digital sales, 32% from physical media, 27% from streaming and 2% from phone ring-tones.



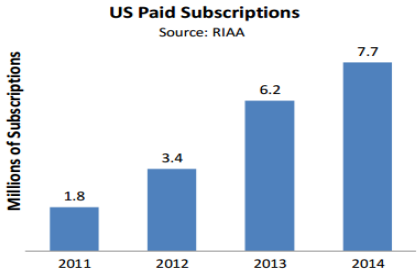


Fig.1 USA music revenues in 2014 **Fig.2 Payed subscriptions in USA in 2014**

Ten years ago, the CD was still the dominating media of the music market, but the new services that permitted the acquisition and the downloading of digital music were in full advance. Apple stepped into this market in 2003, proving for the first time that there are great chances to make profit out of online digital music sales. iTunes Music Store became in a short period of time the largest trader of digital music sales in the United States in 2008 and the largest in the world by 2010. Other similar platforms have appeared shortly after, having the same purpose on the market (Amazon MP3, Beatport, Junodownloads etc.).

The way the analog storage on compact cassettes or vinyl was replaced by the CD, and this on his turn was overtaken by the MP3 digital format, it is plausible that for the selling of digital music, even the online services must confront with the new platforms created by the market evolution, younger and more dynamic: streaming Services like Spotify, GooglePlay Music, Deezer or Pandora.

In the first quarter of 2015, the revenues from the Warner Music Group's online streaming song catalogue, have noticed an increase by 33%, while the digital physical format sales only by 7%. Warner Music Group is the largest company from the group of "the three big ones" (Warner Music Group, Universal and Sony) that announces this change, a sign of the redefinition of the way the public wants to consume music.

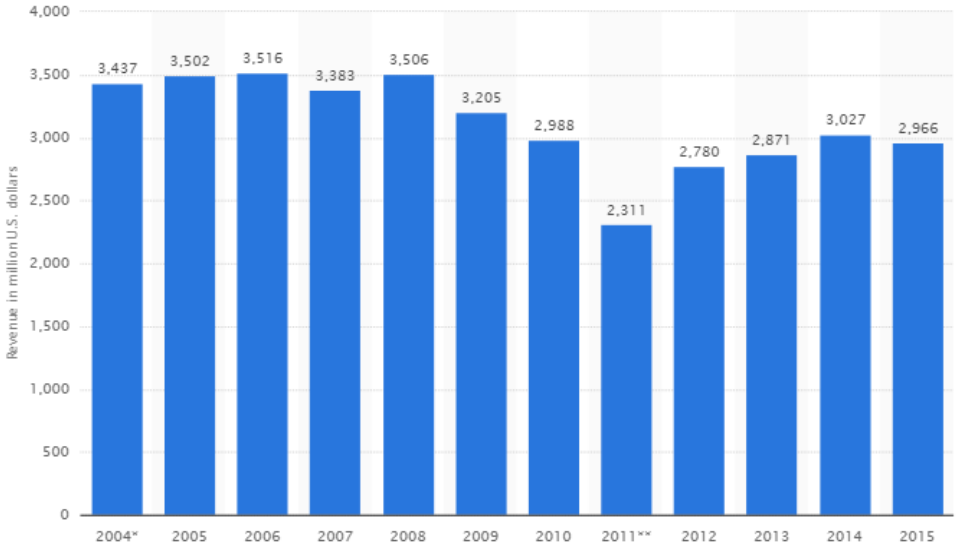


Figure 3: Warner Music Group revenues between 2004 and 2015 (in millions USD) (source: www.statista.com)

At the moment there are no straight conclusions to the question on how the commercialization model of the streaming services will look like. Spotify became famous because it offers free access and it is sustained by advertisement and special subscription business models, but model is heavily critics from the artists, due to the fact that it generates low income.

Streaming VS. Downloading

The idea of “owning” music in the digital age is a bizarre one, due to the fact that the digital music is not a physical product. When the audience wants to listen to music, you press the play button and the melody comes on regardless of whether it is downloaded or streamed, as states Chris Smith (2015).

Within the paper’s context, the next generation of technology is represented by streaming. The digital content users are listening to streaming video and music as it comes to their computer, portable devices or network media players. A website or portal that streams video or audio will often have a "buffer" embedded in the transmission. Several seconds of video or audio content is streamed to the computer or network media player in order to keep the digital stream playing and to avoid interruptions in case of internet lags or disconnections, as said Gonzales within “The Difference Between Streaming and Downloading Media”

A fast internet connection is required for a flawless transmission and for no pauses or “hiccups” in the audio/video playback. Higher quality video / high definition video with digital surround sound requires a faster connection. Audio Video ("AV") routers or Gigabit routers are needed to be able to stream high definition digital content to more than one device or player.

As a standard, video streaming websites are able to determine the quality of the video streamed to your device, based on the algorithms that are able to estimate internet speeds. A streamed file can be played from many sources. The source of the streaming media must be connected and turned on at all times, or the streaming does not function. When streaming from the internet, it is not only the speed of the connection that guarantees a stable. Different factors such as the amount of traffic on the streaming website – in other words, the number of users watching videos or listening to music at the same time - and the speed of the website's server connection can influence the quality of the streamed signal received by the users.

Streaming files are never saved on local devices. Streaming media is either free, or you are charged a monthly subscription to access the media, such as with Spotify, Netflix, iTunes, Digitally Imported and Rhapsody. A user can only play music on a subscription website if paying. Once there are no more payments, the digital media is no longer available.

In which the old generation (downloading) is concerned, a portable device connects to the source of the digital files, then copies and saves them to the local hard drive. There is the need to wait until the download is complete before the digital audio/video content can be used. Services like iTunes and Vudu, allow the user to watch while a movie downloads after a sufficient amount of time. The user is allowed to copy the files or move them to other hard drives unless the files are copyright-protected, as stated by Barb Gonzales (2015).

The downloaded files can be streamed to other devices once it has been saved on a local hard drive. Downloaded files are available whenever a user wants to play them. All network media players are able to stream files from a user’s home network. Some media players are equipped with hard drives or can dock a portable hard drive to save files. Understanding the difference between streaming and downloading media, can be useful for choosing the right media player for a user.

Conclusions

Downloading allows the user to own the music and listen without worrying about whether he/she can connect to the internet or whether they use too much data. It also gives artists a larger slice of the pie, being remunerated accordingly, as stated by Barb Gonzales (2015). On the other hand, streaming services allow the user to listen to more music at a lower cost, often for free, as well discover interesting new music without making any more investments. It also ends the need to store music files on portable or home devices.

Some artists are still holding out because of the lower streaming revenue. This means the user will have to buy the albums from download services or import from own CDs, fact that is nowadays legal, in order to listen to them digitally. If the users prefer rarities, like live concerts, acoustic sessions, bootlegs, B-Sides, rare remixes etc. from their favorite artists then thy may have to download these as well.

Furthermore, Cloud Computing is the next generation of music, film and photo sharing distribution /purchasing system that allows the internet users to access big data instantly from all parts of the planet, from home, office or mobile technology devices.

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Multidimensional Reliability Concept in Dynamic Control Structures for Executing Production Projects

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Abstract

Distinguishing routine processes and tasks from one-time orders/projects in a production system is fundamental in contemporary enterprises offering custom-made products and services. These types of production systems, identified with discrete manufacturing, are characterized by an increasing complexity of decision problems in their control structure and a significant vulnerability to disruption. The likelihood of disruption depends on the reliability of the production system, the impact of the environment, and on unforeseen random factors. In this paper we postulate employing reliability theory to control systems for production processes during the execution of project driven orders, with the long-term goal of elaborating a multidimensional reliability concept in a dynamic control structure for the execution of production projects.

Keywords: reliability, production system, project driven order, disruption, controlling project execution, project dashboard.

Introduction

In the contemporary highly competitive free market economy, shaped by the laws of supply and demand, production enterprises must constantly strive to employ improved production management methods. The driving force is the pressure to reduce production costs while increasing the efficiency of the production system. The three basic aspects of business activity: quality, cost, and supply require continual improvements. This relates to the project approach to production orders, which are executed in accordance with the "iron triangle" of project aims (time-cost-quality). Transitioning from the traditional approach used for preparing variants, planning and managing orders towards the project approach is of particular significance in the case of flexible production (piece or order-based production, short production series, large product turnover, changing requirements of customers, minimizing the time between conceiving a product and its manufacture). Proper organization and, subsequently, controlling production flow is paramount for delivering a product of requisite quality in a timely fashion. At the same time, the complexity of planning issues and their links with the rest of the production preparation system is on the rise.

Unique, one-time production processes constitute the majority of orders received by enterprises; they require detailed analysis, organization, and selecting appropriate management methods. Therefore, they are often treated as production processes according to the classical PMI definition formulated in the PMBOK Guide (PMI, 2013). According to Wysocki (2013), a project signifies a sequence of unique, complex and interrelated tasks differing in nature, but having a common goal and set for completion in a specified time frame, within an assumed budget and according to adopted requirements. The aim of each project execution is to attain expected results (parameters), while striving to satisfy the needs of the customer.

Nowadays the meaning of thus understood forms of production process execution in dynamic organizations and the requirement to employ specific management methods are embodied by the concept of "management by projects". The current requirements of effective project management are:

(1) high level of communication, (2) flexibility and short response time, (3) prompt decision-making, (4) solving unstructured problems, (5) effective planning and controlling under the conditions of uncertainty, (6) determining major stages of project execution (milestones). For production enterprises this often signifies the need to elaborate a completely new approach, adopting methods typical for project management in organizations with a predominance of operational and repetitive actions. Discrete manufacturing, understood as the production of distinctive, custom-made product units, in compliance with precise specification of requirements, is increasingly identified with the term "project driven order" (Pisz, Łapuńka, 2012). Implementing changes in the way business is conducted, and distinguishing between routine and unique tasks (projects) in a production system has become indispensable.

The paper signals the need to elaborate a multidimensional reliability concept in the dynamic control structure for the execution of production projects, highlighting the need to carry out more advanced follow-up studies. Employing reliability theory to the control system for production processes during the execution of project driven orders requires considering a multidimensional context, encompassing, among others: (1) maintaining the system executing operational tasks at the required reliability level; (2) maintaining an appropriate level of accessibility of equipment, staff and materials; (3) maintaining necessary resources and supporting the operational requirements of the system. A synthetic presentation of individual solutions, together with a multilevel decision-making structure is the basis for elaborating a consistent reliability concept in the control system for the execution of production projects. The proposed concept may find practical application in controlling the dynamic structure of multi-product production.

Dynamic control structures for the execution of production projects

The analyses carried out as part of this study are concerned with planning limited to single-piece or low-volume production, mostly on order taking into account customers' changing requirements as well as the complexity and substantial duration of production process execution. The term "production project" or "project driven order" assumed in the paper is understood as a unique (one-off) complex production process concluded in a finite time frame, with distinguished start and end points, executed collectively (by multiple units), performed relatively independently from the routine business of an enterprise (yet remaining within a specified production system), and using dedicated methods and techniques. According to another definition (Wróblewski, 1993) a production process is an organized set of actions for coordinating the flows of materials, information and energy during the execution of a technological process. With regard to their course and continuity industrial manufacturing processes can be classified either as discrete or continuous.

Currently, discrete processes, i.e., flexible, temporally and spatially coherent complexes of operations, with a structure adapting to the quality-quantity characteristics of manufactured goods (Durlik, 1995), are treated as manufacturing technologies, dominated by non-continuous flows of energy and materials, whose variables of state are multi-valued functions of time. It is estimated that ca. 80% of products are manufactured through discrete processes.

The order of decisions concerning what, where, when and how much should be produced has a significant influence on the operation of a production control system. If the first step is to decide where, i.e., in which organizational units production is to take place, and only then the decisions about what, how, when and how much each unit should produce are made, production control is typically capacity-oriented. Such an approach is typical for repetitive, mass and high-volume production. In contrast, if the first step is concerned with what, how, when and how much should be produced, and only then are production units assigned to production orders, production control is material-oriented (Sitek, 2000). Material-oriented production control is typical of medium-series, short-run and single-piece production (cf. Table 1).

Discrete production systems are characterized by a large number of variables describing system state, such as information about equipment, manufactured products, materials, operations etc. Therefore, decision problems that occur in discrete production control systems may be highly complex, both in

terms of size and the density of their mutual connections. Managing project driven orders, especially in the context of a multi-project environment tends to expose the multilevel and multilayered structure of these issues. The nature of the decisions to be made varies with the level:

- at the top level, decisions are global: economic, strategic, investment, assortment; based on market, price and resource prognoses;
- at a lower level decisions concern businesslike planning, scheduling and controlling production (including project driven orders);
- the lowest level is concerned with process control, equipment and machinery.

Table 1: Project driven orders in production control system

	Material-oriented production control		Capacity-oriented production control		
Production type	single-piece	low-volume	series	mass	continuous
Production size	single units	small	medium	very large	continuous stream
Product variability	each product is unique	significant	rare	small	non-existent
Frequency of changes	continuous	frequent	occasional	non-existent	non-existent
Individual equipment	universal	universal	somewhat specialized	specialized	specialized
No. of operators	large	large	smaller	small	small
Level of qualifications	high	high	medium	low	low
Cost of capital	low	low	medium	high	very high
Unit costs	high	high	medium	low	low
	Project driven order				

Source: own elaboration based on (Wróblewski, 1993)

Proper project execution control is determined, among others, by: (1) assigning means for project control, (2) cooperating with contractors and subcontractors, (3) monitoring the project and reporting on its status, (4) schedule risk analysis (SRA), (5) earned value method (EVM) analysis, (6) the principles for modifying plans during their execution.

The execution of production orders according to the project approach renders the following benefits: (1) reducing the time of executing actions, (2) reducing costs, (3) reducing material and human resources necessary for project execution, (4) finishing the entire undertaking and its individual stages in a timely manner, (5) continuous supervision of order execution, (6) reducing uncertainty related to the execution of subsequent stages, (7) reducing unit costs (both fixed and variable) (Kasperek, 2011).

Practical implications of reliability theory for complex systems

The reliability of a technical object in the standard sense is a property determined by the probability of meeting requirements. Often understood as the probability of success, i.e., the object meeting a given requirement, or as the probability that in the time interval (0, *t*), the changes of certain properties of the object will remain within a range specified for the object (Kiliński, 1971). Therefore, the measure of reliability is the probability of fault-free functioning of a given object under the assumed operational conditions and over a given useful lifetime. Reliability can be determined for technical objects of various complexity levels: parts, subunits, units, mechanisms, assemblies, entire devices or systems. At each of these levels the same reliability characteristics can be applied, interrelated in a specific manner (sequential, parallel, sequential-parallel and parallel-sequential structures) (Migdalski, 1992; Słowiński, 2002).

To determine the reliability of technical objects, research methods are applied, which allow to obtain and process information about those properties of technical objects that become apparent during use and that demonstrate their usefulness in the execution of tasks, for which they were designed and manufactured. Mathematical models, and probabilistic models in particular, are widely applied in reliability theory. The most common models used to describe the reliability of equipment and devices are the mathematical models of simple technical objects, classified as: (1) non-renewable objects, (2) complex objects, (3) renewable objects, and (4) complex renewable objects.

Furthermore, as a result of reliability analysis of the human-technical object system it was assumed that human reliability is defined as a capability of meeting requirements with minimal probability of error under given conditions and time frame. This property is often associated with resistance to disruptions that occur in the course of work (Ignac-Nowicka, Gembalska-Kwiecień, 2014). Among many classifications of human errors proposed to date, the division into systematic and random errors appears to be the most appropriate. The probabilistic approach (setting out to describe the probability of an error occurring) is typical for the studies of human reliability in relation to risk analysis, where human error is treated on the same footing as a technical fault or malfunction in the operation of a machine. The number of human and machine errors serves as the basis for calculating the coefficient of reliability for the entire system. As for the so-called operator errors, a number of types of action errors can be distinguished; owing to their significance in the project approach, these will be analyzed in detail in follow-up studies (Rouse, Rouse, 1983):

- lack of appropriate response to a signal,
- late response,
- response in time, but incomplete or inappropriate,
- unnecessary response due to chaotic activity,
- premature response,
- unprompted response in the absence of an external signal, premature execution of a procedure,
- Response opposite to the desired response or inaccurate.

Gathering data on human error is fundamental for elaborating measures of human reliability. The long-term goal is the prediction of the reliability of systems, where a human plays a specific role. In the elaborate list of possible mechanisms of human error the decision-making mechanism deserves particular attention. According to Swets, Tanner and Birdsall (1961), the authors of signal detection theory, the behavior of a human operator admits a mathematical description. Within this framework, the operator is susceptible to two classes of errors, viz., a *miss* (failure to notice a real signal), or a *false alarm* (apparent perception of a signal that did not actually occur). Here, the human is treated as a faulty signal detector. So far, the studies of human reliability attempted to utilize indicators based on probability theory that had been elaborated in the field of technical sciences. These necessitate, as a prerequisite, knowing certain quantities that characterize human work, such as: (1) mean time between failures, (2) total number of errors made in a given length of time, (3) percentage of correctly performed tasks in a given length of time. The main quantitative indicators of human reliability are those of: faultlessness, readiness, restitution and relevance (temporal adequacy of operator's actions) (Ratajczyk, 1988). When determining human reliability for a given workstation, it is necessary to take into account those indicators that have the greatest impact on achieving the goal set for the operator.

A human component of a system is unique in that, on the one hand, it is error-prone, and on the other, it is capable of learning, gaining experience and becoming skillful. By all means a desired feature of a technical object is its ability of consistent, error-free operation, which guarantees certain stability; nevertheless, such an object does not display adaptability (i.e., it does not learn). The reliability of a system is influenced, in a multitude of ways, by the qualities of both the human and technical object that comprise it. Industrial practice so far has a better track record of correcting the qualities of technical objects rather than humans (Ignac-Nowicka, Gembalska-Kwiecień, 2014).

Contemporary research lines in reliability theory

Reliability theory is a field whose paradigms draw from two branches of mathematics: probability theory and statistics (Wilson, Limnios, Keller-McNulty, Armijo, 2005). The common feature of human reliability and that of other objects is the necessity to determine certain requirements (expectations). A significant difference between the concepts of human reliability and that of other objects is the possibility of interaction between the agent stating the requirements and the agent implementing them, i.e., the possibility of exchanging information about the states of the object itself, the human operator, and the environment. In modern science, the concept of reliability is given extraordinary importance due to its integrating properties, which enable synthesizing knowledge concerning a wide gamut of objects, whether technical or biological (Ignac-Nowicka, Gembalska-Kwiecień, 2014). This, in turn, facilitates making analogies and generating novel research hypotheses with the aim of answering new, continually arising practical problems that demand theoretical research.

According to the IEC 1069 standard, reliability is understood as the dependability of action and perceived two-fold: as a property described in probabilistic terms (through random events and processes), or in deterministic terms. The diagram depicting the relevant hierarchy is shown in Fig. 1.

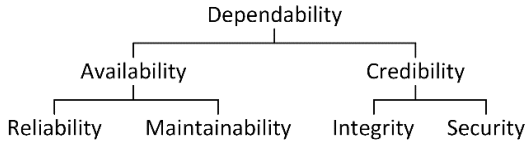

Figure 1: Hierarchy of terms according to the IEC 1069 standard

Source: (IEC 1069, 1991)

Object operational readiness and the associated reliability and maintainability are defined in probabilistic terms. The chosen facets of reliability understood as a property of the system as a whole are typically described using the following criteria: credibility, integrity and security (Bukowski, 2002).

A thorough analysis of state of the art on reliability was carried out by Ushakov (2006). Apart from the "classical" aspects of quality and reliability control in mass production, and the problems of structure modeling and object maintenance, Ushakov (2012) identified the following lines of research as worth pursuing:

- analysis of effectiveness and of the ability of objects to continue to function properly in the face of non-catastrophic damage;
- modeling object survivability in the presence of unforeseen disruption, such as internal system errors, the influence of the environment, or undesired human actions; in general, this creates a counter direction for analysis, and presents studies of vulnerability to damage/disruption;
- problems of modeling, studying and managing human and environmental safety following object damage, as well as object security from unauthorized access and interference;
- Software reliability in the presence of difficulties associated with the validity of basic assumptions of "classical" reliability theory: the stochastic nature of failure, the likelihood of failure as a function of time, the assumption that disruptions are independent events.

New challenges arise in the analysis and evaluation of reliability of, for instance: singular (unique) objects or systems whose resilience to damage is particularly high, global systems, information and communication networks, developing systems, delivery systems for replaceable parts, systems capable of tolerating transient failures, estimates of future operation costs and warranty period lengths, modeling of systems with guaranteed continual reliability and multi-state systems, accelerated reliability tests or synthesis of data from maintenance research (Nowakowski, 2011).

Vulnerability to disruption in a control system for executing production projects

By contrasting reliability with vulnerability to disruption, we assumed that reliability in a control system for executing production projects is tantamount to achieving a high ratio of correctly executed tasks. This, in turn, involves: maintaining performance, availability, high resilience (robustness, stability), required flexibility and tolerance to varying conditions, attained through appropriate checks against potential system disruptions. A system vulnerable to disruption is characterized by a low ratio of correctly executed tasks as a result of: the inability to maintain performance, insufficient availability, intolerance of certain conditions due to the lack of appropriate checks, inadequate resilience and flexibility. A disruption-tolerant system, in contrast, is characterized by a high ratio of correctly executed tasks owing to its ability to maintain performance, high availability, tolerance of conditions attained through appropriate checks, high resilience (robustness) and flexibility.

Information on the course of a process in a production system allows to identify possible operation and reliability states of this system and to determine the rules governing their transitions, which in turn has a significant impact on the execution of production tasks. At the same time, this facilitates the proper design of a support system for maintaining reliability and fine-tuning the subsystems of use and support. Therefore, it becomes necessary to define the supportability of a production system. Supportability can be identified as the ability of a production system, attained by appropriate organization of processes, production and logistical infrastructure, to ensure the appropriate level of availability under the assumed requirements/conditions of use (Nowakowski, 2011).

In this context, two basic concepts related to the reliability states of a control system for executing production projects can be identified: a system is either fit for the execution of required tasks, or it is unfit, the latter potentially leading to:

- disruption of, or failure to commence, the execution of the production task at hand,
- inability to commence the execution of subsequent production tasks.

Taking into account the unreliability state of a control system for executing production projects yields a new perspective on the efficient and effective functioning of a production system. This requires analyzing the capabilities of a logistical system for executing specific tasks, under specific conditions and at a specific time, when a new production project is entered into the system at random.

Disruption is defined as a violation of an established order or course of events, as disorganization. The term originates from the verb “to disrupt, i.e., to cause disruptions, disturb work or functioning of something”. Disruption of a project driven order was defined as the occurrence of an obstacle during the execution phase of a production project, such that it invalidates its original plan (standard). Santarek and Strzelczak (1989) distinguished two classes of disruptions: (1) those related to the production system, (2) those related to the environment. Relying solely on this classification is insufficient for determining appropriate responses to disruptions arising during project execution. It is the effect caused by a given disruption in the process rather than the disruption itself that is significant for a project execution coordinator. For instance, a delay in the execution of any non-critical action must not exceed the buffer time allocated for the given action if side effects for the timely execution of the project are to be avoided. Exhausting all buffer time, or not meeting the deadline for the execution of a critical action will in all probability deregulate the schedule, possibly invalidating the resource plan, and violating the expenditure plan .

The subject of analyses is a job-shop production system for a multi-project environment. In the production system for each task there is a mapping of machines to operations, and the required order of operations is specified. In the project approach machines (production stations) are allocated to actions and the ordering of actions in the project is specified. According to the nomenclature used in the project approach, an action is defined as the execution of work by a human-object technical system. The ordering of workloads performed by individual systems is determined by technological

limitations. Each action has its associated execution time, which includes the time required to prepare the station for the execution of a given action, and to subsequently return the station to its previous state (set-up time); and the time of transport between production stations.

In addition to a classification of disruptions our studies on the impact of disruptions on the course of a project driven order in a production system require a suitable model of the course of project execution. This model takes into account the structure of a production system, including production stations and production projects intended for execution. The representation of the course of production and the method of expressing the standard plan in the form of a schedule and its elements: the plan of expenditures, resources and costs, were also defined in the model. The methods of network planning are the basis for generating variants of the plan. We focused on these methods due to their utilitarian character and easy implementation. We also considered employing alternative approaches, such as Petri nets or the comparable, for a large body of problems, Karp-Miller-Rosenberg (KMR) algorithm. We rejected these methods on practical grounds – the aim is a rapid response to disruption, which is possible only when using data that have been entered into the system in advance, and pre-elaborated using a chosen method. The methods commonly used in industrial practice to dynamically obtain alternative plans for project driven orders are network planning and scheduling with priority rules.

Taking disruptions into consideration when modifying the project execution plan requires identifying its significant parameters. Each disruption is located both in space and time, and delineated by two events: its occurrence and resolution (Fig. 2). Both events can influence the course of project execution.

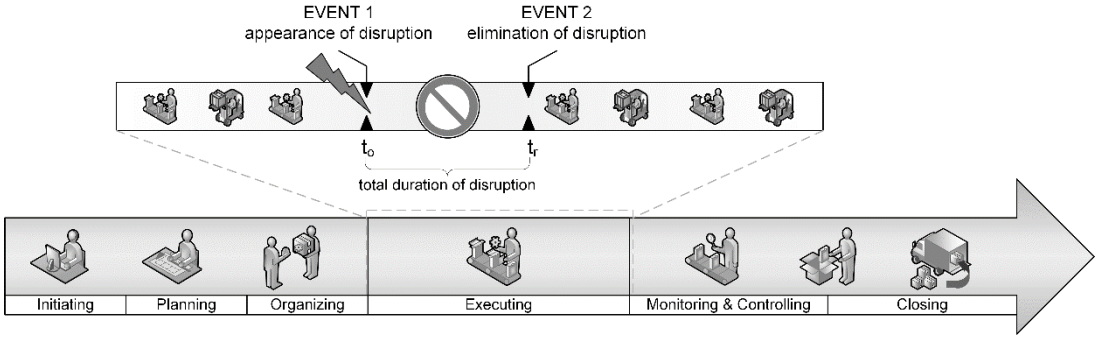

Figure 2: Description of a disruption

Source: own elaboration

The classification of disruptions *Ds* along with their impact on the elements of the main plan were presented in (Łapuńka, 2010). Times t_o and t_r are, respectively, the time of occurrence and the time of resolution, while the difference $t_r - t_o$ is the total duration of the disruption.

Adapting reliability theory to a control system for executing production projects

Controlling processes in real time during the execution of complex project driven orders creates a connection between the human, machines and technological devices, defined by their mutual interdependence. The issues of human reliability have become an integral part of reliability theory for systems, whose rhetoric in contemporary science is expressed by a continual search for contact points.

The concept of reliability in control systems for executing production projects requires, *inter alia*, changing the approach to the way of defining a system. To date, studies on the reliability of technical systems were dominated by a material approach, where a technical system is understood as a set of technical elements whose purpose is to execute a certain task. However, tasks set for a control system for executing production projects are more complex. The quality and reliability of the execution of a

project driven order are evaluated based on the degree to which several criteria, including customer's requirements, are met. Therefore, the task approach appears to be more suited for the analyzed problem. Then, the assessment of the correctness of the execution of individual tasks allows judging the quality and reliability of the entire control system. The concept of system reliability indicates the need to ensure the continuity of execution of the maintenance and operation process, as well as the relationships between the analyzed concepts, such as: reliability, readiness, and risk (Fig. 3).

Modern, comprehensive control systems and management systems for production enterprises leverage a multilevel and multilayered structure in order to increase the efficiency of decision processes. The physical structure of an organization, with units of decreasing size nested within units of a higher level, is reflected in the hierarchical structure of decision levels. Each decision element of a given project perceives only selected elements of a subordinate level, and directs its control decisions to these elements. Therefore, at each level the problem of efficient control is restricted to elements on the immediate subordinate level, in line with the strategy elaborated in advance. Control decisions directed to the lower level will depend on the planning horizon established at the decision level, on the need for production in this horizon, the processing capacity of lower-level elements, the ability to obtain usable energy, resources, knowledge and engineer cadre. The indicator of the quality of functioning of a given level should be similar across levels. This indicator should be tied to the maximization of profit from the execution of the production that is obtained at a given level and within the considered time horizon, taking into account the baselines established for this level (e.g., resources, standards, technologies). Lower-lying levels are characterized by an increasingly shortening planning (control) horizon, more accurate models, based on which strategy is selected, increased frequency of disruption and, therefore, of (control) interventions (Klemiato, Augustyn, Duda, Sterna, 2011).

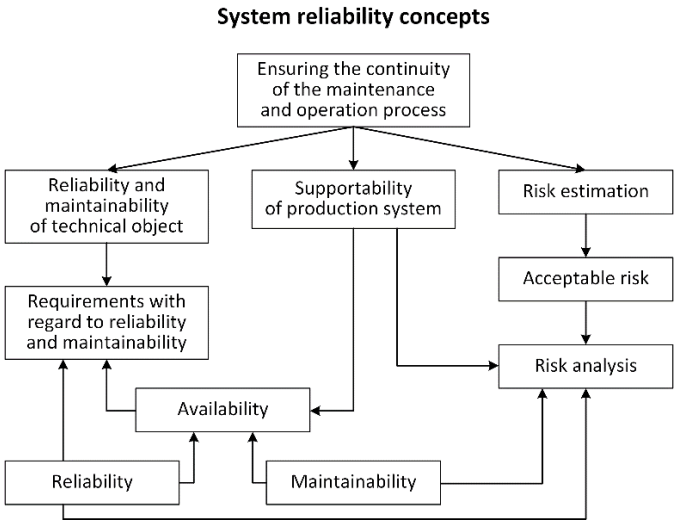

Figure3: Requirements of execution of tasks in the operation of a control system for production projects

Source: elaboration based on (Nowakowski, 2011)

The lower the level, the easier it becomes to automate it, that is, to replace a human (operator) with smart devices and logic controllers. At higher levels the use of computers is mostly restricted to computer-aided decision-making. In such a structure, a top-down decision flow with a depth of one level is maintained, with a bottom-up flow of feedback on the execution of tasks, similarly restricted to one level. Such feedback should first take the form of measurement signals, then periodic reports at a higher level, and finally – of summary reports.

Measurement signals are weak or faint signals, also known as early warnings, early indicators or early symptoms. They are used in corrective actions taken during the execution of a project (Pisz, Łapuńka, 2015). They can be a valuable source of information about potential changes, which is particularly important in the operation of flexible production systems and dynamic organizations. It is necessary to continually monitor symptoms of changes, as with time an increasing number of signals can indicate a change in the environment of an enterprise or in the project itself. Monitoring such indicators can aid the early detection of a crisis (e.g., the occurrence of a particular disruption) or the threat of it occurring. It must be noted that early warning indicators can be tied to specific risks, or areas where certain problems are expected to occur. Weak signals are obtained, gathered and processed by early warning systems. These systems secure planning and control processes in terms of information by delivering information that can potentially reduce decision uncertainty. In so doing, they improve the rationality of decisions made during the execution of project driven orders.

Recently, researchers have shown increased interest in the application of weak signals in the control of project execution (Nikander, Eloranta, 2001; Vanhoucke, 2011). Nikander and Eloranta (2001) presented a classification of weak signals identified in construction projects, obtained through surveys conducted among project managers. Sets (tables) of indicators in the form of project dashboards, which enable monitoring the project at hand in order to rapidly implement corrective actions (Kerzner, 2013), enjoy a rise in popularity. Project dashboard is a type of a dynamic report whose main elements are graphical indicators. These indicators can signal the current status of project execution, the risk level, the level of remaining buffers (tolerances) built into the structure of project control, as well as providing key performance indicators (KPI). An example template is shown in Fig. 4.

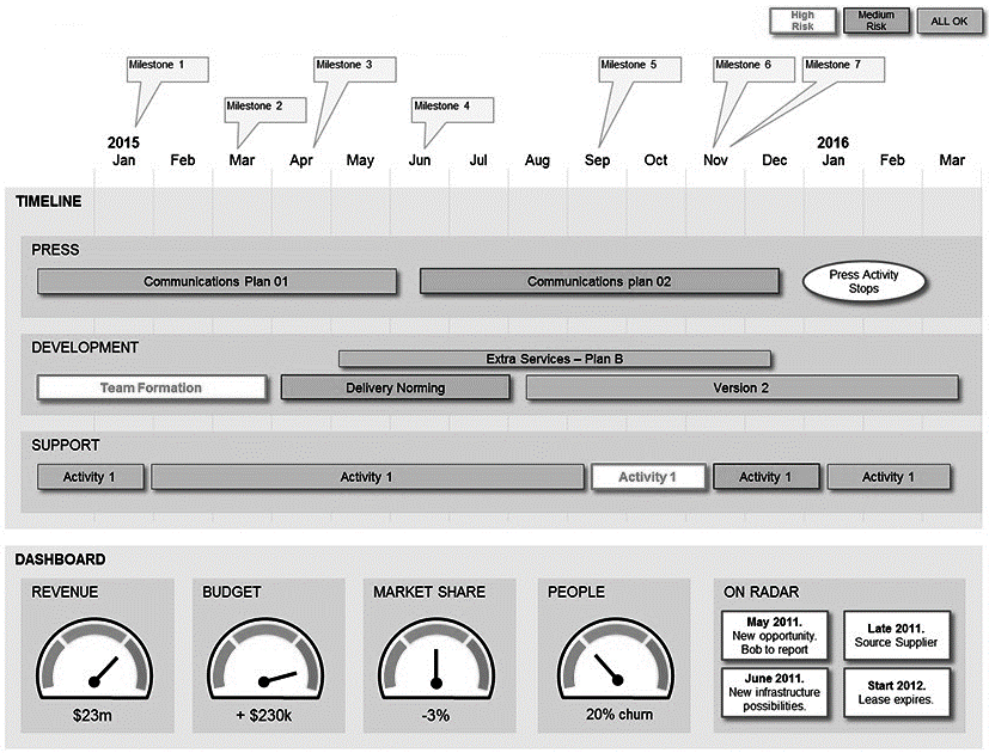

Figure 4: Project dashboard template with a project roadmap and a set of KPIs

Source: [https://business-docs.co.uk]

Project dashboard templates can also take the form of summaries of critical information on projects in the project portfolio (Fig. 5).

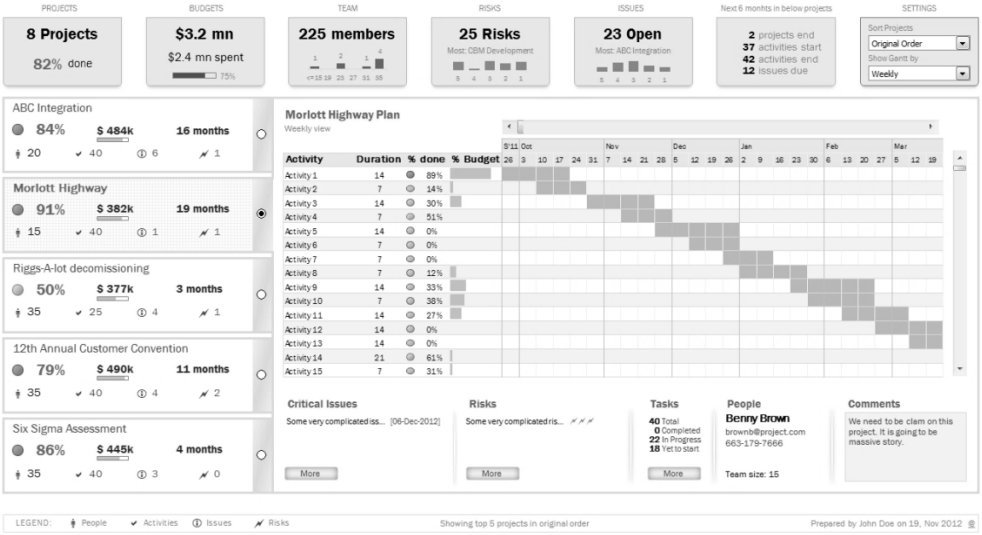

Figure 5: Project dashboard template for a project portfolio
Source: [http://chandoo.org]

Conclusions and future research directions

Flexibility and changeability are integral parts of modern market economy. The conditions of a turbulent and hypercompetitive environment force the majority of enterprises to undertake unique orders, often encountering serious obstacles to their proper execution. The elaboration of a multidimensional reliability concept in a dynamic control structure for executing production projects and implementing it in the form of an early warning computer system could significantly increase the efficiency and effectiveness of managing production projects. Early warning systems constitute a specific kind of information systems for an enterprise, with a main goal of directing the executed processes towards perceiving and interpreting weak signals (Nalepka, Bąk, 2012).

By contrasting reliability with vulnerability to disruption, we assumed that reliability in a control system for executing production projects is tantamount to achieving a high ratio of correctly executed tasks, which can be expressed by maintaining performance, availability, high resilience (robustness, stability), required flexibility and tolerance to varying conditions, attained through appropriate checks against potential system disruptions.

In the framework of a multilevel control system, the integration of enterprise resource planning (ERP) information systems with manufacturing execution systems (MES) is assumed. The MES functionality, apart from advanced planning and scheduling (APS) of production will also include managing project scope and course, production reporting, providing KPIs, managing changes (disruptions), monitoring order status and deliverables, and managing material and human resources. Project dashboard templates with a set of indicators and a graphical representation of the progress of execution, i.e., a project roadmap, will supplement this structure. Along with the application of EVM and SRA, we will employ alternative approaches to project monitoring, viz. the top-down approach in the case of SRA, and the bottom-up approach in the case of EVM. Information obtained in this way will play the role of weak signals for corrective actions taken during the execution of the project, and provide knowledge about the remaining buffers (tolerances) built into the structure of a multilevel project control system.

The dual nature of analysis of vulnerability to disruption and modeling the resilience of a system to unpredictable effects, e.g., to system internal errors, undesirable human actions or the impact of environment, constitutes a complementary approach to controlling the execution of production projects and sets directions for future studies.

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The Importance of Accommodation Establishments in Tourism and Their Localization: The Case of the Chosen Area in the Czech Republic

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Abstract

Accommodation establishments belong to the basic facilities of tourism infrastructure because they allow visitors to stay in the visited area. The main aim of this paper is to locate all individual and collective accommodation establishments in the studied area. The studied area is defined as the regions of South Bohemia and the Bohemian Forest because these regions belong to the most important areas for tourism. Through the cartographic visualisation, specific spatial disparities in location of various categories of accommodation establishments (hotels, boarding houses, campsites, tourists' hostels and other accommodation establishments) were revealed. The contribution of this paper lies in the undertaken analyses of the location of each accommodation establishment in the studied area – the Czech Statistical Office does not provide this comprehensive view.

Keywords: accommodation establishments; localization; cartographic analysis; Czech Republic

Introduction

A developed tourism infrastructure, including accommodation establishments, is a necessary condition for the development of tourism. The existence of accommodation establishments and their standard of services are very important factors, influencing the length of stay of tourists in the visited area. There is a number of relations between tourism and accommodation (Palatková, 2006); these relations are expressed by various models, however, all models have their weaknesses (Horner and Swarbrooke, 2003). Tourism in relation to the accommodation serves as a source of demand for accommodation, catering and other services related to them (Gúčik and Patúš, 2005). Some postulations claim the accommodation sector belongs to the sphere of ensuring tourism (Kašpar, 2011). Accommodation establishments belong to the basic facilities of tourism infrastructure because they allow visitors to stay in the visited area (Mariot, 1983) and they form the basis for further development of the destination (Goeldner and Ritchie, 2009). Ritchie and Crouch (2003) consider the accommodation establishments as one of the sources of destination's competitiveness. Goeldner and Ritchie (2009) agree with this opinion and they state that building accommodation capacities is one of the essential elements of the development of tourism in destinations.

Accommodation establishments belong to the tourism enterprises which are defined as business entities that meet the needs of end users and that carry out their business activities independently and on their own account by taking over an adequate entrepreneurial risk (Gúčik, 2000). Beránek and Kotek (2007) claim tourism enterprises have various functions. In the basic functions of tourism enterprises, the following functions can be included: business function (using business opportunities in order to increase the value of the own capital), economic function (carrying out activities related to

the supply, manufacturing, sales, providing services), organizational function (the maximum possible utilization and appropriate internal organization of production factors and the relations between them), environmental function (it indicates the status and activities of the company in relation to its impact on environment quality and environmental protection), technical function (equipment with essential production factors and creating technical and technological conditions for company's activities) and social function (it represents not only the care of company's employees and the relationships between them, but also it is the impact of the tourism enterprises on economic and social development of municipalities, cities and regions) (Kutscherauer, 2007, Kučerová, Strašík and Šebová, 2010). Environmental function is recently given a bigger attention (e.g. Geerts, 2014) in close relation to the topic of the environmental impact of tourism and its sustainability (e.g. Juvan and Dolnicar, 2014; Navrátil et al., 2015; François-Lecompte Gentric and Audigier, 2013).

Tourism services are mainly the product of tourism enterprises. According to Hesková et al. (2011), services can be described as a heterogeneous set of useful effects, designed for satisfying the tourists' needs. A similar view can also be found in the foreign literature, e.g. Lipsey and Nakamura (2006). Services are cross-sectional, i.e. they are offered not only by tourism enterprises, but also by other subjects in the private and public sectors.

Accommodation services are provided in establishments that are appropriate for this purpose, i.e. equipped materially, technically and personally (Liška, 1997). Accommodation establishments are objects, spaces or areas where the accommodation services for public are provided (Stárek and Vaculka, 2008). For overnight stays, the accommodation means can be used – in addition to accommodation establishments (Orieška, 2010) – see endnote [1].

In accordance with the Decree of the Ministry of Regional Development of the Czech Republic (see endnote [2]), accommodation establishments are "buildings or their parts where the temporary accommodation and related services are provided for public; neither family or apartment houses nor buildings for individual recreation are accommodation establishments; accommodation establishments are divided into categories and according to the required space and equipment into classes, which are marked with stars". Čertík (2001) distinguishes between two types of accommodation:

a) accommodation in collective accommodation establishments (e.g. hotels),
b) private accommodation (in houses, cottages etc.). The private accommodation is provided in the so-called individual accommodation establishments (Ryglová, Burian and Vajčnerová, 2011). In practice, according to these authors, it is renting a residential room, a vacation apartment or a flat, a cottage or a weekend house.

The collective accommodation establishments are defined as establishments which provide accommodation services, e.g. hotels and other collective accommodation establishments, such as campsites, vacation villages, tourists' hostels (Beránek and Kotek, 2007). Some authors use the term "hotel" for collective accommodation establishments – for instance, Kiráľová (2006) considers a hotel as a public accommodation establishment that provides temporary accommodation and related services for money, all year long or seasonally (i.e. max 9 months in the year). From these definitions, inaccuracies in the interpretation of the terms hotel and accommodation establishments arise often.

According to the valid terminology, the term "collective accommodation establishments" is superior to the term "hotel". The Czech Statistical Office uses the term "collective accommodation establishments" in its researches(see endnote [3]). Accommodation establishments are distinguished according to types into categories and according to the level of provided services into classes. Many other authors consider this definition as a starting point (e.g. Indrová, 2008, Černý and Krupička, 2007, Smetana and Krátká, 2009, Křížek and Neufus, 2011, Ryglová, Burian and Vajčnerová, 2011). Institutions which are engaged in practice and research in tourism and accommodation services (for instance: the Czech Statistical Office, the Ministry of Regional Development of the Czech Republic, Czech Tourism Agency and other) use the above mentioned distinction between categories and

classes. This distinction appears also in the methodical materials which are used for classification of accommodation establishments.

The Czech Statistical Office deals also with the division of accommodation establishments – this Office regularly reports the number of establishments and beds. According to the methodological approach of the Czech Statistical Office, there are collective (see endnote [3]) and individual (see endnote [4]) accommodation establishments. The collective accommodation establishments are divided into hotels (with a different number of stars), boarding houses, vacation villages, tourists' hostels and other collective accommodation establishments such as recreational facilities of companies, training centres, cultural and historical buildings and other accommodation establishments offering bed capacity for tourists (e.g. youth hostels, student residences, company accommodation establishments etc.). In this paper, this division is valid because of using statistics by the Czech Statistical Office.

An efficient location is one of the fundamental decisions of every entrepreneur (Koráb, Peterka and Řezňáková, 2007). The basis for location of accommodation establishments is the occurrence of tourism attractions (Mariot, 1983) which are able to attract visitors (Ritchie and Crouch, 2003). Shoval, McKercher and Birenboim (2011) agree with this theory. The next important factor for localization is the opportunity to get benefits from the accumulation of economic activities (e.g. Head, Ries and Swenson, 1995, Johansson and Quigley, 2004). This accumulation determines creating spatial clusters of the accommodation establishments (Porter, 2000). The concentration of accommodation establishments is manifested through formation of spatial clusters; the character of these clusters is generally determined by the strategies of the individual accommodation establishments (Chung and Kalnins, 2001). However, generalization of these models is difficult and published results of such analyses are often mutually inconsistent (Kalnins and Chung, 2004, Urtasun and Gutiérrez, 2006). Loureiro and Kastenholz (2011) take notice of the fact that the accommodation establishments are not located only in large cities but also in the environment of rural villages. According to Walford (2001), nature and landscape are the main attractions for building accommodation establishments. Distribution of the accommodation establishments in in the towns and cities is significantly influenced by the distance of the historical center (Švec, R., Navrátil, J. and Pícha, 2014).

It goes mainly for hotels and hotel chains – in the past, the most attention was paid to them and hence, it was possible to identify several models of location of hotels in the urban environment (Bučeková, 2001).

From the theoretical and methodological point of view, the conditions of localization are divided into location because of the social-economic gravity and location because of the transport accessibility (Bégin, 2000, respectively Aliagaoglu, 2008). The first group includes locating to the historical centre of the city (usually it is the area between the historical centre and the business area) and to the attractive places. The second group includes location near transportation hubs, such as railway stations, the main streets in cities, roads which link cities and/or airports, bus stations and stops (simplified according to Aliagaoglu, 2008). For the area of the Central Europe, Bučeková (2001) defines also hotels located in large housing estates.

The mutual spatial links of locating accommodation establishments can be monitored on the basis of their geographical distance, offered price, their size and provided services (Urtasun and Gutiérrez, 2006, Navrátil and Navrátilová, 2011). Bučeková (2007) examines the process of the spatial deconcentration when the hotel establishments are located. Shoval and Cohen-Hattab (2001) deal also with this process and they state this process may be in relation to the shift of accommodation establishment to the edges of the city – this shift is made possible because of improving their accessibility caused by the development of suburbanization processes in big cities. Shoval (2006) confirms the link between the distance of the hotel to the city centre and the structure of hotel's visitors.

Aim and methods

The main aim of this paper is to locate all individual and collective accommodation establishments in the studied area (the reason for it is the fact the Czech Statistical Office does not provide any complete overview of accommodation establishments, respectively these data are considered to be confidential). There are also partial aims: to show the diversity of accommodation options in the studied area and to identify where these accommodation establishments are concentrated. It means the aim is to answer the question where the particular categories of accommodation establishments are located – within the regions of South Bohemia and the Bohemian Forest (in Czech language: "Šumava"). These regions belong to the most important areas for domestic tourism and because of their border position, they are attractive also for many foreign tourists.

In order to fulfil the aim, data were analysed to determine the total number of accommodation establishments and later these data were compared with reality through the field research. Because of the incompleteness of data from secondary sources (i.e. from the Czech Statistical Office), it was necessary to create a new database of accommodation establishments in the studied area. The individual accommodation establishments were identified on the Internet. In the database, accommodation establishments were recorded from these sources: the Czech Statistical Office, tourist information centres in the studied area, accommodation establishments listed on the websites of municipalities and accommodation establishments registered on special servers (namely http://www.penziony.cz/, http://www.ubytovani.cz, http://kamsi.cz/, http://www.nadovcu.cz, http://ubytovani.nettravel.cz/, http://www.hotel-ubytovani.com/ http://www.ubytovani.net/, http://www.levneubytovani.net, http://ubytovani.turistik.cz/, http//www.ubytovanivcr.cz, http.//www.ubytovani-cechy.cz, http://www.prespat.cz/, http://www.e-ubytovani.eu and http://www.tourism.cz/). Simultaneously, detailed tourists maps of the studied area were analysed – on these maps, accommodation establishments are usually also recorded (but there could be a problem with up-to-dateness of the data and this was the reason why before every record in the database, the existence of the individual accommodation establishments was verified via the Internet). The individual accommodation establishments were located by their addresses through Web Map Service (WMS) by Cenia agency (through the tools JANITOR J/2 and Quantum GIS) and also information about the number of beds and about the accommodation category were added. Subsequently, the identified categories of accommodation establishments were reduced in accordance with categories used by the Czech Statistical Office. In the studied area, accommodation establishments of all categories were identified and they were included in the further processing.

Studied area

From the administrative point of view, the studied area comprises of the South Bohemian Region and the district Klatovy (which belongs to the Pilsen Region) – see Fig. 1. In the following text, the term "studied area" is used.

The South Bohemian Region is the core of the studied area – this area can be characterised by a temperate climate and is located in the southern part of the Czech Republic along the border with Germany (Bavaria) and Austria (Upper Austria) (Cetkovský et al., 2007). The chosen area comprises two tourism marketing regions: South Bohemia and the Bohemian Forest (in the Czech language: "Šumava"), see Fig. 1. The territory extends throughout a rather geographically diversified part of the Czech Republic. Bohemian Forest National Park (in the Czech language: "Národní park Šumava"), the Třeboň Protected Landscape Area (in the Czech language: "Chráněná krajinná oblast Třeboňsko"), the Bohemian Forest Protected Landscape Area (in the Czech language: "Chráněná krajinná oblast Šumava"), and the Blanský Forest Protected Area (in the Czech language: "Chráněná krajinná oblast Blanský les") are the largest conservation areas in the studied area (Navrátil et al., 2012, Navrátil et al., 2014).

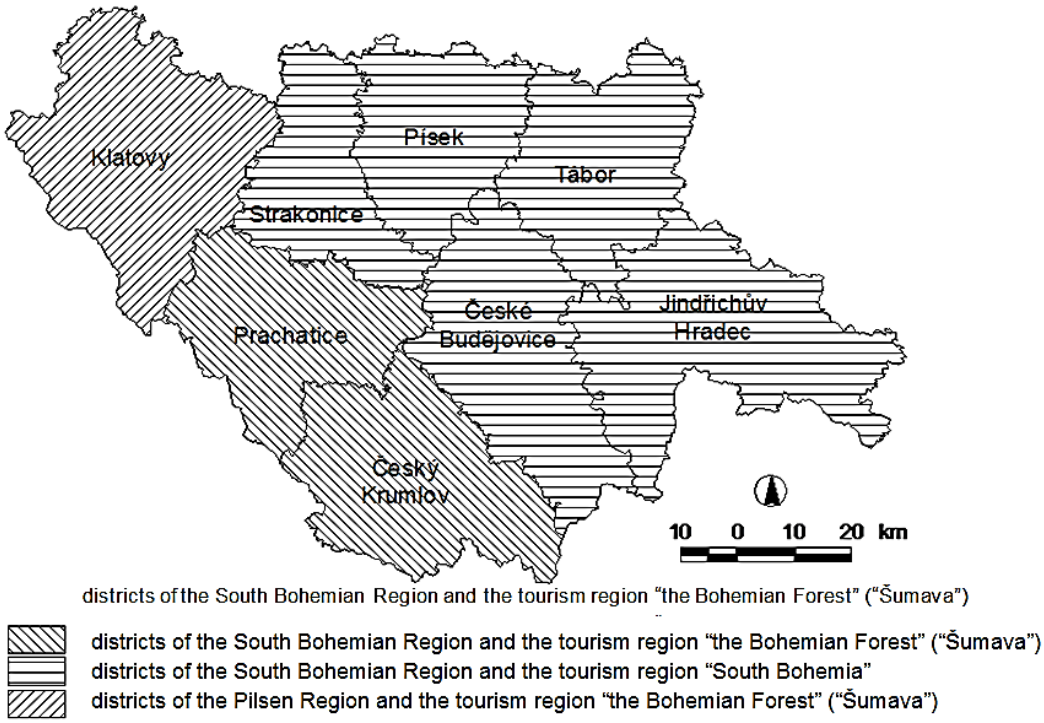

Figure1: Administrative structure of the studied area

Source: Map material by the Czech Statistical Office (ČSÚ, 2015), own processing (by the first author of this paper).

Results

In the studied area, there is a relatively high proportion of the total number of accommodation establishments in the Czech Republic: it is 13.3 % of all accommodation establishments (ČSÚ, 2015). The increase of the number of accommodation establishments was distinct in the period 2000-2004, a slight decrease was in 2005 and further growth in the period up to 2007. In 2008, the number of the accommodation establishments started to diminish. This trend stopped in 2011 – there was an increase in the number of the accommodation establishments mainly in the South Bohemian Region. In general, it can be said the number of the accommodation establishments grew in the studied area in the period 2000-2012. Fig. 2 presents the situation in recent years. The methodological approach was revised in 2012 and that is why the Czech Statistical Office does not show a longer time series – more accommodation establishments have been included so the data for the year 2012 and the continuation of the time series diverge (compare Fig. 2 and Fig. 3).

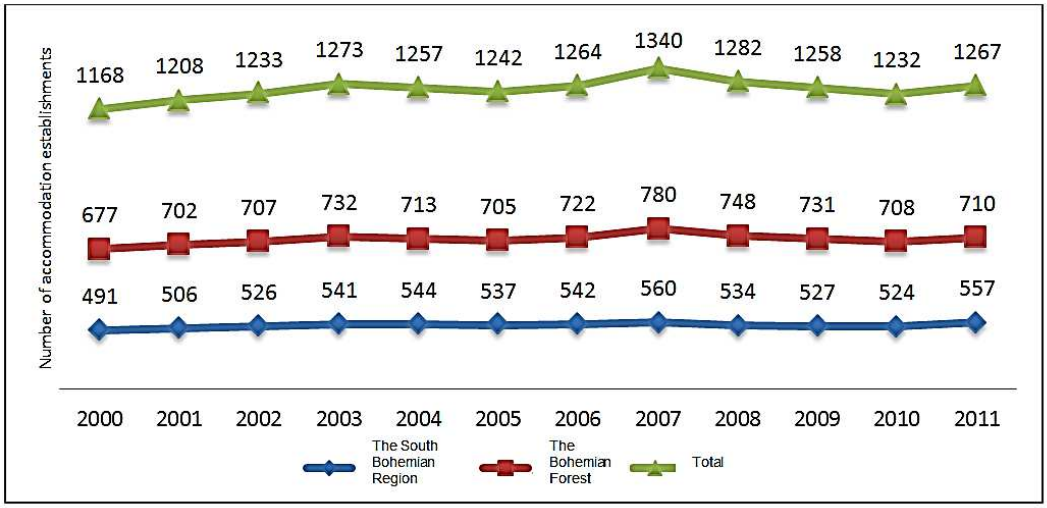

Figure 2: Number of accommodation establishments in the period 2000-2011

Source: Own processing (by the first author of this paper) according to the Czech Statistical Office (ČSÚ, 2015).

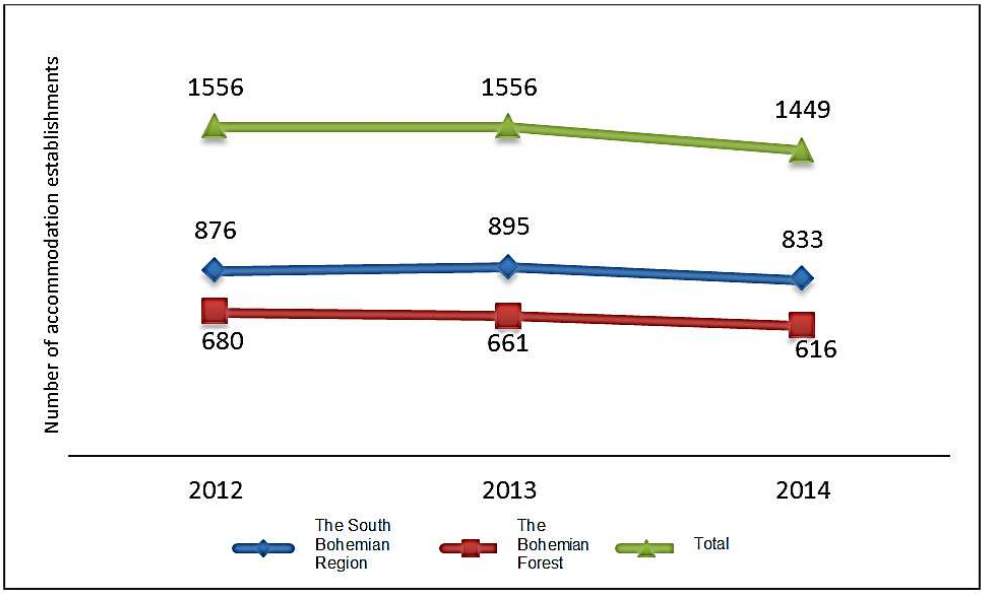

Figure 3: Number of accommodation establishments in the period 2012-2014

Source: Own processing (by the first author of this paper) according to the Czech Statistical Office (ČSÚ, 2015).

The cartographic analysis shows the location of the individual categories of accommodation establishments in municipalities which are a part of the studied area. The focal points of the geographical concentration for each category differ quite significantly (see Fig. 4-8).

Bed capacities of the hotel accommodation establishments (Fig. 4) are located mainly in the larger cities of the studied area (such as České Budějovice, Tábor, Písek and Klatovy) and also in places which have significant localization assumptions for tourism. Other localities are cities offering cultural and historical attractions such as Český Krumlov, Hluboká nad Vltavou, Třeboň and localities offering opportunities for sport and recreational tourism – mainly mountain resorts in the Bohemian Forest (Šumava – Železnorudsko and Kašpersko).

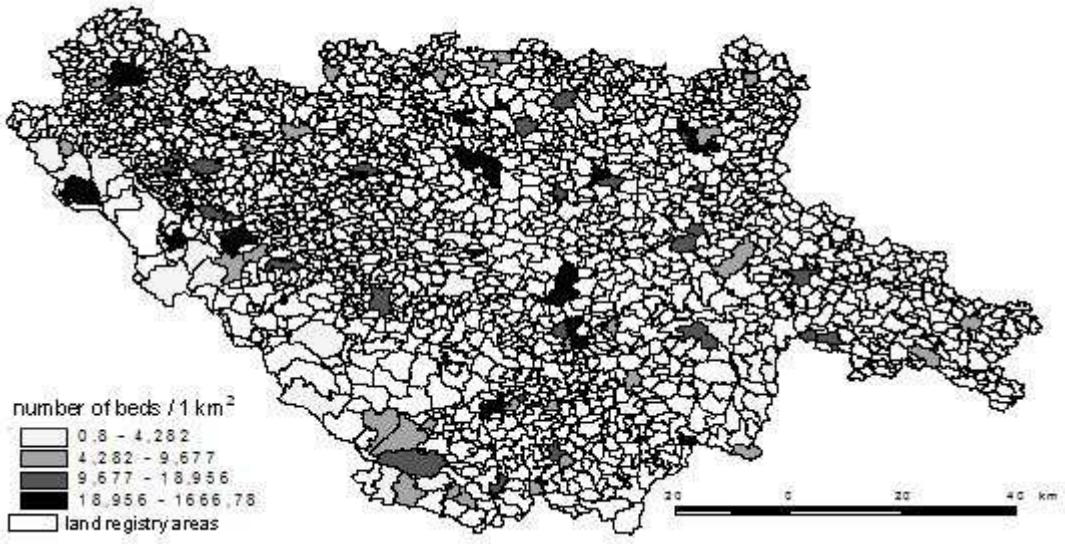

Figure 4: Number of beds in hotels located in municipalities in the studied area
Source: Own processing (by the first author of this paper).

Fig. 5 presents bed capacities of the boarding house accommodation establishments. According to the research findings, the number of beds in this category is strongly tied by natural localization assumptions. Bed capacities are located primarily in the Bohemian Forest (mainly Železnorudsko, locality of Kašperské Hory and Lipno) and also in the locality of Třeboň and Třeboňsko. Furthermore, boarding houses are located close to places with a big concentration of tourists. On the basis of own assumptions, the localization of boarding houses near the major cities was expected, however, this assumption was not confirmed.

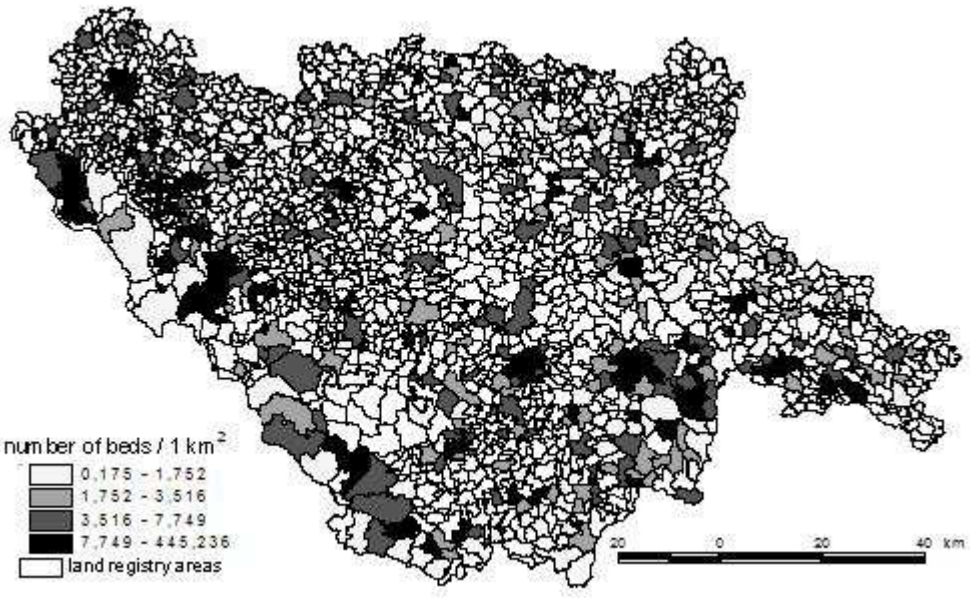

Figure 5: Number of beds in boarding houses located in municipalities in the studied area

Source: Own processing (by the first author of this paper).

Location of the campsites differs considerably from the locations of hotels and boarding houses. At first glance, it does not arise any significant spatial relations from the campsites location (see Fig. 6). However, closed examination reveals certain relations. In the cartogram (Fig. 6), there are clearly evident curves of rivers Otava and Lužnice which are attractive for the segment of boating tourists (boating tourism is a favourite kind of tourism in the Czech Republic). Besides the curves of the above mentioned rivers, other localities like the eastern Třeboňsko (where are recreational ponds and sandpits) and dams like Lipno and Orlík are localities with campsites. It means, campsites are tied by the presence of banks of watercourses and bodies of water.

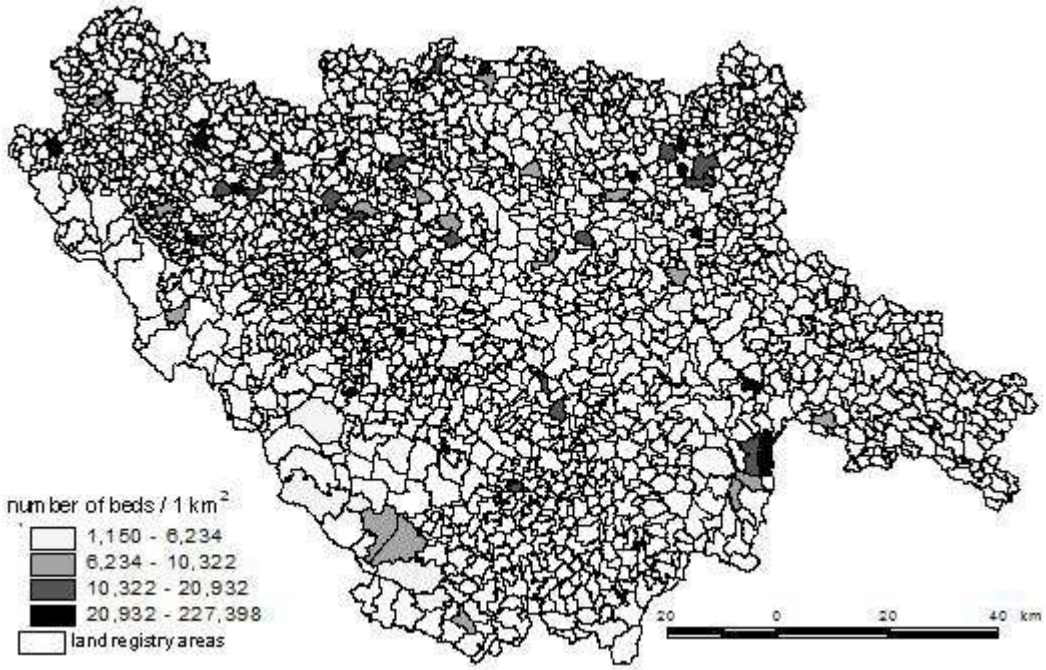

Figure 6: Number of beds in campsites located in municipalities in the studied area

Source: Own processing (by the first author of this paper).

In the studied area, a low number of tourists' hostels was identified. Despite this, it is possible to specify a certain similarity to the location of hotels – tourists' hostels are located primarily in cities and larger towns such as České Budějovice, Jindřichův Hradec, Třeboň, Tábor and Strakonice (see Fig. 7).

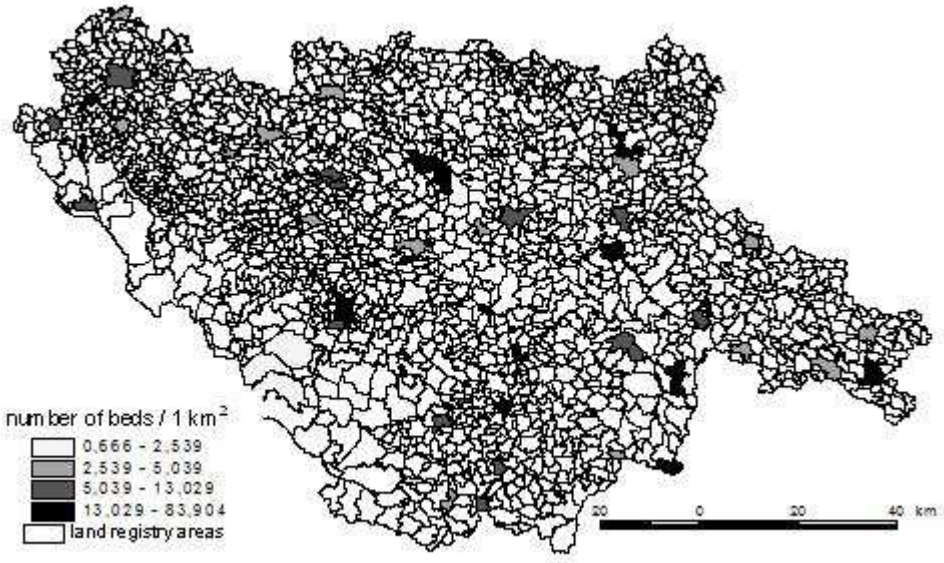

Figure7: Number of beds in tourists' hostels located in municipalities in the studied area

Source: Own processing (by the first author of this paper).

Lower numbers of bed capacities wre also identified for other accommodation establishments. These establishments are located primarily in two localities – in the south part of the Orlík dam and in the locality of Třeboňsko (see Fig. 8).

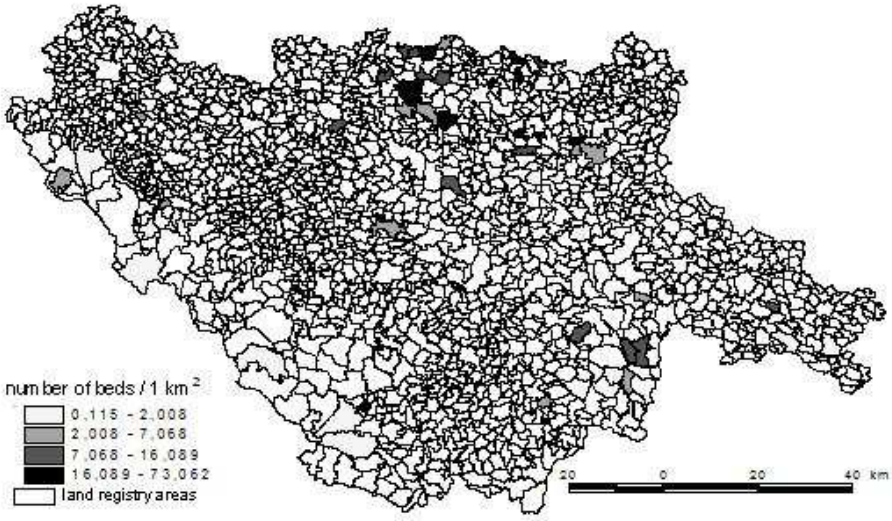

Figure8: Number of beds in other accommodation establishments located in municipalities in the studied area

Source: Own processing (by the first author of this paper).

In the studied area, accommodation services have a long history. Currently, the studied area is the first in the proportion of the total number of accommodation establishments in the Czech Republic.

Conclusion

The infrastructure of accommodation, catering and other services is historically dependent on the traditional demand for the natural and social attractive places, e.g. the Bohemian Forest ("Šumava"); South Bohemian ponds; Lipno dam, Orlík dam; rivers Vltava, Lužnice, Otava; cities with castles like Hluboká, Český Krumlov, Orlík and Zvíkov (Šíp and Klufová, 2003).

Through the cartographic visualisation, specific spatial disparities in location of various categories of accommodation establishments were revealed. According to the findings, hotels are primarily concentrated in larger towns or in places with extraordinary potential for tourism (e.g. for winter sports). Boarding houses are mostly located in localities with appropriate natural conditions whereas their low concentration was found out in larger cities (České Budějovice, Český Krumlov). Location of tourists' hostels corresponds to the location of hotels that are almost exclusively tied by the cities. Further it was found out that campsites are located mainly near watercourses and bodies of water. The category of other accommodation establishments shows also a significantly specific concentration – they are located near bodies of water.

The contribution of this paper lies in the undertaken analyses of the location of each accommodation establishment in the studied area – the Czech Statistical Office does not provide this comprehensive view. The findings can serve as a basis for future research which will be focused e.g. on spatial relations because of the attractiveness of the individual localities or the findings can be a starting material for working out a map of price levels in the accommodation establishments according to the attractiveness of individual localities in the studied area.

Endnotes

[1] Accommodation means = tent, caravan, boat, ship etc. (Orieška, 2010).

[2] Decree No. 268/2009 Coll. on the technical requirements for buildings (see References: Vyhláška č. 268/2009 Sb. o technických požadavcích na stavby).

[3] The collective accommodation establishment is „an establishment with at least five rooms and ten beds used for the purpose of tourism that is offering temporary accommodation to guests (including children) for the purpose of a holiday, trip, spa treatment, business trip, training, course, congress, symposium, children's school in nature, summer and winter children camps, etc." (ČSÚ, 2009).

[4] Accommodation establishments with lower capacity than it is the minimum for the collective accommodation establishments are classified in the category of the individual accommodation establishments. The Czech Statistical Office has not followed them since 2002. These establishments include rented rooms, flats, cottages and accommodation at family farms (in accordance with the agrotourism).

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Speed Estimation toward Target Capital Structure and Dividend Policy: A Case of Family versus Non-Family Companies in Pakistan

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Abstract

The current study investigates the speed toward target capital structure and dividend policy of family owned business (FOB) versus non-family owned Business (NFOB). For the identification of FOBs from NFOBs, two threshold levels of ownership (25% & 50%) were applied. For this purpose, panel data ranging from the period of 2002 to 2013, a sample of 280 listed firms at Karachi Stock Exchange (KSE) were used. Among many the generalized method of moments (GMM) was found appropriate as an analytical technique. The result drawn through GMM indicated that FOBs rebalance their target capital structure with higher average speed (38.70%) than NFOBs. However, the average speeds toward target dividend ratio were (63.05% & 71.05%) for FOBs and NFOBs.

Keywords: Family Business; GMM; Speed; Target capital ratio; Target dividend ratio

1.0 Introduction

The main objectives of the current study were to analyze the speed toward target capital structure and target dividend ratio in terms of FOBs and NFOBs. Since the seminal work of Modigliani and Miller (1958), the capital structure was the hot topic and had been a source of great attraction for research scholars and authors. A large number of recent studies like (e.g. see Frank and Goyal, 2009 and Denis and Osobov, 2008) have explored the factors influencing the debt and dividend policies. But the studies focus on the dynamics of target capital structure and dividend policies in relation with ownership are yet scarce. The present study aims to fulfill the gap in existing literature of finance.

A series of financial models and theoretical framework has been developed to explore the determinants of dividend policy along with debt policy that ultimately affect the corporate value of firms. Among them the most important are pecking order and trade-off theories (Myers and Majluf, 1984) which provide the explanations regarding determining the target capital structure and dividend policy of firms. The main objective of both capital structure theories is to explain the factors that

contribute the financial decisions of a firm. Lintner's outcome model (1956) provided the explanations for the reasons behind stable dividend policy and argued that managers are reluctant to cut dividend payments as it might have adverse effect of stock price; consequently, the company's dividend remain stable over time especially in case of family business.

The trade-off and pecking order theories need to be considered mutually exclusive. De Haan et al. (1994) highlighted in Netherland's study that most of the companies follow pecking order theory during rebalancing their capital structure. De Haan and Hinloopen (2003) found that the both theories have empirical importance when adjusting their capital structure's choices. Furthermore, other empirical evidences showed importance of pecking order theory in the short term and trade-off theory in the long run (Hovakimian et al., 2001; Kayhan and Titman, 2004; Mayer and Sussman, 2004). Companies having low level of debt unlikely to adjust their capital structure immediately but they increase the leverage after exhausting all available internal fund. Similarly, the companies having higher level of debt likely to decrease it through increasing equity (retained earnings); rather than immediately rebalancing capital structure. Titman and Tsyplakov (2004) proposed a dynamic model in which value of business was endogenously estimated by financial decisions. They revealed that the pecking order behavior influences target capital structure and companies also move towards a moving target leverage, which is determined by trade-off considerations. Several firms' level specific characteristics play an important role in dividend smoothening and provide explanations regarding agency and dividend signaling theories. Thus, the absence and presence of the factors explain significant difference in readjust the dividend policy. The current study aims to explain the dynamic nature of financing behavior of companies.

1.1 Definition of family firm

A firm is said to be family owned business (FOB) if family directors have managerial ownership or voting rights 25% and 50%. 25% cut off point is proposed in the official definition of GEEF by its French name. This cutoff point is also in line with the definition adopted by Board of Family Business Network in April 7, 2008. 50% cut off point is used because ownership at this level confers the unequivocal control rights (Doidge et al., 2005). Also, particularly in Pakistan, owners of family companies like to hold more than 50% shareholdings (Attiya and Robina, 2010).

1.2 Objectives of study:

- To determine the speed toward target capital structure of FOBs and NFOBs.
- To analyze the speed toward target dividend policy of FOBs and NFOBs
- To make some recommendations regarding debt and dividend policies of each category of business.

2.0 Review of Literature and Hypotheses Formulation:

Target capital structure another important feature for every organization, the speed of adjustment toward the target capital depends upon financing decisions of the company. The previous literature of finance showed a few studies that are available to explain how financial characteristics of firms that have impact the adjustment of speed toward target capital structure. Furthermore, information regarding speed toward target debt level helps the firms to rebalance their capital structure adequately. The current study aims to fill the gap in family literature by analyzing the impact of ownership on the adjustment of speed toward target capital structure. Öztekin & Flannery (2009) showed through empirical evidences that the firms with better governance and lesser agency problems rapidly approach toward target capital structure. In family firms, due to lesser agency problem and lower level of information asymmetric problem leads to higher speed toward their target capital structure.

Firms that undergo severe agency conflicts may try to smooth dividends payout to alleviate such concerns of different types of shareholders. On the contrary, in those firms where exist less severe

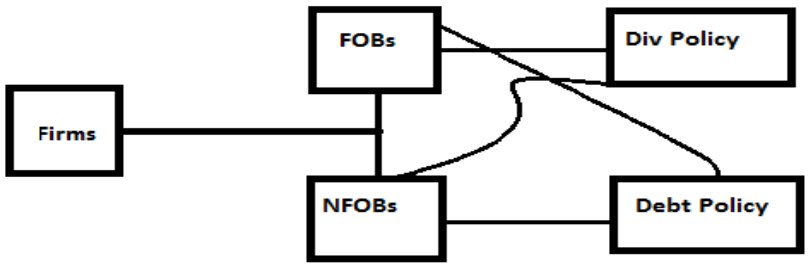
conflicts of interest and asymmetric information (family owned firms) tend to smooth amount of dividend payments to lesser extent. Michaely, R., and Roberts, M.R. (2006) opined that the firms with the least severe information and agency conflicts are less likely to alter their dividend policy and therefore, less likely to smooth dividends. As the family firms being fewer constraints than non-family firms, hence, they are less likely to change their dividend policy.

S.H.Tahir et al. (2016) examined both dividends as well as debt policies in term of family and non-family businesses. They applied two cut off points (12% & 50%) for distinguishing non-family firms from family business. They used panel data sample ranging from 2002-2013 of 280 listed companies at Karachi Stock Exchange (KSE) and applied Generalized Methods of moments to estimate the coefficients of variables. The empirical results provided explanation regarding speedier rebalancing the target capital structure of family firms due to easier access to debt and long term presence of the family in the firm. However, FOBs smooth dividends to lesser extent than their counterpart NFOBs indicate lower agency and information asymmetry problems in them. S.H.Tahir & H.M. Sabir (2014) revealed that family companies alleviated financial constraints along with free cash flow problems.

A. Getzmann et al. (2014) studied the capital structure of Asian firms and found different from US companies in term of financing decisions. They tested the relation between trade of theory and pecking order theory. They analyzed the speed of adjustment toward capital structures for 1239 firms with capitalizations of more than US$1 billion listed on 11 Asian stock exchanges and belonging to eight industrial sectors through generalized method of moments (GMM). They concluded pecking order theory superior explanatory power over tradeoff theory. Furthermore, they concluded that annual adjustment speed of 24–45% of original leverage levels and influenced by fixed effects.

The main objective of this study is to investigate the target debt and dividend policies in terms of FOBs and NFOBs. The focus is to analyze how Pakistani firms set their dynamic debt structure along with dividend structure through different institutional environments. The paper identifies the importance of peculiarity of characteristics which shape the dynamic debt and dividend policies in both aforesaid organizational types. The empirical findings of this study provide useful insight into the role of different characteristics associated with FOBs and NFOBs.

3.0 Theoretical Framework



4.0 Methodology

To fulfill the targeted objectives of the study, data ranging from the period 2002-2013 were used. A sample of 280 companies listed at Karachi stock exchange (KSE) was taken. The main sources of data were the annual reports, financial statements and basic balance sheet analyses published by State Bank of Pakistan (SBP). These data pertaining to the values of variables like debt ratio (DR), internal fund (IF), Dividend ratio (DR), net earnings (NE), firm's size (FS), Average account receivables (AR), investments (INV), Tobin q (Q) and return on assets (ROA were taken. Such types of data contained unobservable problems termed as heterogeneity and endogeneity (McVey and Draho, 2005 and Demsetz and Villalonga, 2001). Ownership data such like of this study may have endogeneity problem. Generalized method of moments (GMM) is the best approach to deal with it.

To resolve these problems, panel data methodology and generalized method of moments were applied. Panel data methodology handles the heterogeneity problem while the Generalized Method of Moments (GMM) controls the endogeneity problem.

GMM is just one estimation strategy along with the others. It is a form of Instrumental variable approach which is supposed to be more efficient because it use a richer set of instruments. For instance, dynamic panel models (like the current study) cannot be estimated by OLS, which in those cases is biased. Instead, one should employ GMM. Furthermore, the misspecification of the model was tested by Hansen J-statistic and m_2 statistics. Also, the Wald tests (w_1 and w_2) were used to test the joint significance of reported coefficients and time dummy variables.

4.1 Hypotheses

H_1: FOBs adjust more speedily toward target capital structure than their counterpart NFOBs.
H_2: FOBs rebalance with lower speed toward target dividend policy than their counterpart NFOBs.

4.2 Models Specification

4.2.1 Debt Model

To test the hypothesis-1, in line with (Fama and French, 2002), the model was specified in the following way.

$$DR^*_{it} = a + b\ IF_{it} + cX_{it-1} + E_{it} \text{---------- (a)}$$

The speed is capture by the following model.

$$DR_{it} - DR_{it-1} = d\ (DR^*_{it} - DR_{it-1}) \text{ ---------- (b)}$$

Where $0< d > 1$ is the speed of firms toward target capital structure over time.
By rearranging Eq. (b) we get the Eq. (c) as under:

$$DR_{it} = d\ DR^*_{it} + (1-d)\ DR_{it-1} \text{----------(c)}$$

By putting the value of DR^*_{it} from Eq. (a) in Eq. (c)

$$DR_{it} = d\ a + (1-d)\ DR_{it-1} + bd\ IF_{it} + cd\ X_{it-1} + d\ E_{it} \text{ ---------- (d)}$$

By Putting $da = \alpha_0$, $\beta_o = (1-d)$, $bd = \beta_1$

$$DR_{it} = \alpha_0 + \beta_o\ DR_{it-1} + \beta_1\ IF_{it} + \mu\ X_{it-1} + E_{it} \text{ ---------- (e)}$$

Adjusting dummy variable FOB = 1 for family firms and FOB = 0 for non-family firms, the final shape of the model is as under.

$$\mathbf{DR_{it} = \alpha_0 + \beta_1\ IF_{it} + (\beta_0 + \gamma_1\ FOB)\ DR_{it-1} + \mu\ X_{it-1} + E_{it}} \text{ ---------- (1)}$$

For family firms the impact was captured ($\hat{\beta}_0 + \hat{\gamma}_1$) and for non-family firms ($\hat{\beta}_0$). The speed of adjustment is 1- ($\hat{\beta}_0 + \hat{\gamma}_1$) and 1- $\hat{\beta}_0$ for family firms (FOBs) and for non-family firms (NFOBs) respectively. According to hypothesis-1, it was expected ($\hat{\beta}_0 + \hat{\gamma}_1$) < ($\hat{\beta}_0$

4.2.2 Dividend Model

In order to test the hypothesis H_2, the following model was developed. According to Linter's model of target dividend, the dividend policy was taken as a factor of net earnings of company.

$$DIV^*_{it} = a + b\ NE_{it} + f\ X_{it-1} + E_{it} \text{---------- (f)}$$

It is the fact that firms tend to fill the gap between target dividend ratio and current level of dividend gradually. The speed can be captured by the following model:

$$DIV_{it} - DIV_{it-1} = e\ (DIV^*_{it} - DIV_{it-1}) \text{ ---------- (g)}$$

Where $0< e > 1$ is the speed of firms toward target capital structure over time. By solving the equation (f) and (g)

$$DR_{it} = e\ a + (1-e)\ DIV_{it-1} + eb\ NE_{it} + ef\ X_{it-1} + e\ E_{it} \text{ ---------- (h)}$$

Put $ea = \alpha_0$, $\beta_2 = (1-e)$, $be = \beta_3$ and $de = \mu$

$$DIV_{it} = \alpha_0 + \beta_3\ NE_{it} + \beta_2\ DIV_{it-1} + \mu\ X_{it-1} + E_{it} \text{ ---------- (i)}$$

Adjusting dummy variable FOB = 1 for family firms and FOB = 0 for non-family firms, the final shape of the model is as under:

$$\mathbf{DIV_{it} = \alpha_0 + \beta_3\ NE_{it} + (\beta_2 + \gamma_3\ FOB)\ DIV_{it-1} + \mu\ X_{it-1} + E_{it}} \text{ ---------- (2)}$$

The impact of family firms was captured by ($\beta_2^{\wedge} + \gamma_1^{\wedge}$) and for non-family firms ($\beta_2^{\wedge}$). As proposed in hypothesis-2, it was expected that ($\beta_2^{\wedge} + \gamma_1^{\wedge}$) >$\beta_2^{\wedge}$. The adjustment speed for non-family firms [e = (1-$\beta^{\wedge}_2$)] and for family firms were [e = 1-($\beta^{\wedge}_2 + \gamma^{\wedge}_3$)].

5.0 Descriptive Analysis

In this part of the study, some preliminary econometric analyses were made to find out the difference between mean value FOB and NFOBs identified through threshold level of ownership (25% & 50%), t-statistics was applied. After that some advance econometric analyses were conducted in which the impact of different variables like lag values of debt ratio (DR) and dividend ratio (DIV) along with set of control variables were tested on the current values of DR and DIV for FOBs and NFOBs. Preliminary analyses of debt and dividend ratios along with other firm's characteristics on both threshold levels of ownership (25% & 50%) were given in Table-1. Significant difference was found in both threshold ownership levels. The debt and dividend ratios were found low in family firms as compared to their counterparts. This difference was more prominent on 50% threshold level. It was found that the FOBs had lower size than NFOBs. This lower size provided insight into their operational efficiency over counterparts. Higher level of debt in FOBs strengthened the claim that the creditors prefer them to sanction loans.

The Table-1 shows the basic analysis of means tests between FOBs and NFOBs in their financial characteristics. The sample contains 3360 observations of 280 companies of non-financial sector listed at Karachi Stock Exchange (KSE) Pakistan. The DR_{it} and DIV_{it} stand for debt and dividend ratios of firms respectively. The IF_{it} denotes internal fund. FS_{it} and AR_{it} are the size and average account receivables. AGE_{it} stands for age of firm since incorporated, Q_{it} is the Tobin q and ROA_{it} is the return on assets. The FOBs and NFOBs are classified according the definition as explained in 1. The t-statistic tests are applied to measure the means difference under the null hypothesis. H_0: Mean investment FOB –Mean NFOB = 0. The ***, **, and * indicate significance at the 10%, 5% and 1% level respectively.

Table-1: Descriptive analysis of firm's financial characteristics

		All Companies	*FOB*	*NFOB*	*t-static*
Difference of means tests using the 25% cutoff points	***No of Observations***	*3360*	*2628*	*732*	
	DR_{it}	*0.743*	*0.687*	*0.944*	*-4.126**
	DIV_{it}	*0.008*	*0.008*	*0.012*	*1.435****
	IFit	*0.060*	*0.059*	*0.064*	*-1.052*
	FS_{it}	*9.159*	*9.101*	*9.367*	*-14.087**
	AR_{it}	*0.269*	*0.271*	*0.262*	*8.023**
	AGE_{it}	*3.400*	*3.440*	*4.480*	*0.385*
	Q_{it}	*0.798*	*0.810*	*0.755*	*3.198**
	ROA_{it}	*0.192*	*0.195*	*0.181*	*2.198**
Difference of means tests using the 50% cutoff points	***No of Observations***	*3360*	*2004*	*1356*	
	DR_{it}	*0.743*	*0.677*	*0.841*	*-4.593***
	DIV_{it}	*0.008*	*0.007*	*0.009*	*1.772***
	IFit	*0.060*	*0.057*	*0.064*	*1.409****
	FS_{it}	*9.159*	*9.099*	*9.248*	*-6.183**
	AR_{it}	*0.269*	*0.270*	*0.268*	*9.654**
	AGE_{it}	*3.400*	*3.390*	*3.410*	*0.388*
	Q_{it}	*0.798*	*0.789*	*0.811*	*2.198**
	ROA_{it}	*0.192*	*0.198*	*0.183*	*2.192**

Regarding internal fund, significant difference was found between both organizational types. FOBs had better internal fund than NFOBs. Significant difference was found in both variables i.e. Tobin q and ROA indicated better performance in FOBs comparatively. No significant difference was found in the data regarding account receivables and age of firms on both threshold levels of ownership (25% & 50%).

5.1. GMM Results

This segment of study depicted the results drawn from empirical models using 25% & 50% cut off points for classification of FOBs and NFOBs. The regression results can be seen in Table-2. The estimated coefficients of hypothesis-1 for non-family firms is ($\hat{\beta}_0 = 0.649$) and for family firms were ($\hat{\beta}_0 + \hat{\gamma}_1$) = (0.649 -0.025) = 0.624. Therefore, adjustment speed for family firms was 1-0.624 = 37.6%. For nonfamily firms this speed could be captured as 1-0.649 = 35.10%. This result was significant statistically at 1% level of confidence. The results of hypothesis-2 was supporting our expectation i.e. family firms (FOBs) had stable dividend policy as compared the non-family firms (NFOBs). The estimated coefficients for NFOBs was ($\hat{\beta}_2 = 0.318$) and for family firms ($\hat{\beta}_2 + \hat{\gamma}_3$) = (0.318 + 0.075 = 0.226); showed significant positive impact of previous level of dividend to current level of dividend payment. The speeds of adjustment were computed as (1- β_4 = 1-0.318 = 68.20%), (1-$\beta_4 - \gamma_4$ = 1-0.0.318-0.075 = 60.70%) for NFOBs and FOBs respectively. Thus, the FOBs had lower speed toward target dividend structure or less likely to smooth their dividend policy than NFOBs. It meant that FOBs speed of adjustment lower than their counterparts NFOBs. Our results were in line with previous studies such like (Gugler, K. 2003).The results were also found consistent at higher level of ownership 50% cutoff point.

Table-2 shows comprehensive analysis of dividend and debt policies of family and non-family firms at (25% & 50%) cut off points. Generalized method of moments (GMM) was used to test the hypotheses (1-2). The dummy variable FOB equal 1 for Family business and zero otherwise. DR_{it} and IF_{it} were the debt and Internal fund ratios of the firms. DIV_{it} and NE_{it} are the dividend and net earnings ratios of the firms. $SIZE_{it}$, AR_{it} are the size and average account receivables of the companies. AGE_{it} shows age since incorporated. Q_{it} and ROA_{it} is the Tobin q and return on assets of companies. The sample consists of 3360 observations, 280 non-financial firms listed on Karachi Stock Exchange (KSE) Pakistan for the period ranging from 2002 to 2013. The ***, ** and * denote significance level at 10%, 5% and 1% respectively. T-statistic ($t_{1)}$ shows the linear restriction under the null hypothesis $H_{0:}$ $\beta_0 + \gamma_1 = 0$. T-statistic (t_2) indicates the linear restriction under the null hypothesis $H_{0:}$ $\beta_2 + \gamma_1 = 0$. w_1 shows the Wald Test-1 for the joint significance of the estimated coefficients under null hypothesis H_0 (asymptotically distributed) and the value under parenthesis denotes the degree of freedom. w_2 is the Wald Test-2 for the joint significance of the times dummies under null hypothesis H_0 (asymptotically distributed) and the value under parenthesis shows the degree of freedom. c_1 is the serial correlation Test-1 of order 1 using residual in first difference under assumption of null hypothesis (no serial correlation) asymptotically distributed. c_2 is the serial correlation Test-2 of order II using residual in second difference under assumption of null hypothesis (no serial correlation) asymptotically distributed. h indicates the Hansen test of over identifying restriction under assumption of null hypothesis as no correlation between instruments and error term and the value in parenthesis is the degree of freedom.

Table-2: Dividend and debt policies of family and non-family companies (25% cut off point)

		Model-1		***Model-2***		***Model-1***		***Model-2***	
		25% threshold point				***50% threshold point***			
Variables	***Co***	***Value***	***SE***	***Value***	***SE***	***Value***	***SE***	***Value***	***SE***
constant	α_0	*-0.055**	*0.006*	*0.004**	*0.001*	*0.025**	*0.002*	*-0.014**	*0.001*
DR_{it-1}	β_0	*0.649**	*0.005*			*0.612**	*0.004*		
IF_{it}	β_1	*-0.112**	*0.005*			*0.871**	*0.004*		
DIV_{it-1}	β_2			*0.318**	*0.001*			*0.261**	*0.001*
NE_{it}	β_3			*0.022**	*0.003*			*0.024**	*0.003*
$FOBDR_{it-1}$	γ_1	*-0.025**	*0.006*			*-0.010**	*0.004*		
$FOBDIV_{it-1}$	γ_3			*0.075**	*0.002*			*0.085**	*0.003*
FS_{it-1}	μ_1	*0.006**	*0.000*	*0.001***	*0.000*	*0.006**	*0.000*	*0.002***	*0.001*
AR_{it-1}	μ_2	*-0.026**	*0.001*	*0.005**	*0.000*	*-0.016**	*0.002*	*0.005**	*0.000*
AGE_{it}	μ_3	*0.003*	*0.004*	*0.001*	*0.002*	*0.002*	*0.002*	*0.003*	*0.003*
Q_{it-1}	μ_4	*-0.016**	*0.001*	*0.005**	*0.000*	*-0.076**	*0.001*	*0.004**	*0.000*
ROA_{it-1}	μ_5	*0.002**	*0.001*	*-0.013**	*0.000*	*0.003**	*0.001*	*-0.023**	*0.000*
T-statistics	t_1	*164.62*							
T-statistics	t_2			*124.11*					
T-statistics	t_3					*25.62*			
T-statistics	t_4							*1.892*	
Wald Test-1	w_1	*6334.57 (9)*		*5381.67 (8)*		*6634.17 (9)*		*5482.37 (8)*	
Wald Test-2	w_2	*217.01 (8)*		*111.01 (9)*		*227.01 (8)*		*161.11 (9)*	
Correlation Test-1	c_1	*-7.898*		*-2.898*		*-6.898*		*-3.119*	
Correlation Test-2	c_2	*1.531*		*1.130*		*1.521*		*1.132*	
Hansen	*h*	*538.78*	*162*	*398.72*	*162*	*548.28*	*162*	*399.79*	*162*
Speed toward target Capital Structure		*NFOB= 35.10% FOB= 37.60%*				*NFOB=38.80% FOB=39.80%*			
Speed toward target Dividend Policy				*NFOB=68.20% FOB=60.70%*				*NFOB=73.90% FOB= 65.40%*	

6.0 Conclusions and Discussions

The current study was an attempt to examine the impact of ownership structure on dynamic debt and dividend policies, in terms of FOBs and NFOBs. The study was designed to explore the family business models and its effect on targeted financial decisions. Two specific areas were focused regarding both organizational types. First, the dynamics of debt policy with respect to ownership structure was addressed under the shadow of capital structure theories i.e. pecking order and trade-off theories. Second, the dynamics of dividend policy under the umbrella of Lintner's (1956) model of dividend was analyzed.

The results drawn from this study were indicated that the FOBs had higher average adjustment speed (38.70%) toward capital structure than the speed of NFOBs (36.95%). Strong family bond, long term presence of family managers and relations with capital markets made FOBs capable to easier access

toward leverage and rebalance their debt level with higher speed. Similarly, it was revealed that the FOBs had lower rebalancing speed (63.05%) toward target dividend policy. This adjustment speed for NFOBs was captured 71.05%. I was agreed that the FOBs considered more transaction cost as a factor in devising dividend policy (Rozeff, 1982). These empirical evidences provided insight into the behavior regarding corporate performance of FOBs and NFOBs. For example faster speed of adjustment toward target capital structure could have significant positive impact on value. Similarly slower speed toward target dividend policy indicated a positive sign of stability in dividend policy in family owned business (FOB). These results were in line with findings of J. Pindadoa et al. (2012).

7.0 Recommendations

1. It was recommended for NFOBs to take measures against asymmetric information problem.
2. The managers of NFOBs were advised not to let the companies creating a wide gap existing and target capital structures.
3. The investors were instructed to prioritize the future investments in FOBs due to stable dividend policy in them.
4. The Security Exchange Commission of Pakistan (SECP) - regularity authority was requested to monitor the companies regarding stability in their dividend policy especially NFOBs.

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Housing Regional Development versus Population Economic Situation in Slovakia

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Abstract

This paper aims to identify the factors affecting the number of completed, under construction and launched dwellings construction per 1000 inhabitants in Slovakia on the NUTS 3 level in the years 2005-2013 and prepare spatial regression models. Examined characteristics: number of completed, under construction and launched dwellings constructions per 1000 inhabitants, average living area, average monthly wage, unemployment. For comparison of the heterogeneity of individual data were used polarization index (max-min) / average. Pearson's correlation coefficient was used as the degree of dependence of the two indicators. According to the number of sites (n = 8) was also necessary to consider its significance. Moran spatial autocorrelation coefficient (including its significance) was used to measure the degree of spatial autocorrelation of individual indicators. Average dwelling surface showed significant dependence on the average wage only in the years 2009-2011. In contrast, in those years, the number of completed dwellings, dwellings under construction and launched construction of dwellings per 1000 inhabitants is significantly independent on the unemployment rate or the average level of wages. Between years 2005-2008 and 2012-2013 exist between them a direct significant dependence. Linear model exhibits an extreme multicollinearity. It can be assumed that other mechanisms operated during the crisis. Only the average wage does not show spatial autocorrelation. Other characters show positive spatial autocorrelation. Article identifies and analyses the factors affecting the development of the housing sector in the NUTS 3 level in Slovakia. Constructed were classical linear models, spatial lag and spatial error regression models.

Keywords: Housing development, Housing policy, Spatial statistics, Regions, Slovakia

Introduction

Housing conditions play a significant role in economic and social prosperity of households. A dwelling or a house connects a household with its surroundings such as public services, shops, friends and family relatives. Last but not least, a housing availability has a huge influence on possibility of employment. Therefore, it is not surprising that housing is relatively expensive and it presents from 20 to 25 % of average income within the EU. Obviously, this share of expenses is for low-incomers much greater than for wealthy people. It is often doubled. If importance of housing will be taken into account, it will not be surprising that from the long-term perspective, majority of European countries supports active housing policy often absorbing from 1 to 4% of gross domestic product (GDP). Some authors were interested in a problem with housing and a social level of inhabitants on various hierarchical levels of the territory. Also, Rasticova et al. (2015) emphasizes that crucial factor in housing will be changes in the population structure, uneven quantitative development of population, aging population and longer life in post-production age (see also Mikusova, Rasticova, 2015). Since 2002, Slovakia is divided into 8 self-governing regions, which are called by the Constitution Higher Territorial Units (see Fig. 1 and Table 1).

Fig. 1 Regions of the Slovakia
Source: own processing

Table 1 Regions on the level NUTS 3 in the Slovakia

Region	Capital	Population	Area (km²)	Density
Bratislava	Bratislava	603,699	2,052.6	294.11
Trnava	Trnava	554,172	4,172.2	132.76
Trencin	Trencin	600,386	4,501.9	133.36
Nitra	Nitra	708,498	6,343.4	111.69
Zilina	Zilina	694,763	6,808.4	102.04
Banska Bystrica	Banska Bystrica	657,119	9,454.8	69.50
Presov	Presov	798,596	8,974.5	88.98
Kosice	Kosice	771,947	6,751.9	114.33

Source: Statistical Office of the Slovak Republic

The registered unemployment rate in Slovakia in the years from 2002 and 2015 was the most accurately expressed in years 2002 and 2012, when was reported the highest unemployment rate in individual regions. Based on the presented data, it can be stated that in recent years occurred a positive development both in the areas of unemployment, which gradually decreases (Fig. 2), and also in increasing average monthly wage (Table 2) in all regions of Slovakia.

Table 2 Average monthly wage in EUR in the Slovakia by regions in years 2010-2015

Region	2010	2011	2012	2013	2014	2015
Bratislava	1160	1177	1258	1238	1260	1315
Trnava	849	882	919	953	905	1002
Trencin	784	834	867	897	875	972
Nitra	761	803	849	860	836	942
Zilina	832	865	935	929	890	1015
Banska Bystrica	768	801	824	876	833	922
Presov	713	743	804	799	769	867
Kosice	857	887	941	964	924	1026

Source: Statistical Office of the Slovak Republic

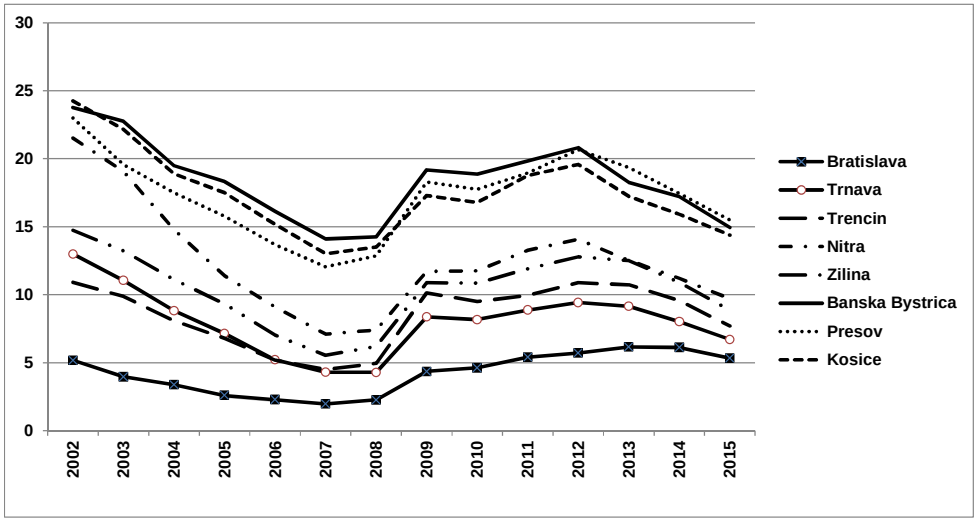

Fig. 2 Unemployment rate in the Slovakia by regions and years (%)

Source: Statistical Office of the Slovak Republic

Regions of NUTS level 3 are showing disparities, which can be understood in terms of differences in the socio-economic development of regions, resulting mainly in the economic, infrastructural and social disparities in the level of housing, which affects standard of living. Availability and affordability of housing has significant impact on the development and economic performance of the regions.

According to Buckley and Tsenkova (2003), there exist many indicators for assessment of housing construction. It depends on a subject of assessing of the given object of the research or its purpose. There are two basic indicators of housing development of housing construction on a national and local level: a number of completed dwellings per 1000 inhabitants and an average living area of the completed dwellings per capita, Tsenkova writes (2009).

According to Jilek and Moravova (2007), the range of the housing fond cannot be quantified just by a number of dwellings. It is necessary to look at other indicators such as number of living rooms and an overall living area of the dwelling.

Cho et al. (2005) mentions that the housing construction is influenced by many localization factors. A spatial variability of localization factors which are linked directly with housing construction and externalities associated with localization of housing construction. These externalities are called „neighboring influences" because they have an influence on surrounding regions. These externalities are unemployment (Saks, 2008) and migration (Hughes and McCormick, 1981).

A purpose of the article written by Sveda, Krizan (2011) and Spirkova, Ivanicka, Zubkova (2013) is an evaluation of development of housing construction in Slovak cities in the period between 2005 and 2011. They say that a quantitative range of housing construction between 2005 and 2011 is reflection of demand for housing which is the strongest in the cities in Slovakia which provide more working opportunities and which are from a point of economic and social indicators considered as the more developed. Housing construction is an important indicator of an economic and social development of Slovakia regions. Through it, we can observe present processes of transformation of society which is a key element for deepening of regional disparities, Sveda and Krizan say (2011).

A complex viewpoint on a development of a real estate market in Slovakia is written by Spirkova et al. (2013). The authors characterize the factors which influence the development of a real estate market untill the year 2000. They found out that the most significant momentum was the

development of a real estate market after 2000 when its development was influenced by the reforms in housing policy. In doing so, new forms of financing of the housing were introduced which increased a housing accessibility for the inhabitants in Slovakia. Housing should be understood by its attractiveness of cities in a context of increasing their growing potential and a potential of creating working opportunities and so in the context of contributing to realization of Lisbon agenda, according to Vidova (2007).

Methodology

Correlation analysis is one of the most widely used and reported statistical methods in summarizing scientific research data. It is often useful to determine if a relationship exists between two different variables. If so, how significant or how strong is this association between the two variables? The correlation coefficient is a statistic used to measure the degree or strength of this type of relationship (Taylor, 1990). Spatial autocorrelation measures the correlation of a variable with itself through space. Spatial autocorrelation can be positive or negative. Positive spatial autocorrelation occurs when similar values occur near one another. Negative spatial autocorrelation occurs when dissimilar values occur near one another. Moran's coefficient is one of the degrees of spatial autocorrelation. Take values from range <-1, 1>. Its significance was evaluated using Monte Carlo simulation method (Gelfand et al 2010).

Spatial relationships can be modelled in a variety of ways although modelling several forms of spatial relationships at once can lead to problems of identification. A system of spatial lags hypothesizes that the value of the dependent variable observed at a particular location is partially determined by a spatially weighted (or ‘‘neighborhood’’) average of the value of the dependent variable. Such a model cannot be estimated by ordinary least squares because of the problem of simultaneity bias. It must instead be estimated using either IV estimators or ML techniques.

The spatial error model is given by $Y = \alpha + \beta X + e$, where $e = \lambda We + u$ and λ is scalar parameter (Maddison, 2006, p.221).Variability of the characters was evaluated by polarization index IP = (max-min) / average. The greater the value of the polarization index, the higher the variability i.e. polarization of territory is higher according to assessed attribute.

Results and Discussion

In the article are examined the parameters that constitutes the main determinants of the real estate market. We have chosen the following basic parameters: the number of completed dwellings, the number of started dwellings, the number of dwellings under construction, the intensity of the housing, the average floor area of dwellings, the average monthly wage and unemployment. We investigated the links at regional NUTS 3 level in the period 2005 – 2013 in Slovakia. The reason we have chosen these indicators is that they affect both supply and demand for residential property market.

Applying statistical methods we have come to interesting results. The intensity of housing affects the economic situation of the population, which can be observed in the average wage indicator and the unemployment rate. With increasing wage is naturally expected to increase purchasing power and thus acquisition of housing. This fact was confirmed during the period off crisis i.e. until 2009, when the correlation coefficient between the intensity of the housing and the average wage was very low (0.856; 0.88; 0.87; 0.91) and significant (Table 3 – 11).

Table 3 Pearson Correlation Coefficients in 2005

Pearson Correlation Coefficients, N = 8
Prob > |r| under H0: Rho=0

	W05	UEM05	IB05	beg05	uc05	area05
IB05	0,8565 0,0066	-0,88159 0,0038	1	0,9508 0,0003	0,94348 0,0004	-0,3753 0,3596
beg05	0,9018 0,0022	-0,75276 0,0311	0,9508 0,0003	1	0,97282 <.0001	-0,1872 0,657
uc05	0,8981 0,0024	-0,83003 0,0108	0,9435 0,0004	0,9728 <.0001	1	-0,2372 0,5717
area05	-0,0008 0,9985	0,56328 0,146	-0,3753 0,3596	-0,1872 0,657	-0,2372 0,5717	1

Table 4 Pearson Correlation Coefficients in2006

Pearson Correlation Coefficients, N = 8
Prob > |r| under H0: Rho=0

	W06	UEM06	IB06	beg06	uc06	area06
IB06	0,88158 0,0038	-0,77532 0,0238	1	0,9411 0,0005	0,94968 0,0003	-0,0291 0,9454
beg06	0,89317 0,0028	**-0,67657** **0,0654**	0,9411 0,0005	1	0,97878 <.0001	-0,1089 0,7974
uc06	0,91384 0,0015	-0,7684 0,0259	0,9497 0,0003	0,9788 <.0001	1	-0,0805 0,8497
area06	0,24595 0,5571	0,39617 0,3312	-0,0291 0,9454	-0,1089 0,7974	-0,0805 0,8497	1

Source: own processing

Table 5 Pearson Correlation Coefficients in 2007

Pearson Correlation Coefficients, N = 8
Prob > |r| under H0: Rho=0

	W07	UEM07	IB07	beg07	uc07	area07
IB07	0,86696 0,0053	-0,76941 0,0256	1	0,9779 <.0001	0,98141 <.0001	0,0076 0,9858
beg07	0,89961 0,0023	**-0,6473** **0,0827**	0,9779 <.0001	1	0,97305 <.0001	0,1143 0,7875
uc07	0,91709 0,0013	-0,75468 0,0305	0,9814 <.0001	0,9731 <.0001	1	0,1363 0,7475
area07	***0,41022*** ***0,3128***	***0,11524*** ***0,7858***	0,0076 0,9858	0,1143 0,7875	0,13633 0,7475	1

Table 6 Pearson Correlation Coefficients in2008

Pearson Correlation Coefficients, N = 8
Prob > |r| under H0: Rho=0

	W08	UEM08	IB08	beg08	uc08	area08
IB08	0,9135 0,0015	-0,70137 0,0526	1	0,9875 <.0001	0,97669 <.0001	0,2349 0,5755
beg08	0,93207 0,0007	-0,7174 0,0451	0,9875 <.0001	1	0,9931 <.0001	0,3021 0,467
uc08	0,9171 0,0013	-0,75431 0,0306	0,9767 <.0001	0,9931 <.0001	1	0,2194 0,6016
area08	***0,46179*** ***0,2494***	***0,14871*** ***0,7252***	0,2349 0,5755	0,3021 0,467	0,21942 0,6016	1

Source: own processing

Table 7 Pearson Correlation Coefficients in 2009

Pearson Correlation Coefficients, N = 9
Prob > |r| under H0: Rho=0

	W09	UEM09	IB09	beg09	uc09	area09
IB09	**0,55195** **0,1234**	**-0,55691** **0,1193**	1	0,8753 0,002	0,86523 0,0026	0,1631 0,6749
beg09	0,70116 0,0353	**-0,2942** **0,4422**	0,8753 0,002	1	0,97243 <.0001	0,4194 0,2611
uc09	0,81671 0,0072	**-0,23209** **0,5479**	0,8652 0,0026	0,9724 <.0001	1	0,5368 0,1362
area09	***0,89988*** ***0,0009***	***0,62559*** ***0,0716***	0,1631 0,6749	0,4194 0,2611	0,53682 0,1362	1

Table 8 Pearson Correlation Coefficients in2010

Pearson Correlation Coefficients, N = 9
Prob > |r| under H0: Rho=0

	W10	UEM10	IB10	beg10	uc10	area10
IB10	**0,55602** **0,1201**	**-0,52608** **0,1457**	1	0,96 <.0001	0,83198 0,0054	0,1547 0,691
beg10	**0,57681** **0,104**	**-0,51369** **0,1572**	0,96 <.0001	1	0,88805 0,0014	0,1746 0,6532
uc10	0,81636 0,0073	**-0,20105** **0,604**	0,832 0,0054	0,8881 0,0014	1	0,5261 0,1457
area10	0,88131 0,0017	0,6515 0,0573	0,1547 0,691	0,1746 0,6532	0,52607 0,1457	1

Source: own processing

Table 9 Pearson Correlation Coefficients in 2011

Pearson Correlation Coefficients, N = 9
Prob > |r| under H0: Rho=0

	W11	UEM11	IB11	beg11	uc11	area11
IB11	**0,54113** **0,1324**	**-0,54056** **0,1329**	1	0,8266 0,006	0,85865 0,003	0,2072 0,5927
beg11	0,79222 0,0109	**-0,2223** **0,5654**	0,8266 0,006	1	0,98042 <.0001	0,5953 0,0908
uc11	0,82906 0,0057	**-0,1624** **0,6763**	0,8587 0,003	0,9804 <.0001	1	0,6105 0,0808
area11	*0,9088* *0,0007*	*0,57218* *0,1074*	0,2072 0,5927	0,5953 0,0908	0,61049 0,0808	1

Table 10 Pearson Correlation Coefficients in2012

Pearson Correlation Coefficients, N = 8
Prob > |r| under H0: Rho=0

	W12	UEM12	IB12	beg12	uc12	area12
IB12	***0,82805*** 0,0111	-0,83588 0,0097	1	0,9876 <.0001	0,94479 0,0004	-0,6275 0,0958
beg12	0,85657 0,0066	-0,87447 0,0045	0,9876 <.0001	1	0,95598 0,0002	-0,6042 0,1126
uc12	0,74947 0,0323	-0,86668 0,0053	0,9448 0,0004	0,956 0,0002	1	-0,4929 0,2146
area12	-0,45414 0,2583	*0,66877* *0,0698*	*-0,628* *0,0958*	-0,6042 0,1126	-0,49293 0,2146	1

Source: own processing

Table 11 Pearson Correlation Coefficients in 2013

Pearson Correlation Coefficients, N = 8 Prob > |r| under H0: Rho=0						
	W13	UEM13	IB13	beg13	uc13	area13
IB13	0,88744 0,0033	-0,85149 0,0073	1	0,9853 <.0001	0,907 0,0019	0,05966 0,8884
beg13	0,88703 0,0033	-0,76285 0,0277	0,98532 <.0001	1	0,888 0,0032	0,06018 0,8874
uc13	0,76093 0,0283	-0,85795 0,0064	0,90703 0,0019	0,888 0,0032	1	0,30533 0,4621
area13	*0,22272* *0,596*	*-0,1621* *0,7013*	0,05966 0,8884	0,0602 0,8874	0,3053 0,4621	1

Source: own processing

In 2009, the correlation coefficient decreased significantly to the value 0.552 (p = 0.1234), respectively 0.556 (p = 0.1201) in 2010. In 2011, the value was 0.541 (p = 0.132). After three years, when the correlation coefficient was not only small, but also not significant, in 2012, it again increased to value 0.828 (p = 0.0111) and in 2013 reached value 0.887 (p = 0.0033).

Similarly, when comparing the relationship between the number of started dwellings and average wage, Pearson coefficient between these two characters is also high and significant until year 2010, i.e. it is losing its significance a year later as the relationship between the intensity of the housing construction and the average wage. Pearson's coefficient showed a value close to 0.9, and in 2009 fell to 0.7 (p = 0.0353) and in 2010 was not significant again. The correlation coefficient was 0.577 (p = 0.104) and in 2011 (i.e. a year earlier than the intensity of housing construction) gains significant value again that is achieved also in 2012 and 2013. Relationship quantified using the Pearson correlation coefficient between the finished dwellings and the average wage is high and significant.
It can be expected, and it is natural to expect that the relationship between the unemployment rate and the intensity of housing construction, started dwellings and completed dwellings will be inversely proportional. Calculations have shown that this is true in except the years 2009, 2010, 2011, when the value of the Pearson coefficient in absolute value significantly decreased. In 2012 and 2013, it is again high and significant in absolute value. The jump between years 2011 and 2012 is the most significant according to the number of completed dwellings and degree of unemployment. The correlation coefficient of 2011 is less than -0.162 (p = 0.6763) and it changed to the value of -0.867 (p = 0.0053). From this can be deduced that between the investigated signs and the average monthly wage operate also other techniques we commonly know from the market economy. The same applies to the case of the average dwelling space when in the period off crisis are detrimental rather customs and traditions in determining the dwelling area. Average monthly wage is dominant in the period of crisis i.e. the period of 2009 - 2011. The correlation coefficient reaches the value close to 0.9 (p <0.002) in each year.

Autocorrelation was evaluated using the Moran coefficient. Data of all rated indicators of started, finished and dwellings under construction are in Table 12. In all the evaluated years they show positive spatial autocorrelation. Only one aspect which shows significantly negative autocorrelation is the average floor area of dwellings in 2005. Due to the spatial character and extreme multicollinearity of linear regression models, we started modelling spatial relationships using regression models.

Table 12 Spatial autocorrelation evaluated by Moran coefficient in the years 2005 – 2013

		W	UNEMP	IB	BEG	UC	Area
2005	Moran coefficient	0,0881	**0,499579**	**0,324242**	**0,473852**	**0,453016**	***-0,05019***
	P value	0,074	**0,012**	**0,003**	**0,007**	**0,007**	***0,0328***
2006	Moran coefficient	0,1222	**0,497595**	**0,35**	**0,449145**	**0,445945**	0,024189
	P value	0,052	**0,16**	**0,003**	**0,017**	**0,009**	0,213
2007	Moran coefficient	**0,1636**	**0,523024**	**0,513833**	**0,405357**	**0,455749**	-0,2488
	P value	**0,029**	**0,012**	**0,007**	**0,002**	**0,013**	0,348
2008	Moran coefficient	**0,1318**	**0,541379**	**0,43018**	**0,297201**	**0,416004**	-0,36854
	P value	**0,032**	**0,014**	**0,004**	**0,016**	**0,011**	0,193
2009	Moran coefficient	**0,1394**	**0,531356**	**0,391643**	**0,47029**	**0,466129**	-0,06352
	P value	**0,02**	**0,005**	**0,009**	**0,015**	**0,014**	0,369
2010	Moran coefficient	0,0995	**0,541573**	**0,332361**	**0,500595**	**0,469669**	-0,23125
	P value	0,051	**0,004**	**0,0066**	**0,006**	**0,014**	0,399
2011	Moran coefficient	**0,1422**	**0,538098**	**0,468192**	**0,281206**	**0,446109**	-0,38568
	P value	**0,0229**	**0,006**	**0,006**	**0,0413**	**0,021**	0,084
2012	Moran coefficient	0,081	**0,576271**	**0,507407**	**0,2875**	**0,426535**	**0,212275**
	P value	0,062	**0,003**	**0,019**	**0,048**	**0,028**	**0,0349**
2013	Moran coefficient	0,0413	**0,591037**	**0,43219**	**0,397996**	**0,407955**	-0,47137
	P value	0,098	**0,005**	**0,001**	**0,0001**	**0,02**	0,0579

Source: own processing

Table 13a Application of regression models for the dwellings under construction in the years 2005-2007

Dependent Variable : UC05 R-squared : 0,964583

Variable	Coefficient	Std.Error	z-value	Probability
CONSTANT	-9,757565	2,774319	-3,517103	0,0004364
W05	0,04328079	0,004287129	10,09552	0,0000000
UEM05	-0,3256057	0,06083872	-5,351948	0,0000001
LAMBDA	-0,7586112	0,3303374	-2,296474	0,0216487

Dependent Variable : UC06 R-squared : 0,967385

Variable	Coefficient	Std.Error	z-value	Probability
CONSTANT	-16,32875	3,327295	-4,907515	0,0000009
W06	0,0533233	0,004875763	10,9364	0,0000000
UEM06	-0,3927335	0,07824362	-5,019368	0,0000005
LAMBDA	-0,881925	0,2868512	-3,074503	0,0021087

Dependent Variable : UC07 R-squared : 0,964303

Variable	Coefficient	Std.Error	z-value	Probability
CONSTANT	-17,71977	3,350205	-5,28916	0,0000001
W07	0,05040195	0,004564161	11,04298	0,0000000
UEM07	-0,3062303	0,08924669	-3,43128	0,0006008
LAMBDA	-0,9871412	0,242588	-4,069209	0,0000472

Source: own processing

Table 13b Application of regression models for the dwellings under construction in the years 2008-2010

Dependent Variable : UC08 R-squared : 0,944024

Variable	Coefficient	Std.Error	z-value	Probability
CONSTANT	-21,51017	4,891329	-4,397613	0,0000110
W08	0,05525477	0,006271374	8,810632	0,0000000
UEM08	-0,290531	0,1188995	-2,443502	0,0145455
LAMBDA	-0,9236068	0,2701198	-3,419249	0,0006280

Dependent Variable : UC09 R-squared : 0,953491

Variable	Coefficient	Std.Error	z-value	Probability
CONSTANT	-4,946769	5,015403	-0,9863155	0,3239783
W09	0,03555393	0,005798414	6,131666	0,0000000
UEM09	-0,5002432	0,1030836	-4,852791	0,0000012
LAMBDA	-0,9728544	0,2489952	-3,907122	0,0000934

Dependent Variable : UC10 R-squared : 0,947469

Variable	Coefficient	Std.Error	z-value	Probability
CONSTANT	-2,985721	4,863281	-0,6139315	0,5392605
W10	0,03251696	0,005500791	5,911324	0,0000000
UEM10	-0,5574108	0,09932349	-5,612075	0,0000000
LAMBDA	-0,9000596	0,2796999	-3,217947	0,0012912

Table 13c Application of regression models for the dwellings under construction in the years 2011-2013

Dependent Variable : UC11 R-squared : 0,942195

Variable	Coefficient	Std.Error	z-value	Probability
CONSTANT	-6,433945	5,138763	-1,252042	0,2105549
W11	0,03376713	0,005668086	5,957414	0,0000000
UEM11	-0,4007147	0,09413543	-4,256789	0,0000208
LAMBDA	-0,9981776	0,2375516	-4,201941	0,0000265

Dependent Variable : UC12 R-squared : 0,906508

Variable	Coefficient	Std.Error	z-value	Probability
CONSTANT	-0,3467939	5,964297	-0,05814497	0,9536330
W12	0,02470118	0,006455447	3,82641	0,0001301
UEM12	-0,3945089	0,1006485	-3,91967	0,0000887
LAMBDA	-0,9375979	0,2642688	-3,547894	0,0003884

Dependent Variable : UC13 R-squared : 0,875744

Variable	Coefficient	Std.Error	z-value	Probability
CONSTANT	-2,636379	7,632874	-0,345398	0,7297953
W13	0,02622192	0,007849049	3,340776	0,0008356
UEM13	-0,4153968	0,1502114	-2,765414	0,0056852
LAMBDA	-0,8737413	0,2900142	-3,012754	0,0025890

Source: own processing

For the number of dwellings under construction per 1000 inhabitants is spatial error model suitable for all evaluated years. The average wage, unemployment rate and lag coefficient lambda are statistically significant throughout the whole period of 2005-2013.

Signs of the coefficients are in line with expectations - positive for the average wage and negative for unemployment rate. The regression coefficient for unemployment is much higher.
The coefficient R2 is greater than 0.9 except in 2013, when the value reaches 0,876 (Table 13a-13c).

Analogous conclusions apply also on other examined indicators. For the number of **completed dwellings** per 1000 inhabitants, spatial error model is suitable for all the evaluated years except the years 2009, 2012, 2013.For 2009 and 2013 is spatial error suitable only as an independent variable of average wage. The average salary is statistically significant throughout the period 2005-2013.
Signs of the coefficients are in line with expectations - positive for the average wage and negative for unemployment rate. The regression coefficient for unemployment is much higher. The coefficient R2 is close to the value of 0.9; has never decreased below 0.8.

For the number of **started dwelling**s per 1000 inhabitants is spatial error model suitable for all the years evaluated except the years 2008, 2011, 2012, 2013. For the years 2008, 2012, 2013 is suitable spatial error model with independent variable - the average wage. The average wage, unemployment rate and lag coefficient lambda are statistically significant throughout the whole period of 2005-2013.
Signs of the coefficients are in line with expectations - positive for the average wage and negative for unemployment rate. The regression coefficient for unemployment is much higher. The coefficient R2 has not dropped below 0.80 at any model.

Conclusion

The objects of review were indicators: number of completed dwellings, the number of started apartments, the number of dwellings under construction, the average floor area of dwellings, the average monthly wage and unemployment. We consider those indicators as determining, as they have a major impact on supply and demand in the residential property market. With the application of mathematical and statistical methods we reached the results that show the nonstandard behavior, respectively connections between the indicators examined in the crisis, i.e. between 2009, 2010, 2011.Living and social status of the population is actually in the strong binding. It seems necessary to address social problems in symbiosis with economic and environmental contexts. Housing is the best example of that. The importance of housing in a long run highlights that most of the European countries support housing policy and contribute a certain percentage from GDP usually from 1 to 4 percent.

Housing is an important source of employment. This applies to a wide range of services related directly or indirectly to housing. Services for households and the services provided within the community related to the urban environment are a significant source of employment and are often organized and provided also with services directly related to housing.
What challenges XXI. Century means for housing?

- Increased mobility between regions,
- population migration to centers of urban character,
- changes in household structure - from the nuclear family to the free-form households, reduction of household members,
- lifestyle changes - smaller families, fewer social communication at work, call for deeper and more extensive communication within the free time activities,
- changes in health care - greater part of health care activities at home,
- changes in value systems in favor of the health aspects of the environment,
- reduction of the time devoted to the work,
- work at home,
- increased cost of living and the limitation of resources,

- workforce flexibility.

Housing will change in the context of new technical and technological changes affecting the technology of environmental protection, construction technology, management and efficient use of energy and water, security of buildings, technology of implementation of functions in the living space such as preparing meals, access to information, communication and education.

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Synergetic advantage of strategic Mergers and Acquisitions in Pakistan

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Abstract

The main objective of the study is to investigate the impact of Merger & Acquisition (M & A) on financial performance of the firms. Twenty six transactions of M & A happened in Pakistan ranging from the period of 1999-2011 were analyzed. Five main financial variables like liquidity ratio, activity ratio, leverage ratio, interest coverage ratio and the profitability ratio were applied to gauge the financial performance of the firms. Sophisticated techniques like Data Envelopment Analysis (DEA) and differential tests were applied to estimate the results. The empirical results showed that the performance of post-mergers were better than pre-merger in both financial and non-financial sectors. Furthermore, it was found that the performances of financial sectors were comparatively better than non-financial sector. The merger and acquision's activity was recommended strongly in financial sector. Moreover, in non-financial sector merger and acquisition was suggested under the observations of regularity authority.

Key words: Merger & Acquisition; Financial performance; Financial and non-financial sector

1.0 Introduction

Merger is defined as when two organizations decide to share common interest and ownership as a single entity or together to achieve their shared benefits, and to gain competitive advantage over other competing firms. Acquisition is well-defined as when organization procurements some assets, plant & equipment, strategic business units, or shares of the other company (Sudarsanam, 2003). Organizations use merger and acquisition (M & A) to achieve its various objectives to compete in the global business environment such as growth. An organization has the right to choose the type of growth strategy which is best suitable according to its business and competitive milieu (Ashfaq, 2014).

Three times escalation has been comprehended in the growth of the M & A activity in the US only in the 20th century and five times increment can also be seen in the total value of the activities. The UK along with other developed nations has also followed the same pace of development in the M & A activity (Afza & Yusuf, 2012). Most of the deals of M & A have taken place in last decade in China, Indonesia, Singapore, and Taiwan. The expansion in the activity is due to the unperturbed polices for the foreign investors and they found greater opportunities in these regions to come and acquire or merge the firms.

In Pakistan, M & A process is not fully grown in relation to the other developed countries because of the involvement of the Pakistani Government, nationalization of the institution in 1970s which decreased the rate of growth mainly in corporate and private sector of the economy. (Abbas et al., 2014) and there is a considerable research gap present in Pakistan when we compare them with the numerous studies conducted in the other developed countries because this activity has been fully grown in the advanced economies (Aamir, Kouser & Chaudhary, 2014: Bashir, Sajid & Sheikh, 2011).

The following figure shows the M & A activity in Pakistan from 1995 to 2015 both in terms of no. of deals & value and is taken the from the institute of Mergers & Acquisitions and Alliances (IMAA) analysis. In Pakistan, detail information about the firms who engaged in M & A activity is taken from the website of Karachi Stock Exchange and from the Competition Commission of Pakistan. According to the website of KSE, total number of deals held from 1995-2015, are 126. The Competition Commission of Pakistan stated that total numbers of merger events held are 51 and the 208 acquisitions are held. According to the sample size of the current study from 1999-2011 the number of events held in Pakistan are 107 as per the list available at the Karachi Stock Exchange website. A greater no. of events has been taken place in the financial sector of Pakistan.

In this current study the financial and non-financial sectors of the Pakistan are taken to investigate the pre and post-merger & acquisition performance from the 1999 to 2011. In financial sector, most prominently banks are involved in the economy and this study has selected the merger and acquisition deals of the banking sector from 1999 to 2011. On the other side, for the comparative analysis of the both sectors, financial and non-financial, this study has employed the textile, cement and pharmaceutical firms under the head of non-financial sector merger and acquisition deals from 1999 to 2011.

A list of various studies conducted in Pakistan about M &A activity has been presented in the literature review chapter which gives detail outlook about the M & A studies held in Pakistan. The current study finds the scope of the comparative analysis of the financial and non-financial sector merger and acquisition events held in Pakistan.

1.1 Objectives of the study:

- To differentiate the impact of M & A of financial sector of Pakistan
- To differentiate the impact of M & A of non-financial sector of Pakistan
- To test the operational efficiency of the pre and post-merged or acquired firms
- To measure the risk of the pre and post- merged or acquired firms
- To quantify the profitability of the pre and post-merged and acquired firms
- To give recommendations for the policymakers

1.2 Significance of the study:

Few studies have been conducted to evaluate the financial performance of non-financial sector of Pakistan before and after M & A deals. This research study will contribute to the concerned companies, managerial implications and to the policy makers by comparing the pre and post financial performance of M & A events held in financial and non- financial sector from the time period 1999-2011.

2.0 Literature Review

Now a days' business rivalry is changing the scope of business and borders of terrestrial regions because in this rapidly varying business environment organizations adopt the various procedures and strategies. M & A is one of the various growth strategies used by the organizations to compete in the rapidly changing environment (Kouser & Saba 2011). Trautwein (1990) and cox (2006) both have stated that there are numerous reasons due to which firms involve in the activity of M & A. They have mentioned the various objectives and motives under the head of various theories in an organized and logical way.

Selcuk, E. & Yilmaz, A. (2011) assessed the financial performance of selected 62 companies with the help of accounting data. The financial performance of banks in Indonesia was improved after merger & acquisition activity. Same trend has been seen in studies conducted in Europe and US. Banking sector of both countries showed the improvement in the post-merger financial performance respectively by Altunbas & Marques, 2008; Housten et al., 2001). The improvement has been shown after the M & A deals in the manufacturing sector of India. Beena (2004) analyzed the post-performance of firms by using the various indicators of financial performance with the help of t-test.

Rahman & Ayorinde (2013) studied the post-merger performance of the banks in the Nigeria. They scrutinized with the purpose to find effect on the performance of the banks after the M & A. Bank performance was measured with the help of ROA (return on assets), ROE (return on equity) and net profit margin. On the other hand, independent variable namely merger was also measured in terms of the following (strategic decisions), operating competence, asset profile, liquidity menace, capital configuration, and credit risk. Data were tested with the multiple regressions. The study showed that there is a positive relationship between the strategic decisions of mergers and the bank performance. The strategic decisions strappingly influenced the performance of banks. The research concluded that mergers can be used as a strategic tool to enhance the performance of the banks as well as mentioned that banking management must accept and apply the various strategies on products to enhance the revenues of the banks (Rahman et al., 2013). Another research on the corporate sector performance before and after merger had been carried out in India by Kumar & Bansal (2008). The study summarized the result that most deals gained the competitive benefits, increased efficiency, and the improvement in cost of business. The post-merger performance of the Indian corporate sector was improved over time.

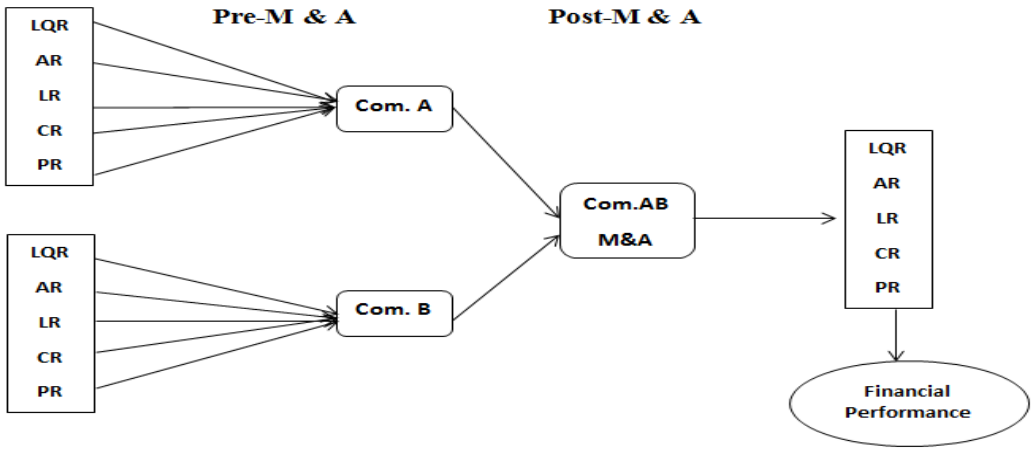
Usman, Khan, Wajid & Malik (2008) studied the impact of M & A deals of textile sector in Pakistan in terms of their operating and financial performance occurred during 2001-2005. The final results of the study demonstrated that pre-merger financial performance was better of the textile firms in Pakistan when compared to the after merger performance of firms. Fatima & Shehzad, (2014) conducted a research study to test the influence of M & A on the profitability of banks after merger deals. Sample size for this study is ten banks that were undergone into the process of merger and acquisition from 2007-2010. Data were gathered from the annual reports of the banks and to made comparison of their financial performance three years before M & A and three years after M & A data were collected. The study reveals that this practice has no optimistic effect on the banks fiscal health. The SPSS test, paired sample t-test shows that there is no significant impact of M&A on the banks financial performance except the return on equity (ROE).

In this paper, the profitability of the Royal Bank of Scotland (RBS) after merger has been investigated with the help of accounting and financial ratios in Pakistan by Kemal (2011). Data were taken from the year 2006-2009 and most frequently used 20 financial ratios were employed in the study to analyze the financial performance of the bank post-merger. The study clearly depicted that all the financial ratios employed in the study has positive relationship with the performance of the bank before the merger; this showed that there is no confident effect on the enactment of RBS after merger.

Another study concluded that efficiency and the size of bank are positively related with each other (Mehmood & Loan, 2006). The study further stated that foreign banks in Pakistan are more efficient

than the private banks from the time period 1994 to 2000.They used the SFA technique to calculate the performance of banks who involved in the activity of M & A. Merger and Acquisition has become mostly widely used strategy by the organizations to meet challenges of the vibrant business milieu (Abbas, Hunjra, Saeed, Hassan & Ijaz 2014). This paper examines the financial performance of banks in Pakistan that involved in the M & A activity. Data were gathered from the yearly reports of the banks taken from the State Bank of Pakistan. Sample size for this study is 10 banks and the various 15 financial proportions are employed to measure the pre & post fiscal performance of the banks. In this paper, paired sample t-test was also employed to gauge the pre and post difference in performance of banks. The result depicts there is no noteworthy difference in the enactment of banks in Pakistan before and after the M & A (Abbas et al., 2014).

2.1 Theoretical framework:



LQR= Liquidity ratio, (current ratio, quick ratio)
AR= Activity ratio, (sales growth ratio, total asset turnover ratio)
LR= Leverage ratio, (debt to total asset ratio, debt to equity ratio)
CR= Coverage ratio, (interest coverage ratio)
PR= Profitability ratio (return on asset, return on equity, net profit margin & earnings per share)

3.0 Methodology of the study

3.1 Interest variables of study

This research is a comparative study which scrutinizes the impact of M & A on financial performance of all merged firms in Pakistan from 1999- 2011 from financial and non- financial sectors of Pakistan. So this study is mainly based on the independent / exploratory variable, M & A events and the dependent variables are the eleven financial ratios. Current ratio, quick ratio, asset turnover, sales growth, debt to total asset ratio, debt to equity ratio, interest coverage ratio, return on asset, return on equity, net profit margin and the earnings per share.

3.2 Sample size of study

In financial sector mainly banking merger & acquisition deals have been taken and in the non-financial sector textile, pharmaceutical and cement sectors' deals have been included. Total 26 deals were selected from time period 1999-2011 in both sectors. In non-financial sector 15 and in financial sector 11 deals were observed during the specific time period. The study put forward hypotheses and tests them through statistical data analysis technique and the Data Envelopment Analysis. Sample

size of the study was selected on the basis of simple random sampling technique. A list with complete information of M & A activity in Pakistan is given below in the Appendix.

3.3 Data Collection

Data were gathered three years for both the acquiring and target companies to evaluate their pre and post- merger financial performance. The logic behind selecting the data 3 years for pre-merger and three year for pot-merger performance is that Yener & David (2008) and Abbas et at., (2014) stated that longer time period can deteriorate the financial performance of the firms particularly from the view point of post-merger performance because the other external factors & variables can negatively affect their financial health.

Data has been collected from the SBP's published financial statement analysis for the non-financial companies of Pakistan and some annual reports were collected form the library of SBP in the hard form from Karachi. The data collected for the research study is cross sectional because it has been collected at one point in time and the unit of analysis is individual organization.

3.2 Hypotheses

H_1: There is a positive relation after the merger & acquisition on firms' financial performance in financial sector
H_2: There is confident association after the merger & acquisition on firms' financial performance in non- financial sector
H_3: There is an optimistic impact on the operational efficiency of the firms after the merger & acquisition
H_4: There is a positive effect on the risk position of the firms after the merger & acquisition.
H_5: There is a confident link on the performance of the firms after the merger & acquisition.

3.4 Statistical method

The current study is analyzed with the help of two different techniques; namely paired sample t-test which is used for the differential studies and other is Data Envelopment Analysis (DEA). This study is a differential research in which the two companies are compared by their performance, pre and post-performance. For each company three years pre and three years post data has been collected and then compared (set wise). Ahmed & Ahmed (2014) stated that financial ratio analysis is used to gauge the performance of two effects. They further stated that this method of measuring performance is appropriate and best proxies can be employed for the ratio analysis. The current study uses the various eleven ratios to measure the financial performance expending the paired sample t-test. In the second part, Data Envelopment Analysis technique is used to measure the relative performance of the financial and non-financial sectors of Pakistan in terms of productivity and technical efficiency. DEA is an efficiency model and a non-parametric technique. Farell & M.J (1957) stated that, 'DEA is a mathematical programming technique. Two different approaches, production and intermediation can be used to measure the efficacy by DEA. This research study has taken the intermediation approach which is further categorized into input oriented analysis and the output oriented analysis by taking the conjecture of CRS (constant return scale) and the VRS (variable return scale). The online software of DEA is used to gauge the financial performance of the firms from both sectors.

4.0 Empirical Results

Table 4.1 and 4.2 shows the summarized ratio analysis for the financial and non-financial sector respectively and are given below in appendix. Comprehensively, the fallouts of financial ratio analysis for the banking sector from 1999-2011 reveal the declining results for the following ratios, current ratio, debt to equity ratio, interest coverage ratio, & return on asset ratio. Current proportion, debt-to-equity fraction and asset turnover ratio insignificantly decline, whereas the interest coverage

ratio significantly declines; which means that firms have weakened their abilities to meet the interest expenditures after the M & A. See results below in table 4.1. While quick ratio, asset turnover ratio and debt-to-total-asset ratio insignificantly improves after the M & A. Return on equity and earnings per share significantly improves after the events taken place. These two ratios shows the significant improvement in performance after the event while on the other hand sales growth ratio insignificantly remain the unchanged and the net profit margin ratio significantly remain same in post-period.

The comprehensive analysis of the paired sample t-test shows the insignificant performance of non-financial sector firms after the M & A event for the following ratios; current ratio, quick ratio, debt-to-equity ratio, debt-to-total-asset ratio, return on asset ratio, and earnings per share ratio. The current and quick ratio indicates that after the event firms insignificantly improve their liquidity position. While the asset turnover ratio depicts significant improvement and sales growth significantly decreases. Debt-to-equity ratio & debt-to-total asset ratio shows the momentous impact before the events while these ratios becomes insignificant after the event and depicts the increasing trend; which means that non-financial sector overall improved their solvency position. Interest coverage ratio significantly decreases showing that non-financial sector weaken its abilities to pay off its interest expenses in post-period performance. Profitability of these firms decreases after the merger & acquisition event. See table 4.2.

4.1 Comparative analysis

The comparative analysis of the both sectors is offered above in table, 4.3.The fallouts specify the performance of both sectors in the form of ratios. The financial sector, aggregately improves its financial performance in the following ratios namely, ATO, IC, DE and the EPS. While all other remaining ratios, CR, QR, SG, DA, ROA, ROE and NPM shown the declining trend overall. On the other hand, non-financial sector in aggregate analysis has shown the improvement for two ratios after the merger and acquisition, DE and the DA which means that solvency risk position improved for the firms and the total assets are performing efficiently to generate profits for the business.

The comprehensive and comparative analysis of the both sectors of the economy is presented in the table 4.3. The comparative analysis of the both sectors shows that the financial sector has shown the improvement in the four ratios while the non-financial sector did not perform well in comparison to the financial sector for all the events from 1999-2011. The financial sector after the merger or acquisition performed better in comparison to the non-financial firms; the reason behind is that banks are under the protection of the SBP and it maintains strict check and balance on them which makes their performance better.

The table 4.4 presents the results of the DEA applied on the eleven sample banks. The table shows the efficacy of the banks after the M & A by using the constant return to scale method. The study concludes that on average the banks perform efficiently in the post period. On the other hand, the non-financial sector on aggregate shows the inefficient performance after the M & A. See table 4.4 and 4.5 below in appendix.

5.0 Conclusion and Recommendations

The economy of the Pakistan is in very fragile condition and facing the numerous challenges nationally and internationally. The Merger & Acquisition is the strategy and most widely used tool all over the world to compete with the rapidly changing business ambience. It is the obvious restructuring tool to the businesses of the Pakistan to compete and take competitive edge to the competitors and to gain strong footings in the industry nationally and internationally. In Pakistan, the research has not been conducted widely and on larger scale as compared to the internationally conducted studies on this topic. However, this study has filled the gap in the literature review in measuring the financial performance of banks and non-financial firms from the textile, cement, and pharmaceutical industries from the time period of 1999-2011 by collecting the three year pre and three year post data for all the firms involved in the activity from their annual reports.

According to the results of the study, it can be safely described that the financial sector of the Pakistan has shown better performance as compared to the non-financial sector of the Pakistan after the mergers and acquisitions deals. It means that banks performed well after the event taken place measured in terms of financial ratios than the non- financial firms. However the overall results for both sectors are not proved significantly positive which means that comprehensively this growth strategy has not performed well for the development of the corporate sector and the economy overall in Pakistan.

The current study also formulates the suggestions and recommendations to the policy makers that they must formulate and design a comprehensive mechanism through which companies should take suitable steps before being involve in this activity.

1. The companies and the banks must have resources to fairly gauge the financial performance of the engaged companies before the event and have an estimated performance report after the event, i.e. post financial performance after the M & A.
2. The objectives and advantages of the M & A may not be ignored by the companies to achieve and have to develop and maintain cost synergies and so on.
3. The responsible institutions and the policy making bodies must have to develop the mechanisms that may upsurge the events of the M & A in the country in various sectors of the economy and to make them successful in terms of their financial performance which will be ultimately beneficial for the economic growth and development of the Pakistan.

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7.0 Appendix

4.0 List of companies involved in M & A activity from 1999-2011

Sr No.	Year of activity	Before M & A	After M & A
1	2011	My Bank Ltd	Summit Bank Ltd
2	2011	Atlas Bank Ltd	Summit Bank Ltd
3	2011	The Royal Bank of Scotland Ltd	Faysal Bank Ltd
4	2008	PICIC Commercial Bank Ltd	NIB Bank Ltd
5	2006	Jahangir Siddque Investment Bank Ltd	JS Bank Ltd
6	2006	Union Bank Ltd	Standard Chartered Bank Ltd
7	2006	First Allied Bank Modarba	Allied Bank Ltd
8	2006	Atlas Investment Bank Ltd	Atlas Bank Ltd
9	2004	Trust Commercial Bank Ltd	Crescent Commercial Bank Ltd
10	2004	Trust Investment Bank Ltd	Trust Commercial Bank Ltd
11	2002	Al-Faysal Investment Bank	Faysal Bank Ltd
12	2010	Shaheen Cotton Mills Ltd	Shahzad Textile Mills Ltd
13	2008	Pakistan Slag Cement Industries Ltd	Zeal Pak Cement Factory Ltd
14	2007	Dewan Hattar Cement Ltd	Dewan Cement Ltd
15	2006	Colony Textile Mills Ltd	Colony Mills Ltd
16	2005	Umer Fabrics Ltd	Nishat (Chunian) Ltd
17	2004	Lawrencepur Woollen & Textile Mills Ltd	Dawood Lawrecepur Ltd
18	2004	Burewala Textile Mills Ltd	Dawood Lawrecepur Ltd
19	2003	Nafees Cotton Mills Ltd	Legler-Nafees Denim Mills Ltd
20	2002	Ibrahim Textile Mills Ltd	Ibrahim Fabrics
21	2002	Zainab Textile Mills Ltd	Ibrahim Fibers
22	2002	A.A Texile Mills Ltd	Ibrahim Fibers
23	2002	Kohinoor Raiwind Mills Ltd	Kohinoor Textile Mills Ltd
24	2002	Knoll Pharmaceuticals Ltd	Abbott Laboratories Ltd
25	2001	Dhan Fibers	Dewan Salman Fibres
26	1999	Ellahi Spinning	Taj Textile

Table 4.1 Summarized Ratio Analysis of Financial Sector

Sr. #	Ratio	Pre M & A	Post M & A	Increased / Decreased
1	CR	Insignificant	Insignificant	D
2	QR	Insignificant	Insignificant	I
3	ATO	Significant	Insignificant	I
4	SG	Insignificant	Insignificant	A
5	DE	Significant	Insignificant	D
6	DA	Insignificant	Insignificant	I
7	IC	Significant	Significant	D
8	ROA	Insignificant	Insignificant	D
9	ROE	Insignificant	Significant	I
10	NPM	Significant	Significant	A
11	EPS	Significant	Significant	I

(A: average trend of the ratio)

Table 4.2 Summarized Ratio Analysis of non-financial sector

Sr. #	Ratio	Pre M & A	Post M & A	Increased / Decreased
1	CR	Significant	Insignificant	A
2	QR	Insignificant	Insignificant	I
3	ATO	Significant	Significant	I
4	SG	Insignificant	Significant	D
5	DE	Significant	Insignificant	I
6	DA	Significant	Insignificant	I
7	IC	Significant	Significant	D
8	ROA	Significant	Insignificant	D
9	ROE	Insignificant	Significant	D
10	NPM	Significant	Significant	D
11	EPS	Significant	Insignificant	D

(A: average trend of the ratio)

Table 4.3 Comparative Analysis of Financial Performance of Both Sectors

Sr.no	Ratios	Financial sector Performance	Non-Financial sector Performance
		Increased / Decreased	Increased / Decreased
1	CR	↓	↓
2	QR	↓	↓
3	ATO	↑	↓
4	SG	↓	↓
5	IC	↑	↓
6	DE	↑	↓
7	DA	↓	↑
8	ROA	↓	↓
9	ROE	↓	↓
10	NPM	↑	↓
11	EPS	↓	↓

Table 4.4: Results of DEA analysis of financial sector

Banks Name	TE Under CRS	TE Under VRS	SE	RTS	Ranking Under CRS	Ranking Under VRS	% Reduction In Input Under CRS	% Reduction In Input Under VRS
Summit Bank Ltd	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Summit Bank Ltd	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Faysal Bank Ltd	1.22	1.63	1.88	1	6.00	8.00	77.44	36.5
NIB Bank Ltd	1.78	1.00	0.748	0.00	2.00	3.45	41.78	39.00
JS Bank Ltd	1.00	1.35	1.00	1	3.27	6.00	41.90	0.00

Standard Chartered Bank Ltd	1.00	1.00	1.00	0.99	2.97	4.07	27.16	19.80
Allied Bank Ltd	1.58	1.81	1.99	1	1.56	5.00	41.86	18.50
Atlas Bank Ltd	1.04	1.00	0.72	1.36	1.43	2.00	0.00	0.00
Crescent Commercial Bank Ltd	0.94	0.11	1.67	1.00	0.76	1.00	53.10	10.39
Trust Commercial Bank Ltd	0.62	1.00	1.00	1.09	1.09	1.00	37.34	36.5
Faysal Bank Ltd	1.07	0.08	1.93	2.98	4.56	1.00	27.63	0.00

Where; TE = Technical efficiency, SE= Sales efficiency, VRS= Variable return to scale, CRS= Constant return to scale, sample size = 11,
Efficient = > 1, Inefficient = <1

Table 4.5: Results of DEA analysis of non-financial sector

Firm's Name	**TE Under CRS**	**TE Under VRS**	**SE**	**RTS**	**Ranking Under CRS**	**Ranking Under VRS**	**% Reduction In Input Under CRS**	**% Reduction In Input Under VRS**
Shahzad Textile Mills Ltd	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Zeal Pak Cement Factory Ltd	0.00	0.20	0.00	2.00	0.30	0.00	1.00	0.00
Dewan Cement Ltd	0.42	0.63	1.88	1	0.00	1.00	0.44	0.50
Colony Mills Ltd	1.28	0.00	0.00	0.10	1.20	0.40	21.70	00.00
Nishat (Chunian) Ltd	0.10	0.00	0.00	0.00	0.70	2.00	1.90	0.00
Dawood Lawrecepur Ltd	1.00	1.02	0.00	1.99	1.56	1.10	0.00	0.00
Dawood Lawrecepur Ltd	1.00	1.02	0.00	1.99	1.56	1.10	0.00	0.00
Ibrahim Fabrics	0.49	1.00	0.72	0.36	1.43	2.00	0.00	0.00
Ibrahim Fabrics	0.49	1.00	0.72	0.36	1.43	2.00	0.00	0.00
Ibrahim Fabrics	0.49	1.00	0.72	0.36	1.43	2.00	0.00	0.00
Kohinoor Textile Mills Ltd	0.07	0.00	0.93	1.98	1.80	0.00	0.63	0.00
Abbott Laboratories Ltd	0.00	0.00	0.00	0.32	0.12	1.00	0.22	0.00

Dewan Salman Fibres	0.69	0.11	0.67	1.00	1.76	0.00	0.10	0.39
Taj Textile	0.26	0.00	0.00	0.09	0.09	0.00	0.34	0.15

Where; TE = Technical efficiency, SE= Sales efficiency, VRS= Variable return to scale, CRS= Constant return to scale, sample size = 15,
Efficient = > 1, Inefficient = <1

An Extended Theory of Planned Behaviour in Predicting Individual Charitable Giving

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Abstract

The scenario in Malaysia, charitable organizations is challenged to raise significant donation to cover high demand for their services. For charities to survive in competition, they have to depend more on individual donors and less on the government for funding in order to survive. While the topic of charitable giving has been substantially studied, no known research has explored the applicability of the theory of planned behavior (TPB) in the context of individual charitable giving intentions and behavior. In addressing the research gap, this paper details a preliminary study which examined the influence of attitude, subjective norm, and perceived behavioral control and another two extended variable which is religious belief and trust on charitable giving intentions and behavior. Data were obtained via a survey on 347 individual donors in Kuala Lumpur, Malaysia. The results of the PLS analysis indicated that attitude, perceived behavioural control, religious belief and trust significantly predicted individual intention to undertake charitable giving. Contrary to expectations, the data did not provide support for the influence of subjective norm toward individual decisions to undertake charitable giving. This study will make the upper management of the non-profit organizations to understand about the different indicators that can affect charitable giving and will help to find out the characteristic that have positive impact on donations as well as on individuals. Thus, this study will be useful for all non-profit organizations to understand and influence donors/individual to donate in their organizations.

Keywords: Charitable Giving, Individual Donor, Partial Least Square (PLS), Theory of Planned Behavior.

1.0 Introduction

Charitable giving can be defined as the act of giving money or other items of value to charitable organizations without expecting anything in return (Oxford Dictionaries, 2014). Charitable giving commonly takes in a form of cash, and can also be real estate, motor vehicles, appreciated securities, clothing and other assets or services. Charitable giving is one of the approaches that can reduce the wealth gap in societies. The public donations are helpful to support the needy people in an era where government funding has been limited. In order to generate public funding, organisations need to understand the intentions and behavior of donors (Eng Ling,2012). However, the efforts to study the donor behavior and specifically intentions to donate money have not been studied extensively (Knowles et al., 2012). Understanding the motivation and intentions to donate money is important to develop effective marketing strategies which can generate charity from individuals to fund

emergencies and disasters. Charity organisations are struggling hard to raise funds to help the underprivileged. Over the years, the public donations are inconsistent with an overall declining trend towards charity donations (Eng Ling, 2012). On the other side, need to raise funds is rising rapidly and if this problem will not be tackled, it can cause trouble for the poor and needy (Sargeant et al., 2002). Some studies has been conducted in a developing country context but so far identified the role of demographics to explain the predictors of charity donations (Lord, 1981; Burgoyne et al.,2005;Lee and Chang,2007).These studies highlighted the gender and age differences to explain charity intentions but could not figure out as why people make donations (Smith and McSweeney,2007). Despite the significance of this issue, the author did not find clear studies in Malaysia to help better understand factors that motivate individuals' donor to undertake charitable giving in Malaysia. In fact, it was surprising to find that Theory of Planned Behavior (Ajzen, 1985) which is broadly utilized intention-behavior model has not been actively applied into area of charitable donation (Bartolini, 2005). Although Theory of Planned Behavior has received substantial empirical support with strong predictive utility, many studies have already attempted to extend and enrich the model by including additional explanatory variables.

Thus, this study are intended to proposed a framework by looking at the case of individual donors in Malaysia to develop a better understanding of Malaysian donor's by using the components from the Theory of Planned Behavior and another two additional variables which is religious belief and trust. Next the paper presents previous literature on the components and an overview of the methodology and the proposed framework for the current study.

2.0 Theory of Planned Behavior

The theory of planned behaviour (TPB) was developed by Ajzen (1985). Theory of Planned Behavior (TPB) is an extension of TRA with perceived behavioral control added as a variable for predicting intentions and behavior. Perceived behavioural control is the extent which a person feels able to enact the behavior. Intentions to perform behaviors of different kinds can be predicted with high accuracy from attitudes toward the behavior, subjective norms, and perceived behavioral control; and these intentions, together with perceptions of behavioural control, account for considerable variance in actual behavior. The combination of strong empirical support and widespread applicability has contributed to the popularity of the TPB. The TPB has been applied to the study of entrepreneurial intent in 12 countries representing all ten of the global region clusters as identified in the GLOBE project(Engle et al., 2010), the intention to use internet stock trading among investors in Malaysia (Gopi & Ramayah, 2007), Individuals' volunteer intention for future sporting events (Bang, A. Odio, & Reio, 2014), to predict Danish adolescents behavioural intention for healthy eating (Grønhøj, Bech-Larsen, Chan, & Tsang, 2012), and internet purchasing behavior (George F. Joey, 2004). There has been little research on charitable donation and charitable giving using the TPB. There are three components in TPB:

(i) Attitude toward charitable giving

The first construct of TPB is attitude where it is defined as an overall evaluation of one's behavior. Attitudes as an important psychological constructs have been found to influence and predict many behaviours. The TPB defines attitude toward behaviour as "the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question" (Netemeyer, Ryn, & Ajzen, 1991). According to Linden (2011), the attitudes to donate are measured using favourable indicators, similar to what is produced by the researcher conducted by Smith and McSweeney (2007), which also predict a person's intention to make donation. According to Cheng et al. (2006), before deciding to engage in a certain behavior, a person tends to assess the benefits and costs resulting from the behavior. So, when a person has positive attitude towards a specific behavior, she is likely to perform the behavior in question (Ajzen, 1991,2006;Cheng et al.,2006; Han et al., 2010). Regarding the attitudes to make charitable giving, the researcher measured this variables by asking questions regarding the pleasant, useful, favourable, good and important in making donations.

(ii) Subjective norms

The second determinant of behavioural intention is subjective norm which represents the beliefs about the normative norm of significant others (Ajzen, 2002). Subjective norms can be defined as "the perceived social pressure to perform or not to perform the behaviour" by the individual (Netemeyer, Ryn, & Ajzen, 1991). Theory of Planned Behavior explained subjective norm as a construct the determined by normative belief which is the expectation that comply with motivation that an individual in common, where a person like to perform something that other person such as their family members, friends, supervisor or the society like to perform since they perceived the behavior is appropriate to perform. This is where, a person will be using information about others in order to adjust their own behavior and as a result, he or she will perform the same behavior and perceived it as a common behavior in the group. According to Bidin et al. (2009), the subjective norm is associated with the belief that is conveyed by others, both by individuals and through the response of a group. The subjective norm can be understood as a reaction for someone to do something because of the pressure from others or a belief that becomes important when he does it to measure this variable of subjective norm, some questions items relating to other people support will be important, desirable, and whether or not someone is doing a particular activity.

(iii) Perceived behavioural control

The third independent variable of intention is perceived behavioural control. It seen as the perceived ease or difficulty in performing a behavior (Ajzen, 1991). Netemeyer, Ryn, & Ajzen, (1991) described perceived behavioural control as: "the perceived ease or difficulty of performing the behaviour". In addition, perceived behavioural control "is assumed to reflect past experience as well as anticipated impediments and consequences". PBC is basically an individual perception of their ability to perform a behavior. It is based on the individual feeling of having control over their own behavior. Usually, PBC will tend to exist when a person estimate the level of difficulty for him or her to perform a specific behavior. This is where the an individual control belief will influence his or her actual behavior Specifically, perceived behavioural control assesses 'the perception of how well one can control factors that may facilitate/constrain the actions needed to deal with a specific situation' (Han et al., 2010). Linden (2011) concluded that behavioural control can only occur in a particular action. Another action is one that occurs as it is influenced by factors beyond control. He posited that the driving behavior is delayed by the engine problems. Several factors come into consideration to form the PBC's variables which are the ability, willingness, and control to make charitable giving.

Based on the TPB factors the following hypotheses are depicted:

H1: Attitude has significant effect on charitable giving.
H2: Subjective Norm has significant effect on charitable giving.
H3: Perceive Behavioral Control has significant effect on charitable giving.

2.1 Extended Theory of Planned Behavior

Even though the theory of planned behavior has received substantial empirical support with strong predictive utility (Ajzen and Drive, 1991a; Conner,Warren, and Close, 1999), many studies have already attempted to extend and enrich the model by including additional explanatory variables (Broonen, 2001; Conner and Araham, 2001). Even Ajzen (1991) who introduced the theory proposed that the TPB is open to the inclusion of predictions, "if it can be shown that they capture a significant proportion of the variance in intention or behavior after the theory's current variables have been taken into account". These external variables indicate any independent variables that are not included in the theory. Demographic variables (e.g., age, gender, occupations, education, and religion), attitude toward target, and personality traits are some of the external variables mentioned in the theory (Ajzen and Fishbein, 1980). The primary concern with these external variables is that even though they may be related to the behavior in question, they do not directly influence behavior (Ajzen and Fishbein, 1980). For the current study, there are two additional variables which is religious and trust:

(i) Religious

Religion has been acknowledged by researcher as an important influence of human behavior (Lau and Tan, 2009) this is due to it is the most universal and influential social institution that give a greatest significant influence towards human attitudes, values, and behaviour (Alam, Mohd, & Hisham, 2011). According to Kasri (2011), he stated that in his study the strongest motivator for charitable donations is religion. This is due to people or individual especially a Muslim tend to make charitable giving because of the responsibility towards the society. The most powerful driver of religious giving motivations is receiving a return on charity in the afterlife (Skarmeas & Shabbir, 2011).

Schlegelmilch et al. (1997) clearly highlighted that 'donating' is a fundamental religious teaching and thus it is a key consideration when evaluating the influence of religiosity on donation behavior. Some of the past studies have shown that there is a direct impact between religiosity and attitude towards helping others and attitude towards the charity (Ranganathan and Henley 2008). Studies have also found that religious involvement will have positive influence on various forms of civic behaviour and charitable giving (Perks and Haan, 2010; Jackson et al., 1995). However, others have rejected these findings and found that there are no significant relationships between religiosity and charitable donation in an Australian context (Kanabar, 2004). The findings suggest that there must be more to religious belief than a direct impact on charitable donations. Based on religious teachings and it is predicted that it could have moderating effect in a charitable donation context. That is, if an individual is bounded by strong religious beliefs, they will value the charity's work even more. As the result, it will increase the likelihood of the donation.

(ii) Trust

Charity organizations strongly depend on the public's trust. Donors often do not know what happens exactly to their donations, how much is saved for overhead costs, and where the money is actually spent. This lack of transparency is dangerous because an occasional media report of poor performance and misallocation of funds may easily scandalize the entire philanthropic sector (Bekkers, 2003).

According to Sargeant and Lee (2004), public trust refers to the extent of donor belief that a charity will behave as expected and fulfil its obligations. Public trust is essential to the success of charitable organizations. It not only provides resources for charities, strengthening commitment of the public, but also offers charities a higher moral tone than other sectors (Sargeant and Lee, 2004). The failure to maintain public trust could lead to negative consequences, including decreased donations, image damage, diminished autonomy, or even organizational collapse. Thus public trust provides a premise for charities to perform. On the other hand, public trust is largely gained from good performance of the third sector, because people public trust charitable organizations mainly based on their good experiences with them and the belief that they are able to perform well (Luhmann, 1979).Thus the level of public trust in a charity might be able to indicate how well or how badly it performed. And the result of public trust assessment would be helpful for detecting the way to improve charity performance and secure the source of support from the general public.

Based on the extended factors the following hypotheses are depicted:

H4: Religious Belief has significant effect on charitable giving.
H5: Trust has significant effect on charitable giving.

3.0 Methodology

Respondents

The unit analysis was individual donor who had donated in the last one month. Based on the model of Structured Equation Model (SEM) complexity and basic measurement model characteristic, the minimum sample size required for this study is 100- 150 sample (Hair et al.,2010;Knowles, Hyde

and White (2012). In this study, there were 350 people approached in the city of Kuala Lumpur by the researcher.

Table 1: Profile of respondents

Demographic	Scale	Percentage (%)	Scale	Percentage (%)
Gender	Male	42.7	Female	57.3
Age	<20	7	41-60	26.4
	21-40	64.5	>61	2.1
Marital Status	Single	34	Divorced	0.6
	Engaged	5.8	Widowed	0.3
	Married	59.4		
Individual income per month (MYR)	< 1000	7.7	<2000	25.7
	<3000	26	<4000	13.3
	>4001	12.7		
Level of education	PMR/SRP/LCE	6	SPM/STPM	30.8
	Certificate	5.2	Diploma	21.9
	Above Degree	40.9	Other	0.6
Number of persons in household	<2	16.1	3-5	64.6
	>6	19.3		

Table 1 outlines the demographic profiles of respondents whom participated in the study. There were more females (57.3 per cent) than males respondents (42.7 per cent). In terms of age, the majority of the respondents fall between the "21-40 years of age" (64.5per cent). In addition, the majority of the respondents are "Married" (59.4 per cent) or "Single" (34 per cent). Further, a large group of respondents recorded an income fall into "less than RM3, 000 income" (26 per cent). A majority of the respondent "Degree and above" (40.9 per cent) or "SPM/STPM" (30.8 per cent). Moreover, most respondents have "3-5 numbers of people in household" (64.6 per cent).

Measurement

This study is a quantitative research study. We used a survey questionnaire to collect data. The questionnaire used was adopted form Kashif & De Run (2015), Teah, Lwin, & Cheah (2014), and Australian Charities and Not-for-profits Commission (ACNC) survey (2013). The questionnaire comprises seven sections of which one section is on demographic information and the remaining six have five-likert-scaled items measuring attitudes, subjective norm, perceived behavioural control, religious belief and trust.

Data Collection

In order to collect data, a few shopping malls located in the city of Kuala Lumpur were chosen as per convenience. There are many young people from surrounding small town who travel to the city for the purpose of work, study, and their personal business. The respondents were qualified through a screening question (i.e. have you donated money in the last one month?) The core objective behind this qualification of respondents was to gain insights from those who have actually donated. Once the initial qualification of respondents was completed, the researcher sought approval from individual respondents to participate in the study on a voluntary basis. There were 350 questionnaires distributed among the potential respondents, and 347 were found fir for data analysis.

4.0 PLS data analysis and results

The research model was evaluated using PLS which is a variance-based approach to structural equation modelling (SEM) (Hair et al., 2014). Three aspects of PLS render it a fitting statistical tool for this study. First, PLS is well suited for analysing predictive models with multiple-item construct.

Second, if appropriately applied, this method offers high efficiency in parameter estimation which manifiested in its greater statistical power than that of covariance-based SEM (Hair et al., 2014). It can also simultaneously test the measurement model and the structural model.

Stage 1: The measurement model

Assessment of the measurement model subscribes to a number of criteria. First, we assessed the convergent validity of the scales by applying three indicators namely factor loadings, average variance extracted (AVE), and composite reliability. As reported in Table 2, the factor loadings for all items exceeded the recommended value of 0.6 (Lee and Kozar, 2008) indicating convergent validity.

Table 2: Factor loadings and cross-loadings

Item	ATT	SN	PBC	RB	TR	INT
ATT1	**(0.821)**	-0.108	0.118	0.068	-0.031	0.045
ATT2	**(0.87)**	0.078	-0.101	-0.039	0.012	-0.008
ATT3	**(0.764)**	-0.089	0.082	0.043	0.041	-0.016
ATT4	**(0.862)**	0.037	-0.05	-0.035	-0.064	0
ATT5	**(0.843)**	0.067	-0.035	-0.029	0.046	-0.02
SN1	-0.033	**(0.862)**	-0.042	0.02	-0.108	0.16
SN2	-0.032	**(0.872)**	-0.131	-0.08	0.043	0.127
SN3	0.088	**(0.848)**	-0.156	-0.058	-0.019	0.102
SN4	-0.062	**(0.591)**	0.247	0.034	0.07	-0.199
SN5	0.035	**(0.512)**	0.267	0.159	0.059	-0.423
PBC1	0.02	-0.028	**(0.789)**	-0.075	0.021	0.083
PBC2	-0.013	0.12	**(0.854)**	-0.028	-0.051	0.009
PBC3	0.008	0.146	**(0.854)**	-0.05	-0.084	-0.047
PBC4	0	-0.122	**(0.838)**	0.057	0.027	0.012
PBC5	-0.016	-0.14	**(0.737)**	0.106	0.104	-0.058
RB1	-0.032	0.099	-0.068	**(0.889)**	-0.048	0.081
RB2	-0.033	0.11	-0.088	**(0.907)**	-0.065	0.105
RB3	0.017	0.091	-0.082	**(0.884)**	-0.01	0.194
RB4	0.042	-0.15	0.136	**(0.621)**	0.129	-0.238
RB5	0.026	-0.276	0.201	**(0.636)**	0.047	-0.301
TR1	0.018	0.007	0.023	-0.02	**(0.915)**	0.073
TR2	-0.015	-0.015	0.001	-0.013	**(0.94)**	-0.021
TR3	0	0.025	-0.028	-0.032	**(0.947)**	-0.006
TR4	-0.018	0.019	-0.016	0.013	**(0.932)**	-0.016
TR5	0.017	-0.038	0.021	0.055	**(0.888)**	-0.03
INT1	-0.046	0.139	-0.051	-0.113	0.15	**(0.607)**
INT2	-0.054	0.055	-0.012	0.028	0.023	**(0.879)**
INT3	-0.003	-0.008	-0.025	0.014	0.009	**(0.924)**
INT4	0.048	-0.048	0.035	0.011	-0.077	**(0.931)**
INT5	0.037	-0.086	0.034	0.022	-0.051	**(0.921)**

Besides factor loadings, AVE, composite reliability, and Cronbach's Alpha value for all the constructs were also examined. Table 3 shows that all AVE values exceed the recommended value of 0.5 (Fornell and Larcker,1981), suggesting adequate convergent validity. Similarly, the composite reliability values were well above the recommended value of 0.70 (Hair et al., 2010). Also the Cronbach Alpha values met the minimum threshold of 0.60 (Hair et al., 2010). Acceptable or high internal consistency demonstrates that appropriateness of the scale used in capturing the construct under investigation. On the basis of the overall results, we can conclude that the items used in this study have acceptable convergent validity. Hence, all items were retained for further data analysis.

Next, we examined the discriminant validity of the scales following Fornell-Larcker criterion. Table 4 compares the correlations among the construct with the square root of the AVE. The values of the square root of the AVE were found to be greater than the inter-construct correlations. Further, the values were greater than the recommended value of 0.707 (Lee and Kozar, 2008). We can therefore conclude that all construct exhibited acceptable discriminant validity.

Table 3: Reliability and Convergent Validity

Construct	AVE	Composite Reliability	R^2	Cronbach's Alpha
ATT	0.694	0.919		0.889
SN	0.567	0.863		0.799
PBC	0.666	0.908		0.873
RB	0.637	0.895		0.851
TR	0.858	0.968		0.958
INT	0.742	0.934	0.369	0.907

Table 4: Latent Variable Correlation Matrix

Construct	ATT	SN	PBC	RB	TR	INT
ATT	(0.833)	0.307	0.476	0.26	0.247	0.455
SN	0.307	(0.753)	0.268	0.301	0.228	0.148
PBC	0.476	0.268	(0.816)	0.221	0.393	0.43
RB	0.26	0.301	0.221	(0.798)	0.238	0.286
TR	0.247	0.228	0.393	0.238	(0.926)	0.357
INT	0.455	0.148	0.43	0.286	0.357	(0.861)

Stage 2: The Structural Model

The next stage was to examine the structural model to determine its explanatory power, and to test the hypotheses of the study. The effects of the construct defined in the proposed model (Figure 1) were assessed through coefficient of determination (R^2), path coefficient (β), effect size (f^2), and predictive relevance (Q^2). It can be observed in Table 5 that the path coefficient for four hypothesized linkages were positive and statically significant (at $p<0.01$). Specifically, the association between subjective norm and intention was statistically not significant, hence H2 were rejected.

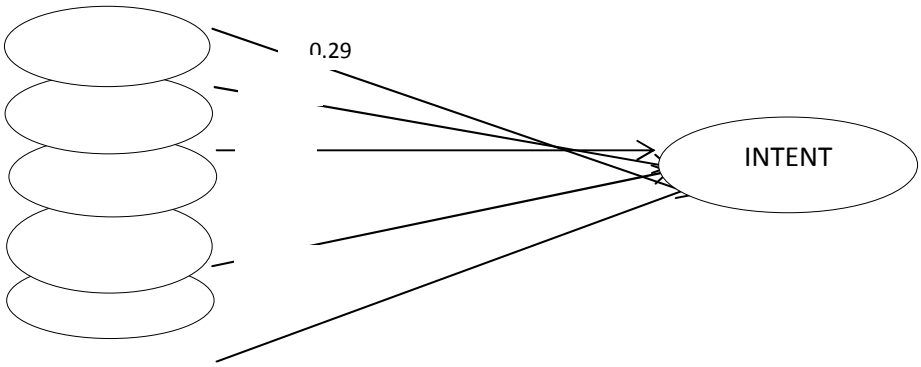

Figure 1: Structural results of proposed model

Table 5: Structural Model Results

Casual Path	Hypothesis	β	p-value	f^2	Supported
ATT-INTENT	H1	0.29	<0.001	0.142	YES
SN-INTENT	H2	0.03	0.276	0.006	NO
PBC-INTENT	H3	0.23	<0.001	0.112	YES
RB-INTENT	H4	0.14	<0.001	0.042	YES
TR-INTENT	H5	0.16	<0.001	0.067	YES

In Table 5 also shows that ATT is the strongest predictor of INTENT, with a path coefficient of .29 (p<.001), which by Chin's (1998), standards which are considered to be strong. From practical point of view, the effect size of the ATT-INTENT path further shows that the effect of ATT-INTENT,PBC-INTENT,RB-INTENT and TR-INTENT was small with f^2=0.142,0.112,0.042 and 0.067 respectively.

5.0 Conclusions

The primary objectives behind this research were to empirically test the extended TPB model and to investigate charitable giving intentions among Malaysians. The current study led to several noteworthy findings. First, the data supported the relationship between attention, perceived behavioural control, religious belief and trust with intention to undertake charitable giving. In this study subjective norm do not influence Malaysian to undertake charitable giving, this is due to that they are not conveyed by others, both by individuals and through the response of a group Bidin et al.(2009).

Interestingly, when compared to the other construct, attitude with a path coefficient of .29 (p<.001), made the strongest contribution to the variance in intention for Malaysian to undertake charitable giving. Thus this shows that when a person has positive attitude towards a specific behavior, they will be likely to perform the behavior (Ajzen,1991,2006;Cheng et al.,2006; Han et al., 2010). The second strongest contribution is perceived behavioural control with a path coefficient of .23 (p<.001), and this shows that Malaysian perceptions of their ability to perform a behavior and also based on the individual feeling of having control over their own bahavior in making charitable giving.

In this study shows that religious belief and public trust is another factors that influence Malaysian to undertake charitable giving with a path coefficient of .14 and .16 (p<.001) respectively. Although both influence Malaysian to undertake charitable giving, but their impact size is different and this shows that trust gives impact more on intention to undertake charitable giving with (f^2=0.47) compared to religious belief (f2=0.42). This is due to Malaysians tend to make charitable giving . if they know what happens exactly to their donations, how much is saved for overhead costs, and where the money is actually spent.

6.0 Limitation and Future Research

Despite several strengths such as sampling a non-student population, robust statistical techniques, and sound theoretical base, the study has some limitations. First, the data collected has not been noted that people from all religions donate but across the religions differences have not been explored (Ranganathan and Henley, 2008). Religiosity is an excellent avenue for future research in the area of charitable giving. Second, the data has been collected from the city of Kuala Lumpur which may not be representative of the whole country populations. Third, the time horizon of this study is cross-sectional which may not represent the differences of opinions over a period of time. There are many events as well as disasters which can change the attitude and ehavior of donors. Future researches are recommended to also conduct longitudinal studies to uncover differences in donations intentions over a period of time.

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Religious Based Charity and Transparency: A Content Analysis of Waqf Organizations Website

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Abstract

Being dependent on the public for funding, a transparent charity organization will more likely to gain confidence from potential donors. This paper focuses on waqf institution, a religious-based of charity organization. Waqf is an Islamic endowment. Waqf can be in the form of cash, property or assets that one donates for the social benefit of the society. Diverse examples of waqf asset include religious buildings, schools, cemeteries, orphanage, commercial and residential buildings and also fund for maintenance. The provision of waqf provides the giver with eternal reward as long as the waqf continues to benefit others either directly or indirectly. The perpetual nature of waqf makes it a highly effective platform for sustainable economic growth. Though many waqf organizations are private in nature, this paper examines transparency in state-owned waqf organizations in Malaysia. Waqf organizations in Malaysia are under the purview of state authorities. Each states set up its own authority to manage waqf. The trustee of waqf in Malaysia are managed by State Islamic Religious Councils (SIRCs). There are fourteen SIRCs each managing their own waqf organizations. This paper examines the information available on the websites of 14 state waqf organizations in Malaysia using content analysis approach. This study examines information on financial, management and media available in the organizations websites. As for the findings, most websites only provide basic organizational information, while financial matters such as collection and usage of fund were quite limited access. Information availability varies significantly among waqf institutions.

Keywords: Charity, Waqf Organizations, Transparency, Web Content Analysis

Introduction

Islam encourage their followers to practice altruism through *waqf* (Islamic Endowment) because of its roles to support religious and philanthropic activities (Hasan & Shahid, 2010). Being a Non Profit Organization (NPO), waqf institution efficiency cannot be judged by the profit criterion alone since they are not profit. Despite the vast size of waqf land, available statistics reported only 40% of waqf land in Malaysian were being utilized and most of it is for cemeteries, mosques and education (Ahmad, 2004). Locations of waqf land that are not strategic and uneconomic size contributed to the predicament. This situation highlighted some of the problems in managing waqf in Malaysia. The most frequent use of *waqf* revenues is spending on mosques, schools, orphan houses, poor, travelers, salaries of imams, salary of the other staff, Islamic preachers and others. The educational sector has been the second largest user of waqf revenues. Other social objectives include generating benefits for the needy and contributing towards wealth and prosperity, socio-economic development of the community and social progress. Waqf institution has potential to contribute to the development of shariah compliant socio-economic of projects as business centers and social projects such as orphanage and care centers (Hasan & Shahid, 2010).

This paper analyzes the function of internet in enhancing transparency of waqf organization. This research utilized web content analysis to examine the prevalence identified communicative and advocacy construct in waqf organization websites. Websites provide a platform for waqf organization to facilitate relationship with stakeholders such as donor, clients and others (Guo & Saxton, 2014). Waqf institution can increase their performance by adopting better financial and corporate disclosure through the use of the internet (Garay et al, 2013). The extent of internet disclosure can also increase

waqf corporate performance (Andrikopoulos et al, 2013) by providing information for investors and provide information access to all stakeholders (Wertheim, 2000).

This paper has twofold objectives. Objective is to examine the issues relating to transparency in waqf institutions. This is achieved through survey of various literatures and study undertaken concerning waqf institutions. The suggested framework proposes a guideline and suggestion for an effective waqf institution. This paper is divided into four sections. The first section underlines the background of study. The next section review synthesis the relevant literature, methodology and result. A final section concludes the paper.

Waqf Land in Malaysia

Waqf or Islamic endowment is an instrument used to retain certain property or asset for philanthropic purposes. Waqf is a provider for continuous and sustainable charity. Since religious matter falls under the purview of State authorities rather than Federal, waqf institutions in Malaysia are governed by State Islamic Religious Councils (SIRCs). There are fourteen SIRCs in Malaysia. It is estimated in 2010 there were 28,444.3 acres of waqf land worth USD580 million however, only 0.72% of the land were developed. The waqf assets are not successfully utilized as intended by the donors. Various factors contributed to the inability to fully develop the assets. Factors such as unfavorable location of assets, weak management and lack of accountability were identified as reasons why waqf assets were unable to generate positive returns to stakeholders (Hisham et al, 2013; Ihsan & Ibrahim, 2011; Rahman *et al.* 2006).

Data on waqf assets are quite difficult to access due to most of the data were not kept properly or deemed confidential by the waqf authorities. Table 1 shows statistic of waqf land in the state of Selangor.

Table 1. Usage of Waqf Land in Selangor, 2008.

No.	Type of usage	Size (acres)	Percentage (%)
1	Utilized waqf land	568.33	53.45
	Mosques	(462.62)	(43.5)
	Surau	(41.17)	(3.8)
	Cemeteries	(2.59)	(0.2)
	Schools	(50.58)	(4.75)
	Charities/Orphanages	(11.36)	(1.0)
2	Unutilized waqf land	494.91	46.54
3	Total waqf land	1,063.25	100

Source: Majlis Agama Islam Selangor, MAIS (2008).

Table 1 shows that the 53.45% of waqf land were utilized in the state of Selangor. More than 90% of the utilized waqf land were for religious purposes and the remaining for school and other charities (11%). Unutilized waqf land accounted for 46.54% of total waqf land. Waqf land are unutilized due to factors such as less strategic location, uneconomic size and scattered in different places. Furthermore, previous studies identify lack of expertise, lack of financial support, incomprehensive law, inadequate disclosure and poor accounting practices were obstacles in developing the waqf assets (Hisham et al, 2013; Ihsan & Ibrahim, 2011). Restricted classification of waqf land mainly for religious purposes deters potential investors and donors to develop waqf land (MAIS, 2008).

Waqf governance

Governance is the main of instrument in any organization for them to achieve their corporate goal. It is a concept that emphasize ethical virtue as transparency, equity, fairness, responsibility, accountability, prudence, participation and responsiveness to the need of the people and efficiency in the management (Hamid, 2008). From the perspective of NPOs, governance is synonymous with

improved performance. In its absence may hampers their role in and applicability in achieving the desired goal on social economic growth and society. However the existing governance framework needs furthers enhancement and improvement. Literature show that there is lack of attention that received by stakeholders and also governance that relate to the conflict of needs and objectives between stakeholders (Wellens & Jegers, 2014).

In addition, the board members of NPOs still lack in promoting good governing, similarly it is suggested that waqf organization to have their own specific governance framework to guide them to engage with good governance in order to achieve good governance for the benefit of waqf institution and their stakeholders (Arshad et al, 2014).

Transparency In Waqf Institution

Transparency is the most critical ingredient in good governance that can be defined as openness, which allowing others to know what is going on and what has done previous involving process that carrying out a task with sincerity, honesty and selflessness in order to achieve desire objective (OECD, 2004). Transparent is generally regarded as a key requirement for successful feedback systems and good governance (Burger & Owens, 2010).

Current management, accounting and reporting practices in waqf organization can helps in determine the scope and size of transparency. This is to ensure that waqf organization practices are shariah compliant. This in turn ensures the socio-economic objectives of waqf are met (Nahar & Yaacob, 2011). In addition, the use of current technology is recommended in establishing transparency in organizations. An independent media is a route to enhance transparency. Web is an agent of independent media that ables to promote transparency and strengthen social control by exposing acceptance of standard behavior to public view (Hamid, 2008).

Waqf organization itself abide by Islamic conducts in managing waqf assets in order to fulfill their accountability to Allah. Concurrently, accountability in fulfilling waqf objective will ensure that waqf contribute to expansion of muslim communities (Ihsan & Ibrahim, 2011). Furthermore, a clear and transparent reporting will enable stakeholders to ascertain whether organizations have fulfilled their accountability. The report will also portray how compliant waqf organization are to the shariah rules in managing waqf assets (Nahar & Yaacob, 2011). Fully transparent culture in waqf organization can be achieved by applying open communication though management, financial or any relevant media sources such as website, magazine or annual report (Salvatico, 2006: Burger & Owens, 2010)

Waqf organization website disclosure

Website disclosure defined as the material provided on public website that show organization innovative practice that voluntary disclosure. Financial and performance level of organizations are two important components of disclosure sought by stakeholders (Lee & Joseph, 2013). Financial disclosure includes annual report or audited financial statements while performance disclosure includes organization mission and vision, performance goal and outcome, success stories, communities' impact, staff list or broad list. Organizations that had higher disclosure are more likely to be successful compared to organization that applied lower disclosure

Not only disclosure increase transparency, it is also more likely to improve future contribution by donors (Gandia, 2011). Besides, disclosure can decrease the opportunity for selfish motive that could encourage the exploitation of weakness in information flow and feedback system (Djankov *et* al., 2008). Through disclosure, organizations are able to provide information to potential clients, members, donors and volunteers. Organizations are also able to provide basic data for research and establish norm for peer organizations (Bothwell, 2004).

Despite the advantages of being transparent, misleading information disclosed by organizations in lieu of favorable view from the audience is a main concern. Providing information also depends on willingness and the ability of organizations (Burger & Owens, 2010). Absence of regulatory body

hampered the desired level of disclosure and uniformity in the industry (Wertheim, 2000). Furthermore, web vulnerability or network database leakage compromise organizational security limits information disclosed by organizations (Cho & Pan, 2015). Organizations websites only provide their basic information, scope, issues around organizations and periodical management report (Lopes, 2014). This incomplete development of information directly inhibits the role of website as stage to improve transparency (Cho & Pan, 2015). Most waqf organizations are not adhering to the best practice guidelines.

Methodology: Web content analysis approach

Internet is a platform for organizations to communicate their message and information to the public. It provides an incredible opportunity for audience adaptation and personalization any messages and the World Wide Web is clearly more efficient than dyadic interaction. Although many people lack Internet access, millions are connected, and number of potential audience increasing daily. Using the Internet to disseminate messages involves less cost than other media in terms of time, personnel, and money.

As of 2012, 65.8% of Malaysian population had access to internet and the ICT Development Index (IDI) for Malaysia has increased from 66% (2012) to 71% (2013) (SKMM, 2014). This study examined the information available on website organization using web content analysis approach by Krippendorff, 2004. Web analysis process included discourse analysis to study web content. Focus of the analysis is on web as socio-cultural 'texts' and it described and explored from a qualitative perspective to uncover underlying meaning and significance (Gibson, n.d). This web-based media require methods of analyzing form and content, along with processes and patterns of production, distribution, usage and interpretation Content analysis is a wide and varied of manual or computer assisted techniques for contextualized interpretations of documents produced by communication processes of any kind of text, written, iconic, multimedia, and others or signification processes, having as ultimate goal the production of valid and trustworthy inferences (Tipaldo, 2014).

Data collection

Data was collected through accessing all 14 SIRCs websites. Data on transparency characteristics of the websites were recorded. Transparency information revealed on the websites are recorded through a measurement proposed by the Sunshine Review (2013) and Lowatcharin & Menifield (2015). The Sunshine Review had developed a "7 point transparency checklist" including, budget, meetings, elected officials, administrative officials, permit and zoning, audits, contracts, lobbying, public records and local taxes. The websites will be awarded 7 points if all information are provided in their web pages.

Result

All fourteen websites were analyzed, however none of the websites succeed to fulfill all the criteria. Only two SIRCs obtained a score of six out of the maximum seven. Majority (6) of SIRCs scored five out of seven points. Three SIRCs provided less than half of the information listed on the disclosure checklist. Data presented on the last date of web access which is 27 February 2015.

Table 2. Information provided by SIRCs Websites

No.	SIRCs	Disclosure checklist							Total points
		AO	B	S	Au	AR	I	Ac	
1.	NS	/	/	/	X	/	/	/	6
2.	Kedah	/	/	/	X	X	/	/	5
3.	Pahang	/	/	/	X	X	/	/	5
4.	Perlis	/	/	X	X	X	/	/	4
5.	Johor	/	/	/	X	X	/	/	5
6.	Melaka	/	X	/	/	X	/	/	5
7.	Penang	/	X	/	/	X	/	/	5
8.	Perak	/	/	X	X	X	/	/	4
9.	Kelantan	/	X	X	/	X	/	/	4
10.	Sarawak	X	X	/	X	X	/	/	3
11.	FT	/	X	/	/	/	/	/	6
12.	Selangor	/	/	X	X	/	/	/	5
13.	Sabah	X	X	X	X	X	X	/	1
14.	Terenganu	X	X	X	X	X	/	/	2
	TOTAL	11	7	8	4	3	13	14	Ave= 4.2

NS	Negeri Sembilan
FT	Federal territory
AO (Administrative official)	Contact information, organization chart and number of staff in waqf unit.
B (Beneficiaries)	The information of person that received benefit from waqf.
S (Source of waqf)	The information of waqf sources.
Au (Audit)	The information of WAQF audit process and output.
AR (Annual Report)	The information of yearly end report.
I (Information)	Consist of Waqf basic information.
Ac (Activities)	The information of activities or projects that used waqf fund.

Activities and basic information on waqf are the information readily available on almost all SIRCs websites. The next most available information is contact number of waqf staff. Eleven (78.5%) SIRCs provided information that includes staff full name, their position, telephone number and email address. Headcount on the number of staff discovered that waqf institutions in Malaysia has a total 131 staff. However, evidence from visits showed that most of SIRCs shared their staff among departments. For example, a staff might be entrusted not only to waqf department but also to other

departments in the SIRCs. Obviously this has a strong bearing whether a staff can really contribute to the development of waqf. Only eight (57%) SIRCs posted their waqf organization chart online.

Eight (57%) SIRCs websites provide information on sources of waqf fund. The information however is general in nature, no specific information on donors and amount of donation were disclosed. Access to such information are considered as classified. Seven (50%) of SIRCs websites provided information on beneficiaries and types of benefits given. Again, the information are in general with no specific details on recipients provided.

Only four (28.5%) of the SIRCs exhibited information on audit. The information provided however are on details of audit staff such as job scope, position and contact information. Information on audit activities were not available. Three (21.4%) SIRCs, namely the Federal Territory, Selangor and Negeri Sembilan posted their yearly end reports on the websites. Although reports on waqf are minor part of SIRCs report, it's an important contribution in securing confidence from stakeholders including donors. Annual reports provide information on organization's financial health and can attract support from donors (Liket & Maas, 2015). Apparently, the three SIRCs that published annual reports are among the more developed SIRCs in Malaysia.

Conclusion

Responsive organization systems are labeled as part of good governance. The development of waqf governance improve effectiveness and efficiency of waqf organization. Disclosure enables waqf organization to develop productive relationship among public, beneficiaries and trustees. It also enhances cooperation and contribute to improvement of waqf administration. Increase disclosure also translates to greater transparency, better management and increase public trust. Advent of modern and sophisticated information technology system such as the establishment of websites, promotes greater disclosure and transparency in organizations.

Overall, the study found that the disclosure among SIRCs as far as waqf matters are concern are still low. This is evident by types and lack of depth of information disclosed on the websites. Information on financial and organizational performance ranked the lowest among types of information disclosed. Level of disclosure varies among SIRCs. High disclosures, as evident in the websites, are associated with SIRCs which exhibit better management of their waqf institutions.

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La Typographie Du Site Web : Entre La Théorie Et La Pratique

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Résumé

Alors que le texte occupe une place importante sur les sites web, cette étude dresse un état des lieux actuel des différentes typographies utilisées. Sur la base d'une revue de travaux fondateurs et un audit typographique de 58 sites web, cette recherche exploratoire discute les principales caractéristiques typographiques choisies par les designers de ces sites et en fait le rapprochement avec les travaux théoriques portant sur la typographie.

Nos résultats mettent en évidence un réel gap entre les pratiques des concepteurs et la revue théorique. Ainsi, nous tentons d'expliquer ce fossé et donner des pistes pour les travaux futurs, afin de le réduire.

Mots clés : typographie, lisibilité, esthétique, commerce électronique

THE TYPOGRAPHY OF WEBSITE: BETWEEN THEORY AND PRACTICE

Abstract

While text occupies an important place on websites, this exploratory study provides a current state of play of the use of different fonts by French websites.
Based on a review of pioneering works, and a typographical audit of 58 websites, this exploratory research discusses the main typeface chosen by theses website's designers and establishes a connection with theoretical works on typography.
Our findings highlight a real gap between designer's practices and our theoretical review of the literature. Thus, we try to explain this gap and also provide ideas for future researches, in order to reduce it.

Keywords : typography, legibility, aesthetics, electronic retailing

Introduction

Sur les sites web marchands, les contenus d'informations sont majoritairement de nature textuelle. Ainsi, il est important d'accorder une grande attention à la typographie. Le choix des polices, de la taille, de la mise en page des différents contenus au sein des pages web, mais aussi le sens donné à la rédaction, tous ces paramètres s'inscrivent ainsi dans une démarche d'utilisabilité, d'accessibilité et d'ergonomie, enjeux essentiels pour l'amélioration de la qualité des sites web.

Il est important de noter que la lecture du contenu reste l'activité principale de l'internaute sur le web. Cependant, elle est beaucoup moins confortable que sur papier, et il a en effet pu être mis en évidence

que la vitesse de lecture sur un écran est sensiblement moins rapide que celle que l'on observe sur un support papier[1] (Nielsen, 2013).

Dans ce contexte, plusieurs travaux de recherches se sont intéressés à la typographie afin d'optimiser la lisibilité du texte sur le web, comprendre son impact sur le comportement du consommateur, mais aussi de mettre à disposition des responsables marketing les principaux ingrédients théoriques requis pour favoriser l'amélioration de l'expérience de l'utilisateur. Or, malgré la richesse des implications théoriques issues des travaux de recherche, 74% des Français préfèrent encore lire en version papier même si la plupart des informations qu'ils contiennent sont accessibles en ligne[2] (Cabinet Deloitte, 2013).

De ce fait, la question des relations entre théorie et pratique est au centre de notre recherche. Elle est souvent abordée sous l'angle de l'utilité des recherches pour les managers, et l'accent est plutôt mis sur le décalage entre théorie et pratique. L'ambition de cet article est d'interroger les liens théorie-pratique en terme de choix typographique. Réactualiser ces données et développer une meilleure compréhension des choix des designers apparaît essentielle afin de mieux sensibiliser les chercheurs sur les pratiques professionnelles et renseigner les responsables des sites sur les stratégies à adopter.

Dans cette perspective, nous montrons en premier temps les principaux travaux théoriques portant sur la typographie, et puis dans un second temps, nous mettons en œuvre un audit typographique de l'utilisation des différentes typographies par les sites web en France. Et nous terminons par donner des pistes pour les futurs travaux de recherches.

1. Le cadre conceptuel de la recherche

Selon Médiavilla (2006), la typographie peut être définie comme « l'art de composer et de mettre en pages les textes». Pour McCarthy et Mothersbaugh (2002), la typographie fait intervenir trois facteurs : les caractéristiques de la police, l'espacement et la mise en page.

- *Les caractéristiques de la police* : elles rassemblent les éléments qui affectent l'apparence concrète des formes des lettres. Elles incluent le style de caractère, la taille, la hauteur du corps, la graisse, l'inclinaison, le soulignement, la couleur, et dans le cas des médias électronique, ils rajoutent « le mouvement » comme sous-dimension de la police. Il est intéressant de noter qu'il existe de nombreuses polices de caractères et de nouvelles ne cessent d'apparaitre chaque jour. De ce fait, des classifications ont pu être proposées. La plus connue est celle établie par Maximilien Vox en 1954 et adoptée par l'Association typographique internationale depuis 1962. Cette classification se compose de 11 familles de polices de caractères regroupées en fonction de caractéristiques physiques communes (l'empattement[3], l'axe d'inclinaison[4] et la hauteur d'x[5]). Par exemple, la famille des linéales regroupe les polices sans empattement et la famille des humanes est caractérisée par des polices utilisant les empattements. Par ailleurs, les Scriptes, les Manuaires et les Fractures présentent la particularité d'imiter l'écriture manuelle ou calligraphique.

- *L'espacement* : il correspond à la distance existant entre les lettres, entre les mots, et entre les lignes de texte.

- *La mise en page* : elle regroupe la longueur des lignes, le nombre de colonnes, le cadrage du texte et l'homogénéité ou le contraste du texte par rapport à la page web dans son ensemble.

1.1. Le rôle de la typographie : de la lisibilité à l'esthétique

La typographie est à la fois mot et image. Elle se situe entre le langage verbal et le non verbal. En effet, trouver un juste équilibre entre esthétique et fonctionnel est nécessaire. Selon Stôckl (2005), les polices de caractères possèdent une dualité dans leur nature car elles ont en premier lieu pour objectif de respecter les conventions typographiques afin de rendre un texte plus lisible. Ainsi, en utilisant les

signes visuels conventionnels pour écrire, la typographie rend le texte reconnaissable et fonctionnel. D'autre part, la typographie possèdent des aspects iconiques qui offrent une apparition beaucoup plus joueuse avec le signe écrit en allant chercher tout son potentiel pictural (Stôckl, 2005). Cette propriété s'opère par l'usage de plusieurs procédés typographiques tels que: la direction des lignes, la mise en pages...etc.

1.2. Les effets des caractéristiques typographiques sur la lisibilité et l'esthétique

Les premiers travaux portant sur la typographie des sites web étaient souvent exploratoires en s'intéressant à **la lisibilité** des pages web. De ce fait, Hill et Scharff (1997) ont fait varier deux combinaisons de **polices**, en plus de faire varier six couleurs. La meilleure lisibilité a été obtenue avec le texte de couleur vert sur fond jaune quand la police était du Times New Roman (police avec empattement). En revanche, en utilisant cette même charte graphique avec la police Arial (police sans empattement), le résultat était beaucoup moins bon. Ainsi, Ovink (1938) et ensuite et al. (1971) ont
trouvé que l'empattement était utile car il avait un rôle décoratif et un effet sur le traitement visuel. Les empattements permettent de distinguer facilement les lettres. La lettre « i », sans empattement est notée « i », la similitude avec le « l » dans la même fonte est intense.

Concernant la taille, certaines études soulignent qu'elle a peu d'effet sur la lisibilité. Tinker (1965) et Zachrisson (1965) constatent que les tailles de 8 à 12 points ont un rendu de lisibilité semblable.
Tout comme les caractéristiques de la police, **la mise en page** peut affecter la lisibilité de la page web. Les recherches passées ont montré les lignes de texte comportant de 40 à 70 caractères peuvent être lues sans difficulté. Au-delà ou en deçà de cet intervalle, la longueur des lignes pourrait affecter la vitesse de lecture car cela nécessite plusieurs sauts visuels pour passer d'une ligne à une autre (Bastien, et al. 1998 ; Bernard 2003 ; Schneiderman, et al. 2006).

Les caractéristiques de **l'espacement** semblent aussi pouvoir affecter la lisibilité. Des caractères trop près les uns des autres sont difficiles à différencier et rendent la lecture difficile. Ainsi, des caractères trop espacés empêchent le regroupement des lettres pour former les mots ; la lecture est alors ralentie. De ce fait, Ambrose et Harris (2008), insistent sur l'importance d'un bon réglage de l'interlignage et recommandent l'utilisation d'un interligne plus large que la hauteur de la police. En deçà de cette hauteur, le texte paraît compressé, et au-delà, la composition est incontestablement aérée et l'œil du lecteur est perturbé, car il doit faire un saut d'une ligne à l'autre.

En ce qui concerne l'aspect **esthétique** véhiculé par la typographie, les caractéristiques typographiques peuvent affecter l'apparence en influençant la physionomie et le sentiment d'ensemble du site web par plusieurs manières. Si on se réfère à la théorie de la forme, et notamment au principe de symétrie, on peut se rendre compte que des lignes de texte très déséquilibrées peuvent donner un sentiment d'une page déséquilibrée et donc entrainer une attitude négative vis-à-vis de cette page. De même, le principe d'unité de la théorie de la forme suppose encore que l'utilisation de polices non homogènes entre les masses de texte peut créer un manque de cohérence, ce qui peut conduire à une attitude négative vis-à-vis du site (McCarthy et Mothersbaugh, 2002).

2. Méthodologie

Afin de dresser un état des lieux actuel et complet de l'utilisation des différentes typographies par les sites web en France, et analyser les évolutions par rapport aux travaux cités en théorie, une analyse typographique a été effectuée sur 58 sites. Le choix des sites s'appuie sur les critères suivants : une diversité de catégorie de produit et ou service, le volume de fréquentation et préférence par les Français en 2014[6] Nous citons à titre d'exemple les sites suivants: Amazon, Cdiscount, booking.com, billetreduc.com, voyages-sncf.com, vente-privee.com, lemonde.fr...etc.

L’analyse concerne 6 secteurs d’activités : sites de voyages-tourisme, sites de vente de vêtements, sites d’actualités et d’informations généralistes, sites de cinéma, sites féminins et enfin sites de guides de sorties et loisirs.

Les sites Internet ont été audités sur la base d’une grille d’analyse qui observe les principales dimensions de la typographie : style de caractère, type de polices, nombre de polices, taille de caractère, interlignage et la longueur des lignes.

3. Résultats et discussion

Tableau 1: type de police de caractères utilisé par les sites web

Type de police	Effectif	Pourcentage
Sans empattement (sans sérif)	54	93%
Avec empattement (sérif)	4	7%
Total	58	100%

A la lecture du tableau (1), nous relevons que la majorité des sites web (93%) préfèrent l'utilisation des polices sans empattement. Il y a deux raisons pour cette tendance :

- Un caractère avec empattement produit des « effets d’escalier » sur sa base qui rend la lecture plus difficile sur le web contrairement à l'imprimé où les recherches passées ont démontré que le style sans empattement est plus facile à lire (Burt, 1959, 1960).

- La résolution d’un écran est beaucoup plus faible que celle du papier. En conséquence un caractère avec empattement risque de produire un effet de flou qui rend la lecture plus difficile.

Tableau 2: les principales polices de caractères utilisées par les sites web

Police de caractères	Effectif	Pourcentage
Arial	33	57%
Helvetica	5	9%
Tahoma	5	9%
Georgia	4	7%
Verdana	3	5%
Trebuchet MS	2	3%
Autres polices de caractère	6	10%
Total	58	100%

Le tableau (2) montre que la police la plus utilisée pour le texte courant est l'Arial (57%), suivi de l'Helvetica (9%) , Tahoma (9%) et ensuite le Georgia à (7%). Contrairement à ce recommandent Hill et Scharff (1997), nous n'avons relevé aucun site qui utilisait la police avec empattement Times New Roman.

Les résultats ont établi également que 57% des sites utilisent au minimum deux polices différentes. Les recherches en théorie ont démontré que des variations dans les caractéristiques de la police entrainent des différences significatives au niveau des associations sémantiques (Bartram, 1982; Rowe, 1982). De même, par le principe d'intensité de la théorie de la Gestalt, les objets similaires et/ou proches ont plus de chance d'être perçus comme une unité cohérente, et les objets différents et/ou distants comme des entités séparées. Par conséquent, l'utilisation de plusieurs polices non harmonisées peuvent donner le sentiment que le texte est désorganisé et incohérent. Ces sentiments négatifs pourraient entrainer des comportements d'évitement.

Tableau 3: tailles de caractères utilisées par les sites web

Taille (Pixels)	Effectif	Pourcentage
12	21	36%
13	9	16%
14	8	14%
16	6	10%
15	5	9%
11	4	7%
17	3	5%
18	2	3%
Total	58	100%
Moyenne	***13,5***	

Pour ce qui est de la taille de caractère, le tableau 3 montre que la taille de caractère la plus utilisée (36%) est de 12 pixels. Néanmoins, l'analyse illustre l'existence de divergences importantes dans la mesure où 18% des sites affichent des tailles supérieures ou égale à 16 pixels. En théorie, les effets de la taille du corps sur la lisibilité sont controversés : l'effet mis en valeur est soit monotone soit en U inversé (Mc Carthyet Mothersbaugh, 2002). La taille de la lettre et sa capacité à être distinguée au sein de la police sont deux facteurs décisifs. La taille est importante, du fait des limites de nos systèmes de perceptions, les stimuli doivent être de taille suffisante pour être facilement perçus et traités. La capacité à être traitée, est importante car, comme Tinker (1963) l'a montré, beaucoup de lettres (c'est à dire c, e, s, o, i, n) sont généralement peu lisibles, alors que d'autres lettres partagent des formes communes et sont différenciés seulement par différences mineures (par exemple i et l). Si les lettres sont trop petites, la reconnaissance des mots est très difficile. En revanche, une fois que les lettres sont d'une certaine taille, elles sont assez grandes pour être facilement reconnues, quelle que soit leur capacité à être distinguées.

Tableau 4: longueur moyenne des lignes utilisées par les sites web (nombre de caractères par ligne)

Secteur	Moyenne
Voyages-Tourisme	104
Guides de sorties et loisirs	95
Actualités, informations généralistes	91
Sites Féminins	90
Vente de vêtements	87
Cinéma	80
Moyenne globale	**91**

Concernant, la longueur des lignes, Shaikh (2005) montre qu'elle influence la préférence du texte quand il est présenté sur un écran d'ordinateur (préférence pour les lignes les plus longues ou les plus courtes). Les résultats de l'audit des sites qui ont fait l'objet de l'étude montrent qu'une ligne comprend en moyenne 91 caractères. Néanmoins, la longueur de lignes a aussi un impact sur la lisibilité. Paterson et Tinker (1940) observent que l'optimum de la longueur d'une ligne se situe aux alentours des 75-90 millimètres soit approximativement 60 caractères de taille de 12 pixels. En-deçà et au-delà de cette limite, le temps de passage d'une ligne à une autre altère la vitesse de lecture.

Les auteurs ont également étudié l'interaction entre la longueur de ligne et l'interligne. Ainsi, plus la ligne est longue, plus l'interligne doit être important. Becker et al. (1970) affirment que chaque fonte a un type d'interligne idéal. En se basant sur ce dernier point de Becker, nous avons calculé l'indice (Interlignage/taille de la police). Ainsi, *l'interlignage moyen* est de **1.3 fois** le corps avec un écart-type de 0.2. Cette hétérogénéité dans les choix des professionnels nous amène à nous interroger sur la

facilité de passage d'une ligne à une autre lors de la lecture et aussi sur l'apparence de la page web. En effet, la physiologie de la lecture suggère qu'un espacement réduit entre les lignes conduirait à des chevauchement entre des lignes successives, ce qui devrait réduire la différenciation des lettres et par là la lisibilité. Cependant un grand espace entre les lignes n'est pas forcément meilleur car il peut augmenter la difficulté à passer de ligne en ligne et donc augmenter le temps de fixation oculaire sur les mots et réduire la rapidité de lecture (Bentley, 1921).

L'interlignage peut aussi affecter le look et le sentiment général crée par le texte. Un plus grand espace entre les lignes augmente la surface prise par le texte et donc accroit la perception qu'il y a davantage de texte. Des études ont montré d'ailleurs l'effet négatif de la longueur du texte sur le lectorat (Finn, 1988). A titre illustratif, le site d'information *Lci.tf1.fr* qui fait partie de notre échantillon d'étude affiche en haut à droite sur chaque article le temps de lecture pour minimiser la probabilité de fuite de l'internaute.

Enfin, nous découvrons également que plus de 81% des sites ne justifient pas à droite et à gauche leur texte. La pratique quasi-généralisée est d'aligner le texte à gauche et de le laisser flotter à droite, ce qui altérerait l'aspect esthétique du site car selon le principe de symétrie de la Gestalt : une longueur de ligne ou une largeur de colonne déséquilibrées sont déplaisantes et suscitent des attitude négatives vis-à-vis du site web.

4. Apports et conclusion

Cette étude et ses résultats présentent des contrastes intéressants entre les travaux théoriques et les usages des professionnels. Il est intéressant de noter que ces résultats confirment l'existence d'un gap entre les recommandations des chercheurs et les typographies utilisées sur les sites web. Il nous semble que les recherches passées donnent des explications sur la façon dont la typographie affecte la lisibilité des textes et l'esthétique des pages. Cependant, des travaux de recherches complémentaires sont indispensables pour plusieurs raisons :

a) D'abord, les études précédentes se sont limitées principalement à l'impact de la typographie dans un cadre offline, en se focalisant principalement sur l'imprimé et n'ont pas pris suffisamment les spécificités de la lecture sur le web. Il important de souligner que malgré l'existence de l'ensemble des dimensions de la typographie sur le web, le comportement de lecture de l'internaute est relativement différent. En effet, selon Baccino et Drai-Zerbib (2015), les différences fondamentales entre support papier et le web portent sur quatre facteurs :

- *Le mode d'éclairage* : il est extrinsèque dans le cas de la lecture papier, mais provient du support lui-même dans le cas de la lecture sur écran. Ce rétro éclairage pouvant être source de fatigue visuelle alors que le papier offre un confort visuel maximum même si actuellement, les technologies tentent de remédier à ces insuffisances par l'amélioration des définitions des écrans.

- *L'activité de lecture* : elle est linéaire et continue sur le papier, alors que sur le web c'est plutôt une lecture de scan.

- *Le contenu sensoriel* : sur le support papier, l'information peut provenir de deux sources, le texte ou l'image, alors que le web peut y émettre le son, la vidéo qui pourraient impacter l'expérience de lecture. Par ailleurs nous pouvons supposer l'existence des interactions entre ces stimulus, comme la typographie et la musique sur le web, qui est techniquement impossible sur le papier.

- *Le mode de présentation* : Elle est fixe sur l'imprimé, et dynamique sur écran par l'utilisation du défilement permettant de naviguer sur le web de haut en bas ou l'inverse.

b) Ensuite, la typographie pour le web serait à la fois un héritage de la typographie classique, et une adaptation aux contraintes nouvelles liées à la machine et au comportement de lecture de l'internaute. C'est donc une question d'adaptation et d'adhésion à la flexibilité du web. Pour cela, nous pensons qu'il nécessaire, de réaliser des recherches exploratoires pour identifier la perception des internautes

de la typographie du site web, comprendre son impact sur l'expérience de lecture, et explorer ses effets sur états émotionnels et comportementaux.

c) Enfin, parmi les facteurs explicatifs de ce gap est que, les études précédentes ont été réalisées avant le développement technologiques, notamment le CSS3[7], qui permet un examen précis de variables éventuellement associées. Les recherches passées se sont plutôt focalisées sur la dimension « police » séparément des autres facteurs, sans prendre en considération l'éventuelle existence de fortes interactions entre les composantes de la typographie (Mc Carthy et Mothersbaugh, 2002 ; Wheildon,1995 ; Becker et alii, 1970).

Nos résultats comparatives montrent qu'il est nécessaire de développer plus d'éléments théoriques relatifs à la typographie des sites web afin de mettre évidence l'influence de cette variable et aider les managers à choisir la typographie la plus appropriée à leurs sites afin d'améliorer l'expérience de l'utilisateur.

Notre étude est également l'occasion d'attirer l'attention sur une composante atmosphérique des sites web peu étudiée jusqu'à présent dans la littérature. Cette recherche apporte par ailleurs un éclairage aux chercheurs voulant explorer ce champs de recherche en mettant à leur disposition un état de lieu actuel de l'utilisation des différentes typographies par les sites web.

Sur le plan managérial, les éléments de cet article fournissent quelques résultats théoriques des recherches passées, qui pourraient aider les professionnels à mieux cerner cette variable lors de la conception de leurs sites. Ainsi, la typographie a un rôle fondamental à jouer au niveau des interfaces de sites web marchands. C'est l'un des éléments du design qui a le plus d'influence sur la lisibilité et l'apparence esthétique du site web. Au vu de ces points théoriques, il semble important que les managers soient conscients des effets de leurs choix typographiques sur la lisibilité et l'esthétique perçues de leurs sites web.

Bien que de nombreuses précautions aient été prises, les conclusions auxquelles nous sommes parvenus dans cet article méritent d'être relativisées compte tenu de la nature exploratoire de notre recherche (taille et composition de notre échantillon).

En termes de voies futures de recherche, il serait intéressant d'étendre l'étude à d'autres sites web dans différents pays, et de mener des recherches qualitatives et expérimentales visant à tester les relations qui unissent les dimensions de la typographie aux réactions des internautes.

[1] Étude de Jakob Nielsen (2013), consulté le27 novembre 2015, http://www.nngroup.com/articles/website-reading

[2] Étude du cabinet Deloitte (2013): consulté le 27 Novembre 2015, http://www2.deloitte.com/content/dam/Deloitte/fr/Documents/technology-media-telecommunications/SOMD2013_27052013.pdf

[3] Les empattements sont les petites extensions qui forment la terminaison des caractères dans certaines polices d'écriture

[4] L'axe d'inclinaison désigne la ligne imaginaire plus ou moins inclinée qui caractérise un caractère ou une famille de caractères

[5] La hauteur d'x (ou œil) d'une police décrit la hauteur d'un caractère bas-de-casse à partir de la ligne de base

[6] Les sites ont été sélectionnés sur la base des résultats de l'étude de l'institut Harris-interactive (2014), et les chiffres de la FEVAD (2014), consultés le 20 décembre 2015. http://harris-interactive.fr/newsfeeds/classement-netobserver-des-sites-preferes-des-internautes-francais-2/ http://www.fevad.com/etudes-et-chiffres/classement-des-sites-de-e-commerce-en-2014

[7] Le terme CSS est l'acronyme anglais de Cascading Style Sheets qui peut se traduire par "feuilles de style en cascade". Le CSS correspond au langage informatique utilisé sur l'internet pour mettre en forme les fichiers HTML ou XML. Le CSS3 a la particularité d'être très modulable. Il permet de présenter des styles très complexes et variées de son contenu.

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Individual Human Resource Management and Development: Career Management

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Introduction, Propositions and aim

Framed on a wider project on Individual Human Resource Management and Development (HRMD), this project aims to explore Individual Career Management and Development (CMD) as an emergent professional field of HRMD.

Our conceptual framework working proposition is that HRMD is a field progressively grounded on individual approaches. If traditionally HRMD was mainly theoretically and empirically sustained in collective strategies and practices, contemporarily individual strategies appear to get dominant in all HRMD processes, such as exemplarily in recruiting, selecting, performance management, compensating or training.

In CMD this setting is revealing to be replicated. Managing and developing the career is no longer an exclusive organizational responsibility, in which careers shape and are shaped by organizations. According to the changing nature of career and unstable employment, there is an increasing conceptualization that individuals' career progression is the responsibility of themselves (Enache, Sallán, Simo & Fernandez, 2013).

In this paradigm, people individually become central actors in managing their own careers, what enhances individuals' perceptions of control over their careers (De Vos & Segers, 2013; King, 2004). This career approach is described in terms of individual independence from organizational career management systems, and in terms of oneself reliance. This suggests that individuals are deploying more career self-management activities, and less concerned with career management activities provided by organizations (De Vos, Dewettinck & Buyens, 2006). This career management approach relies on a proactive attitude of the individual towards his career. It involves self-analysis of talents, capabilities, self-awareness, career ambitions, environmental awareness, networking, self-nomination and creating new job opportunities (Weng & McElroy, 2010). Individuals engaged in this perspective are more likely to involve themselves in improvement opportunities, innovative behaviors, and in lifelong learning (Muja & Appelbaum, 2012), developing a more mature CMD and consequently contributing to a more balanced and sustained labor market.

It is our conceptual proposition that this scenario will conduct to a stronger concern about the support individuals receive in realizing career goals. Therefore, De Vos et al (2006) suggest that these individuals will have higher expectations about the practices set up to support their career management and development, namely by Human Resources professionals. These professionals could have a central role in supporting individual career management, since they have specific competencies in assisting others to manage their careers. In practice, HR professionals may stand as the key actors for promoting individuals' career self-management and development (Kahnweiler, 2006).

It is our proposition that this Individual Career Management and Development framework requires new roles and new competencies from the HRMD professionals, claiming consequently new educational contents on HR education and new research questions to be addressed by HR scientific community.

Research objectives

This research specific focus is on:

- Characterizing the theoretical state of art of Career Management as an individual responsibility;

- Developing a functional description of Individual Career Management related professional activities;

- Presenting a conceptual definition and framework for Individual Career Management;

- Building a framework for Individual Career Management as a professional activity within HRMD.

Research Design

To investigate and model Individual Career Management as an HRMD practice requires a comprehensive view of what this practice is. Therefore, in order to accomplish our research objectives, we defined as research design:

- Analyzing current theoretical and empirical research approaching Career Management as an individual responsibility;

- Identifying professional activities related to Individual Career Management;

- Developing job analysis of Individual Career Management related professional activities;

- Consolidating conceptual end empirical data.

Contributions

This research project aims to provide two main contributions to HRMD field:

- To contribute to the identification of research objects and research problems within Individual Career Management;

- To contribute to the identification and promotion of HR educational knowledge within Individual Career Management subject-matter based on emergent HR working knowledge needs.

Conclusion

The aim of sharing this research project within the HR scientific community at this kick off stage is to call for international partnerships to explore this new theoretical perspective on Human Resource Management and Development in the context of its imminent changing role. It is our intention to widen this research to other countries in order to acquire and generate more significant insights into this individual approach to HRMD, in general, and CMD, in particular. This section should follow keywords. This section should provide background of the study and highlight research motivation.

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A Model for Analyzing the Expected Revenues Resulted from the Development of New Products within Strategic Alliances

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Abstract

The paper describes a model for analyzing expected revenues as a result of the development of new products within strategic alliances. As the business world faces an increased degree of complexity regarding typologies and firms' motivations, different long-term partnerships can be developed, ensuring a continuous and guaranteed productivity for all partners involved. With the help of the analysis model described in the paper, the equitable profit for the firms within alliances/collaboration, cooperation or partnership agreements can be determined starting with the basic formula of the "return on sales" (ROS). In other words, based on the method for calculating the new value of ROS, the partners will have the opportunity to find out their expected revenues ($V_{i;n}$). To this end, they need to be aware of the total costs that one company needs to allocate in order to develop the group of products in collaboration with its partners. Moreover, they need to know the costs allocated by all of the companies together in order to develop a certain product from the group of products. The model is validated by the implementation of the same price strategy and by the achievement of a well-adjusted management, determined by mutual respect between firms within a partnership.

Keywords: strategic alliances, expected revenues, R&D, ROS

Introduction

The main goal of the strategic alliances is to create growth conditions for the companies on the market. DePamphilis (2015) considered that the role of the partner remains essential within a strategic alliance. If the firms pursue common growth objectives on the market, the partner will offer a source of new information, it will be an assistant needed for developing new products and it will provide the support for continuous development initiatives and perspectives for the other collaborating companies. Pooling resources, information, know-how, technologies as well as allocating significant amounts of money for research and development could represent sources for gaining a step ahead of the competitors, increasing customer loyalty as well as attracting new clients by satisfying their continuously changing needs. Investments in research and development (R&D) (Owen and Yawson, 2015), implementing all of the proposed activities, fulfilling the established objectives, carrying out persuading actions on clients' needs, as well as a proper management of decisions, resources and time could contribute to the maintenance of the partnership's equilibrium. The company may choose its strategic alliance by knowing and being aware of its own competitive advantages on the market and its continuous need for standing out on the market (Brouthers et al 1995). If we were to adapt Marcio Barrios's saying "ambition is the perfect ally of the winner", to the economic world, it would mean that a firm's ambition represents an essential item for its own development. The firm's constant flow of motivation and the acceptance of the idea of collaboration with another firm enable it to achieve its desired objectives, surpass its condition as an individual entity on the market and reach high performance by achieving a leading position on the market and obtaining the proposed results regarding sales.

Strategic alliances

Twarowska and Kakol (2013) had quoted Campbell E. and Reurer J.J (2001) in their paper. They believe that "a strategic alliance represents a cooperative arrangement between firms that targets the research, the establishment of joint ventures or the participation with minor capital". They argue that: "strategic alliances are often encountered between companies from strongly industrialized countries; the purpose of strategic alliances is based on the development of new products and technologies on a

short period of time". Even though it is difficult to quantify the joint ventures' contribution to the Gross Domestic Product, it cannot be questioned that the interest of the firms for these types of alliances is continuously growing. According to economists Chen and Ross (2003) the variety of these types of agreements appears due to the firms' interest for alliances in order to trade and distribute common products, as well as alliances for sharing production capacity (aeronautics industry), technical information exchange agreements, research and development projects.

The establishment of a joint venture consists in a bipolar process by the use of which firms share all types of resources in order to develop a product on a market. In their analysis, economists Chen Z. and Ross T. (2003) develop a pricing strategy for the new company founded by two competing mother companies. They also calculate the impact of the strategy on the downstream chain on the market. The results of the analysis shape the fact that establishing a joint venture is the equivalent of a complete merger between two mother companies because it has an impact on prices, final production and costs. The effect on the market's efficiency will depend on the degree to which the economies of scale compensate the reduced level of competition between the partners. Likewise, another result of the analysis shapes the fact that a firm prefers to enter a new market with the help of an established operator that is vertically integrated, and set up a joint venture agreement, instead of establishing its own supply source. This would lead to low prices and high profits for both the operator and the firm. Furthermore, if the mother firms adopt different pricing strategies and different demand visions, they will have different preferences in case of a joint venture as well, when setting an optimal pricing strategy.

This different approach on prices might generate tension between partners. Therefore, the method for harmonizing the interests regarding the price, that the two economists have developed, is based on adjusting the property shares in a way that if one of the companies has a larger property quota (share) it will be interested in lower prices, and the other firm, holding a smaller property share will choose the higher prices. This case is valid only in the situation where the firms are using similar products. In order to surpass the barriers to entry imposed by the competition on the market, the development of new products remains essential for the firms. Overall, the company itself establishes the lifetime cycle of a firm.

The growth strategies on the market represent one of the most important framework subjects in business literature. In their paper, Romero-Merino and García-Manjón (2012) quote Geroski (1995) and Sutton (1997) who associate the growth on the market with the guarantee of the firm's survival as well as with the establishment of economies of scale. Therewith, Geroski (1995) argued the fact that "the entry (on the market) is easy but the survival isn't". This means that if a firm enters a certain market, it faces the situation of keeping pace with the customers/clients' requests as well as with the competition on the market. In my opinion, I think that a "beginner" on the market, that has no perspective in innovation, research and development or openness towards strategic alliances with other companies, will find it hard to grow on its own simultaneously with its adversaries. Pooling resources and sharing know-how may lead to successful synergies that may provide substantial revenues for the actors involved. Thus, Romero-Merino and García-Manjón (2012) reveal the fact that there is a positive effect of the research and development intensity upon the partners' sales growth. The authors have developed regressions and system estimators for a sample of 754 European firms for a period of 4 years, between 2003 and 2007. They have found a strong correlation between the research and development (R&D) domain and the high-tech sectors.

Frankort's paper (2016) is centered on describing the knowledge achieved through to R&D alliances. In addition, he analyses the R&D alliances that offer the possibility for firms to apply their acquired technological knowledge for the development of new products. The author emphasizes on the fact that the development benefits of the new product will increase if the actors of the partnership activate on similar technological sectors and will decrease if they are active on similar product markets. Likewise, Frankort (2016) quotes Hagedoorn (1993) who thinks that the research and development alliances are official agreements that allow the firms to conduct common research and development activities with the help of new technologies, products and processes on the market. In their paper, Mowery et al (1996) examine the inter-firm transfer of knowledge in a strategic alliance. According

to Jagersma (2005) the exchange of technology remains a major objective for many strategic collaboration agreements. It is well known that technological innovations are rather rare among firms that hold limited resources; therefore these companies will opt to resort to other market actors in order to increase the life cycle of their products and the survival of the firm on the market, by fulfilling the innovative and competitive objectives. Besides the numerous advantages listed above, strategic alliances also involve disadvantages that could further expose the firm to risks. Thus, Grant and Baden-Fuller (2004) consider the strategic alliances to have a significant disadvantage regarding the "risk of competitive collaboration". In this case, the actual intentions of the companies involved in the alliance are being hidden. Thereby, there is a risk that a partner could try to use the entire alliance with the purpose to achieve an advantage over the other partners. According to economists Camino and Trecu (1996), a strategic alliance is "an emerging form of international business organization (...), a species of joint venture in which an innovation of technology contracts with another firm for the joint exploitation of technology and other assets across a number of national territories". Strategic alliances remain complex collaboration agreements established between partners with multiple characteristics that can create R&D alliances (Li et al 2008), joint ventures (Inkpen and Currall, 2004), international alliances (Oxley and Sampson, 2004) as well as other forms or organization.

According to Albers et al (2016) there are three criteria on which different types of strategic alliances are being set: activity-domain-based (this criteria focuses on the different tasks that partners are specialized on and that they carry out in the alliance <<R&D, marketing, production, sales>>); partner-characteristics-based (it focuses on the characteristics of the firms involved in the alliance or on the relevant position within the value chain of their industry), alliance-structure-based (it focuses on the way that relations between partners are being organized and managed).

Methodology

The aim of the quantitative instrument $V_{i;n}$ is to calculate the expected revenues resulted from the development of new products within strategic alliances. Thus, $V_{i;n}$ can be applied to the alliances/collaboration, cooperation or partnership agreements created by three firms that unite their strengths in order to develop new products on the market. The partners should adopt the same pricing strategy for each product "i" on the market. Due to this fact, by calculating the expected revenue, we can find out the product quantities that belong to each company after the investments allocation.

I consider the quantitative instrument ($V_{i;n}$) to be a method for calculating the expected revenue that every company receives within a strategic alliance/collaboration or cooperation agreement /partnership agreement. $V_{i;n}$ is based on the total costs allocated by company "n" for product "i" after calculating the adjustment of the initial costs and the new value of the return on sales ($ROS_{i;n}$). The companies need to start by calculating the total costs that one firm needs to allocate in order to develop the group of products 1...n, and the costs allocated by all the companies together in order to develop a product "i" from the group of products 1...n.

With the help of this instrument, we can determine the equitable profit ($\pi_{i;n}$) for the companies within the alliance. In other words, based on the method for calculating the new value of ROS, the partners will have the opportunity to calculate their expected revenues. Moreover, the firms will have the possibility to calculate the profit that is assigned to them.

As known, the ROS formula represents the ratio between a firm's profit and its revenue. By processing the formula, I have extracted the firm's revenue depending on ROS (1).

$$ROS = \frac{Profit}{Revenue} = \frac{Total\ Revenue - Total\ Cost}{Total\ Cost} = \frac{p*Q - [Fixed\ Cost + Q*Variable\ Cost]}{p*Q} =>$$

$$=> p*Q = \frac{Total\ Cost}{1 - ROS} = V, \text{ where} \quad (1)$$

p = price;

Q= quantity;
ROS = return on sales;
V = revenue.
By processing the general ROS formula, I will consider $V_{i;n}$ to be the ratio between the total costs allocated by company "n" for product "i" after calculating the adjustment of initial costs and the new value $ROS_{i;n}$ that is assigned to every company "n" for a product "i".

$$V_{i;n} = P_{i;n} * Q_{i;n} = \frac{Ct_{i;n}}{1 - ROS_{i;n}}, \text{ where} \quad (2)$$

i = product; n = company;
$V_{i;n}$= expected revenues resulted from the development of new products within strategic alliances;
$Ct_{i;n}$= total costs allocated by company "n" for product "i" after calculating the adjustment of initial costs.

$$Ct_{i;n} = (C_{i;n} - difN_{i;n})) * P\%_{i;n}, \text{ where} \quad (3)$$

$C_{i;n}$ = initial cost of company "n" for product "i" calculated depending on the total cost of product "i";
$P\%_{i;n}$ = initial indicative percentage negotiated by the partner firms.

$$difN_{i;n} = (\sum C_{i;n} - C_{f_p}) * P\%_{i;n} \text{ with two cases described below:} \quad (4)$$

I) If $\sum C_{i;k} - C_{f_p} > 0$ and $\sum C_{i;l} - C_{f_p} > 0$ and $\sum C_{i;m} - C_{f_p} < 0$ then we will calculate the following:
$difN_{i;k} + difN_{i;l} = - difN_{i;m}$ where k, l, m = companies; i = product;
II) If $\sum C_{i;k} - C_{f_p} < 0$ and $\sum C_{i;l} - C_{f_p} < 0$ and $\sum C_{i;m} - C_{f_p} > 0$ then we will calculate the following:
$-(difN_{i;k} + difN_{i;l}) = difN_{i;m}$ where "k"," l", "m" - companies;"i" - product;
C_{f_p}= the mandatory cost set according to the negotiation;
$difN_{i;n}$ =the total surplus/deficit per company;
$ROS_{i;n}$ = the new value of the return on sales for each company;

$$ROS_{i;n} = Pc_{i;n} * Pp_{i;n}, \text{ where} \quad (5)$$

$Pc_{i;n}$= the percentage that is calculated depending on $Ct_{i;n}$; it represents the cost percentage of company "n" depending on its total costs;
$Pp_{i;n}$ = the percentage that is calculated depending on $Ct_{i;n}$; it represents the cost percentage of company "n" depending on the total costs of product "i";

$$Pp_{i;n} = \frac{Ct_{i;n}}{Cp_i} = \frac{(C_{i;n} - difN_{i;n}) * P\%_{i;n}}{Cp_i}, \text{ where} \quad (6)$$

Cp_i = the total cost of product "i";

$$Pc_{i;n} = \frac{\sum_n^1 \frac{(C_{i;n} - difN_{i;n}) * P\%_{i;n} * 100}{Cf_p}}{\sum n}, \text{ where} \quad (7)$$

$\sum n$= the number of companies within the strategic alliance/agreement/collaboration/cooperation.
Replacing inside formula (2), the formulas (3), (5), (6), (7) we obtain the detailed version of formula $V_{i;n}$ (7):

$$V_{i;n} = \frac{Ct_{i;n}}{1 - ROS_{i;n}} = \frac{(C_{i;n} - difN_{i;n}) * P\%_{i;n}}{1 - Pc_{i;n} * Pp_{i;n}} = \frac{(C_{i;n} - difN_{i;n}) * P\%_{i;n}}{1 - \frac{(C_{i;n} - difN_{i;n}) * P\%_{i;n} * 100}{Cp_i} * \frac{\sum_n^1 \frac{(C_{i;n} - difN_{i;n}) * P\%_{i;n} * 100}{Cf_p}}{n}} \quad (7)$$

Simulation

For the simulation, I chose three companies that wanted to develop three products on the market. The input values of the simulation are randomly given. Accordingly, company X, Y, Z team up (pooling resources, sharing know-how) in order to create a strategic alliance/collaboration/cooperation/partnership agreement for the development of three products A, B,

C that require the following total costs: product A – Euro 1,200,000, product B – Euro 800,000, product C – Euro 400,000. Thus, the total cost of the group of products is Euro 2,400,000. The firms had assumed the costs for the development of the products. Each company will comply with the initial indicative percentage negotiated by the partner firms in order to calculate the new value of $ROS_{i;n}$. As mentioned above, the companies will comply with the same mandatory cost established within the negotiation in order to develop products A, B, C. In the analyzed case, we consider C_{f_p} = Euro 800,000. Thus, the values of $P\%_{i;n}$ are presented in Table 1:

Table 1. The initial indicative percentage established throughout the negotiation

i	$P\%_{i;x}$	$P\%_{i;y}$	$P\%_{i;z}$	Cp_i
A	50%	30%	20%	1,200,000
B	30%	60%	10%	800,000
C	20%	10%	70%	400,000

Source: Made by the author

First, we will calculate the costs of the products $C_{i;n}$ for each company X, Y, Z (Table 2):

Table 2. Product costs for each company

i	$P\%_{i;x}$	$C_{i;x}$	$P\%_{i;y}$	$C_{i;y}$	$P\%_{i;z}$	$C_{i;z}$
A	50%	600,000	30%	360,000	20%	240,000
B	30%	240,000	60%	480,000	10%	80,000
C	20%	80,000	10%	40,000	70%	280,000

*It can be noticed that C_{f_p} = Euro 800,000 is not respected.

Source: Made by the author

Adding up the values on each $C_{i;n}$ column, I have achieved the results in Table 3:

Table 3 – Total product costs for each company

$\sum C_{A,B,C;x}$	$\sum C_{A,B,C;y}$	$\sum C_{A,B,C;z}$
920,000*	360,000*	240,000*

* It can be noticed that the total cost is maintained and its value is Euro 2,400,000

Source: Made by the author

Further, I have calculated $difN_{i;n}$ (the total surplus/deficit per company) using the formula ($\sum C_{i;n}$ - C_{f_p}) * $P\%_{i;n}$. The results achieved in the analyzed case shows the fact that there is a surplus recorded by companies X and Y, and company Z records a deficit of Euro 200,000.

Table 4. Total surplus/deficit per company

	X	Y	Z
$\sum C_{i;n}$	920,000	880,000	600,000
C_{f_p}	800,000	800,000	800,000
$difN_{i;n}$	(+)120,000	(+)80,000	(-)200,000

Source: Made by the author

The differences obtained for each product per company will be allocated according to $P\%_{i;n}$. The new allocation can be observed in Table 5. For company "Z" we will apply case II: $-(difN_{i;k} + difN_{i;l}) = difN_{i;m}$.

Table 5. The new allocation $difX_{i;n}$, $difY_{i;n}$, $difZ_{i;n}$

	$difX_{i;n} = (\sum C_{i;n} - C_{f_p}) * P\%_{i;n}$	$difY_{i;n} = (\sum C_{i;n} - C_{f_p}) * P\%_{i;n}$	$difZ_{i;n} = -(difX_{i;n} + difY_{i;n})$
$difX_{i;n}$	+ 60,000	+ 24,000	-84,000
$difX_{i;n}$	+ 36,000	+ 48,000	-84,000
$difX_{i;n}$	+ 24,000	+ 8,000	-32,000
$\sum difN_{i;n}$	+120,000	+80,000	-200,000

Source: Made by the author

The values of Table 5 will be subtracted from the values of Table 2; the new results are found in Table 6:

Table 6. Total costs allocated by the company after the adjustment

	$Ct_{i;n}$	$Ct_{i;n}$	$Ct_{i;n}$	Cp_i
A	540,000	336,000	324,000	1,200,000
B	204,000	432,000	164,000	800,000
C	56,000	32,000	312,000	400,000
C_{f_p}	800,000	800,000	800,000	2,400,000

Source: Made by the author

The cost percentages of company "n" depending on its total costs and the cost percentages of company "n" depending on the total costs of product "i" are different as it shows in Table 7:

Table 7. $Pc_{i;n}$ and $Pp_{i;n}$

i	X		Y		Z		(%)
	$Pc_{i;x}$	$Pp_{i;x}$	$Pc_{i;y}$	$Pp_{i;y}$	$Pc_{i;z}$	$Pp_{i;z}$	
A	68%		42%		41%		
		45%		28%		27%	100%
B*	26%		54%		21%		
		26%		54%		21%	100%
C	7%		4%		39%		
		14%		8%		78%	100%
(%)	100%		100%		100%		

*We obtained the same percentages for product B because the Cp_i values are equal to C_{f_p} values.

Source: Made by the author

After calculating the arithmetical average of the percentages of product "i", I have obtained: $Pc_{A;n}$ =50,3%, $Pc_{B;n}$ =33,7% and $Pc_{C;n}$ =16,7%. Therefore, the new ROS values are detailed in the table below (Table 8):

Table 8. The new ROS values

i	$ROS_{i;x}$	$ROS_{i;y}$	$ROS_{i;z}$
A	0.226	0.140	0.136
B	0.087	0.182	0.070
C	0.023	0.013	0.130

Source: Made by the author

Thus, in order to achieve an equitable allocation, the companies will use the same selling price for each product "i" therefore ($P_{A;X}= P_A;_Y=P_{A;z}$ and $Q_{A;X} \neq Q_{A;Y} \neq Q_{A;Z}$):

Table 8. The expected revenues resulted from the development of products A, B, C

i	$V_{i;x}$	$V_{i;y}$	$V_{i;z}$	$V_{i;n}$
A	697,674.42	390,697.67	375,000	1,463,372.09
B	223,439.21	528,117.36	176,344.09	927,900.66
C	57,318.32	32,421.48	358,620.69	448,360.49
	978,431.95	951,236.51	909,964.78	

Source: Made by the author

Table 9 reflects the equitable profit for each company.

Table 9. The values of the equitable profit $\pi_{i;n}$ for the companies X, Y, Z

i	$\pi_{i;x}$	$\pi_{i;y}$	$\pi_{i;z}$
A	157,674.42	54,697.67	51,000.00
B	19,439.21	96,117.36	12,344.09
C	1,318.32	421.48	46,620.69
	178,431.95	151,236.51	109,964.78

Source: Made by the author

For a total investment of Euro 2,400,000, the firms obtain a total profit of Euro 439,633.24, representing 18% of the total initial costs. The profit for each firm is differently scattered, so for firm X the equitable profit records Euro 178,431.95 Euro, firm Y the equitable profit records Euro 151,236.51, firm Z the equitable profit records Euro 109,964.78. To conclude, the simulation reveals the fact that if a company invests in a product with higher costs, it will get higher profits than the other partners within the strategic alliance.

Conclusion

As known, a successful collaboration may generate great profits compared to the case in which the firm would operate on its own on the market alongside its other direct competitors. Therefore, it is important for the firm to keep its openness to a future collaboration or cooperation with its main rivals in order to develop new products.

As mentioned above, the paper keeps in attention the use of a quantitative instrument $V_{i,n}$, which helps calculate the expected revenues resulted from the development of new products within strategic alliances. One of the constraints of this research is that the instrument can be applied only for a few range of firms, namely three of them within alliances/collaboration, cooperation or partnership agreements. In order for the effect described in the paper to take place, the partners should adopt the same pricing strategy for each product "i" on the market; only the product quantities will depend on the new ROS value. Due to this fact, by calculating the expected revenues, the firms can find out the product quantities that belong to each of them after the investments allocation.

As highlighted above, the detailed simulation reveals the fact that if a company invests in a product with higher costs, it will get higher profits than the other partners within the strategic alliance.

In business, the constant need for innovation and the tendency for research and development ensure the economic growth for a company on the market. Pooling resources, sharing know-how and maintaining the desire for achieving the established goals, can be considered factors for founding new agreements with a suitable partner in order to rein the competition and extend the life cycle of the firm. By having a partner on their side, firms can become more confident about their actions on the market. In my opinion, even if the openness towards a partner might be interpreted as a risky exposure for a firm on the market, this may represent a step forward regarding awareness. In addition, the risky exposure can be rooted out by vigorous terms stipulated in the contract agreement.

In conclusion, the firm's constant flow of motivation and the acceptance of the idea of collaborating with another firm enable it to achieve its desired objectives, surpass its condition as an individual entity on the market and reach high performance by achieving a leading position on the market and obtaining the proposed amount of sales.

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Goodwill Impairment versus Amortization: Research of Practice and the Theoretical Basis

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Abstract

This paper is dedicated to the research of subsequent evaluation of goodwill and is mainly aimed at a comparative analysis of 'amortization approach' and 'impairment-only approach'. Under a lot of criticism concerning goodwill amortization, in 2004 in IFRS the approach of 'goodwill amortization' was replaced by 'impairment–only' approach. In spite of the validity of the 'impairment testing' approach to the subsequent accounting for goodwill, which is based on the essence of treatment of 'goodwill', the application of this method in practice by companies has revealed a number of significant drawbacks. The return to the 'amortization approach' can make the financial reports more transparent and eliminate 'subjective factor'. At the same time, 'impairment of goodwill' approach enables companies to reflect the specific features of their activities and the effect from business combination. The research was carried out to estimate the impact of chosen method subsequent accounting for goodwill (impairment or amortization) through the analysis of sample of companies located in different countries. Besides, it presents 'pros and cons' these methods.

Keywords*:* accounting for goodwill, impairment, amortization, consolidation financial statements

Introduction

Such specific element of the consolidated financial statements as goodwill has been causing a lot of discussion. In particular, there is an ambiguity of opinions in regard to measurement of goodwill after initial recognition. Thereby, this paper focuses on reviewing of the most controversial aspects in regard to subsequent measurement of goodwill both from theoretical and the practical point of view. There are two main approaches to the subsequent measurement of goodwill: amortization approach and impairment-only approach. These methods also may be used simultaneously.

Under a lot of criticism concerning goodwill amortization this requirement was replaced by 'annual impairment test for goodwill' as part of the cash – generated unit in 2004 in the international standards. The main arguments against goodwill amortization were that it cannot determine the useful life correctly and is in non-compliance to the nature of goodwill.

In spite of the theoretical assertion that the 'impairment testing' approach to the subsequent accounting for goodwill is based on the essence of treatment of 'goodwill', the applying of this method in practice has revealed a number of significant drawbacks. Some companies don't calculate impairment of goodwill according to the requirements of standards or some of them don't disclose information about the assumptions in the measuring of the recoverable amount of the cash-generating units made by managers and about the allocating goodwill to those units. As a result, the information presented in the financial statements has become less transparent and comparable between the companies. It is also because the subjectivity of 'impairment approach' significantly higher than 'amortization approach'.

The research was carried out to estimate the impact of chosen methods subsequent accounting for goodwill (impairment or amortization) through the analysis of such large and long-time operating companies as: Vodafone Group (UK, since 1983), Bosch Group (Germany, since 1886), Philips

Group (Netherlands, since 1891), Nestle Group (Switzerland, since 1866), Sberbank Group (Russia, since 1991), VTB Group (Russia, since 1990). This study was conducted in order to identify the main trends of calculating impairment losses of goodwill and disclosing the information about it in the financial statements. Besides, the research was carried out to assess the possible influence of returning to amortization on the main company performance indicators.

On one hand, the return to the 'amortization approach' will help to make the financial report more transparent and eliminate 'subjective factor', which creates the conditions for veiling in the financial statements. On the other hands, 'impairment of goodwill' approach enables companies to reflect the specific features of their activities and the effect from business combination. In addition, in conditions of preparing financial statements without 'predetermination' of profit results set by managers or company's owners, the 'impairment of goodwill' approach will provide more accurate results than applying of 'amortization method'.

Historical background

The history of legal and professional regulation has a fundamental impact on the accounting methods and principles accepted today, even at the international level. International standards are unusual because they combine the features of the accounting culture and auditing practices of different countries contributing to their emergence. For more details on the impact of each parts of culture see in a research study by Zeff (2007). About the history of development of accounting theory in Russia in XX century see in the book by Mattessich et al (2008, Chapter 15, p. 246-264). The practical application of IFRS in Russia in 90s XX – the early XXI is revealed in a research study by Genaralova et al (2015) and in a research study by Kovalev (2014). In addition, the spread of the accounting profession and improving of education system influence on national and international accounting significantly (see more details in the paper by Chen (2008). The specifics of the development of Russian accounting education are disclosed in a research study by Karelskaia and Zuga (2014, p. 269). The process of formation of professional societies in Russia is described in the paper by Sokolov V. (2015). Moreover, as it is was shown throughout the history, 'pioneers' or initiators have a special influence on the development of international regulators and regulations. Thus, the development of conceptual ideas and accounting in accordance with IFRS has been influenced by the legislative requirements of the countries whose representatives took an active part in the creation of the international standards.

In 1978 the topic of business combinations was placed on the agenda for consideration by IASC with some apprehension due to the understanding that this is a very controversial issue. At that time, amortization was used as a subsequent measurement of goodwill according to national standards of majority of the countries and Fourth EC Directive. The difference was only in the duration of the useful life: according to APB Opinion № 17 (US GAAP) it was 40 years; and in according to Fourth EC Directive it was 5 years. In 1983 IAS 22 "Business combination" has been approved. So, amortization over 5 years was established as a subsequent measurement of goodwill to bring into conformity with existing practice and requirements of Fourth EC Directive (Zeff, book 2007, p. 137). However, despite the approval of IAS 22, the subsequent accounting for goodwill had remained one of the issues that have no absolute decision.

Also, according to quantitative and qualitative analysis of more than two hundred Russian and foreign scientific papers about accounting for goodwill and published from 1990 to early 2000s, it was found that the most controversial of all issues in relation to accounting for goodwill is its measurement after initial recognition (Generalova, Popova, p. 53-60).

And as a result of intense debate in the West, since 2001 according to US GAAP the 'impairment approach' has been used instead of amortization (SFAS 142 "Goodwill and other Intangible Assets" и SFAS 141 "Business Combination"). The reason for the abandonment of amortization was the following arguments. Firstly, the majority of analysts when making decisions for investments ignored the value of amortization of goodwill in the process of calculating the relevant operational performance. This was done to eliminate the influence on the fluctuation of the profit the factor of

transition from date of implementing of goodwill amortization to date of cessation of amortization. Secondly, appropriate testing for impairment with qualitative disclosure would facilitate financial reporting transparency (Fabi and others, 2014, p. 11). So, in IFRS in 2004 there was a transition to the model of 'impairment' of goodwill and refusal the 'amortization approach'. Including, this was carried out in accordance with the idea of convergence of US GAAP and IFRS.

But despite the "consent of the majority" to make the transition to 'impairment model', rear-view has emerged by nowadays due to the existence of the negative aspects associated with the procedure of impairment of goodwill in practice. Rear-view consists in the following opinion: "Perhaps, the return to amortization is a necessary measure to overcome the existing practical problems associated with the implementation of 'impairment approach' to subsequent measurement of goodwill". It is also worth noting, that the problems of accounting for goodwill arisen in practice should be considered combined with the difficulties of consolidation procedures, such as issues of perimeter of consolidation (for more details, see Crişan P. & others, 2012).

Amortization versus impairment of goodwill: pros and cons

The difficulties of implementing the impairment model in practice

After IFRS 3 "Business combination" had been released in 2008, IASB reviewed the results and consequences of the application of new the standard (PIR – Post-implementation review). It has been called into question: "Whether testing goodwill for impairment able to reflect the entity's exposure to adverse economic cycles? Besides, it was also caused concern about the subjectivity of information generated by the impairment of goodwill (PIR, 2015, p. 12).

Thus, the transition solely on impairment approach entailed existence of misinformation of users: in the presence of obvious signs pointing to the need to recognize losses in accordance with IFRS (IAS) 36, companies don't tend to show them in the statements. Besides, the problem is that losses from the impairment of goodwill are reported too late, i.e. out of time. Especially this "delay recognition of losses" is noticeable at the time of economic crisis (Fabi et al, 2014).

The next weak side of impairment approach marked by Russian authors is undergoes to value judgments (Generalova, Sokolova, 2014). Firstly, The exposure of impairment procedures to value judgments arises from specificity of the impairment model contained in the standard: 1) the allocation of goodwill to the strong or weak CGU; 2) the determination of the date for impairment procedures; 3) the use of the most recent detailed calculation made in a preceding period of the recoverable amount of a cash-generating unit to which goodwill has been allocated for the current period (see p. 99 IAS 36); 4) dependence on the choice of valuation of non-controlling interest (see p. C4 IAS 36). Secondly, there are uncertainties arising directly from the impairment model: 1) calculation of forecast cash flows is subjective; 2) determination of the discount rate (increase/decrease by an insignificant amount of the discount rate may lead to recognition/non-recognition of impairment losses).

Sokolov J. in the work "Accounting and economic crisis" outlined: "An economic crisis arises due to errors by people who responsible for making economic decision. In its turn, these mistakes are the result of an inadequate data presented in the financial statements for the subjective and objective reasons. First of all, subjective errors relate to the unfounded hopes, which are embodied in the asset valuation". (Sokolov, 2009, p. 18). Goodwill is an asset, too.

Decision ways

There are at least two solutions: the first is improving the impairment model, the second is return amortization. Standards' developers follow to the first variant. According to such opinion it is need to minimize the cost of implementation of impairment procedures. (PIR, 2015, p.16). Members of the

professional community, representatives of professional organizations and scholars have an opposite opinion

Arguments in favor of return to the amortization

The first argument: "Amortization of goodwill reflect the consumption of economic resources obtained in a business combination over the time" (Fabi and others, 2014).

The second argument is a "larger" degree of reliability of the information provided, because there is no need to disclose the numerous and ambiguous parameters for calculating replacement value of CGU to which goodwill is allocated according to impairment model. Is needed only the initial cost and useful life.

The third argument follows from the second: The ease of measurement is the key to the comparability and the verifiability of reporting data of companies worldwide.

The practice: research of the effect of implementation of the 'amortization approach' and the 'impairment approach' of goodwill on companies' financial statements

To study the effect of possible transition from impairment (the requirement of IFRS) to amortization of goodwill, we have carried out the research. The base of the research is the consolidated financial statements of the large companies operating stably for a long time in its industry. Data on the value of goodwill and data on the amount of costs related to goodwill (amortization or impairment losses) were calculated and compared. Besides, the research reveals the impact on net profit margin, return on equity (ROE) and return on assets (ROA).

The analysis of the large and long-time operating companies only doesn't provide enough representative results. But this study is intended to outline the main trends and the impact of 'amortization approach' and 'impairment-only approach'. In this paper this influence is showed in detail only at the example of companies. These companies are Vodafone Group (United Kingdom, mobile communication services, operates since 1983); Bosch Group (Germany, Electronics & Engineering, since 1886); Nestle Strategische Allianz (Switzerland, food products, since 1866); Philips Group (Netherlands, appliances, since 1891); Sberbank Group (Russia, banking, since 1991); VTB Group (Россия, banking, since 1990).

Analyzed period is from 2000 to 2014. The period for which the data were recalculated is from 2005 (2006) to 2014. The sample consisted of 62 statistical observations.

Briefly, in example of two companies show the main trends observed in the recognition of goodwill impairment in the statements.

Trends

As an example we take the Bosch Group and consider the changing the "cost behavior" associated with goodwill. Drawing attention to the columns 6 and 7 of Table 1 it can be noted that the transition from the amortization (according to the German Commercial Code – Handelsgetzbuch; 10 years of useful life according to accounting policy) of goodwill to its impairment (since 2005), impairment losses recognized every two years steadily. 2009 was unprofitable for the Bosch Group. In 2011, as in 2013, there was a decline of basic indicators of the Group's activities (profitability, revenues, total balance sheet, and profit).
It is also important to note that at drawing up of consolidated financial statements in accordance with German Commercial Code, the share of costs related to goodwill in the Bosch Group's operating

expenses were higher than in the transition to impairment in 2005 in connection with the transition to IFRS.

Table 1. Acquired goodwill of Bosch Group and its subsequent measurement: amortization and the impairment amounts, 2000-2014, million euros

Year	Goodwill at the beginning *(initial value)*	Good-will at the begin-ning *(book value)*	Increase		Decrease		Accumulated amortization / impairment at the end	Disposal	Goodwill at the end
			Arrivals	Other	Amortization	Impairment			
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
2000	3 310	1 449	75	814	**681**	**x**	2 178	317	1 704
2001	2 015	871	57	466	**463**	**x**	1 615	19	904
2002	2 466	904	1 884	214	**490**	**x**	1 503	558	2 503
2003	3 990	2 503	7	862	**581**	**x**	1 322	769	2 768
2004	4 085	2 768	40	88	**459**	**x**	1 454	328	2 431
2005	2 829	2 829	9	301	**x**	**55**	x	-	3 084
2006	3 139	3 084	38	131	**x**	**0**	55	-	3 253
2007	3 308	3 253	47	87	**x**	**37**	92	-	3 350
2008	3 442	3 350	62	1 048	**x**	**0**	79	62	4 411
2009	4 490	4 411	7	230	**x**	**196**	275	3	4 449
2010	4 724	4 449	11	122	**x**	**0**	269	7	4 581
2011	4 850	4 581	2	32	**x**	**494**	763	-	4 121
2012	4 884	4 121	-	556	**x**	**0**	758	-	4 682
2013	5 352	4 596	14	149	**x**	**34**	790	74	4 651
2014	5 441	4 651	4	71	**x**	**0**	128	668	4 720

Source: Bosch Group Consolidated Financial Statements for 2000-2014.

Example of Swiss companies – Nestle Group. Transition to IFRS by Nestle Group (from national standards) took place in 2003. Hence, the use of the goodwill impairment model began in 2005. Before this transition, goodwill was subjected to an amortization and the impairment testing. Fig. 1 shows how a saltatory change in the net profit of the Group "combined with" the trends of the recognition of impairment losses for goodwill of subsidiaries. The trends are as follows: impairment losses of goodwill (since 2005) were recognized mainly in the highly profitable years for the Group.

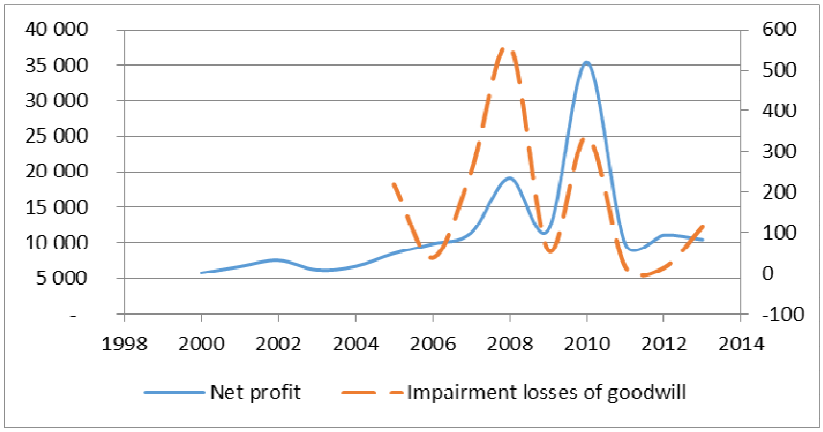

Figure 1. Comparison of the net profit and the amount of goodwill impairment losses, 2005 - 2013
Source: Consolidated Financial Statements Nestle Group for 2000-2014
(*The impairment of goodwill is based on secondary axis).*

The effects of a possible transition to the amortization of goodwill on the profitability

Table 2 shows the results of the correlation analysis of the data before and after recalculation of net profit margin (NPM), return on equity (ROE) and return on assets (ROA), since 2005 to 2013. The correlation coefficients have been calculated according to data obtained from the analyze of the sample. The sample consists of financial data for the period from 2005 to 2013 obtained from financial statements of the companies observed. Then these factual data have been restated for the same periods of time according to assumption that goodwill has been amortized during the 10 years.

Table 2. Correlation coefficient data of profitability and impairment of goodwill amortization of 10 years, based on a sample of companies, 2005-2013.

	Net Profit Margin	**Return on equity (ROE)**	**Return on assets (ROA)**
Correlation coefficient *(foe the whole period)*	**0,847566294**	**0,954148847**	**0,928573282**
2013	0,807688299	0,949775209	0,923641437
2012	0,811788862	0,951750241	0,926979954
2011	0,813927119	0,951724933	0,927481519
2010	0,814831605	0,952012296	0,928540426
2009	0,823543738	0,956176110	0,931045581
2008	0,824064223	0,956438302	0,931613558
2007	0,839090352	0,958525705	0,935430791
2006	0,840668704	0,958885067	0,937158280
2005	0,992062268	0,977914859	0,984784298

Based on the results of calculations, it can be seen that the values of profitability before recalculation (impairment; the actual reporting data) and after recalculation (amortization during 10 years useful life) have a low degree of deviation and correlation coefficient is positive and high (coef: 0,8 - 0,9). Consequently, the returning to amortization of goodwill during 10 years will not be substantially worsened for status of companies. Similar conclusion would be clearer if we look at the example of two of the companies in more detail. In Table 3 disclosed the calculated amounts of NPM, ROA and ROE for factual and recalculated data of the British Vodafone Group with deviation of these indicators (see columns 13-15). In Table 4 disclosed the calculated amounts of NPM, ROA and ROE for factual and recalculated data of the Russian Sberbank Group with deviation of these indicators (see columns 13-15).

Table 3. The total comparison of the effect on the profitability of Vodafone Group PLC (UK) during the transition from an impairment to the amortization of goodwill during of 10 years, mln GBP

Year	**In applying the impairment (actual data of CFS)**					**In applying of amortization of goodwill over 10 year (recalculation)**						Deviations (data in applying of amortization minus data in applying of the impairment)		
	Total GW at the end	**The impairment of good will**	**Net Profit Margin**	**Return on Equity (ROE)**	**Return on Assets (ROA)**	Total GW at the end (recalculation before the an impairment loss)	**Amortization of goodwill**	*Delta = Impairment minus amortization*	**Net Profit Margin**	**Return on Equity (ROE)**	**Return on Assets (ROA)**	***NPM (delta)***	***ROE (delta)***	***ROA (delta)***
1	**2**	**3**	**4**	**5**	**6**	*7*	**8**	*9*	**10**	**11**	**12**	***13***	***14***	***15***
2013	30 372	**7 700**	**2%**	**1%**	**2%**	38 072	**3 807**	**3 893**	**10%**	**6%**	**5%**	8,76%	5,25%	2,76%
2012	38 350	**3 818**	**15%**	**9%**	**7%**	42 168	**4 217**	**-399**	**14%**	**8%**	**6%**	-0,86%	-0,48%	-0,27%
2011	45 838	**6 150**	**17%**	**9%**	**6%**	51 988	**5 199**	**951**	**19%**	**10%**	**7%**	2,07%	1,07%	0,62%
2010	51 838	**2 100**	**19%**	**10%**	**6%**	53 938	**5 394**	**-3 294**	**12%**	**6%**	**3%**	-7,41%	-3,73%	-2,13%
2009	53 958	**5 650**	**8%**	**4%**	**3%**	59 608	**5 961**	**-311**	**7%**	**3%**	**3%**	-0,76%	-0,38%	-0,22%
2008	51 336	**0**	**19%**	**9%**	**8%**	51 336	**5 134**	**-5 134**	**5%**	**2%**	**3%**	-14,47%	-7,06%	-4,33%
2007	40 567	**11 600**	**-17%**	**-7%**	**-2%**	76 121	**7 612**	**3 988**	**-4%**	**-2%**	**1%**	12,82%	5,23%	3,37%
2006	52 606	**23 515**	**-74%**	**-22%**	**-11%**	52 606	**5 261**	**18 254**	**-12%**	**-4%**	**3%**	62,20%	18,13%	13,45%
											The average deviation	**0,02%**	**-0,02%**	**-0,03%**

Table 4. The total comparison of
transition from impairment to am

Year	In applying the impairment (actual data of CFS)						In app
	Total GW at the end	**The impairment of goodwill**	**Net Profit Margin**	**Return on Equity (ROE)**	**Return on Assets (ROA)**		Total G the en *(recalcu before th impairm loss*
1	**2**	**3**	**4**	**5**	**6**		**7**
2013	20 200	**8 700**	**24%**	**21%**	**3%**		32 27
2012	25 000	**1 700**	**30%**	**24%**	**3%**		28 77
2011	15 050	**1 209**	**37%**	**28%**	**4%**		17 17
2010	8 251	**917**	**23%**	**21%**	**3%**		9 16
2009	469	**0**	**3%**	**3%**	**0%**		469
2008	0	**3 970**	**16%**	**14%**	**2%**		3 97
2007	4 902	**0**	**25%**	**23%**	**3%**		4 90
2006	2 644	**0**	**26%**	**31%**	**4%**		2 64

Fig. 2 shows the data on which it is possible to judge at what rate to a greater extent will be affected by the transition to the amortization of goodwill.

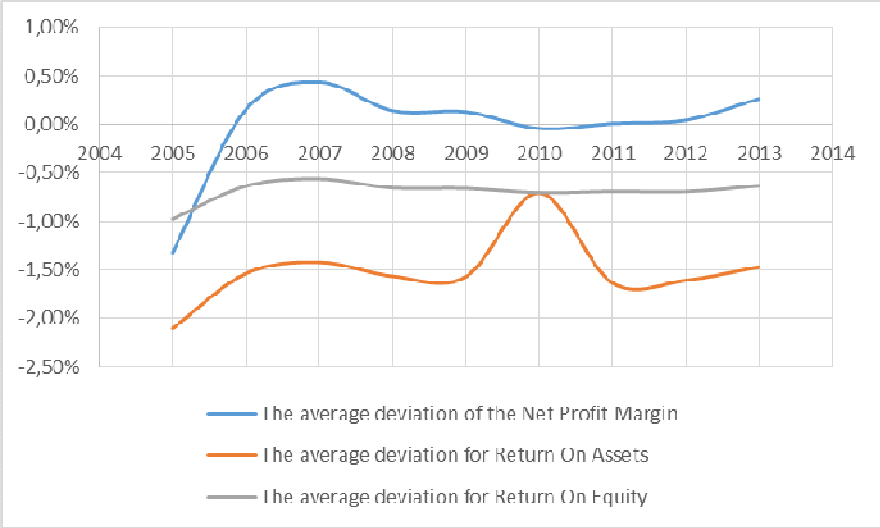

Figure 2. The dynamics of an average deviation of NPM, ROA, ROE in applying the goodwill impairment from values of the implementation of amortization during 10 years, 2005-2013

Table 5. Data on the average deviation of the profitability when an impairment of goodwill and amortization of 10 years, based on a sample of companies, 2005-2013

	Net Profit Margin	Return on equity (ROE)	Return on assets (ROA)
The average deviation	**0,10%**	**-1,28%**	**-0,53%**
2013	0,27%	-1,47%	-0,63%
2012	0,05%	-1,61%	-0,69%
2011	0,01%	-1,63%	-0,69%
2010	-0,04%	-0,70%	-0,70%
2009	0,13%	-1,57%	-0,66%
2008	0,14%	-1,56%	-0,65%
2007	0,44%	-1,42%	-0,56%
2006	0,16%	-1,54%	-0,63%
2005	-1,32%	-2,10%	-0,97%

So, based on this analysis the sample companies, it can be noted that a significant change in the Group's profitability indicators with the introduction of the amortization of goodwill will not happen. However, introduction of amortization instead of impairment (or along with) can contribute to leveling a series of problems, for which criticized impairment model applied today.

Conclusion

So, the question of goodwill measurement after initial recognition has remained one of the most controversial and unresolved issue in accounting. After refusal of the ‘amortization’ in favor to ‘impairment approach’ to goodwill subsequent measurement in IFRS, it found out that it

demonstrated a number of disadvantages arising from uncertainties of impairment procedure. This paper considers the advantages and disadvantages of amortization and impairment of goodwill.

The positive aspects of the applying of impairment as a subsequent measurement of goodwill consist of some opinion. According to this opinion, the information on goodwill formed 'impairment approach' (if it is adequate) and the proper disclosure are able to increase the transparency of financial reporting. Moreover, the 'impairment method' corresponds to the essence of goodwill, but it is not true for the 'amortization'. However, opposite case has happened in practice. We didn't come towards such transparency as we have been aimed. Applied research has shown that the disclosure of information about some parameters of the impairment procedure is ignored by companies and the impairment losses aren't reflected in the financial statements or appear after the time of appearance of negative circumstances.

With regards to goodwill amortization we can say that this method has a number of simple advantages. And at the same time, these advantages are very important. These advantages are ability to reflect the consumption of economic benefits from the business combination, reliability of the calculations (understanding them without narrowly specialized knowledge) and simplicity. However, in the global economy it is important to take into consideration the impact on business of the new methods approved in accounting. Accordingly, the authors have made an analysis of the impact of the return to the amortization on the analytical performance of companies' activity in several countries. So, with possible approving of requirement to amortize of goodwill it will be observed the decline of corporate profits. However, this reduction will not have a material impact on the change in the profitability ratios. Consequently, the "disastrous" influence on the attitude of the financial statements' users (particularly, owners) to companies will not be rendered.

In conclusion, it should be noted that in Accounting as a social science, the agreement between countries (or within one country) is more important factor than the perfection of created methods of accounting.

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Implementation, Resource Allocation and Strategic Planning for a Better Corporate Strategy

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Abstract

This paper highlights the tensions developed during evolutionary movements had towards creating improved corporate strategy. The main pillar nuanced in this paper is functional strategic excellence that is resulted from applying the process of reverse engineering into strategic planning.

The research underlines the need for a new approach on implementation, resource allocation, due diligence and strategic planning in order to activate the best suitable solution in any environment, so at the end of the day or business cycle, the company should go forward and obtain sustainable growth that can be shifted in similar cases.

Keywords: corporate strategy, reverse engineering, strategic planning, sustainable growth

Introduction

To implement a working model to built to turn ideas outlined corporate strategy should be evaluated as factors that influence the market, but also based on uncertainty which is working and growing in the global economy and expectations taken from environmental regulations and strategic changes are required these days.

Corporate strategy requires the implementation of traced general directions. This can be achieved by the implementation of these four actuators (Day, 1987):

1. *Identify overall strategic objectives:* what are their expected results depending on the implemented strategy.
2. *Outlining specific plans:* objectives segmentation created for specific tasks are assigned on a certain period and with completion deadlines.
3. *Resource allocation and delimitation of financial needs:* it creates mechanisms and sources of funding that takes on its entire system and each stand alone.
4. *Monitoring and control:* supervision for fulfilling its objectives, using its resources in the manner described in the budgetary component.

Implementation of corporate strategy

Implementation is needed in economic systems were shaped in the form of implementation programs combined with policy making. Full program implementation is one that is based on the implementation of fundamental changes in strategic direction.

An antithetical element is reflected based on an incremental implementation program which is based on small changes made in short periods of time and are based on changes in the followed strategy. The mix of the two programs was a new program called selective program implementation.

Full implementation program is used when the destination is well defined strategically or when a step towards on a new technological advance or competitive opportunity (Lynch, 2002). Implementation turns into new strategies that accelerate progress for corporations, but it is that the change processes could be painful for those taking part.

Incremental implementation program is the perfect solution for the situation of uncertainty in future for corporations or unclear located in the concept and linearity of implementation when it comes to global leaders (Lynch, 2002). This type of program is used most often when Research - Development divisions create new niches, new ways forward, but the destination is not clear, but only intuited or contoured. Traveled tasks and deadlines in this case requires flexibility or at least buffer areas (margins) for no friction or downtime. It must be added the deployment flexibility and freedom in the reconfiguration strategy with the possibility of discovering new ways of working (Day, 1987).

Selective implementation program is used when the basic solutions are no longer appropriate as response for the situation (Lynch, 2002). They can be linked to gradual therapy and shock therapy and whose mix would create a solution easier to implement and with results visible in the corporation, and also with a better yield than the implementation of government program.

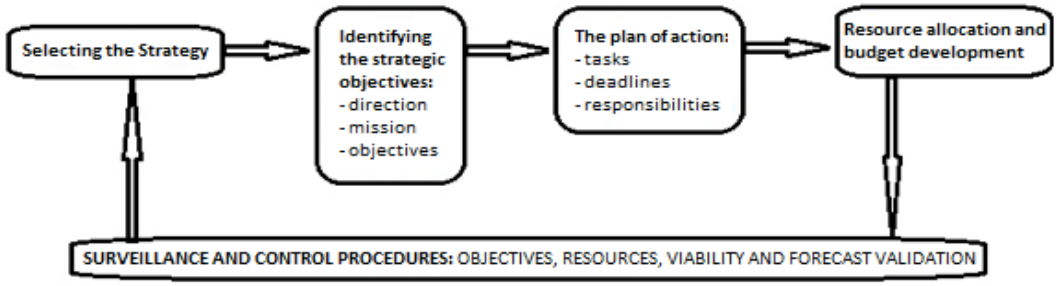

Fig 1. Pre-trial phase of implementation of corporate strategy

Source: the authors, starting from Lynch, 2002

These deployment models can be configured for application in the entire spectrum of companies, whether small, medium or large, since implementation refers to activities of developing the strategies that are found in all organizations, relying on the appointment as an overall strategy, creating specific plans and insurance funds for all should be monitored and controlled to ensure compatibility and their fulfillment.

The creation and implementation of corporate strategies is reflected in any working cell of their implementation, the individual being the undividable unit for such progress. Individuals make rational decisions, but including also personal ones during the implementation process, which may not coincide with the goals of the organization, so implementation is aimed at secondary use of systems for monitoring and control to ensure consistency for all personal goals and also for organizational ones. In order not to suppress freedom in innovation, sustainable growth goes hand in

hand with promoting success of a corporation and must intervene as a minimum lane guidance for the optimal direction (Bodislav, 2015, pp. 257-264). Perhaps that is why Hrebiniak and Joyce considered to provide a definition of the idea of "minimal intervention": *"In implementing the strategy, managers must present minimum change which is only necessary and sufficient to produce a lasting solution to a strategic problem that is addressed."* (Hrebiniak, Joyce, 1984).

The idea of implementation should be seen in the big picture, that in addition to a flexible work procedure there should be added the known facts and what should be achieved and can not be known in advance to reach concrete result of the implemented strategy. Basically the result of the strategy being outlined and adjusted like the manual focus of the lens of a camera. This idea was presented by Pettigrew and Whip (1991) and outlined three aspects to look out when it comes to strategic change:

- *Analytical aspects:* using change as a tool is made complicated when keynotes are offered by outsiders;
- *Educational aspects:* new knowledge, trends and observations to empirical information that is related to its strategy to create frameworks, keep them running at full potential and also collaborate with corporations;
- *Political issues:* observations regarding public affairs and policy issues had with created positions as streamliners between corporations and countries.

Resource allocation

The allocation of resources is an important step in implementing a successful corporate strategy. To create an efficient allocation of resources it should be established a command or responsibility center in the Operations Division under the control and supervision of the board of directors, this center has as an important role, the one to set the allocation priorities by passing through a three criteria developed filter for resource allocation:

1. *The contributions and resources required to complete the mission and target corporations as future partners:* resources are limited and they should be allocated or attracted through financial effort or relocated from other projects that are in progress, but no longer seen as a priority in the future corporate strategy;
2. *Supporting key strategies:* elaboration, implementation and execution of several key strategies must be power played and also prioritized. Implementation is based on the available budget, plus complicated position had by a new competitive advantage inserted in the market;
3. *The strategic risk had by new business proposals:* risk is inversely proportional with the institutional success rate, but it must be yield for the expected future benefits had by IT&C advance and its relation with financial investments and a certain level of risk.

The systemic importance of resource allocation is based on work principles that should take into account all internal factors and leveraged with the external factors. Hamel and Prahald (1994) consider as an ambiguous path the idea to build a corporate strategy starting from the principle of efficiently and optimal sharing structure of resources as part of the company's corporate strategy:

"If top management devotes more efforts in the feasibility of strategic projects and in its capacity to allocate resources than the multiplier effect for the idea of efficiency and the added value will be truly clear but not great." (Hamel, Prahald, 1994)

Strategic planning

To create a linear flow without having a rupture during the process requires strategic planning for the whole operation in line with the process to implement corporate strategy. Strategic planning is a formal system of planning for developing and implementing strategies for reaching and achieving the

corporate mission and objectives (Lynch, 2002). From all these we could pave the way towards a prescriptive evolutionary strategy, including also the evolutionary status that follows the entire process:

Strategic planning has three main characteristics:

- *Top-down:* the executive board has initiated an execution process and its paths for implementation;
- *Bottom-up:* the executive board engages divisions, subsidiaries, departments or even middle management to provide observations and help in strategy development and planning even if these components are complicated for those beneath them (entry level and other components);
- *Integrated:* complicated intra-corporate collaboration created through a mix between top-down and bottom-up processes.

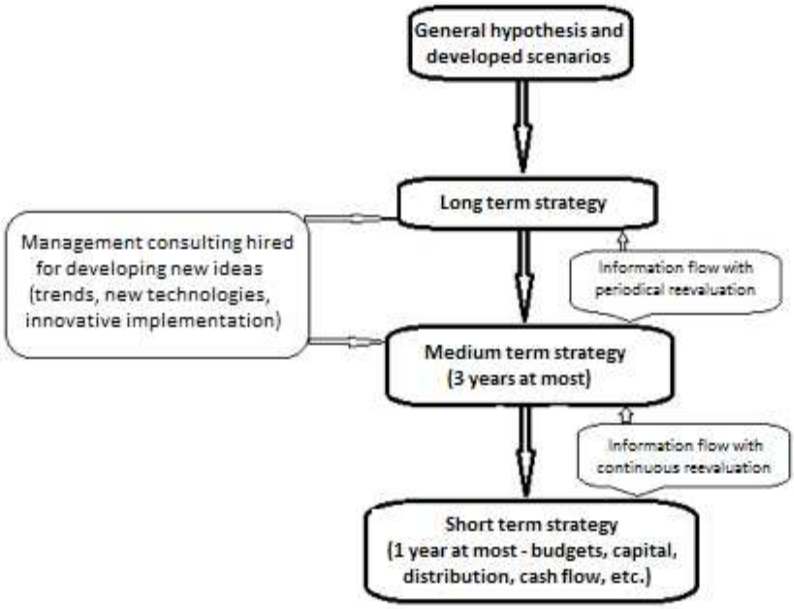

Fig 2. Reverse engineering system for strategic planning

Source: the authors

The concept of strategic planning has evolved since the 1960's, so at first the concept was seen as a way to get a higher return, idea neutralized by the oil crises of the '70s, so this concept was passed in the background, except Royal Dutch Shell who saw it as an opportunity to create long-term development scenarios, but until the '90s the concept was perceived as a rigid bureaucratic system when it came to creation and implementation (Lenz, Lyles, 1985).

Among those who noticed the bright side of strategic planning was Henry Mintzberg which has been identified as the main force for promoting the idea of strategic planning in making operational plans, him being one of the creators of the implementation phase (Mintzberg, 2008). For the idea of developing the corporation, Mintzberg has added three ways to accelerate efficiency (Mintzberg, 2008):

- Support the communication process in its entire corporate evolution because it encourages innovation and helps in having better public relations with host/partner countries;
- Helps in finding new solutions followed after by a 360 degree assessment of the local business plan;
- Providing new or alternative solutions for strategic issues.

The purpose of strategic planning is to create added value in the system. Research conducted to date suggest that the only way is to create added value by:

- *The influence had in planning:* the board defines the plans for each activity;
- *The influence had in control:* the board controls strategic planning process while the plans although complicated, are implemented.

Following the evaluation of these ways to add value to strategic planning through implementation we need to address three styles of strategic planning, all of them being based on the decision making process of the corporation (Mintzberg, 2008):

1 *Strategic planning:* the board formulates plans for each component of the corporate nexus, and during their implementation they develop control measures to reach the objectives issued in the long term strategy;
2 *Financial control:* the board controls the operations and the finance department on short and medium term, and on the medium and long term the control is transferred towards the divisions that execute (top-down transfer);
3 *Strategic control:* the board grows and strengthens the link between strategic planning and financial control through strategic control that states that the organization should have a loose streamlined hierarchical structure (a soft control developed from the center towards the subsidiaries).

A special case is the strategic implementation in the public and nonprofit sectors, because they did not mark the profit, they only serve specific functions that can not be subordinated to the private sector because they can not maintain a line of work without intersecting elements of a classic business process that involves obtaining profits (Mintzberg, 2008). To nuance the approach taken in these special situations (public and nonprofit), we developed the following framework:

Strategic planning in the public and nonprofit sectors:

1 *Bureaucratic level (public sector):*
a.Introducing the perfect targets;
b .Creating the rules (cause - effect);
c.Creating national standardized operational procedures.
2 *Clear anarchy (non-profit / charitable organizations)*
a.Undefined final target (but the ultimate goal is defined - mutual aid / philanthropy);
b .Decentralized decision-making;
c.High subjectivity needed for reaching the goal.
3 *Political power (universities):*
a.Pluralist decision-making, the targets are created by intersecting proposed targets filtered with decisional freedom;
b .Undefined coalitions, but based on specific interests, used for reaching the proposed targets of the organization;
c.Regulated decision making;
d .Neutralizing informational asymmetry.

To have a better correlation between the initial situation, the one during implementation and the resulted one there is the need for strategic control of the efficient board, and this can be achieved by:

- *Aggregating KPI* (key performance indicators);
- *Creating limits and liabilities between*: C-level suite (the executive board, the CEO and the chairman), the top management (the divisions and departments directors, for example: sales, operations, financial, marketing, etc.) and the execution division of the core-business;
- *Under sizing its importance of quantitative data:* numbers are easy to quantify, but the quality and meaning is the main differentiator in observing the yield of the strategy;
- *Control integration:* to neutralize the subjectivity of the human factor;
- *The possibility to reevaluate the situation in real time perspective and to create feasible expectations.*

Creating a unified strategy

Till this moment, in this research paper we studied the concept of corporate strategy as consisting of several elements of implementation, now it must be observed as a whole and how it functions at the level of each component.

In 1970, the consulting company Boston Consulting Group introduced the matrix product portfolio designed for children products, but the portfolio was differentiated depending on the child typology, whether they were poor, rich, troubled or famous. One of the competitors of that time (and today), McKinsey & Co. created an alternative model for organizations. "The 7S" was developed by Richard Pascale and Tony Athos (1981) and perfected by Tom Peters and Bob Waterman (1982). This model has the goal to build relationships with double meaning (feedback) within a corporation and is the best corporate strategy for implementation, underlining this way the fact that the yield of a corporate strategy is higher than using a analytical toolkit in combination with organizational structure and strategy (Lynch, 2002).

The 7S framework

The 7 components mentioned in this model are treated with the same importance in the working system of corporate strategy and they interact unconditionally to allow developing a synergistic effect on the corporate strategy of the organization. This model is designed as a bridge between corporate strategy, corporate structure and system built to bring their contribution style, skills, know-how and employee corporate goals together. The 7S model includes the following components:

1 *Strategy:* the needed component for the corporation to reach success;
2 *Structure:* the approach on doing business;
3 *Systems:* information and execution flow integrator that creates the layers and sub-layers that shape and develop the actual business (in attractiveness, market compliance and all level competitiveness);

4 *Style:* the way it implements corporate governance at executive level;
5 *Staff:* people who creates and form the corporations;
6 *Skills:* the optimal combination to assure efficiency in developing the corporation;
7 *Super-goals:* they represent the intersection between corporate goals of employees that should interact with the proposed goals of the executive board, creating together the strategic corporate vision which is adopted through applied corporate governance for a sustainable growth of the corporation.

These seven elements are divided into two groups: the hard elements: strategy, structure and systems and the soft elements: style, skill and super-goals. The difference between the two groups is the fact that the first group is based on their tangibility, but the importance is given to the soft elements group based on their character, which is more difficult to assess as planned or measured.

According to Peters and Waterman (1982) companies addressing an appropriate framework for the work of the 7S develop the premises for qualities characteristic for performing corporations, through:

- *Using loose-tight principle.* The board decides and implements the corporate governance, but not suppress entrepreneurship by providing freedom in their decision to implement at the local level or regional level (decentralization);
- *Action oriented.* If an issue rises, then it is solved on the spot with a fitted solution that is optimal for the situation;
- *Offering support and demanding feedback from clients;*
- *Innovation oriented personnel;*
- *"Simple is better!"* (Steve Jobs). This concept is also applied into the development of the organizational structure, at hierarchical level and based on the execution and liability functions;
- *Respect for human resources.* Providing opportunities for vertical and horizontal hierarchical promotion in the corporation by developing new tasks, by offering trainings and financial rewards and complementary perks;
- *Keeping the values and the mission of the corporation;*
- *Keeping the core competencies for skills.* The evolution of some business from corporations diversify the needed skills, but the basic or core ones are fundamental for any new business.

Conclusion

To implement a corporate strategy there should be evaluated and built some possible scenarios for the development of the global economy, to which we aggregate the changing of the consumer behavior and of the expected demand goods and services necessary for the long term. To project the corporate strategy some components of the global economy must be inserted in the yield equation of the long term strategy, some of those components are:

1. Globalization;
2. Global competition;
3. Super-connectivity developed by the IT&C sector;
4. The transfer under public governance of the corporate governance of some strategic companies that are state owned;
5. Environmental protection;
6. Implementation of mergers, acquisitions and alliances;
7. Ruptures in technological development and innovation;
8. Assessing an efficient demand and optimizing production facilities;
9. Consumer behavior;
10. The optimal level of decentralization.

To have no gaps or inflection points in strategic planning there should be brought into the limelight the monitoring and control components, which are executed using information from channels that are formal, informal, or internal or external. Monitoring and control are based on information available to: assess the options for allocating resources, monitoring progress in implementation, performance evaluation of top and middle management based on performed tasks and change the assessment of the economic situation and matching corporate strategy under implementation with it.

In the end of this research, we could underline the fact that the corporate strategy represents a mix of solutions that offer a company the perspective to implement, allocate its resource efficiently, develop strategic planning, reverse engineer some processes seen inside the company to fine tune them or reverse engineer some processes from competitors to develop a new process that could help grow the company that tries to reconfigure its corporate strategy.

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Dealing with the "New Normal" Emerged After the Economic Crisis

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Abstract

This paper tries to highlight the social, cultural, political and economic perspectives developed after the economic crisis started in 2007. A "new normal" was developed and it ignited the need for a new approach in the way business is done and economic policy is developed and implemented.

The main purpose of this research is to stress that today's "new normal" represents unstable trends for the global economy, reduced economic growth and unclear solutions for expected paths developed by the governments that have to develop measure for recovering after this crisis and also prepare for when the next one will come, and after all of these the secondary purpose is to highlight the way to deal with the "new normal" from the social and economic perspective.

Keywords: economic growth, economic policy, inflation, new normal

Introduction

The concept of "new normal" is defined by low economic growth and low inflation. The branch of the European Central Bank situated in Austria underlines that "the new normal is a situation where we have low economic growth, slow inflation and low profitability of banks, poor quality of assets and less short-term funding", through the ideas disseminated by Ewald Nowtony in 2014.

Economic growth is an evolution of an economy in a positive way, which may present oscillations in a limited time, and is generally presented by the evolution of gross domestic product. Economic growth is influenced by various macroeconomic indicators such as gross domestic product, gross national product, national income, coupled with demographic evolution (Ailenei, Mosora, 2011).

Economic growth means increased potential output of the economy. This means that GDP should grow to influence long-term aggregate supply and give it a positive trend. Gross domestic product is determined by the value of goods and services made by using factors of production within a country over a period of time, (generally a year).

Growth is driven by various factors, both directly and indirectly. Directly, through the active population, the amount of capital used, technological developments, and indirectly through institutions and government.

The macro-perspective of economic growth

Economic growth is closely linked to other macroeconomic issues, such as economic balance, because growth will increase imbalances in an economy without a large core formed by the middle class and institutions; cyclicality, as in the case of an upward trend in economic activity in the long term, it is known as economic growth; economic development, involving a process of change in society, which can negatively influence economic growth if the change is not favorable for the company. To have economic growth, a state must implement various measures to stimulate economic growth, which requires an accurate picture of an economy. This image or big picture is based on visible indicators and macroeconomic variables. At the same time, economic growth is influenced by macroeconomic policies (Bodislav, 2012). These policies are implemented solutions used to adjust macroeconomic imbalances and to reach economic growth. The main policies used are monetary policy and fiscal policy.

These macroeconomic policies are unfolded by the state that intervenes in the economy by changing the values of parameters and variables to find solutions to the economic problems facing the country and meet the main economic objective of the state. These solutions and objectives differ from country to country, because countries have different economies and interests. This is observed in the level of development of countries, but also in the the behavior of the population.

To achieve a positive outcome on economic problems, people need to understand those issues and take the necessary measures to solve them.

"To ensure a certain level of economic growth there are required two capabilities: either ensuring that economic growth has an extensive side (based on increasing the number of employees) or improvements in work conditions, this way allowing increased productivity (assuming such an intense economic growth – Costica, Lazarescu, 2004)". If the second aspect, to have intensive economic growth, the best solution is new investment. This can be a problem because some countries do not attract the interest of investors for several reasons, such as political stability, military, financial, and taxes.

To develop sustainable economic growth, a state must remove long-term problems. This is not always possible because the state is more interested in solving the present problems than those that have not yet occurred and no one knows when they put the state in difficulty. Long-term problems are replaced with those on short and medium term and because of the political decision, also because every governor, president or prime minister wishes to solve existing problems and those that may arise during his tenure and does not have a long-term view on the economy and also on problem solving requires which also requires a greater time of solution construction.

Neoclassical economists deemed that to have economic growth is necessary to increase production through technological improvements and also by increasing exports. Economic development in terms of neoclassical theory involves increasing savings rate and boosting technical progress, but not all countries have the same level of technical knowledge, and therefore, the least developed countries will begin a process of catching-up to try to obtain the necessary elements of technology and economic growth in developed countries that already went through these processes.

Increasing macroeconomic potential for obtaining economic growth

To show how economic growth is influenced by the accumulation of physical capital, the increase in the saving rate, population growth and technical progress, the neoclassic Solow-Swan model was developed. This model requires assumptions that there are two factors of production, labor and capital, easily substitutable, perfect mobility of factors of production, full employment of resources and the absence of state intervention. In this model, the growth rate of real GDP depends on physical capital per worker endowment. Where increases in physical capital per worker, the production increases and the economy is growing intensively, but later it will develop a new technology that will

increase capital endowment, meanwhile the production will be increasingly smaller, due to the production of goods with a higher added value and the economy will increase because of the qualitative side (Bodislav, 2015).

According to the Solow model, the higher the savings rate, the higher the growth of that economy. The International Monetary Fund recommends that developing countries have a higher savings rate and investment enters at a faster pace, these being part of the recipe on how to record higher growth.

The Solow growth model shows that government spending is not beneficial for economic growth, while an increase in taxes would stimulate this growth. If government spending increases, saving decreases, leading to a decrease in investment, but an increase of taxes, saving is stimulated, but following the drop in consumption and investment.

To have growth, developing a state there must be followed a process of evolution both in terms of technology and in terms of quantity and quality of the manufacture and products manufactured. For example, the countries of Central and Eastern Europe have followed a process of catching-up starting with the 1990's, after the exit from communism, the process was based on importing capital and technology from more developed countries (Staicu, Staicu, 2007).

A low economic growth requires a country to have growth, but it is not very visible, the growth rate of GDP is very low and maintains a low level for long periods of time. Along with low economic growth, "the new normal" implies low inflation. Inflation is a general rise in prices analyzed over a period of time and presents a macroeconomic imbalance related to monetary policy. Meanwhile, inflation is declining the purchasing power of money. At the same time, inflation is characterized by currency depreciation not only nationally, but also in relation to other currencies.

Inflation as pressure point for economic growth

Inflation is measured by macroeconomic indicators, such as the price index and consumer goods, the general price index and the GDP deflator. Inflation is caused by several factors such as demand, supply, wages and costs. Inflation in demand occurs when demand for goods and services is greater than the supply. In this situation the population experiences a desire to purchase a larger quantity of goods and services. Thus, this happens by increasing aggregate demand and as a result the prices will rise.

Inflation on the supply side stands when aggregate demand falls. In this case, the prices of goods and services will increase as on the market there will be fewer goods and services and their price will be higher.

Wage and cost inflation is achieved by starting with raising salaries that attracts and increased production costs, resulting in an increase in prices of goods and services. This increase in production costs is driven by rising commodity prices (the core being represented by materials and energy). At the same time, rising costs and imported inflation may rise, rise in prices that can be observed for countries that are dependent on the external environment, the level of imports is very high. Imported inflation is caused by rising prices worldwide that will cause a rise in prices of imported goods and services.

Along with inflation, there are two phenomena closely related to it. They are deflation and disinflation. Deflation is the opposite of inflation, namely lower prices, while disinflation is in the process of slowdown in prices (these two are seen mainly in the European Union in the second semester of 2015 and during the first quarter of 2016). A lower inflation rate further indicates that prices rise but the rate of price growth is low, close to 0. This is not always good because some countries can reach deflation.

The transition to the “new normal”

Economic growth is determined by GDP. The latter has an influence on aggregate demand and aggregate supply, but aggregate demand is the sum of market demand and it expresses total demand for goods and services in the market that they are acquired by the whole society according to the average price level in the economy known as the equilibrium price and the quantity that is traded, the equilibrium quantity. It presents various combinations of price and income for the economy in balance.

Aggregate demand can be modified by certain factors, the most important factor being price. An increase in price leads to a decrease in demand, while a drop in demand will grow the price. Other factors influencing demand are components of aggregate expenditure. For example, aggregate demand increases when consumer spending is growing, which in turn leads to an increase in consumer wealth, so it results in a price increase and on the long run in lowering taxes. This tax reduction will stimulate investment and reduce interest rates. However, export has a pretty big influence on aggregate demand, because if net exports are increasing, imports will have lower values than exports, so to stimulate national economic growth they are needed to be correlated with export earnings (Bodislav, 2012). Net exports is also influenced by the exchange rate, because if the national currency depreciates, exports will be encouraged.

Aggregate supply represents the sum of all market offerings and represents total output of goods and services that businesses from one country at an average price are given, fact achieved by the economy. For the analysis of GDP is needed long-term aggregate supply when it has the tendency to be perfectly inelastic.

If an increase is highlighted then the market supply of factors of production and demand increases, leading to an increase in input prices. Companies' profit drops to reach a neutral level and firms will no longer be stimulated to produce.

Short-term aggregate supply changes are based on amendments to certain factors, such as factor prices and inflation, which is the most important. If the supply of factors of production will fall as demand increases, the price of production factors will increase and lead to a reduction in aggregate supply.

After the last economic crisis that was felt worldwide, started in 2007, there was a time of recession, that in some view points is still in action. This recession has developed differently in the countries affected by the crisis because they used different measures to end the crisis, depending on the level of development of the country, but also on other factors such as political system and the economic system of each state.

The recession is now an output gap recession, characterized by a level of potential GDP lower than real GDP. This gap can be recovered using state or central bank intervention. State intervention can be seen by promoting countercyclical policies in fiscal policy, that is seen for example by lowering taxes during their growth during recessionary and inflationary cycles. The central bank can promote in turn an expansionary monetary policy by lowering the reserve ratio or the acquisition of securities, which will lead to an increase in the money supply, a decline in interest rates and increased investment and production of goods and services, and thus resulting in an increase in real GDP.

In the case of less developed countries, the economy had suffered much from the crisis, needing more recovery time, which led to a recession stronger and harder, but with reduced output gaps. Meanwhile, countries that promoted anti-cyclical policies, the recover was endured easier and they had less time gaps during the recession because of the population adjusted itself to the measures implemented by the state.

To understand and surpass the situation of low growth and low inflation, a country will adopt measures regulating the economy less beneficial to it, so people unable to adapt to these measures

will not stimulate the economy in the way they would want. These measures may be adopted by the government through fiscal policy or monetary policy of the central bank.

Romania and the “new normal”

During the communist period, Romania tended towards economic growth, thanks to the government that encouraged production transferred all for exports (maximum net exports) and an unemployment rate as low as possible. After 1990, Romania had a period when growth was obtained, including hyper inflation seen in the first decade after communism, all these happening until 2008, when the crisis began.

Starting with the ‘90s, in Romania there were several changes, starting with the government's objectives in relation to the economy. It started with the privatization of major industries in the country, because the state no longer had the resources to maintain and develop those businesses. Over time, the Romanian state has attracted more and more investors due to liberalization of the economy and latter on by joining the European Union.

The end of communism was followed by the process of liberalization of the Romanian economy, which began with the liberalization of prices, accelerated trade liberalization, liberalization of external flows and financial, and ended with monetary liberalization. The liberalization process was completed with the accession of Romania to the European Union in 2007.

To join the Eurozone, Romania has to meet several convergence criteria set out in the Maastricht Treaty. These criteria are divided into real convergence criteria and nominal convergence criteria.

The real convergence of living standards requires that development to reach the countries in the Eurozone. Real convergence refers to Romania's economic growth in the long term, which will help the country to adapt quickly and easily to the new currency. This convergence has strict criteria, it requires fighting unemployment, a balance of payments maintained in equilibrium, also a growing income per capita and better management of government spending.

Nominal convergence is well defined by five criteria that must be met simultaneously for a longer period, those covering monetary policy and fiscal policy. To fulfill these conditions for nominal convergence, Romania must have an inflation rate that does not exceed by more than 1.5 percentage points the average of the three countries with the best results on prices stability, the exchange rate must maintain its limits fluctuation provided by MRS II of +/-15% at least 2 years, the interest rate does not exceed by more than 2 percentage points the average of the first three countries with the lowest interest rates. From the perspective of fiscal policy, Romania must have a maximum budget deficit of 3% of GDP and public debt not exceeding 60% of GDP. The last two criteria were difficult to keep in target, the budget deficit was surpassed by almost all developed and emerging states, and the public debt criteria escaladed from 21% back in 2007 to 39% in 2015.

In the timeframe 1990-2007, Romania faced a fairly high economic growth, the crisis that followed having a greater effect on the country and pushing the country back with 5-6 years. Economic growth is influenced by many the change of factors, such as GDP, inflation, unemployment, investment, technology and other derivate or hybrid ones.

If the unemployment rate in Romania had lower rates until the crisis of 2008, starting from 2009 due to the increased depression, Romania was ranking among the European countries with the highest rates of unemployment.

Romania's gross domestic product has registered an increase up to the crisis, then it began to fall because commercial inhibitors evolved and decreased production, but over time it began to rise again and in 2013 registering the highest growth in Europe of 5,2% year on year. This growth was large, but not very big compared with the loss registered by Romania starting from 2007 and the population is still affected by the recession, only from 2015 it started to fill as a better situation for the

population.

Economic growth may be restoring confidence in the national currency, the banks started to grant more loans, investment were reignited, the production of companies increased, leading all together to GDP growth, but not all start-up companies have benefited from the economic growth after the crisis, many have reduced their lifespan on the market, entering into bankruptcy because consumption has not grown as it should or expected.

Production is stimulated by consumption, and if people lean more towards savings than for consumption, businesses will suffer, because production will decline, this decline leading to a decline in the overall economy, but in the case of emerging economies like in the case of Romania, it will result in low economic growth and a permanent muddling through process. To prevent these things to happen after the crisis and to encourage people to invest to circulate as much money they can, the state can intervene through countercyclical fiscal policy measures, by offering grants to investors, or by reducing taxes.

Investments were stimulated by lowering the monetary policy interest rate, but also by joining the EU has encouraged the state to attract FDI. With the help of investors there was completed the privatization and stimulated the economy and also brought new opportunities for development. Along with these investments, the technological advance has been ignited, especially in the manufacturing area.

For stimulating investments, the central bank may intervene by lowering monetary policy interest rates that will lead to lower reserve ratios. Through this measure the commercial banks will adjust their interest rates, encouraging people to borrow, the loans pool will increase, and with it will increase investment, thus stimulating economic growth of Romania.

Economic growth may be hampered by higher tax collection and a streamlined fiscal system used by the government, especially potent during the economic downturn. According to A. Laffer, high taxes don’t go together with paid taxes and we can state from the macroeconomic perspective that they also don’t go together with consumption and especially with aggregate demand, and this three-way procrastination resulted in a budgetary deficit becoming the country's largest. At the same time, economic growth is discouraged and high rates of government spending are seen during the recession because rather than reducing spending, they will continue to invest (in key macroeconomic areas), and thus the budget balance will be negative.

To create or maintain a high economic growth rate, the government must adopt countercyclical measures by lowering taxes and lowering government spending. Meanwhile, the central bank must also adopt policy measures that encourage lending and investment, but also to introduce liquidity, leading to an increase in inflation.

Currently, Romania is confronted with low growth rates and low inflation, but this is similar with being present in the "new normal". This is possible due to the transition which was harder than the actual recession and because of the economic stimulus measures that were adopted by the government, they were ineffective.

Conclusion

Since the economic crisis of 2007, many countries have encountered strong drops in their macroeconomic indicators, some being affected for a longer period than others. Both the countries and their central banks have long suffered due to the recession that followed, recording large deficits and a harder path to cover and recover.

Inflation began to grow during the recession, especially in the European Union it has increased slightly, but still remained at a low level, with deflationary tendencies. After the recession, the EU recorded rates of inflation that could worry its population because it was possible that a drop in prices

was ignited by the propensity of people living longer and saving less for later consumption.

In the end of the year 2014 the EU was persuaded to adopt a quantitative easing program due to very low inflation values of member countries, and some members of the Euro area recorded even deflation. This program involves the purchase of bonds and assets on the secondary market by the European Central Bank. With this decision it is stimulated a higher inflation, actually reaching a normal level and later stimulated economic growth due to the injection of liquidity in the system.

Quantitative easing is a whole process developed to create economic growth. It starts with the printing of money by the European Central Bank for bonds to be bought. Households and firms will be able to borrow due to lower interest developed by a monetary system with "cheap money". This will lead to an increase in investment and also create jobs that will help lower the unemployment rate and an increase the aggregate demand.

Following this program, countries outside the euro area and Russia could benefit. The euro area is one of the largest importers of oil in the world, and this will have a pretty big impact on the Russian economy, increasing oil imports, although the price for the oil barrel it is at its lowest point in almost two decades. With increasing inflation, also the supply (production) will increase, and it will bring economies closer to an equilibrium between potential GDP and actual GDP, the gaps getting smaller. After the crisis of 2008 the strong countries in terms of economic development have been less affected thanks to the measures taken in the pre-crisis period, while the least developed countries had a longer period of time to endure in the recession. Among the latter, some have got to have increasingly higher economic problems due to the measures used to combat the crisis and stimulate the economy that was not suitable for the system and their economy. For example, Greece, which failed to overcome the recession, nearly bankrupt, had to borrow from the IMF and the ECB, being in debt for a large period of time and owing more then 300 billion dollars to creditors.

There were also developing countries that have passed quickly over recession due to stimulus measures developed by the government for obtaining economic growth, such as Poland, one of the post-communist countries of Central and Eastern Europe.

Recession was greater in some countries and the restrictive actions of pro-cyclical fiscal policy were visible, those being also implemented in Romania. Thanks to these measures, the national economy suffered because the taxes were increased during the recession and this way having a lower aggregate demand.

If counter-cyclical measures were adopted then the recession will pass easier, the consumption being encouraged by lowering taxes. At the same time, they encourage investments that will lead to an increase in labor supply, also into a decrease in unemployment and an increase in production. The economy is growing and at the same time it is in a state of steady development. If the member countries of the European Union that were in a situation of low growth they could have adopted various measures to stimulate the economy, measures that can be used by any country, developed or developing/emerging.

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Theory and Practice on Romania's Role in the Globalization Process

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Abstract

This research paper is targeted towards the globalization process in general and Romania's evolution in particular, and tries to present how the globalization process can help developing countries to reduce their gap between them and advanced economies. The main idea is that this study emphasizes also how globalization could represent an accelerated way to forget communism and embrace the open market economy also known as the capitalist system.

To understand the strong link between globalization and economic development for ex-communist countries, the paper inserts in the spotlight Romania's case and highlights the processes that accelerated the development of these countries, for example Poland's case of perfect sustainability in its evolutionary process towards it being a developed country.

Keywords: capitalism, communism, globalization, transition therapy

Introduction

Currently, globalization is increasingly seen as a process that, if managed effectively, can lead to sustainable development of the economy and society. Barriers that hinder this development are political, cultural or strategic. Political because some countries have a democratic political system different from those situated in a corrupted democratic system, which prevents factors that favor globalization. Cultural inter-penetration of Western culture represents a soft side of globalization, from where capitalist and democratic ideas and technology can evolve, where the culture of post-communist states or countries highlight globalization, but also block it with a strong nationalistic spirit developed in people's consciousness. Moreover, in such states are emerging extremist nationalist movements, especially if reforms fail to empower globalization as a tool for better living standards. Strategic barriers are also seen in wrong or hasty adoption of capitalist and democratic values and theories, especially in an institutional framework unprepared to cope with such sudden changes. Shock therapy used in some post-communist states for their transition from communism to capitalism presents exactly these problems.

Removing those barriers is a hard task, but not impossible to states that want development and deploy trades into the globalized world. Romania is one of those countries that make efforts to achieve economic development and have as political prerequisites the ideas to transform themselves as a stronger European economy and to succeed to reach a standard of living at European standards. The outbreak of the economic crisis in 2008 prevented Romania to continue the upward economic trend developed before the crisis, but there are some opportunities unfolding for Romania as a member of the European Union.

Removing barriers as forward movement for developing countries

The world is in constant change and globalization offers the transformative perspective for its citizens, but with a pace that is higher and higher. These days, globalization represents a new network formed between people, countries, institutions or organizations that are increasingly interconnected and this movement is seen only as a forward movement, but while globalization began centuries ago and reached its peak in past decades, with barriers that slow down the conversion and represent modern forms of classic thinking. Some states still reject the trend of globalization through public policy that is unfavorable for the development of free market or through corruption or lack of well-structured strategic planning at government level used to enable harmonious development of an economy in this era of perpetual transformation.

Globalization as a process is refused by certain countries that use economic, political, cultural, strategic barriers to justify their purpose. These barriers halt or slowdown the progression of the market and society, and such countries and their economies are developing unevenly. In a fictional world in which all countries have equal opportunities, resources, technology, etc., globalization would probably be accepted more easily, because all the agents involved would benefit and no one will lose.

Developed countries, developing ones and underdeveloped ones are connected by the following differences: economic, political and socio-cultural. So, for a harmonious globalization we can deduce that three ideas are mandatory: liberalization of the economy, political democratization and universal culture (Dumea, 2016).

Therefore, globalization evolves as a network, heading from developed countries towards developing countries, which offer a natural resistance that from time to time is modernized at economical level, artificially increasing the economy by imitating American or Western European model. The increase is artificial because these countries lack the same conditions as the models they aspire to reach in terms of results and, in any event, within a short time. The followed path is considered the economic side of globalization that tires to entail modernization and target the political and the socio-cultural sides. Many countries have endangered their national economies by accepting a model of capitalism imposed by Western societies that isn't tailored for their size and it is normal that the population of such countries are unhappy with the measures developed by the government.

All the theories about globalization lead us towards the idea of newborn imperialism, US imperialism in particular. It is considered the symbol of modern democracy and the modern capitalism creator, its influence is formed through values, methods, plans, models, etc. and especially by transnational companies that open new businesses in countries where labor is cheap. With products sold worldwide, synchronization occurs at cultural and economic level and it results in a pressure on countries that badly need foreign investment, this way forcing political change and, in some cases, more evident than in others. All these result in a paradox of capitalism and globalization that is based on the free market and democracy, but in the current economic climate needy countries from the political and economical perspective, are not part of this freedom of choice or action, there are being offered financial aid and also a set of values and principles of government that are generally, but not tailor made, while confining them the range of options and freedom of choice.

Few people dispute the benefits of open markets, but almost everyone agrees that they have been distributed unequally among other countries, therefore there are some countries that together with their increase of global trade and international capital flows, those countries also increase their sense of vulnerability (Yusuf, 2001). Many workers from industrialized countries are afraid of the international flow of labor, an exchange that interconnects cheap labor from developing countries with multinational companies that use options offered by globalization in their own interests, ignoring the interests and possible long-term benefits of the country in which they choose to operate and invest, for example we can analyze the case of Nokia that moved from Germany to Romania, and from Romania to India in a short period of time (under two years), because they had only one purpose: find the cheapest labor that can put together a mobile phone.

The most important component of the harmonious development of globalization is that the efforts of developed by aid recipient countries (Yusuf, 2001), composed from those values and ideas, directions and principles resist on the long run, but altogether without destroying the national identity, or the nationalist sentiment. Underdeveloped countries or developing ones are reluctant when it comes to globalization, even if they would generally benefit from it, because they sometimes estimate that they would be hit by disadvantages on short and medium term, this in a context where there is a massive lack of synchronization on other levels: cultural, political, social, and on the long-term those countries could overcome the shortcomings and economic loneliness. This is because globalization affects not only those that promote it, but also those who reject it, even as seen as the refusal to open the economy to the the world market because it generates loss of growth opportunities inherent in globalization and for those that try to protect themselves as a closed economy.

Major barriers that must be surpassed by developing countries to accede to the globalized world and to have access to development opportunities are cultural barriers, political and social. The cultural factor is the trickiest because new members of the globalized world must accept that elements of Western influence are needed to be assimilated (Dumea, 2016). On the other hand, they also enable integration into the national Western culture in a gradual manner, keeping their values and thus sheltering nationalist sentiments of the population. There must in any case be a balance, because otherwise, will develop strong extremist movements in society, there will be crises arising from complaints regarding the so-called "imperialism", slowing or stagnating evolution of society and the economy.

From the political point of view, countries need a clear and functional leadership structure, a strong democracy, bureaucracy and corruption should have very low levels, aimed at their minimum possible. This is very important because otherwise you can develop a situation like Romania’s case, which was after the Revolution very open towards globalization and the West, but was greatly weakened by a political class that did not follow uniformly the unanimous accepted development plan. In our case, the local political class, full of scandals, did not take the real economic potential of the country, especially in the first 10 years after the fall of communism. Therefore, it is imperative for developing countries to have political stability, because this stability linked with consistency in the actions of a state power leads to progress.

For globalization to be a harmonious and social synchronization it should be connected to the other three facets of globalization: cultural, economic and political. From this point of view, the society is seen as a whole unit, an organized system of relationships between people, located in a geographical and political status quo, also globalization is felt by a flow of products, information, knowledge and how Westerners live, this way the new globalized entities should adapt to these changes, integrating all these issues at the center of its own values and traditions. Gradually, social homogenization would gain momentum at the expense of separatist and fundamentalist sentiments. There must be a balance between absorption of Western culture and the preservation of traditions born on the idea of that the national identity isn’t kidnaped. Otherwise, globalization will be perceived by society as an aggressive phenomenon and tool for replacing values, resulting in its rejection.

The transition from communism to capitalism, filtered by globalization

Post-communist economies, including Romania had after the fall of socialism, to make a choice as transition from a centralized economy to capitalism, namely it had to choose between: shock therapy and gradual therapy.

The shock therapy, supported by the International Monetary Fund and the World Bank and presented by Jeffrey Sachs, is based on a set of recommendations and directions, also known as the "Washington Consensus" through which states must adopt in order to successfully make the transition to capitalism. Initially, this path of shock therapy has been promoted as the best solution to create a free market, believing that privatization will directly create market mechanisms that regulate the supply and demand without any governmental intervention. Liberalization and privatization were considered as fastest paths to the market economy.

On the other hand, the gradual therapy was the correction made in the coming years as replacement for the shock therapy. Pragmatism and realism led to this new transition tool known as the gradual therapy. Its followers claimed that the shock therapy inevitably lead to a massive decline in living standards since the position can not remove the state from the economy without huge consequences on the population. Also, economic institutions and mechanisms in a post-communist society must be modernized and subsequently completely replaced, if necessary, but in a gradual manner, one by one, as they increase their efficiency. The gradual evolution occurred practically in post-socialist economies that implemented shock therapy and who recognized deficits inefficiency by creating a new model of transition to capitalism.

Whichever path is chosen, most socialist countries after the 1989 Revolution, passed along to the capitalist model, each of them, although the processes wasn't easy to all the ex-communist countries, they had to overcome some specific difficulties of transition. Among these difficulties, perhaps the most important and the one that created the most discontent among the population is changing and modernizing the political and social system. Lagging when compared with Western countries, former communist countries had to go through a process of catching-up that still takes place today. Most obstacles and difficulties have arisen from the expectations the population had in terms of economic development in relation to the practical results that were underlining the weak political system, a young and inexperienced democratic system, in which the main actors were most often supporters of the old communist system.

Russia itself has followed the model of shock therapy, promoted by the IMF and the US, and this is the best example in terms of the great expectations had from this transition model and its failure. In Russia rapid privatization and liberalization was followed by the sudden collapse of the market and resulted in social imbalances and issues had with their public debt and deficits.

On the other hand, Poland is the country that registered the best economic results of the former communist countries from Eastern Europe. China also achieved the fastest growth of world economies in recent decades. However, China and Poland have not followed the instructions of the Washington Consensus, but followed their own economic development plan. Poland used the shock therapy at the beginning of the transition, but in the process they realized that it does not help with social pressure of inflation and also it does not lead to sustainable economic growth, so they went towards a policy of gradual privatization and creating simultaneously institutions that promote the market economy (Stiglitz, 2003).

China's success in the transition to a market economy contrasts with Russia's failure so that starting from 1990, China registered a growth of over 10%, while Russia has experienced a decline of 5.6% per year on average (Stiglitz, 2003), this increase economic led China to a considerable reduction in the number of poor (from 358 million in 1990 to 108 million in 2015), while in Russia, the number of poor increased in comparison with the darkest moments in history, the two World Wars.

Regardless of the method chosen by the transitional post-socialist countries, some successful models are seen, those of Poland and China, and shows that economic growth can be expected within a decade, but once you are developed you need to change your approach on policy making (that's why these two countries have lost their edge – Stiglitz, 2003). The economic gap between these states and the pure capitalist ones could be recovered whatever the disadvantages developed from the centralized economy, as long as it attaches importance to the private sector and decentralization, taking into account the cultural and social shock can develop social pressure seen on the and also that could regress economic development. The transition from communism to capitalism in general is a slow process, but it can have impressive positive effects and in a relatively short time if there is synchronization between the main pillars of globalization: political, social, economic and cultural.

Regarding Romania and the shock therapy used in its transition to the free market, after the Revolution of 1989, there was an euphoria towards the acceptance of capitalism, the market has been chaotic back then, due to the social and political pressure that the government must handle, but in the opposite of what they did in the past regime, the communist one: the lack of total involvement in the

economy, or the lack of a competitive market that doesn't allow the birth of the invisible hand, this way the capitalist way transformed into wild capitalism (Bodislav, 2012). Thus, Romania missed the start of the transition to capitalism because it wasn't capable of developing momentum immediately after the Revolution. Shock therapy is not an absolute solution to a market economy, but the indications of the Washington Consensus were not fully irrelevant. What was lacking most in Romania after 1989 was the will and tools to create a legislative and institutional framework that could evolve and deploy the market's development. Starting from the third millennium (the 2000-2005 timeframe) Romania developed the needed reforms and it accelerated forward until it joined the European Union on 1 January 2007, unlike Poland, which began with the shock therapy and continued with the gradual one and joining the EU in 2004 or Hungary, which used from the beginning the gradual therapy as a paced and sustainable transition method and succeeded in joining the EU along with Poland.

Romania's evolution starting with 1989

Lack of modernization of the institutional and legislative framework postponed rapid privatization and this way the full potential of the shock therapy was limited. The unemployment skyrocketed and this developed a strong social pressure on the Romanian government. The delayed transition to capitalism also entangled the chances of becoming a global player for Romania, so in other words, the market created after the Revolution was not competitive and stable and the big picture was blur when it came to transparency and efficiency.

For a clearer picture of Romania's transition to capitalism, we will analyze some economic indicators and developments for the period 1989-2014. The data for the year 2015 isn't finalized yet, so that is why we will use 2014 as an end date. First we will present the evolution of Gross Domestic Product growth and developments in the Foreign Direct Investment growth rate. In Romania, it has evolved positively since the Revolution of 1989 to present, stark fluctuations and a sharp drop in 2010, shortly after entering recession (Dinu, Bodislav, 2015).

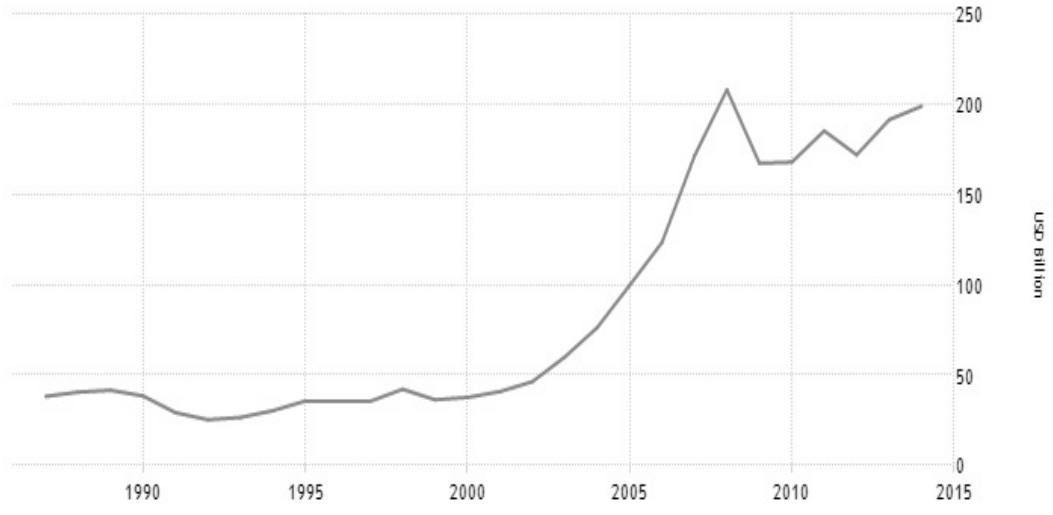

Fig 1. Evolution of GDP in Romania between 1989 to 2014 (2015 estimated)

Source: http://www.tradingeconomics.com/romania/gdp

GDP value expressed in the graph is measured in billions of dollars as the euro appeared only in 1999, replacing national currencies in the European Monetary Union in 2002. As can be seen, a slight decline in GDP in the period following the 1989 Revolution GDP sloping from 40.4 billion $ to 25.1 billion $ in 1993, due to the chaotic transition to capitalism in Romania, rebounding since 1996, when the Government realized that government intervention is necessary and It should not be left solely on

the regulation of the "invisible hand". With a GDP below 50 billion dollars in the early 1990s, this threshold was exceeded only in 2004, after which Romania has made significant progress in economic development and after its accession to the European Union in 2007, it can be seen that in 2009, Romania's GDP increased from 40.4 billion $, as it was in 1989 to 204 billion $ in 2009, this being the highest ever recorded by Romania in the last 26 years. Currently Romania's GDP is about 189 billion $ and for 2016 it estimated to reach its biggest value, surpassing the 210 billion $ threshold.

In terms of FDI (Foreign Direct Investment) value, it is important to analyze the degree of development of the economy since it highlights the stability of the business environment in a country, attracting foreign investors it shows sustainability of the economy and also stimulates the economy. Analysis of FDI is important from the point of view of economic engagement in globalization by the fact that foreign investors are the basic layer of the network that sustains the globalized world. The value of FDI in a country is determined annually.

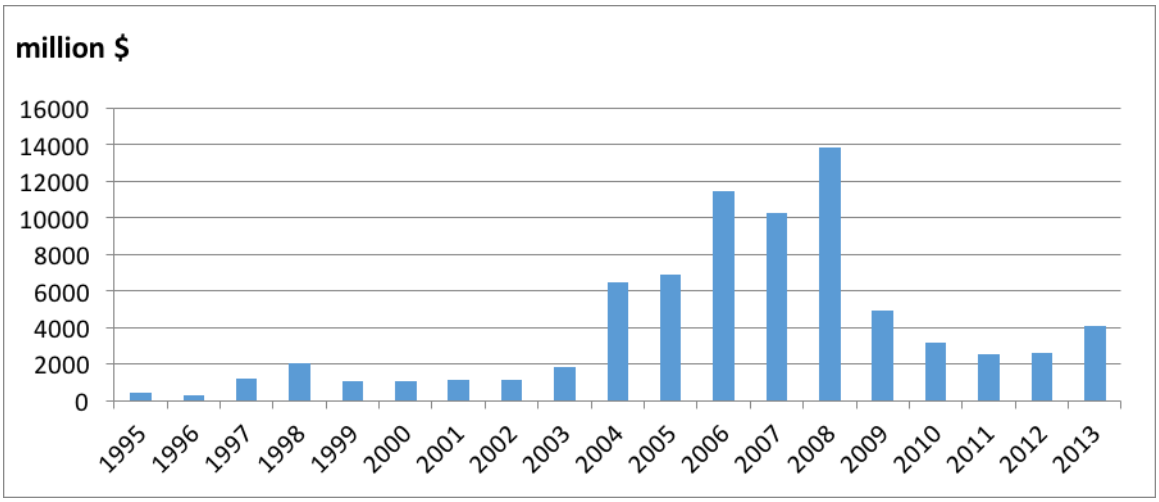

Fig 2. Foreign Direct Investment

Source: the authors by using the data available online at: http://databank.worldbank.org/data/reports.aspx?source=2&country=ROU&series=&period=

The beginning of capitalism in Romania in terms of FDI was insignificant in the first 5 years, because the business environment was inhospitable to foreigners due to the country's economic instability. Thus, the values shown in the graph expresses FDI in millions of dollars over the last 20 years, between 2014 and 2015 data are inconclusive. Therefore, the value of FDI in Romania in 1995 was 419 million $, Until 1998, reaching a value of about 2.031 million $. There was a slight decrease to a value of about 1.041 million $, and remained relatively constant at this value until 2004, when foreign direct investments in Romania have exploded, reaching in that year to 6.443 million $ and continued on an upward trend, peaking in 2008: 14 849 million $. After the recession of Romania, their value has dropped dramatically in 2009, to 4.926 million $ and fell to 2629 million $ in 2012. Since 2013 the value of FDI started to increase slightly to 4.108 million $. The gradual exit from recession, (re)stabilization of the business environment in Romania and also a more flexible fiscal policy, are the factors that attract foreign investors in the country since the economic crisis, investors that are absolutely necessary for reigniting growth and economic development, especially in the context of globalization.

To complete the picture analysis of the economy after the Revolution to the present, we must take into account the growth rate of real GDP per capita. This indicator is important because real GDP per capita indicates a country's standard of living, as it is also a method of measuring the average net income of the state. This indicator does not include the negative economic effects so it is not a precise indicator of a country's welfare, however we will analyze its growth rate from 1996 until 2014.

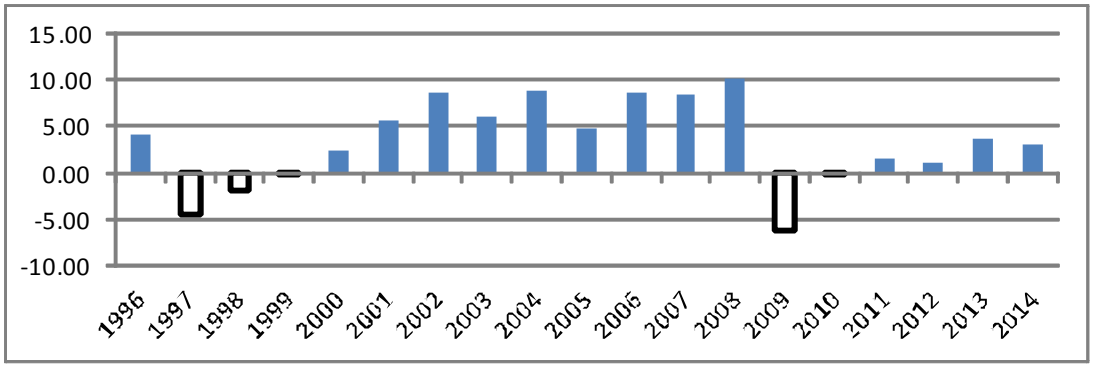

Fig 3. The growth rate of real GDP per capita (%); Source: http://ec.europa.eu/eurostat

As can be seen in the graph, the growth rate in Romania fluctuated until the early 2000s, from 4.2% in 1996 to a low of -4.6% next year until 2000 was still under the 0% threshold, but less: -1.9% in 1998 and -0.2% in 1999. Since the year 2000, the growth rate of real GDP per capita increased from 2.5% to 10.3% in 2008, and after the economic crisis, fell sharply to -6.3% in 2009. As of 2011, the growth rate of real GDP per capita began to increase, in 2014 reaching a level of 3%.

Conclusion

Countries that have made the transition from socialism to capitalism had and still have catching up to do from economically, politically and culturally vantage points. These ex-communist countries also enter the global economic cycle, but the differences seen in economic terms between them and western (capitalist) states makes the transition process weak. For a state economy that it is strong enough to be considered globally competitive, it needs stability at the political, legislative and social and cultural level. An unstable political system and an inefficient legislative framework will lead to an increase in corruption and failure to thrive, while the social development and harmonization of cultural cooperation it is extremely important because their absence would create social tension, which also leads to an inability to progress.

Globalization must be seen as an engine that streamlines also countries that have extreme political regimes, it resets them and clears them on the right path. In the third millennium it is obvious to most states that a political and economic cooperation is more advantageous than any kind of conflicts. China is a country that understands the benefits of globalization and as a result has adopted the motto: "one country, two systems", referring to the communist political system and a market economy almost the same with the capitalist type. Moreover, China transformed itself in the last 25 years in one of the major economic powers and is therefore an important player in the global economy and also could be seen as a role model for all states who refuse to enter the globalized world.

Another issue slowing down the process of globalization is obviously the recent economic crisis that broke out in 2008. This crisis has aggravated social problems existing in post-socialist states and emphasized the gap between the standard of living between the elite and the general population, "It is a system crisis which has affected not only the economy, but all sides of social life" (Bari, 2010). This crisis has affected the credibility of the capitalist system, but there is currently no alternative to this system. The only alternative in recent history was centralized economy, communism, and it was almost completely abolished and cataloged as absolutely wrong and ineffective, even China embraced the market economy, which gave it a look of its own, a unique model.

The economic crisis that began in 2008 reduced the international transfer of factors favoring the globalization process to slow down. This should not mean a halt for globalization, but a slowdown because economic networks formed over the last decades can not be completely destroyed by the economic crisis. Although many businesses have experienced failure in this crisis, economic relations between states and between business entities continued, so both the public and private sector have continued and continue to operate, but by providing a lower yield. Its effects have been disastrous for

some countries (Greece), which have led to social tensions and peaked at political level, extremist parties being elected, while in other countries (Poland) the crisis was weaker in deployment and technical recession was virtually nonexistent.

Globalization is necessary from economic, cultural and political perspective, especially in this new information age in which we are globally interconnected. Speed of information, goods transport and technological progress of the last five decades is a consequence but also a prerequisite for globalization. First, globalization could not take place, or the process would be much slower if we did not have these modern technologies which make possible connections between countries, companies and individuals, and it is these networks that are created by globalization and empowered by telecommunication technologies that allow even the weakest economies of the planet to get into the global framework (Bran, et al., 2012).

In the end, we could state that diffusion of technology from developed economies and industrialized countries to less developed ones represents an extraordinary opportunity to finally streamline globalization by developing the ability to assimilate the techniques, methods and advanced technologies and to fast-forwardly use them for the purpose of development and prosperity, raising living standards and creating a globally competitive economy.

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Societal Human Resources Management and Development

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Abstract

Based on a broad conceptualization of Human Resources Management and Development (HRMD) as a technical, political, and strategic field concerned to managing and developing people within and towards work context(s), this research aims to explore a potential societal role of Human Resources (HR) profession. Framed on a larger project on "New Human Resources roles", this particular study approaches HR profession by analysing its macro-societal challenges and intervention spaces.

Keywords

Human Resources Management, Human Resources Development, HR profession, new roles

Human Resources and social-economic development

Human Resources (HR) are a key driver for regional development sustainability and global economic growth (Aksentijević & Ježić, 2014; Peschner & Fotakis, 2013; Vlad, Ungureanu, & Militaru, 2012). HR qualifications and its competencies profile represent some of the critical elements for a successful social-economic setting, assuming, for example, qualifications' levels of the population one of the central indicator of nations' economic development. Both by its tangible and intangible capital, HR are source of natural, social, political and technological progress. That is why a competitive and innovative knowledge-based economy and society strongly relies on its human capital (Eurostat, 2015).

Most of the international institutions (such as the Organisation for Economic Co-operation and Development (OECD, 2001), the International Labour Organization (ILO, 2014) or the World Economic Forum, 2016) agree that human capital - understood as the knowledge and skills - is essential for the economic success of nations as a whole and not just for the companies. This success is reached by the search of "new conditions of production and work" (OECD, 2001, p. 9)**,** which take place through HR "talent, know-how, skills and capabilities [... as the] key to economic growth" (World Economic Forum, 2016, para. 4).

HR Societal contemporary challenges

The recent economic and financial crisis brought new challenges to contemporary societies and governments, new pressures to social cohesion (EC, 2010) and to economic growth, affecting companies and people (ILO, 2016). Unemployment reached in 2015 197.1 million (approaching 1 million more people than in the previous year and over 27 million higher than pre-crisis levels (ILO, 2016); professional exclusion and proliferation of vulnerable employment accounts for 1.5 billion people - over 46 per cent of total employment (ILO, 2016); atypical (and precarious) forms of work; Youth neither in employment nor education and training (NEET) (EC, 2010); demographic changes; persistent gender inequalities, with women still facing "25 to 35 per cent higher risk of being in vulnerable employment" (ILO, 2016, p.3); age_discrimination, with a labour market not receptive to *young* old people; the growth of a working poverty (ILO, 2016); migration and the recent refugees phenomena are just some of the social-economic materializations of this setting.

Modernising labour markets, promoting labour quality and empowering people by developing their skills throughout the lifecycle with a view to increase labour participation and better match labour supply and demand are some of the current challenges to face these changes and structural problems.

Societal Human Resources Management and Development: Contributions to new HR roles

The role people as labour resources play in social-economic development, and consequently the multiple HR challenges contemporary societies face, set necessarily HR management and development (HRMD) with a central assignment in the current work paradigm. Effective management and development of a nation's HR performs, in this context, as a crucial process in social-economic growth and sustainability.

This setting claims a deep debate on HRMD rationales within HR academic, professional, and educational communities. New challenges, and new tasks require inevitably new roles for HR professionals, new research problems to academics, and new educational contents in HR training and professionalization. HR profession has to be itself challenged to assume new functions in these new scenarios.

Grounded on the proposition that is not possible to disregard HR cumulative knowledge and HR specific competencies to face this macro-structural conjuncture, this research aims to bring to the scientific debate the role HR may and shall undertake within a societal level. Going beyond its traditional roles restricted to the organizational context (Thill, Venegas, & Groblschegg,2014; Thite, Budhwar & Wilkinson, 2014), territories, communities, sectors, professional domains and other social-economical clusters are conceived as potential societal approaches to HRMD. Categories, such as "work/labour/ employment" or "training/ education/ qualifications" emerge, in this framework, as

pure HR macro-social categories, and not only as labour market contextual categories to organizational HRMD.

In order to explore this conceptual starting point, this research defined as specific objectives (i) characterizing HR macro-societal challenges; (ii) identifying existing HR societal interventions; (ii) identifying HR societal roles; and (iv) conceptualizing adapted mobilization of HR specific processes (considering specific resources, instruments, and practices) to macro-societal challenges.

It is expected that this empirical study contributes to HR profession development, alongside to the identification of research problems within SHRMD as to the identification and promotion of HR educational knowledge driven from the identified HR working knowledge needs.

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Enhancing IT Intrapreneurism in Big Pharma: Incorporating Human-Centered Design at Merck Consumer Care

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Abstract

Top concerns for IT leaders for the last 30 years include becoming/remaining relevant to the overall business, developing a strong and healthy relationship with their end-user community, being viewed as the organization's innovation thought leader, and delivering systems that surpass end-user expectations, on time, and within budget. Adopting an intrapreneurial mindset within IT is one way to achieve these goals. The premise presented in this paper is that Design Thinking -- or more specifically "Human-Centered Design" -- is a process and mindset that will help create a more intrapreneurial culture in pre-existing large organizations. In the paper we outline the major tenets of design thinking: a focus on human values, radical collaboration with the end-user, empathy-driven requirements determination, a relentless focus on the end-user's point-of-view, and rapid prototyping/story-telling in close proximity to the end-user coupled with user testing. In addition, we present a chronology of how Human-Centered Design has shaped the innovation process at a large consumer-based pharmaceutical firm and how design thinking is now serving as the basis for energizing the company's IT organization and its end-users in driving real business value.

Keywords: Innovation, Intrapreneurism, Design Thinking, Pharmaceutical

Introduction

Intrapreneurial behavior – that is, having employees within an organization behave like entrepreneurs – has been linked to improved organizational innovation according to Park, Kim, and Krishna (2014), as well as firm performance according to Antoncic and Antoncic (2011). Furthermore, Benitez-Amado, Llorens□Montes, and Perez□Arostegui (2010) suggest that this connection applies within the IT context as well. Therefore, it seems reasonable for IT executives to find ways to help foster intrapreneurial behaviors within their organizations.

This effort seems all the more reasonable when one considers that the Society for Information Management (SIM), through a series of commissioned studies over the last few decades (for example, see Brancheau, Janz, and Wetherbe's "key issues" study (1996)), has learned that IT leaders have repeatedly identified the following issues that may also be addressed by a more innovative and intrapreneurial IT organization:

- Aligning IT strategies to better match their business's strategy
- Creating more responsive IT organizations in terms of IT service delivery as well as time to market with IT-enabled products and services, and
- Improving the standing and relevance of IT organizations within their respective businesses.

This paper argues that Human-Centered Design (HCD) – a novel, user-centered design and development process – may serve address the needs for improved firm performance and innovativeness as designers and developers begin thinking more like intrapreneurs who promote innovative product development and marketing efforts. In addition, as HCD is known to serve as a means to enhance the ability of design teams to better understand their customers, and to help the designers deliver products and/or services in a more timely manner, it may also serve to address the key IT issues described above. Finally, as a by-product of the HCD approach,

Merck and Company ("Merck") is one of the largest pharmaceutical companies in the world, and is headquartered in the U.S. Their product line includes vaccines, prescription and oncology pharmaceuticals, veterinary medicines, and consumer health products. The Merck Consumer Care subsidiary oversees a broad product line of consumer-based and over-the-counter products, including well-known brands like Dr. Scholl's®**,** Coppertone®**,** Afrin®, and Claritin®**.**

In this paper we outline how Merck Consumer Care's IT organization has adopted HCD as a way to improve its innovative capacity in product design, its responsiveness to its end-user and customer community, and in so doing has created a more intrapreneurial culture and elevated its leadership stature within the Merck Consumer Care organization. We offer the insights gained in their HCD journey – in terms of best practices and lessons learned – and suggest that other IT organizations can derive similar benefits by incorporating the ideas and approaches inherent in design thinking.

The Role of Human-Centered Design in Addressing Perennial IT Challenges

As alluded to earlier, IT organizations have long faced a fairly static list of challenges as evidenced by results in numerous SIM "key issues" studies. One of these challenges includes configuring the IT organization's mission, goals, and strategies to be more closely aligned with the mission, goals, and strategies of the overall business. Such alignment, it is posited, enhances IT's ability to assist the organization in meeting its goals and objectives in the most efficient and effective manner possible.

A second time-honored challenge includes issues related to the provision of better service to the broader company and ultimately its customers. These issues include being more flexible in responding to the dynamic nature of end-user requirements for new or enhanced IT platforms as well as being more agile in responding to changes in business climates and customer tastes and preferences. The logic here suggests that if the IT organization can possess this kind of agility, they will be better positioned to deliver IT-related products and services to their end-user community in a more timely manner, which will then translate to the IT organization being able to positively affect the overall organization's time-to-market – the ability to deliver new products and services to the ultimate customers more quickly.

A third perennial challenge relates to improving the perception of the IT organization vis-à-vis the other functional areas in the organization. This has been portrayed in a myriad of ways, from having the IT organization being viewed as the organization's thought-leader for innovation, to viewing IT as a new source for the organization's revenue stream.

In essence, these three challenges can be met if the culture of the IT organization were more intrapreneurial in nature. That is, if employees were to view their efforts within a context of being more autonomous and innovative in how they design, develop, market, and deliver IT products, all stakeholders – the IT organization, the larger corporate organization, and the end-using customers – would all be better served. We believe HCD can help achieve this intrapreneurial mindset. In the next section, we introduce HCD in more detail, and discuss how it specifically addresses these IT challenges. Following that, we illustrate how Merck Consumer Care's IT organization has achieved positive results by adopting an HCD mindset in its system development efforts.

A Human-Centered Design Primer

HCD is an offshoot of a school of thought known as *design thinking*. Depending on whom you ask, you may hear that design thinking is a mix of scientific thought and artistic thought applied to problem solving, where the problem is coming up with a functional and innovative design. In fact, design thinking is a broad and amorphous concept, with an equally broad heritage.

The History of Design Thinking

Some embrace the notion of "design" from an artistic perspective – fine arts, graphic arts, etc. – and the history of these origins can be traced to archeological artifacts at the dawn of humankind. Interestingly, the field of IT played an important role in the evolution of design when Herbert Simon's "Sciences of the Artificial" introduced a scientific approach to design, where design process is conceptualized as a problem-solving task. At about the same time, the concept of "visual thinking" emerged in the field of psychology and can be seen in the book by Rudolph Arnheim (1969) and later in the engineering domain at Stanford University, as seen in the book by Robert McKim (1973).

More recently, today's notion of design thinking as a creative and innovative endeavor can be traced to follow-on efforts at Stanford, most notably Horste Fast and his colleague David Kelley. Here the focus of design continued to evolve on campus (at Stanford's "d.school"), as well as within Kelley's design firm, IDEO. Probably as a result of IDEO's mission to aid its clients in coming up with innovative solutions and the d.school's mission to educate its participants in innovative design, design thinking began to be equated with innovation. Today's design thinking has taken on a more human-centered flavor, and is often referred to as "Human-Centered Design", due to it's emphasis on engaging the user/customer/consumer early and often in the design process[1].

HCD *Today*

The Stanford d.school's version of HCD can be broken down into the following five steps as illustrated in Figure 1:

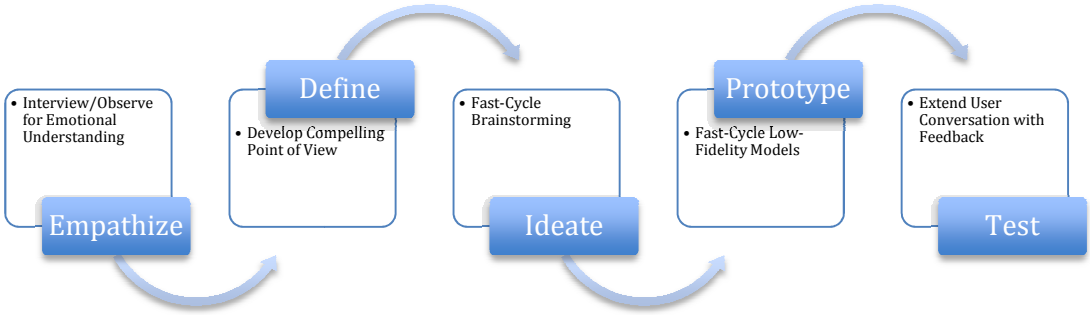

Fig 1. 5-Step Process for Human-Centered Design

During the **Empathize** phase, designers immerse themselves in the world of the customer in an attempt to understand their challenges, needs, and desires pertaining to a certain "design challenge" faced by a user or community of users. As part of the process, designers first observe users within the context of interest, develop hypotheses as to what the challenge is, and then engages the users through field-based intercept interviews in an attempt to gain an empathic understanding of the user perspective an emotional level. For example, rather than just soliciting the user for a list of needs and requirements, the designer will push the user to share *why* they have these needs, and *how* meeting or not meeting these needs make the user *feel*. Asking the user to share personal stories related to the challenge is one way to achieve empathy during this phase, and is the essence of the "human-centered" nature of HCD. Typically, after this phase, the designers will have a collection of such user stories.

The **Define** phase is akin to the problem definition phase of the traditional problem-solving process, but rather than defining the problem, the designers use the stories collected from the Empathize phase to generate a *point of view* (POV), which describes a typical user with a unique set of needs within the context of interest, along with insights related to why meeting the needs are compelling.

The **Ideate** phase is similar to traditional brainstorming in an effort to generate as many innovative ideas related to the POV as possible. They typical rules of brainstorming apply here: go for quantity of ideas, don't judge the value of the ideas too early, encourage a diversity of perspectives, etc. It is in the Ideate phase that you strive to experience the radical, collaborative energy of the design team.

The construction of tangible potential solutions occurs in the **Prototype** phase. Here the emphasis is on building physical models that embody the most promising ideas revealed during the Ideation phase that can be shared with users, as opposed to just telling users about the ideas. "Show, Don't Tell" is the mantra during this phase.

Once a prototype is constructed, the process moves to the **Test** phase where the prototypes are shared with users, feedback is received from the users, and the prototype is iteratively further refined and shared again with users for additional feedback. Adopting an experimental mindset is important here in that failed prototypes are valued for the additional information they help to provide.

The HCD-IT Relationship

Upon inspection of Figure 1, one might surmise that HCD is similar to many product or system development processes, including the traditional "waterfall" approach. In practice, HCD is more similar to agile development methods, for its incremental and iterative prototyping approach and close working relationship with the user. However, HCD sets itself apart from Agile methods in its focus on empathizing at an emotional level with the user as well as its relentless focus on innovation throughout the process.

In terms of the IT challenges introduced at the outset of the paper (better IT alignment, improved IT agility, responsiveness, and delivery, and improved relevance and innovation from IT), it is clear that HCD has the potential to play an important role in addressing them.

First, from an intrapreneurial perspective, spending a significant amount of time and effort on the front end in gaining a deep, empathic understanding of the user in terms of their challenges, desires, and needs helps the IT organization better understand their "market." From an IT perspective, this enhances the chances that the designer/developer will gain a better appreciation of both the articulated and un-articulated goals, objectives, and strategies of the user community, which can only help in better aligning IT with the rest of the organization. Similarly, the prototyping approach espoused by HCD is focused on learning rather than confirming design specifications. This too should help with alignment.

Second, the focus on rapid, iterative prototyping enables the IT organization to be more responsive and better able to deliver solutions in a timely manner which can also positively affect the larger organization's time-to-market. Having an appreciation for "time-to-market" is another consideration important to entre/intrapreneurs.

Third, HCD is first and foremost known as an effective way to design and develop innovative solutions to address market-driven problems as well as capitalize on market-driven opportunities. Taken together, these elements serve to create a more intrapreneurial way of thinking for the IT organization. This can only help in elevating how the IT organization is perceived in terms of its ability to serve as a thought-leader for innovation as well as a potential contributor to new sources of revenue.

In the following sections we will introduce Merck Consumer Care's IT organization in more detail along with how the organization adopted HCD, and discuss what benefits accrued to Merck Consumer Care as a result.

Merck & Company

At the time of this writing, Merck & Company (known as MSD outside of the U.S.) is a $44 Billion global healthcare company operating in three general lines of business: Pharmaceutical, Animal Health, and Consumer Care. The Merck Consumer Care (MCC) business develops and sells nearly 1600 products around the world in the areas of upper-respiratory care (e.g., Claritin®, Afrin®); sun-care and therapeutic skincare (e.g., Coppertone® sunscreen); digestive health (e.g., MiraLAX®); and foot health (e.g., Dr. Scholl's®).

MCC has deep history in developing innovative products to help people take back their lives. This history is very entrepreneurial in nature and begins in 1908 in Memphis, Tennessee when Abe Plough created the Plough Chemical Company where he manufactured and sold "Plough's Antiseptic Healing Oil," and quickly grew to include St. Joseph's children aspirin[2]. Throughout the next 100 years, this business has created many innovations that have literally changed the way the world works. These innovations include developing the scientific measurement known as the Sun Protection Factor (SPF) that is now a global scientific standard, using open innovation to bring technology from other industries in revolutionizing sun-care again with the continuous spray bottle that works at any angle (so we can protect our wiggling children and our own backs), launching the first ever drug to move from prescription to over-the-counter "Rx to OTC" in the US with Coricidan®, and continues today with Dr. Scholl's® Custom Fit Orthotics self-service kiosks.

Over these same years, the Plough Corporation grew through a merger in 1971 with the Schering Corporation to create Schering-Plough, and later became Merck Consumer Care in 2009 after Merck acquired Schering-Plough as a means to diversify Merck's business.

Prior to the acquisition by Merck, the IT function for MCC was initially part of the larger pharmaceutical business and was steeped in traditional IT methods, including the company's standardized software development life-cycle (SDLC), which codified the time-honored waterfall development process. The traditional IT structure was further hardened by historical views of how Health Authorities, the Food and Drug Administration (FDA) in the US in particular, view the proper control of electronic records and IT development in general.

In 2010 with the formation of the "Merck Consumer Care" (MCC) business unit within Merck, MCC established a direct team of IT professionals to focus on the consumer business and changed the way IT was viewed by bringing it closer to both its internal and external customers.

Merck Consumer Care's Intrapreneurial Journey with Human-Centered Design

Like many organizations, MCC found that the historical ways of creating innovation were increasingly less effective (and less entrepreneurial) in driving significant revenue growth. The company was very adept at driving "product-centric, incremental innovation," a.k.a. nuanced changes that were focused on the product: a slightly higher SPF sunscreen, a new flavor of children's cough syrup, melt-in-the-mouth tablets, etc. To be certain, incremental innovation was a very real and meaningful driver in growing the company's portfolio, but MCC executives realized that without more "Big Bang" or "New to the World" ideas, Merck's future revenue growth would decelerate over time.

To address the need for more breakthrough ideas, MCC benchmarked what successful innovative companies were doing. They soon learned that for innovation to be meaningful, it had to be centered on the consumer, the person. When the innovation arm of MCC's R&D division was first introduced to HCD at a Stanford University executive seminar, they knew that they were on to something.

While MCC was changing the business development process from product-centric to consumer-centric innovation, Merck was also changing the role of IT in the business. Historically, IT was

managed under the general governance of the Pharma business and its work fit traditional patterns. In this traditional pattern, the business comes up with strategy and annual objectives, and IT does its best to align its objectives and support the business. Driven by user requirements and user requests, the technology team focused on site-specific initiatives and tended to be geographically focused.

The MCC IT leadership team set off with a strategy to bring value to the MCC business by: a) embedding the IT leadership personnel within business teams, b) focusing on innovation, and c) providing the business with deeper understanding of the "end-to-end" business process. As such, HCD became a catalyst for these changes to the IT function. Rather than focusing on software applications maintenance and enhancement, MCC IT's organization started thinking about what new innovations IT could bring to MCC's business. Rather than looking to just automate existing business processes (a traditional IT approach), MCC's IT leadership began to focus on driving real product design.

Human Centered Design in Action: The Case of Dr. Scholl's®

One case in particular demonstrates the value of HCD to the MCC business and to the MCC IT function: Dr. Scholl's®. Similar to Plough's entrepreneurial beginnings, the Dr. Scholl's® brand began when William M. Scholl invented the category with his groundbreaking podiatric research in the early 1900's. In 2004 Dr. Scholl's® redefined the category again with the Custom Fit Orthotic Kiosk (CFO), helping millions of people get close to the benefits of a custom orthotic with a graduated matrix of products, fit to the person through a proprietary foot-mapping process. These CFO's could be found in large U.S. retail department stores and pharmacies.

HCD Design Phase	Phase Activities Carried Out by the Merck Design Team	Relevant Vignettes, Quotes, Etc.
Empathize	MCC's best practice "consumer center" allowed the team to not only engage in individual interviews and group focus groups, but also allowed them to observe potential users using existing and prototype products. Observation is a key component in inferring feelings, emotions, thoughts, etc.	User comments prove very helpful in this phase when using the current CFO product. A woman remarked that, "…current options are too bulky and can't be worn with normal shoes," while a man said, "I can can't get the right level of support. None of the current options fit someone my size."
Define	After collecting large amounts of user data, the team began to get a picture of the types of consumers they might serve with the CFO kiosk. For example, one user segment included females with chronic foot/leg pain that have given up on traditional healthcare and are now looking for do-it-yourself care options that also provide some level of advice.	POV statements typically refer to a specific type of user with a specific need. One especially compelling POV focused on an injured woman that needed a way to keep working because her elderly mother counted on her for physical assistance and help around the home. Understanding user needs at this emotional level helps to deeply engage developers and results in very compelling "use cases."
Ideate	Brainstorming sessions were largely co-creation sessions, i.e., potential users worked along side MCC staff to come up with innovative solution ideas for both the CFO kiosk and the user interface.	The need for some level of advice on future products became apparent when a gentleman commented, "I get confused at the shelf, I don't know what product would be best for me." This helped the MCC team understand the level of information that the user interface needed to provide.

Prototype	Low-fidelity prototypes of the orthotics, the kiosk, and user interface were co-created with basic art supplies in order to "show" ideas vs. only talking about ideas. Fast-cycle iteration was the norm; ideation-prototype-test cycles were often completed in one day. Over the course of 3 weeks, the MCC team completed 10-12 iterations.	When working with the kiosk's interface, one gentleman wondered if he, "…could customize the level of support" he received from the interface, again pointing to the need for advice from the kiosk. In terms of direct orthotic testing, one woman mentioned that she, "…wanted something that is sleek and easy to wear with my normal clothes." Interestingly, men seldom mentioned this concern.
Test	Potential users were encouraged to interact with the CFO kiosk, the user interface, and the orthotic products in MCC's Consumer Center. Two versions of usage were tested -- one where users could ask questions about the prototypes, and one where users were not allowed to ask questions, and were instead encouraged to figure out how to best use the prototypes. After Consumer Center testing, users tested the prototypes in in-store settings.	"I can't trust a solution unless it gives me the same answer no matter how often I try it..." suggested that the CFO kiosk system not only had to provide advice, but was going to be assessed by some consumers as to the reliability of the advice provided.

Fig 2. HCD Phases with Attendant Activities and Vignettes

As the years passed, MCC knew it was time to further innovate on the CFO platform (both the kiosk and the kiosk's user interface (UI), and enlisted the tenets of HCD to do so. During the Empathize phase, the IT team worked as part of the joint business team to understand how a variety of consumers think of themselves in the context of physical mobility. This included observing actual consumers describe their individual situations. In this phase, the MCC joint business/IT team looked for "extreme consumers" e.g. people who rarely or never use a Dr. Scholl's products as well as people with chronic, all-day needs for the products. Armed with this empathy data, the joint business/IT team defined a design "point of view" (the POV is akin to defining the problem), and set about developing several hundred alternative solution paths, starting with the original hypothesis of moving to a truly customized insole.

The MCC team then rejoined with consumers to ideate on variations of these paths. This close working relationship where designers/developers work with potential users is central to HCD and is known as co-creation. These co-creation sessions were conducted during the Ideation phase, and continued through the Prototyping phase were the MCC/user team created low-fidelity prototypes – rough sketches as well as quickly-built models using readily available, inexpensive supplies like paper, tape, pipe cleaners, etc. – to test with consumers. The benefit of testing low-fidelity prototypes with consumers is that the MCC team learned more about what the consumers liked and disliked, and in the process kept the consumer-developer conversation active.

As a result of numerous, fast-cycle ideation/prototyping/testing iterations, it became evident that the team's original hypothesis resonated with consumers *less* than the existing CFO product offering. The HCD process elicited new, alternative solutions that garnered not only a higher positive emotional response from consumers, but also would move the brand into adjacent product categories and expose the product line to a new untapped customer base. As a result, the original hypothesized solution approach was replaced with one that more deeply resonated with consumers. Ongoing market testing suggests the new product will result in a significant new revenue stream. See Figure 2

for a summary of MCC activities as well as short vignettes that illustrate what users were experiencing in each HCD phase.

Benefits to MCC's IT Organization

HCD has had several benefits for MCC IT: The first and foremost is IT's new-found, intrapreneurial role in driving business value. The solution resulting from HCD relies heavily on IT-enabled systems, and the IT-business revenue linkage has been significantly strengthened within Merck.

MCC IT's role as revenue driver has also heightened the perception of their relevance to Merck. Because HCD requires a radically diverse team from many functional areas of Merck (including IT) to engage in co-creation with consumers, the IT organization moves from the background to the foreground. The MCC IT team has found that rather than beg to attend meetings, they are now "required" to attend -- held accountable for significant timetables that have direct line-of-sight to the company's mission and revenue.

A third and equally significant benefit is purpose. Teams working in an HCD environment enjoy their work, are committed to helping consumers, and find deeper meaning in what they do each day. In one example, a team member commented during a period of business uncertainty that their work on one HCD project kept them loyal to the company.

Benefits to MCC

Adoption of HCD has changed Merck Consumer Care in profound ways. First, the company changed the way they evaluated innovation. MCC began to understand that the traditional measures of value for incremental innovation do not apply to breakthrough innovation, i.e., the gestation period for breakthrough ideas often result in lagged realized revenue streams. To prevent the seeds of ideas from being stopped in their tracks, MCC changed their early stage gate criteria to make it more appropriate for early stage ideas to survive.

MCC also changed the way work was structured, as well as where the work took place. Recognizing this, MCC created a set of innovation hubs. These open space work areas where employees from all levels of the organizational hierarchy work together have greatly increased the interaction between personnel, increased the amount of fun people have, and significantly reduced the number of formal meetings people scheduled.

Finally, MCC changed their organization by creating a team of innovation "navigators" charged with helping to build HCD capabilities throughout the company. These navigators are very much intrapreneurs in the true sense of the word. All in all, these changes have increased our product pipeline by 300% and established the company as a leading innovator among its peers. At the time of this writing, it is public knowledge that Bayer Healthcare has agreed to purchase Merck Consumer Care for $14.2 Billion USD. This transaction, one of the largest in the industry and at one of the largest earnings multiple ever in this industry is due in large part to the innovative culture and processes developed at MCC. Adoption of HCD literally made all of this possible.

Discussion

As MCC matured with the HCD process, we found some recurring themes that may be helpful for others pursuing this intrapreneurial approach. First, the HCD process more clearly discovers both articulated and un-articulated wants and needs. As such, the solutions identified will often be new-to-world or new to the organization. While HCD intrapreneurs will be somewhat accustomed to these breakthrough ideas, the rest of the organization may not. Patiently working with them to see the value of these potentially disruptive innovations is often necessary. On a related note, it is very important to involve key business and process owners early in the effort. Otherwise, the business could reject a truly breakthrough result.

In addition, the HCD team will benefit greatly by being interdisciplinary in nature and by including a wide range of types of thinking – some that are often not on staff. For example, spending the money to bring anthropologists and graphic designers on to the team, especially on first efforts, is money well spent. Finally, HCD's focus on the drive for quick results and conclusion on real business objectives helps to enroll stakeholders in the new process. Nothing enrolls others faster than a win.

Concluding Thoughts

As discussed at the outset, IT has long been looking for ways to more closely align themselves with the business, drive bottom-line revenue, be more understanding and responsive to its users, and be viewed as a true peer with other functional areas of business. Merck's HCD journey presented here suggests that by adopting this innovative type of design thinking, IT departments will begin to behave more like intrapreneurs, and will have an important role to play in their organizations as they seek out innovative solutions to drive future performance.

Often, product development initiatives are driven by marketing, R&D, or product line areas of the business. Given IT's long history in understanding systems development, requirements analysis, and prototyping, there is no reason why they can't pick up the HCD mantle and lead future innovation efforts in any organization.

[1] The Hasso Plattner Institute of Design at Stanford University (the "d.school") has done much to bring design thinking concepts to the world through their design thinking "bootcamps" (http://dschool.stanford.edu/).
[2] Source: The Tennessee Encyclopedia of History and Culture, Version 2.0, http://tennesseeencyclopedia.net/entry.php?rec=1064.

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Romania's Macroeconomic Indicators. Where are we after 8 years from the Economic Crisis?

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Abstract

This research article represents a review of Romania's case on how it's economic growth evolved starting with the economic crisis from 2008 (it started later in Romania, because the country wasn't directly involved in the systemic failure) and how it pressurized socially the economy and political will.

The paper tries to analyze the following macroeconomic indicators: GDP, GDP per capita, inflation and the output gap by offering a big picture perspective on each of them, and how they come together in offering macroeconomic perspective on Romania's health and social evolution.

Keywords: crisis, GDP, inflation, output gap

Introduction

A couple of years before the crisis, Romania had an excellent trend for economic growth. Much of the increase lately was due to the aid received from the European Union through cohesion funds, funds developed for helping Romania have a successful catching up process. These grants were meant to help develop the technology used to increase country's production and productivity, and also to attract Foreign Direct Investments.

Thanks to the aid received from the European Union, Romania has managed to develop several economic sectors, by developing the technology used for businesses and also through some institutional reform which led to attracting foreign investors. These grants have led the country into economic growth, as production was increased due to the evolution of technology and consumption also increased due to higher wages.

During 2005-2008, prices were rising, but the rate was smaller then the average salary. The inflation rate was maintained into the established parameters according to the targets negotiated with the European Union, but also due to changing the monetary policy strategy from targeting monetary aggregates to targeting the inflation rate. This strategy has been changed due to the necessity of releasing the pressure developed by market factors that were pushing the prices up and also because this a better approach on developing financial stability in the Romanian monetary system.

Analyzing Romania's macroeconomic indicators

Since 2004 the Gross Domestic Product has had an increasing trend, from 290,488.8 million lei in 2004 to 666,637.3 million lei in 2014. In 2009 it had a slight decline due to the crisis compared to 13865.9 million lei previous year, but recovered quickly in 2010, an increase continued until 2014.

Gross Domestic Product analysis

From the following table we see that the GDP had growth rates increasingly larger year of year until 2009, when the crisis began. Until then, growth rates were quite high, over 15%, while by 2009 they were quite small, between 4% and 7%. From here we can see reduced growth, which began starting from 2010.

Table 1: Analysis of GDP, 2004 – 2014 timeframe

Year	GDP (million lei)	GDP growth compared to previous year (%)
2004	248,747.6	-
2005	290,488.8	16.78%
2006	347,004.3	19.45%
2007	418,257.9	20.53%
2008	524,388.7	25.37%
2009	510,522.8	-2.64%
2010	533,881.1	4.57%
2011	565,097.2	5.84%
2012	596,681.5	5.58%
2013	637,583.1	6.85%
2014	666,637.3	4.55%

Source: NIS GDP income approach, current prices 2004-2014, www.insse.ro, own calculations.

The largest increase in GDP was recorded in 2008 when it grew by 25% yoy. This increase was before the crisis, during the boom. In 2009, Romania recorded a GDP lower by nearly 3% over the previous year, the only year in which the GDP declined.

In 2009 it is observed that after the increase in the Romanian economy in recent years, there has been a decline in GDP due to the crisis. This crisis was felt hard in Romania because the country's population had expectations of growth year on year that will beat the trend each year that passed. This is not beneficial when crisis emerge, because the faster the growth, the faster the economy suffers more than usual (or similar socio-economical shaped countries) during the crisis and recovers harder after its passage.

Gross Domestic Product per capita and inflation analysis

After the crisis began a period of economic recovery starting with 2010. When the GDP surpassed the freefall during the crisis, one in 2008 and has continued to evolve until 2014 and with premises for 2016 and beyond. This development was lighter than the pre-crisis period because growth is smoother these days, but also insignificant. After the crisis, the GDP rose slightly, slowly, with very small differences between years, so this way seeing a more difficult recovery of the Romanian economy.

Table 2: GDP per capita analysis (euro, per capita)

Year	GDP per capita (euros per capita)	GDP growth per capita over the previous year (EUR)	Per capita GDP growth (% yoy)
2005	3,800	-	-
2006	4,600	800	21.05%
2007	6,000	1,400	30.43%
2008	6,900	900	15%
2009	5,900	-1.000	-14.49%
2010	6,300	400	6.77%
2011	6,600	300	4.76%
2012	6,700	100	1.51%
2013	7,200	500	7.46%
2014	7,500	300	4.16%

Source: Eurostat, GDP per capita 2005-2014, ec.europa.eu/eurostat

In 2005 GDP per capita was 3,800 euros. It kept an upward trend until 2009, when it fell from the previous year with 1,000 euros per capita, recording a value of 5,900 euros, compared to 2008 when it was 6,900 euros per capita. Further, after the crisis period, the GDP per capita continued to grow till 2014 when it reached a value of 7,500 euros. Since 2009 it has had an increase milder compared to the 2005-2008 timeframe in 2013 managed to exceed 2008 levels, so the initial recovery was reached.

From the table we can observe that from 2006 to 2009 the GDP per capita has grown increasingly more than 15% from a year earlier. In 2009 it fell by 14.49% yoy, due to the crisis. After the crisis period, starting with 2010, it grew less, with percentages ranging between 1% and 8%. In 2012, GDP per capita grew the least, an increase of 1.51% compared to 2011, while in 2013 it increased by 7.46% compared to 2012, which is the largest rise GDP per capita after the crisis, a result important for the entire European Union and its 28 members. Between 2010 and 2012 the authors observed that the increase is decelerating, from 6.77% in 2010 and reaching 1.51% in 2012.

The largest increase in GDP per capita was in 2007, when it increased by 1,400 euros from a year earlier, when the value was 4,600 euro per capita. The difference between the two years was 30.43%, a huge difference, highlighting the economic boom (and a possible over heating of the economy, which also could present us negative aspects on the long run). These increases situated at higher level than usual were not good for Romania during the crisis because the country was hit harder due to its peaks before the crisis, creating a visible decline of the indicator in 2009, during the crisis.

After exiting the crisis, the GDP growth per capita was less paced, it increased by more than 10% each year. The lowest growth after the crisis was in 2012, when GDP per capita grew only by 100 euros compared to 2011. Due to the low level increases, the GDP per capita in 2008 was surpassed in 2013, four years after the onset of the crisis. This was possible due to increases of 500 euro per capita gross domestic product compared to 2012.

Table 3: Inflation analysis, 2004 – 2014 timeframe

Year	Inflation rate	Changing inflation over the previous year (%)	Changing yoy inflation (percentage points)	Inflation target
2004	11.9	-	-	-
2005	9.1	-23.52	-2.8	7.5 (+ - 1pp)
2006	6.6	-27.47	-2.5	5.0 (+ -1pp)
2007	4.9	-25.75	-1.7	4.0 (+ -1pp)
2008	7.9	61.22	+3	3.8 (+ -1pp)
2009	5.6	-29.11	-2. 3	3.5 (+ -1pp)
2010	6.1	8.9	0.5	3.5 (+ -1pp)
2011	5.8	-4.91	-0.3	3.0 (+ -1pp)
2012	3.4	-41.37	-2.4	3.0 (+ -1pp)
2013	3.2	-5.88	-0.2	2.5 (+ -1pp)
2014	1.4	-56.25	-1.8	2.5 (+ -1pp)

Source: Eurostat, HICP inflation rates 2004-2014, ec.europa.eu, own calculations

In 2004 we see that there are no inflation targets, since inflation targeting was adopted since 2005, until then, the strategy of monetary policy is targeting monetary aggregates, but the National Bank of Romania switched to this well-known strategy.

In 2005 and 2006 the inflation rate was close to the upper limit of the inflation target, and in 2007 was below the upper limit of the variation interval of 5%, registering an inflation rate of 4.9%. Since 2008 and continuing through 2011, the inflation rate was situated well above the upper target. In 2008 we can notice the biggest difference between targeted inflation and the actual value of the inflation rate. The upper limit of the variation was 4.8%, while the inflation rate recorded a value of 7.9%, 3.1 percentage points above target. These difference is explainable because the government back then had some new fiscal policies implemented, and one of them was increasing the Value Added Tax from 19% to 24%, a value that was kept until 2016, when it was lowered to 20% overall, but for some products it was lowered to 5 or 9 percentage point.

In 2009 there was a decrease in the inflation rate, with a difference of 2.3 percentage points from the previous year, registering an inflation rate of 5.6%. This disinflation did not last long because in 2010 the inflation rate increased from 5.6% to 6.1%, up 0.5 percentage points. This was the last time the inflation rate increased from year to year, from 2010 it started to decrease to within the range of variation.

Since 2011 until 2012, the inflation rate has suffered a decline steeper than usual, while from 2012 to 2013, the decrease was smoother, the difference being only 0.2 percentage points and the difference between 2013 and 2014 was quite high and in 2013 the inflation target is close to the upper end of the range, and in 2014 it reached its sweet spot.

After the crisis period it is observed that the inflation rate has values increasingly lower. This can be a problem in the future because it can lead to a drop in inflation to near 0 or below 0, reaching the deflationary stage, which will take another quarter to confirm that this is the new normal. In the period of economic expansion, falling prices represent a negative output, and it is understood as necessary to adopt pro-cyclical macroeconomic policies because prices would have to rise and once they grow, they will help production, wages and investments to grow, ie the national economy will reignite itself.

The analysis of the output gap (the gap of production/supply)

The paper has allocated an entire subchapter for the analysis of the output gap because this indicator helps us understand the side of the wave a country's on. If the country rides the wave, then we are in a booming period and the economy tends to overheat on the long run, meanwhile, if we are under the wave, in the water, then the economy is in a recession and isn't capable of creating momentum for sustainable growth, especially without any policy developed by the government towards the idea of obtaining economic growth.

The output gap represents the difference between actual GDP and potential GDP as a percentage of potential GDP (Gălățescu, et al., 2007). This indicator helps analyze Romania's macroeconomic stability and to analyze the output gap we used the potential GDP during the 2004-2014 timeframe.

Potential GDP represents the real GDP of the economy at its peak without developing inflationary pressures. Deviation of GDP is generated by supply and demand and if real GDP is less than potential GDP, the economy faces a recession delay. Otherwise, it is now an inflationary gap.

Table 4: The analysis of the output gap (the gap of production)

Year	Real GDP (billion RON)	Potential GDP (billion RON)	Output gap (% potential GDP)
2005	462.3941	444.3628	4.05
2006	499.6426	468.9186	6.55
2007	533.9368	500.3267	6.71
2008	579.1024	531.6207	8.93
2009	538.1782	539.7445	-0.29
2010	533.8811	547.3029	-2.45
2011	539.5204	555.0503	-2.79
2012	542.9787	565.0632	-3.90
2013	561.3848	573.4183	-2.09
2014	576.8614	584.4831	1.30

Source: AMECO, ec.europa.eu

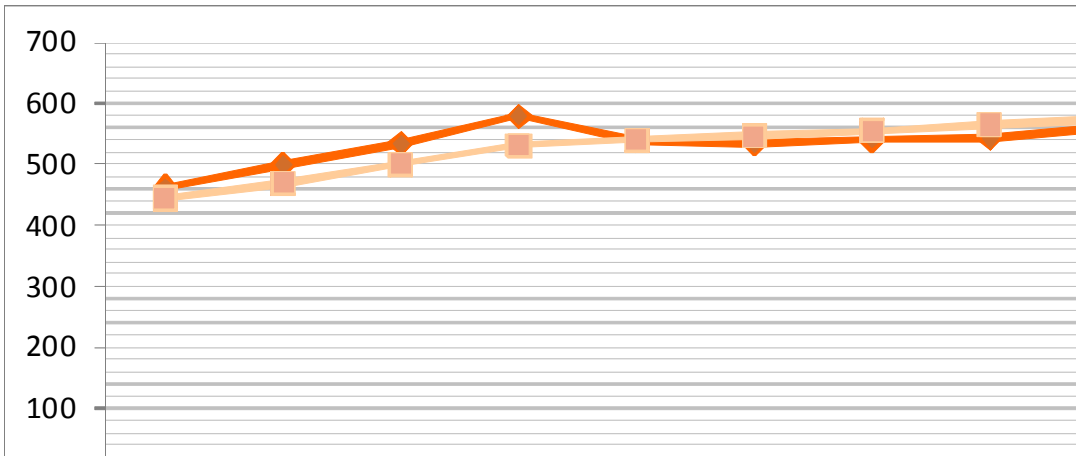

Fig 1. The evolution of real GDP and potential GDP in Romania's case

Real GDP / Potential GDP
Source: AMECO, ec.europa.eu

From this graph we see that in the period 2005-2008 Romania faced an inflationary gap because real GDP was higher than potential, while from 2009 until 2014 the balance intertwined and a recessionary gap could be seen, all because potential GDP was higher than actual (Belingher, Bodislav, 2014).

Inflationary gap is met if an expansionary economy is observed, when the economy evolves, you are more productive in your inputs and aggregate demand is greater than aggregate supply. If the recessionary gap occurs less than is needed in the economy, it will lead to a higher aggregate demand than supply aggregate.

The biggest difference between the potential and the real GDP was recorded in 2008, the difference being of 47.4817 billion lei. Since 2005 the difference between real GDP and actual GDP has been increasingly bigger and the gap got deeper. An expansionary economy may be characterized through the inflationary gap, which is observed in the case of Romania (Bodislav, Marinescu, 2011).

Due to the start of the period of crisis, and with its continuing recession, if there was a change in potential GDP and in the real GDP, then this change would involve lowering real GDP due to the crisis and very low growth rate for the potential GDP.

Registered recessionary macroeconomic movements were seen since 2009 when the gap was small, but it deepened until 2012, starting to decline as from 2013. In 2012 the difference between potential GDP and the real one was 22.0845 billion lei (Belingher, Bodislav, 2014). Compared to 2009, this difference is significant for the Romanian economy, but since 2013 this difference has disappeared, dropping to 10.051 billion lei in 2013 and reaching 12.0335 billion lei in 2014.

In 2014 the recessionary gap is less visible than in previous years, real GDP with a value of 576861.4 billion lei, while potential GDP was 584483.1 billion lei. The difference between the two indicators is 7.627 billion lei.

From the previous chart on the production gap of Romania there can be observed that when values are positive the inflationary gap is is motion and when it encounters negative values, then the economy is in a recessionary gap. As values are further from 0, the gap gets deeper. By gap analysis there could be determined what economic policy measures are needed for better functioning of the economy. Key economic policies are the policies used for the development of the macroeconomics side, such as monetary policy, fiscal policy and employment policies and by analyzing these policies there could be determined development needs and stabilizing the economy.

In the situation of an inflationary gap, the central bank through its monetary policy can cause inflation and can maintain under control the strong impact had on the economy. In case of the evolution of inflation, the central bank can intervene by adopting countercyclical measures to avoid creating a huge imbalance and destabilizing the inflationary pace of economic growth. The most used measures of monetary policy are closely related to the liquidity in the economy which can influence inflation. As there is more liquidity in circulation, so the inflation rate could rise because the purchasing power of money decreases, leading to a devaluation of the national currency. Liquidity can be controlled by the central bank through various monetary policy tools, such as open market operations, standing facilities granted to credit institutions, and required minimum reserves.

The recessionary gap was developed during 2009-2014 timeframe due to the negative effects of the crisis on key economic indicators. They suffered a sharp decline and have recovered due to tighten economic policy measures used by the government (Belingher, Bodislav, 2014). Although the difference between real GDP and the potential are decreasing, actually in 2015 the forecast is that the real GDP could have a small increase over the potential one, cyclical methods adopted by the government have failed to stabilize the economy or bring higher economic growth and faster, but the global economic contraction reduced the potential GDP towards the real GDP (Bodislav, Marinescu, 2011).

The measure of fiscal policy practiced in Romania after the period of crisis has had a big impact on the economy and had as workflow mechanism increasing state fees and taxes. By this measure it was influenced negatively the consumption of the population, which recorded a low level and aggregate demand sloped without recovering till today. By analyzing the output gap is observed the excess demand or supply on the market. During inflationary gap is seen as positive, which means an inflationary period in which aggregate demand is greater than aggregate demand (Gălățescu, et al., 2007). During 2005-2008 the gap had values increasingly higher, from 4.05% to 8.93% of potential GDP. In 2006 and 2007 it had a small increase of only 0.16 percentage points.

A big difference is observed between 2007 and 2008 when the gap increased from 6.71% to 8.93%, 2.22 percentage points. The crisis has had a huge impact on the demand difference between 2008 and 2009 creating a 9.22 percentage point gap in 2009 a negative value it that is noticeable on aggregate demand which has fallen below the level of supply and Romania went full frontal into recession.

Consumer's behavior – the disadvantaged entity

After joining the union, the movement of goods and services were accelerated, but also the Romanian people were motivated to travel freely around the European Union. The population could migrate to developed countries, while foreign investors invest in Romania and develop the country intensively. Investors have brought technology and know how from more developed countries, and this way they also developed and increased the quality of exported products and services. Import of technology has been very beneficial for Romania, through this process the employees were enlightened and increased their productivity.

Due to increased positive net exports and trade liberalization, but also due to higher quality products and cheaper labor than the rest of the union, Romania had to gain complementary benefits from being a full member of the European Union. In the case of developing countries, labor is cheaper than in developed ones and this can lead to an increase in foreign investments. Foreign investors invest and produce in Romania due to cheap labor, and export to other countries that are members of the EU. This helps Romania in terms of export growth, increasing foreign investment and increasing production, leading to sustainable economic growth and development.

Liberalization and EU membership had positive effects on the country and the population, as it has evolved at a faster pace compared to previous years, especially in terms of technology, by borrowing knowledge and qualitative development methods from countries more advanced both in terms of technology and economic.

After this period of expansion of the Romanian economy, in late 2008 the global economic crisis began and Romania was affected. Suddenly, everything started to fall, first were the banks and shortly followed by countries. The population began to consume less, so aggregate demand went South while aggregate supply couldn't be shifted because of the positive expectations had on the global economy till the crises. Due to declining consumption, production was affected almost at the same time and wages started to go South too, unemployment was increasing, and many firms went bankrupt due to large losses. During the crisis, people were frightened by these rapid declines and although their income per capita was decreasing, they decided to save more rather than consume, no longer having confidence in the national currency. Because of this, the currency has depreciated more, inflation was higher than usual. Drop in consumption was also due to the rising prices of goods and services, people being more careful about what purchases they made in order to save money for the latter, the negative expectations were altering their habits.

Consumption was falling, manufacturers have suffered from it in times of crisis because they were left with many unsold products, and recorded large losses, some going into bankruptcy. These losses were due to an artificial increase of production from pre-crisis period when the economy was starting to overheat, wanting to meet household demand, and to increase their profits. Since the crisis, the

population has consumed not that much, company earnings were down, they no longer had to pay their employees and what they had as a financial tool was to reduce salaries and lay off many employees to survive the crisis.

During this period, people have seen wages decline, but prices remained stable or even grew while trying to save as much to overcome the decline of the economy.

Banks were among the hardest hit by the crisis, because the population was no longer able to pay its debt, people remained unemployed and without an income to meet their obligations to creditors. Because of these issues regarding loans payment, banks have tried to find different fixes to the issues faced by customers, by increasing the credit period, the recovery plan acquittal or through various insurance schemes because some people were not able to cover their loans with personal possessions and also some companies have faced problems related to lending, due to lower revenues by lack of consumer spending, they were forced to grow products' prices and lower the number of employees through layoffs. Other companies entered bankruptcy due to large loans that were not paid and the goods with which they were covered weren't valuable enough to pay their debts. So some companies were left with huge debts and no income with which to cover.

During this period both the central bank and the state tried to take the best measures for overcoming the crisis. Thus, the central bank has reinforced the procedure through which they grant loans to lower the issues had in repaying loans and decreased the minimum reserve for commercial banks and increased its monetary policy interest rate. The central bank strengthened the credit granting system and let companies borrow if they could offer proof of assets and income that can cover loan.

The state, through the adoption of fiscal and budgetary policy measures, tried to stabilize the situation and help people to return to the pre-crisis financial state and state of mind. The government adopted pro-cyclical measures to cover the budget deficit and the public debt that was becoming increasingly larger.

The greatest impact on the population was the increase of the Value Added Tax from 19% to 24%, 5 percentage points. Thus, almost a quarter of the value of the purchased product came to the state to cover deficits caused by the crisis. The population did not anticipate the state's reaction because even though taxes were increased, people consumed increasingly less because their incomes have not increased in line with taxes.

Another measure adopted by the government was the 25% reduction of salaries for state employees. This would have been developed to cover part of the public debt and the budget deficit. This measure is pro-cyclical because it does not reduce wages to encourage people to consume so aggregate demand remained at a lower level compared to the aggregate supply. Meanwhile, there were staff restructuring, to cover losses and reduce expenditure necessary to it.

Conclusion

After the crisis, the Romanian economic situation has not changed much, remaining at almost the same gaps level. People got used to the fact that prices rose but their incomes remain the same or even decreased, they are more cautious in terms of how they spend their income today, but even more careful when they borrow, the risk of not reimbursing loans being higher than in the previous period.

To exit the recession and evolve economically, a country must stimulate the population to increase their consumption, foreign countries should import goods and services and the state should be more cautious in organizing public spending and eliminate deficits recorded during the crisis.

The population will only increase consumption if prices will drop for products or taxes will be reduced. This relaxation will give people more money to spend as available income and thus

confidence in the national currency will increase. Also, consumption will grow only with real wage growth, being in tune with the population's income. With higher incomes, people will have a tendency toward higher consumption and saving process will become increasingly smaller as a rate. Thus, by increasing consumption, the country's economy will be growing and economic deficits will tend to decrease, and the difference between potential GDP and the real will lower to almost zero. By increasing consumption production is encouraged, thus there will be an increase of companies that will take loans, but also they will hire new employees, so the unemployment rate will drop. Due to an increasing demand and an increasing supply the social, political and economical life will be encouraged to evolve again, reaching a level of economy growth and stabilization and maintain themselves sustainable.

To reach the economic growth rate necessary to overcome the recession there is needed a production level increasingly higher, managing to reach the new consumption levels. If production increases, companies will record profits. Thus they develop their business by hiring new people, but also by importing new and more advanced technology necessary for a better and easier operation and to adapt to customer needs.

Importing technology is increasingly important for the population as the population purchases products since for their specifications and manufacturing qualities. Thus, the technology has great support from the population, developing countries reach the level of developed countries at a faster pace.

In Romania's case a circular flow is inserted in the macroeconomic model because technological evolution is early adopted by Romanians and also this fact attracts foreign investors. By attracting foreign investors there are stimulated the development of communication channels with other countries, especially with those members of the European Union. Thus, exports will grow, but will also increase confidence of other countries worldwide in Romania's image seen through economic lenses.

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Features of Optimal Control of Dynamic Processes in Enterprise Economics

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Abstract

The majority of processes in economic systems are dynamic, i.e. they are realized within several (more than one) periods of time. At the same time, in economic theory and generally in practice, as Braely and Myers (2004) mentioned they are described and studied as static processes which do not change in time, and, as a rule, their modeling does not consider a "time factor" variable, as in the book by Bellman (2013) is written. This can impede the optimality of solutions in economic management of real processes, and the time factor treatment is the most important in cash flows management and capital investment efficiency assessment as Forrester (1997) mentioned. The economic dynamics model given in the present article is an element of the cost approach to analysis and management at the enterprise. To describe innovation processes the team of authors suggest using Von Neumann's "economic dynamics model" (Von Neumann (1971)). There are no special methods for finding dynamic optimization models solutions, but the authors recommend to use the universal Lagrangian method, described by Lancaster (2012). The statement of the dynamic optimization problem suggested by the authors demonstrates that, depending on the sequence of redistributions at intermediate steps, there can be achieved different outcomes. It has been proved that the whole sequence of redistributions is important for finding the optimal (maximum) eventual outcome.

Keywords : Dynamic Processes in Economics. Enterprise Economics. Economic Dynamics Models.

Introduction

Novozhilov (1967) and Aghion & Howitt (2009) mentioned, that the main feature of economic management of dynamic processes and economic dynamics models to describe them, is determined by their "chain nature", i.e. the relationship between parameters or methods of control at each stage / time period and the preceding or subsequent stages, which must be taken into consideration. In a research study by Park et al (2005) economic optimization of a dynamic process requires achieving the optimal eventual outcome at the end of the last stage of the process, but when developing the optimal management decision it is necessary to consider the results of the previous stages as restrictions on management optimization problem by obtaining the eventual outcome (Mintzberg et al (2001), Rodionov et al (2014)).

Problem Statement and Research Objective

Let us investigate the optimization of a real dynamic process economic management through the example of the process consisting of three consecutive stages, implemented in three time periods. Let us assume that at the initial (zero) period some generalized index of the process effectiveness is equal to 1. Index of effectiveness can be represented by output or sales growth rates, or some other criterion based on the principle "the more - the better". If the required "corrective actions" are not carried out, the index of effectiveness decreases in an "evolutionary" way, and within the three considered periods successively takes on the following values: 0.9 after the first period; 0.8 after the second period; 0.7 after the third period. To assess the effectiveness of the process in a whole, a

multiplicative criterion can be used, i.e. the process effectiveness index which can be expressed by the product of effectiveness indexes at different stages. So, the process under consideration with its evolutionary development has the following resulting effectiveness, based on the effectiveness of its stages: 0.9*0.8*0.7=0.504. Let us suppose that each stage of the process management can include a corrective action which can compensate for the effectiveness' negative dynamics and to "raise" the effectiveness of a stage up to the initial level. Each corrective action requires some "costs", with their value at any stage to make 1. Efficient process control requires three cost units, but we can realistically assume that the costs limit for corrective actions, available at the enterprise, does not reach the desired value. The following figure represents the scheme characterizing the process management effectiveness.

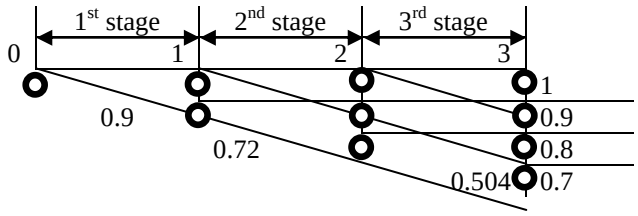

Fig 1.

The management strategy contains two alternative elements at each stage:

- implementing a corrective action, which corresponds to interruption of the evolutionary trajectory of the process effectiveness change (drop), requires control costs in the amount of 1 MU at each stage / step of the management process (horizontal line on the graph);
- lack of corrective actions (doing nothing, costs on control actions are equal to 0) and corresponding control costs (slanting line on the graph).

Based on the given conditions, the following task for optimal economic management of dynamic process is formulated:

$$\prod_{i=1}^{n} R_i(X_i) \to \max$$
$$\sum_{i=1}^{n} X_i \le L \quad ; X_i = \quad 0,1 \ \text{integers}$$

$$X_i = 0 - \text{doing nothing},$$
$$X_i = 1 - \text{control action},$$
$$R_i(X_i = 1) = R_{i-1}(X_{i-1})$$
$$R_i(X_i = 0) = R_i(X_{i-1})$$
$$i = 1...n$$

This optimization task is integer, nonlinear, with a multiplicative target function of effectiveness, which is given in a tabular form. To complete the task it is suggested to use the dynamic programming method. The numerical example is given in the full version of the article. Designations: $R_i(X_i) -$ value of function, specifying a process management effectiveness at the i[th] stage, in relation to the chosen control strategy X_i , L- management resource limit at the enterprise.

Let us designate the set of all integer managements cost values within the costs limits with "z": z=0,1…L, then we will have:

$$\varphi_1(z) = \max_{X_z}(R_1(X_z)), 0 \le X_z \le L, \quad X_z - \text{integer}$$

$$\varphi_i(z) = \max_{X_z}((R_z(X_z) * \varphi_{i-1}(L - X_z)), 0 \le X_z \le L, \quad X_z - \text{integer}, \quad i = 1...n$$

The problem is to be solved in stages, by using the above equations to calculate the "Bellman functions" -"φ", and the number of stages is equal to the number of periods (there are three periods in the given example). Any stage-to-stage distribution of management costs resources, other than the optimal one, provides less process management effectiveness.

The solution is made by steps, using the presented equalities to calculate the "Bellman function" "φ", the number of stages is equal to the number of periods, there are three periods in the given example. The solution is presented in the computation tables below. The first step involves calculating an unconditional optimum, the subsequent steps – a conditional optimum.

Table 1: 1st step/solution stage

$X_{1(\text{MU})}$	0	1	2
$R_1(X_1)$ (efficiency unit)	0.9	1	1

Table 2: 2nd solution stage

	2 stage					Max(1+2) stage
1 stage			0	1	2	
	0.9	0	$\frac{0.9*0.8}{0.72}$	$\frac{0.9*0.9}{0.81}$	$\frac{0.9*0.9}{0.81}$	0.72
	1	1	$\frac{1*0.9}{0.9}$	$\frac{1*1}{1}$		0.9
	1	2	$\frac{1*0.9}{0.9}$			1

Table 3: 3rd solution stage

	3 stage					Max(1+2+3) stages
1+2 stage			0	1	2	
	0.72	0			$\frac{0.72*0.72}{0.5184}$	
	0.9	1		$\frac{0.9*0.9}{0.81}$		
	1	2	$\frac{1*0.9}{0.9}$			0.9

On the first solution stage (Table 1) "Z" variable is sequentially "running" through all integer management cost values within the resource limit available (in the example L=2 MU), each resource value corresponds to the process management efficiency value attained in the context of these input requirements. This efficiency value will be optimal for the first process stage (due to lack of management alternatives).

On the second solution stage (Table 2) all integer values within the management costs resource limits are distributed among the process stages 1 and 2, and we select the management variant which provides maximum process management efficiency. The cells of the computation table 2 contain the values of the process management efficiency index. Each potential value of the residual management cost limit is represented by the computation table diagonal.

Thus, when distributing the residual management cost limit in the amount of 2 MU between the stages 1 and 2, if 1 MU is allocated for stage 1 and 1 MU – for stage 2, the process management efficiency equals to one, and in the context of multiplicative criterion for management efficiency the efficiency index for the two stages equals to the product of the stages' efficiency indexes 1*1=1. This is the maximum efficiency value at this diagonal. The rest of the table cells are filled in by analogy, and in the similar way the maximum management efficiency values at any other diagonal, corresponding to integer limit values, are determined. Maximum values of each diagonal are given in the last column of the computation table for stage 2, and it is transferred to the computation table for stage 3 which is filled in by analogy with Table 2.

The solution outcome is determined in the direction opposite to the solution course. As you can see from Table 3, the highest management efficiency amounting to 0.9 is achieved if the total management cost limit (2 MU) is allocated for stages 1 and 2, having nothing allocated for stage 3. As you can see from Table 2, distributing the limit between the processes 1 and 2 in equal parts is supposed to be optimal – the achieved management efficiency equals to 1 at stages 1 and 2. So, the total maximum available process management efficiency amounts to 0.9 (1^{st} stage – 1, 2^{nd} stage – 1, 3^{rd} stage – 0.9(1*1*0.9)). Loss of management efficiency in the amount of 0.1 is caused by insufficient management cost limit. As you can see from the management pattern, any other way of distributing management costs between the stages provides lower process management efficiency.

Key Results

The so-called "cost approach", as a method of financial and economic analysis and management at the enterprise, is currently widely used. In accordance with this approach, the main parameter of the enterprise's financial position, the criterion of its economic and financial management success is the market value of the enterprise (MVE). Herein, the MVE is defined by means of "returnable" cash flows capitalization from investments, and the outcome is evaluated on the principle "the more – the better". Cash flow reflects the economic dynamics of production process, the optimal management pattern corresponds to the optimal cash flow. If we speak about analytical optimization models, rather than about the econometric models based on statistical data, "Von Neumann's economic dynamics model" is supposed to be a traditional optimization model. So, the economic dynamics model is a part of the cost approach to evaluation and management at the enterprise. Let us take a detailed look at the model. Suppose within each period the enterprise uses "m" types of capital, aimed at different activities, with different efficiency. At the end of each period there can be a redistribution of capital types, and such a redistribution will become initial for the subsequent period. Types of capital can be represented by investment projects, as well as products. The eventual outcome depends on the way the benefits will be redistributed throughout several periods. Suppose there are m products available. The first index of any variable is a branch number, the second index is a period number. The process is being investigated throughout "n" periods. The outcome of each period is the "source material" for production in the subsequent period, provided that introducing new source materials and outside products, as well as their withdrawal are impossible.

Transformation of source materials into products can be expressed at each stage by a simple production function У=К*Х, where X is source material, Y is a product. Suppose X10 is the initial stock / capital of the first branch at the beginning of the 0 period, X20 is the capital of the second branch at the beginning of the 0 period. K1 and K2 are factors for branches / products (factors should not necessarily exceed 1, as investments in some branches can result in capital decumulation). Subsequently,

К1*Х10+ К2*Х20= У10 +У20,

where the right part suggests the "planned" allocation of capital by branch in the subsequent (1st) period, as Х11=У10, and Х21=У20.

The general scenario of dynamic optimization:

$$\sum_{i=1}^{m} K_i * Y_{ij} \rightarrow \max$$

$$\sum_{i=1}^{m} Y_{ij} = \sum_{i=1}^{m} K_i * Y_{i,j-1} = (*)_j$$

$$i = 1...m,\ j = 1...n$$

$$Y_{i0} = \sum_{i=1}^{m} K_i * X_{ij},\ X_{i0} - \text{initial conditions}$$

Let us consider the pattern of implementing the model represented in general terms when n=3:

$$(*)_3 = K_1 * Y_{13} + K_2 * Y_{23} \rightarrow \max$$

$$\text{with the restrictions:}$$

$$Y_{13} + Y_{23} = K_1 * Y_{12} + K_2 * Y_{22} = (*)_3$$

$$Y_{12} + Y_{22} = K_1 * Y_{11} + K_2 * Y_{21} = (*)_2$$

$$Y_{11} + Y_{21} = K_1 * Y_{10} + K_2 * Y_{20} = (*)_1$$

$$Y_{10} + Y_{20} = K_1 * X_{10} + K_2 * X_{20} = (*)_0$$

$$X_{10}, X_{20} - \text{initial conditions}$$

Suppose К1=2, К2=3.
Initial conditions Х10=10, Х20=10.
The Table represents 4 steps for two different distribution variants.
The columns (*) contain the results of formula evaluation (*)

Table 4: Computation Table 4

Period	Variant 1					Variant 2				
	Х1	Х2	(*)	У1	У2	Х1	Х2	(*)	У1	У2
0	10	10	50	20	30	10	10	50	30	20
1	20	30	130	100	30	30	20	120	60	60
2	100	30	290	100	190	60	60	300	150	150
3	100	190	770	70	700	150	150	750	150	600
4	70	700	**2240**			150	600	**2100**		

Depending on redistributions consecutive order at intermediate steps, different results can be achieved. In this case, the consecutive order of Variant 1 is supposed to be "more productive". Please note that the "best" intermediate result does not automatically provide the best result at the subsequent step. So, based on the results of the 3 steps, Variant 2 is more effective, but after that an erroneous decision was made. The whole redistributions sequence is very important for finding the optimal (maximum) eventual outcome. The model involves an elementary transformation function, and it can be much more difficult under time-dependence of transformation coefficients. As a result of solving the problem, there appears a "main line", i.e. an optimal solution for resources redeployment at each stage or in each period. So, in the considered example the main line will be linear due to a simple character of the production function, the solution at each stage will be in favor of the higher return on investment, as the factor for Product 2 exceeds (К1 < К2), in this case the

linear trajectory is optimal (the so-called “Neumann’s ray” is a half-line starting at the origin, as, under the conditions of the problem, only positive values of costs and benefits are considered – X and У). Then, the optimization model itself, which includes minimizing the “distance” between the actual main line and the optimal one, can be created. Solving this problem is particular for each individual case. The given example suggests a linear main line as a result of a simple production function, the solution at each stage will support the higher return on investments. Any minimum departure from the main line is determined as the “distance of the point from the line”. If the main line has a linear character, the optimal trajectory is non-linear, as the distance from the line can be expressed by a quadratic function. At the end of each period the “types” of capital can go through redistribution, which becomes the start point for the subsequent period. In addition to "types" of capital, investment projects, as well as products or production branches, can also be considered.

Transformation functions can be much more difficult if transformation factors depend on the volume transformed and the relationship between the branches, still it will be a time dependence of transformation coefficients.

Conclusion

The description of the proposed model demonstrates an “explosive” increase in the effect of initial investments. That is why von Neumann’s model is very useful to describe innovation processes. There is no special method for finding a solution, but you can use the universal Lagrangian method.

Another important factor to ensure projects effectiveness growth is risk coverage. It can include risk hedging, i.e. compensation for risk-related economic losses, or risks causes treatment in order to reduce risks probability. Hedging can not reduce the risks number, probability and frequency, but it provides compensation for economic losses, predominantly - from the interruption of economic processes. Risk hedging is ensured by means of reserve provision. This can lead to lower revenue, as investments in reserves are not as efficient as reserves in other assets. That is why losses due to creating reserves must not exceed risks losses. The number of risks, as well as their probability and frequency, can also be lowered by means of removing risks causes. On the one hand, growth in investments leads to an increase in enterprise’s sales, returnable cash flows, profit and profitability, and on the other hand, risks losses grow as well. It is expected that the investment project, which provides more benefits with more money invested, can make it possible that some part of the resources are directed to some conventional “risk reduction fund” to be spent on removing risk causes and reducing the possibility to lose a scheduled returnable cash flow of income from investments.

If a returnable cash flow value decreases due to risk reduction fund payments, and the probability of risk “non-occurrence” increases, it is possible to achieve the maximum value of the expected net discounted income.

The optimization model, which is described in the report, reflects a possible approach to keeping risks records for developing investment programs, and it is acceptable for both the enterprise and the economic system in a whole.

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Developing Business Analytics Framework for Small and Medium Enterprises (SMEs)

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Abstract

This study is proposing a framework to perform business analytics for Small and Medium Enterprises (SMEs) in the form of a mobile application. The integration of business and information technology (IT) is encouraged in this study to enhance the business performance of SMEs in Malaysia. Development and implementation of a solution to integrate business and IT processes of SMEs, ease the business monitoring job, and improve the insight on the business performance in a fast manner for the decision makers are the main objective of this study. The business analytics framework is implemented in smart devices to provide visualization and analytics on business data.

Keywords: *business analytics framework; Small and Medium Enterprises (SME); visualization; analytics;*

1. Introduction

In current world of business, majority of the enterprises are known as SMEs. Malaysia's SME Corporation defines SME based on two category which as simplified as Table 1.

Table 1: Definition of SME based on operation's size by S. C. Malaysia (2015)

Enterprise / Sector		Small	Medium
Manufacture	Sales Turnover	RM 300,000 to RM 15 million	RM 15 million to RM50 million
	Employee (full-time)	5 to 75 people	75 to 200 people
Service / other (Example: mining, construction, agriculture and etc.)	Sales Turnover	RM 300,000 to RM 3 million	RM 3 million to RM20 million
	Employee (full-time)	5 to 30 people	30 to 75 people

In Malaysia, U. Malaysia (2002) mentioned that 70% of the owners of Small and Medium Enterprises (SMEs) are illiterate to Information Technology (IT). This phenomenon occur as majority of the SME are not using Management Information System (MIS) in the business's daily operation but keep remaining their traditional operation methodology. Strong management skill, extra time and effort allocation to the business are needed by SMEs' owner for improving and enhance their business performance. The SMEs' employees especially salespersons who are still using manual and traditional method are hard to check and monitor their sales. In year 2012, M. M. S. B. Waranpong Boonsiritomachai (2014) stated that growth of digital data was increase by 48% with 90% of unstructured information based on the survey done by International Data Corporation (IDC). This survey clearly shows that IT is being involved into the entrepreneurs' business but the entrepreneurs do not completely utilize the advantage of IT for the enhancement of their business. According to Hilgefort, I. (2010), cases such as loss of productivity, flawed

decision-making and reduced agility in marketplace are occurred among the SMEs owners due to the lack of related information and they keen to draw decisions based on their unpremeditated knowledge.

Technical skills and excessive time are needed to analyse and visualize the performance of business. Therefore, business analyst will be employed to handle the analytics and visualizing tasks by the SMEs that concern about their business' statistic. However, it will increase the cost of the business and cause the business performance not able to be improved easily as it required a long period of time to visualize and analyse the business performance of SMEs.

The mobility and flexibility of the owners or stakeholders of SME to keep track on the business performance is limited as most of the existing business analytic frameworks are developed as desktop-based web application. Owners of SMEs are required to allocate more time to undergo on-site business monitoring and perform their business performance analysis within a fixed interval. It is also not flexible to the SMEs owners who are not able to keep track on their business performance dynamically.

2. Literature Review

2.1 Business Intelligence (BI)

According to Chandler, N. (2011), Business Intelligence (BI) acts as "an umbrella term that spans the people, processes and applications or tools to organize information, enable access to it and analyse it to improve decisions-making and performance management". BI is used to display the required information in vary usable formats focusing at the efficiency of the processes and technologies where the information is supplied. Fig 1 shows the multiple phases of BI deployment which is proposed by System Application and Products (SAP).

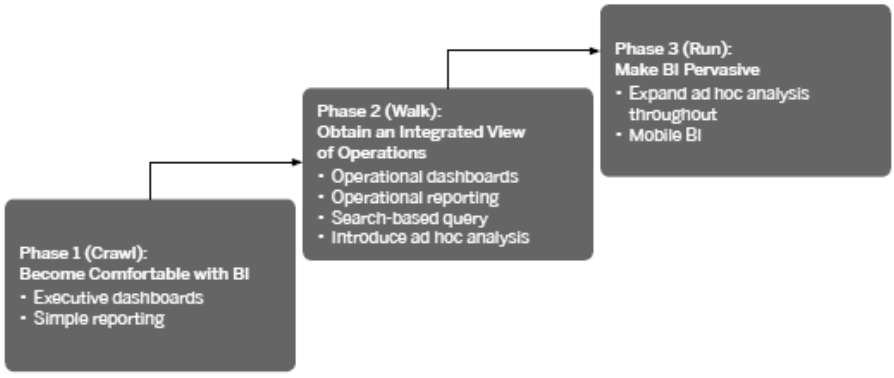

Fig 1. Phase by phase deployment of BI by SAP (2013)

2.2 Analytic Process

According to Hostmann, B. (2010), analytic applications are more focused by the enterprises rather than the analytics processes in midsize companies. There are five simple inquiry can be apply to enhance the analytics. The components of inquiry are as below:

- Things or knowledge that attempt to learn
- Method to measure success

- Methodology to design the process
- Type of analysis to be performed
- Data and data model to be used

These components are acting as a guideline for the analyst to determine the results for the overall process such as (i) to obtain a specific summary such as top best product; (ii) to relate the result to the business result such as accuracy estimation as the replacement for internal measures; (iii) to have a plan for each specific component analysis and; (iv) to decide the best model as well as the best data in analysis which mentioned by Hostmann, B. (2010).

2.3 Framework for Business Analytics

In the research study by SAP (2013), the Gartner framework defined the people, the processes and the platforms that are needed to be incorporate and regulated in taking a vital approach to BI. Business analytics framework also called as BI architecture. Rouse, M. (2015) mentioned BI architecture is a framework used to build BI system for data analytics and advanced reporting via technology components, data organization and information management.

There are a few aspects included in the general proposed framework solution. The aspects are as follows:

- Technology to integrate data from multiple sources
- Forming of system that support reporting and data visualization
- Complexity of analytics

Rouse, M. (2015) mentioned that various types of BI applications can be included in the framework such as data visualization tools, performance scorecards, dashboard, reporting tools, online analytical processing (OLAP) tools and data mining tools. In addition, comparing with other methods, the proposed framework has cross-functional capability in the use of information. Decision Data Model (DDM) and Data Availability Model (DAM) are the two main software product of Gartner's business analytics framework. However, DDM is the product which is used to construct the DAM. Fig 2 shows the DDM sample.

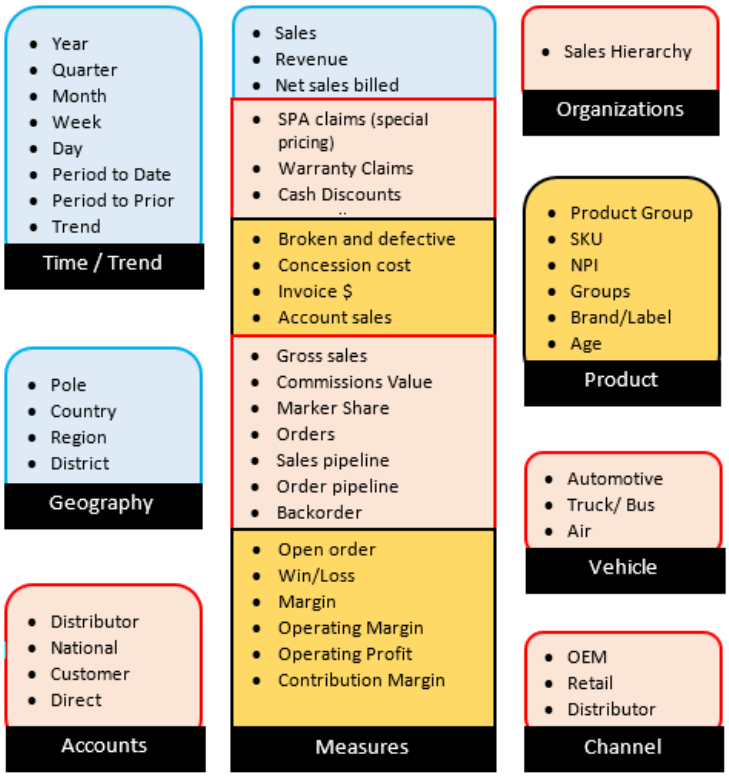

Fig 2. Decision Data Model (DDM) sample by Avalon Consulting, LLC., (2015)

2.4 Visualization of Data

This study aims to assist BI user to understand the importance of data by using visual context or data visualization. There are many data visualization software in the market to recognize trends and patterns as well as to ease the data correlations. BI dashboard is one of the data visualization tools to present the updated metrics and key performance indicators (KPIs). Rouse, M. (2015) mentioned that the main function of BI dashboard is to pull real-time data from various sources into custom-make interface.

3. Proposed Framework

In this section, the components of the proposed business analytic framework for SMEs will be discussed. The proposed framework contains five main components which are Data Collection, Data Processing, Data Loading, Data Analysis and Data Visualization. These components perform incrementally and finally a business solution can be developed as the output as shown in Fig 3. Each component will be discussed further in the following sections.

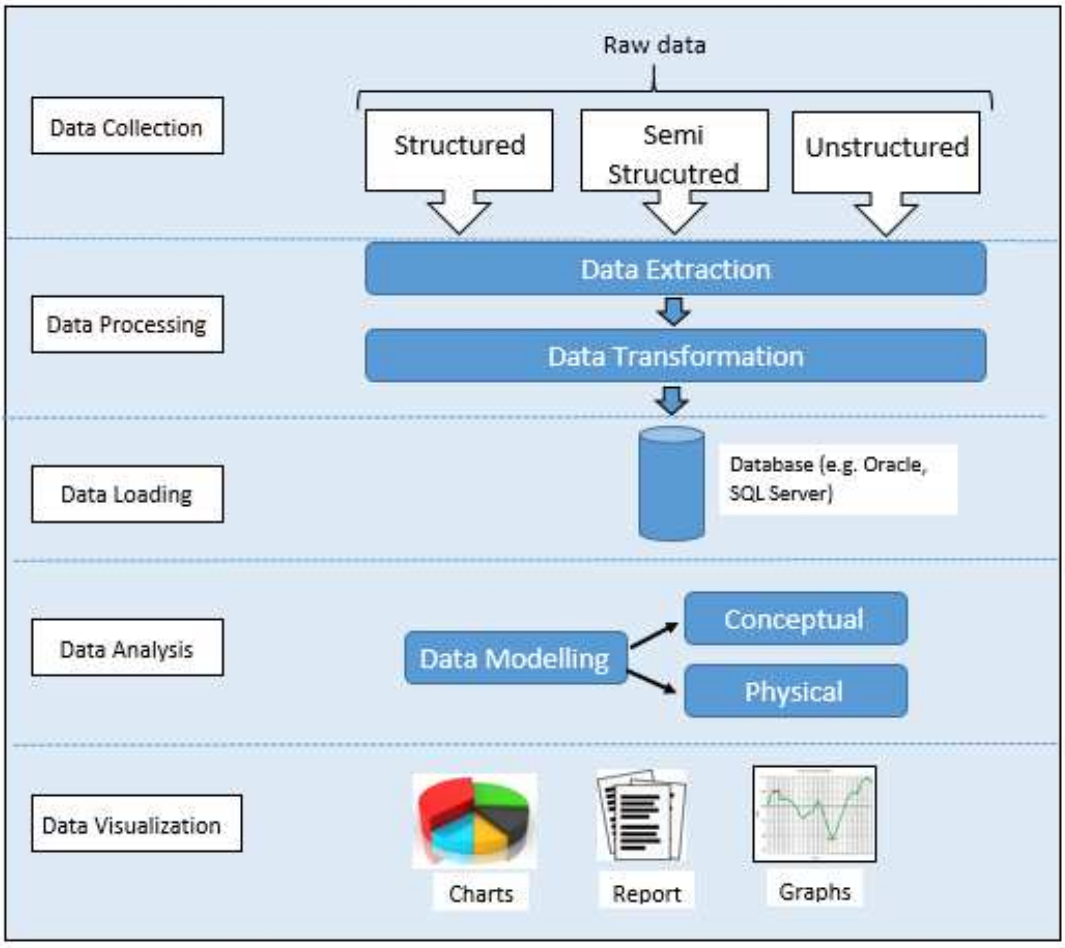

Fig 3. Proposed Business Analytic Framework for SME.

3.1 Data Collection

Data Collection is the first stage of the proposed business analytic framework. This is the stage where the data is being collected via different sources. The collected data is also known as raw data. Raw data can be categorized into three category. The three category are structured data, semi- structured data, and unstructured data. The data which are understood by the machine and ready to be used for processing are known as structured data, whereas semi-structured data are data which are not predefined but with a minor structure or formatting such as Microsoft Excel files (.xlsx), Unstructured data are the data which does not have any formatting such as text files and required more pre-processing as compared to structured and semi-structured data.

3.2 Data Processing

Data Processing is the stage after raw data has been collected from different sources. The two main processes that involve in this stage are the data extraction and data transformation. Data extraction is the process to obtain the required data from the sources for further processing. This extraction process can be performed by:

- Detecting and matching the text pattern of the raw data such as using regular expression
- Using text analytics techniques

After the extraction of data, cleanning process is needed to remove the unnessary data. Then the filtered data has to be loaded it into the staging database for the transformation of data. Data transformation is performed to reduce the skewness, standardized the data type and format of the collected data. This is to ensure that the data is usable and matched to the schema of target database or data warehouse in the next stage. Conversion of data type, application of business rules, validation of data and checking of data accuracy are involved in data transformation.

3.3 Data Loading

Data Loading is the stage where the processed data are being organized by loading it into the target data warehouse. The processed data are loaded and updated into the database periodically. The main concern in this stage is the efficiency and performance in order to ensure that the time required to complete the loading and update is optimized. The loading process can be executed in parallel to speed up the operation.

3.4 Data Analysis

Data Analysis is the most important stage in the framework where the data obtained from the past stages are being used to analysed according to the business requirements. Analysis of data is the important step for decision making and developement of ad hoc reporting, dynamic BI dashboard and other systems. Accurate results and meaningful information can be obtained by performing analysis on the collected data.

Analysis of data can be implemented by:

- Understanding the business requirements
- Designing the data model based on the requirements
- Designing the specification for the system
- Deciding the type of analysis that is suitable

The major component that involved in data analysis is data modeling. Data modeling can be divided into two sections which are the conceptual data model and physical data model. Both of the model are important for developing the system or application that is accurate and useful. Conceptual data model is the model that shows the scope of the system, organizing the requirement of data and designing the relationship between the data. Physical data model shows the design of the data in the database such as the data type and data contraints.

3.5 Data Visualization

Data Visualization is the stage where the analysed data is being presented using various tools. Visualization of data is to present the information in a more effective way which can provide an insight to the business users. The main aspects of creating good visualization for decision making are accuracy, clarity and uniqueness.

4. Implementation

The proposed framework is implemented by developing of a mobile application for an SME in the Android platform. A gas distributor business in Malaysia is adopted as the real business environment for the development of the mobile application by using the proposed framework. The data provided by the owner is the semi-structured data which is in Excel file. The data is extracted and processed according to the stages in the framework.

5. Conclusion

As a conclusion, the proposed business analytics framework is constructed for developing business analytics application or system for SMEs. This framework is designed to fit the SME's business which is smaller scale and do not involve complex business structure. It is to allow the owners and employees of SMEs to keep track on the business processes and performance easily. The management team such as SMEs owners can have a fast insight on their business by identifying problems in early stage and ultimately allow the management team to make a more accurate and insight decision. The SMEs owners and employees do not have to waste their time on performing business analysis using manual operation and able to keep track on their on sales records in an extensible manner. With the assistance of data visualization, the decision maker in SMEs can have a better perception or insight on their business and thus lead a better decision. Last but not least, the new and useful features that are implemented in this framework will surely enhance various parts of the business field.

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Context of the Impact of Foreign Direct Investment on Residential Real Estate Prices in the Slovak Republic

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Abstract

The article deals with the issue of the impact of foreign direct investment - notably car company Jaguar Land Rover on the prices of residential real estate in the vicinity of the implementation of major automobile plant in the Slovak town of Nitra. The investment was finally approved by the representatives of the plant in August 2015 and already in September of that year have become apparent different behavior in the market for residential real estate. Real estate prices until then are subjects to a prolonged stagnation. According to the theory, housing prices affect the volume of demand and supply factors affecting the real estate market. Despite that we know the main, specific factors and their impact, while foreign direct investment is not included among them, we can state that has its own considerable, especially psychological impact. This impact reflecting the current events in the property market in Nitra and its immediate surroundings.

Keywords: residential real estate, foreign direct investment, real estate prices, Slovak Republic.

Introduction

Automotive industry in Slovakia forms a significant part of the economy and attracts foreign investors. It is the driving force of economic development of the country. Based on this automotive industry Slovakia gained adjective "European Detroit" (Spirkova, 2015).

The automobile factory Jaguar Land Rover plans to invest in Slovakia about 1.5 billion euros, while the automaker since the beginning of its operation will employ 2,800 people. It is the largest investment in Europe for the past seven years. Government approved subsidies for tangible and intangible assets for the car-maker of € 130 million, representing nine percent of the announced investments. Construction of the plant began in 2016, first produced cars should leave the factory in 2018 until 2019. In the first phase, the production of 150-thousand vehicles are expected. Gradually, the annual production capacity of the plant can be extended up to 300-thousand vehicles with the possibility to employ up to 4,000 people. In accordance with the company plans, the plant should have the capacity to produce three million cars in ten years. According to the Minister of Economy of the Slovak republic, the new investment of car company Jaguar Land Rover should create a total of up to 50 thousand jobs including all subcontractors and all linked activities.

Slovakia has offered to car manufacturer 1,810 acres of land near the town of Nitra, which is located only about 80 kilometres east from Bratislava (more Fig. 1). In addition to the main factory land they were offered even more plots designated for each car company suppliers in its immediate vicinity (see Fig. 2).

Fig. 1 City of Nitra in the context of Slovak Republic
Source: Authors, 2016

Fig. 2 Location of Jaguar Land Rover Automotive Plant
Source: aktuality.sk, 2015

Slovak towns and villages around other car factories have after the arrival of similar investors increased tax revenues, which are used for the renewal of buildings and infrastructure. There was reduced unemployment and the population increased. Building land and real estate become more expensive and municipalities are more attractive for developers but also for newcomers. One of the observed economic and social impact in the implementation of similar investments in Slovakia was the increase in residential real estate prices.

In addition to increasing employment in the region and in the neighborhood the company should also bring the improvement of road infrastructure in the surrounding villages. This will also

increase revenues from property taxes and from shared taxes, which can be used for development projects of villages.
New automobile factory Jaguar Land Rover in Nitra will most likely also employ the people from afar. Its location near the town of Trnava also shows that there will be fighting and the reimbursement of employees of near competitor PSA Peugeot Citroën (Fig. 1). According to Spirkova (Spirkova, 2015) this strategic investment realized by the French group in 2007 reached approximately 1 billion EUR.

Problem identification

We presume that Jaguar Land Rover investment will have a major impact on several economic variables, among them is the price of real estate in Nitra and its surroundings. Housing prices in the Nitra region has long been the lowest in Slovakia. By the end of 2015, residential property prices fell in this region. In the second and third quarters prices decreased two times in a row by 8 € per square meter of living space. The last quarter actually declined by €23 representing a decrease of more than 4% over the previous quarter.

Data about housing prices are available for Nitra region as a whole (a database National Bank of Slovakia), which is relatively large, ranging from the city of Nove Zamky to the south of Topolcany. In remote villages, the expected investment is not reflected on the real estate prices. Slovak citizens are not usually willing to travel to work farther than 20-30 km. In addition, people in Slovakia are not willing to change the place of residence and to move within the country because of work, as is common in Western Europe or in the USA. However, property prices rose in the city of Nitra and a very close neighbourhood by more than 15%. Prices increased. Especially of older apartments but also the prices of building land. The increase in prices is also confirmed by actual information of Real Estate Agencies, which dispose immediate information about changes of supply and demand on the local housing market. We note that in Nitra is clearly seen the growth of a local real estate bubble.

Łaszek, Augustyniak, Widłak (2010, p. 19-24) describe the cause of the so-called real estate bubble as follows. Demand in the housing market is growing due to increased profitability from renting. Rapidly growing demand on the limited, short-term offer causes housing prices growth. The banking sector is able in a short time to accumulate a large amount of funds and offer them in the form of mortgage loans to finance even higher real estate prices. Speculative transactions based on the expected continuation of the upward trend in prices in the future, further increasing the price level of real estate and creates so-called real estate bubble. After the bursting of the bubble, price decreases and converges to the equilibrium price. However, this declines has a negative impact on the banking sector, as it significantly depreciates capital deposited in bank mortgages, causing problems of the entire banking sector, which is one of the cornerstones of the entire economy. The complications from the banking sector oftentimes also mean serious complications and losses for the entire economic system and the emergence of the economic crisis, argue Łaszek, Augustyniak and Widłak (2010).

Buying land under the new car plant, similarly as in the arrival of other investors in the automotive segment, again did not occurs to any problems. A certain group of businessmen came to information about the land which state will need and cheaply were bought from its owners. They bought them for a few cents per square meters and then it turned out that the same land is buying state for the automobile company approximately for 15 Euros per square meters.
The Table 1 below explains the increase in prices of building land in municipalities, in which came earlier investments of automotive companies - PSA Peugeot Citroën and KIA Motors.

Table 1 Price increase of land in areas affected by investments
Source: UPSVAR, Statistical Office of the Slovak Repiblic, automobile companies, municipalities, 2015

Increase in prices of building land in € / m2	on car companies arrival	in 2015
Teplicka nad Vahom	€15 - 20	€80 - 85
Nededza	€13 - 20	€60 - 75
Gbelany	€3 - 4	€70 - 80
Zavar	€15 - 20	€40 - 50

The theory of real estate prices

The understanding of the evolution of prices in the real estate market is very important for the analysis to macroeconomic indicators. Real estate prices are influenced by a number of demands and supply factors affecting the real estate market. Key factors include disposable income, gross domestic product, the volume of housing loans, the volume of construction production of residential buildings, the growth of population and number of households (Car, 2009). A significant influence also has national economic policy. Monetary policy affects short-term interest rates, which directly or indirectly affect long-term interest rates and inflation expectations, influencing developments in real estate prices. Fiscal policy affects real estate prices through taxes (Hilbers et al., 2008).

On the issue of housing are linked many others economic activities that have a significant impact on the development of gross domestic product. Hilbers et al. (2008) estimates that this share ranges between 5-10% of GDP. The development of real estate prices may have a significant effect on overall consumption and economic growth (European Central Bank, 2003). In the context of monetary stability, growth in house prices supports the growth of residential investments and household consumption, relating to the improvement in real estate. In case of credit financing, real estate is the main form of collateral for granted loans. Decline in property prices due to the reduced ability of borrowers to repay loans can greatly undermine the stability of the banking system and cause much macroeconomic problems (Car, 2006). However, the issue of real estate prices is much more complicated. On the perfect real estate market, real estate prices are fully determined by supply factors, such as real construction costs and land prices (Himmelberg, 2005). The perfect real estate market practically does not exist. Therefore it is necessary to look at the determinants that affect real estate prices.

Spirkova (2009) states that apartment prices are rising mainly due to a fast growing economy and income. The important role play speculations therefore expectations of growth in real estate prices in the future. However, in the long-term is valid that faster economic growth is also reflected on faster growth in real estate prices (Spirkova, 2009).

The real value of property is determined by factors of individual locations that are set by their real circumstances and they are the reasons for the differences in actual real estate price. The property value is determined in particular by: the design of the building, the technical condition of apartments, equipment of apartments, inner state and furnishings inside the building, accessories of properties, heating system, location of the apartment in the building, orientation to the cardinal points, achieving the revenue from properties (Spirkova, 2009).

Factors influencing the prices of residential real estate

Property prices on the real estate market affect the demand and supply for real estate. Supply and demand are influenced by many factors.

Špirková (2009), argues that the most important determinant of prices is economic growth, household income, interest rates and credit availability, demographic factors, taxes, grants and subsidies of the state, construction of new housing and speculation related to the expected growth in prices.

Ivanicka (2003), argues that the interest rate significantly affects the demand because with low interest rates, investors invests their funds in real estate. On the contrary, when the interest rate is high, then investors may invest funds into financial and capital products. Low interest rates helping reduce construction costs, thereby increasing profitability if there is sufficient demand, as reflected in the relatively high prices of real estate. Investors expecting the profit increase, they initiate new construction which increases supply and cause overall growth of residential real estate funds. Supply and demand further reflect the increase or decrease in the amount of non-residential buildings. If the vacancy rate is high, higher than 3% from the overall fund's property, then there is a drop in property prices. Conversely, if there is a lack of available spaces prices rise significantly, which represents an impulse to launch a new construction (Ivanicka, 2003).

Cutler, Poterba and Summers (1991) in their work based on the results of the regression analysis argues that in the US there is a strong statistically significant correlation between the level of real estate prices and demand for real estate for housing. Miles and Pillonca (2008, pp. 145-175) developed an economic model that explains the change in real income of the population and population growth influence the price level of real estate. They also quantified, the extent to which the expected return to real estate in the future affects the growth of property prices.

Vizek (2010) modelled the prices of residential properties in countries of Eastern and Western Europe by using econometric approach. He used models with correction member, so-called ECM models and co-integration analysis to examine the real estate prices in the short and long term. He analysed two groups of countries. The first group consisted of four post-transformation countries: Bulgaria, Croatia, Czech Republic and Estonia. The second group consisted of three developed countries: Ireland, Spain and the United Kingdom. Residential property prices were modelled separately for each country as a function of income, interest rates, loan terms, construction production and employment. Results of the analysis show that the long-term interest rates significantly determine the prices in both groups of countries. Revenue of the population significantly affects property prices only in the group of developed countries. In the short-term, in both groups, real estate prices reacted to the change in the volume of new construction production and also for the change in income, interest rates and credit conditions. The change of credit conditions significantly affects the real estate prices in post transformation countries. Generally, interest rates and income determined the development of residential property prices in all observed countries except Ireland. There was an abnormal development of real estate prices.

ECM models were used in the analysis of residential properties prices in Sweden and the UK also by Barot and Yang (2002). The series of prices from 1970 to 1998 they found that the long-term intake of the population as well significantly affects real estate prices in both countries and that the supply adapts to demand with some delay. The interest rate was a significant factor of both countries, but a little more importance showed in Sweden. They also found that residential property prices in Sweden directly affect the amount of the cumulative debt of the population. However, in the UK, this relationship has not been confirmed.

Egert and Mihaljek (2007) by using panel method DOLS analysed the main determinants of the residential property prices in eight transformation countries in Central and Eastern Europe (CEE) and in nineteen OECD countries. In both groups of the CEE and OECD, they confirmed the very strong relationship between GDP per capita and real estate prices and also a big influence real interest rates. They proved that the demographic factor have more significant impact in the CEE countries than in OECD countries. Property prices have increased from the growth of real wages in countries in which the quality of living was worse in the past. Dynamic increase in residential property prices was observed in the countries where there was a well-developed banking and non-banking sector.

Lee (2009) researched by using EGARCH models the volatility of real estate prices and determinants in eight cities of Australia. Result of his work was achieved on time series from 1987 to 2007. In several examined cities has been found that the volatility of real estate prices is caused by different economic factors. In its analysis, he describes many standard factors that affect the volatility of real estate prices, but places particular emphasis on inflation.

Botric and the DeVilla (2005) analysed the regional real estate markets in Croatia by using hedonistic price method. The method is based on the theory that the price of a particular product is derived from the group of useful characteristics, which brings this product to the consumer. They concluded that residential property prices are generally dependent on the following factors: disposable income, credit availability, regional economic activity, and unemployment rate and population mobility. They also pointed to such determinants of real estate prices, which are often neglected, such as regional differences in the labour market and regional disparities in income of the population.

Hilbers et al. (2008) states that the cost of the buyer in the purchase of housing significantly affect revenues respectively, the rent for the lease of real estate, taxes and subsidies from the state. An important factor that affects the demand for real estate is the demographic trend, namely population growth and trends in the number and size of households, affecting the demand for real estate. The offer of residential properties affects the availability and price of building land, construction costs and legislation. Offer is generally adjusted to demand with a delay caused by obtaining building permits, design and realization of construction. Offer may be affected by the lack of competition in the construction industry and inflexibility associated with the availability of special materials (Hilbers et al, 2008)

Real estate prices in different regions of the country are very often deviating from the equilibrium price determined by the income and population growth of the region. Individual segments of the country, such as provinces or districts may influence each other. Several authors have examined the spatial auto-correlation of real estate prices between regions within a country.

Analysis of factors affecting the prices of residential real estate in Slovakia

Housing prices are determined by the amount of demand and supply factors that operate on the real estate market. Car (2009, pp. 2-8) divides these factors as follows:

Demand factors:

- Economic – economic performance, purchasing power of population, income and household income, unemployment,

- Demographic – population, the number of economically active households, fertility, mortality, marriage rate, divorce rate, the need for housing,
- Political – state housing policy, state grants and subsidies,
- Credit-financial – savings, rate of credit availability, interest rates, credit conditions, the rate of credit burden, the riskiness of loans.

Supply factors:

- Territory – a place of housing construction in land-use plans for towns and villages, the availability of building land for housing construction,
- Economic-Technological – the amount of capital invested in housing construction, the share of housing construction on construction production, the number of started apartments, the number of completed apartments, the number of apartments under construction, apartments disposals,
- Legislative and legal – legislative availability and support of housing construction.

Selection of the most important factors affecting the prices of residential real estate in the Slovak Republic and construction of the model

Among all defined demand and supply factors, Car (2009) selects those that most affect prices of residential real estate. For selection of these determinants were used the correlation analysis, which resulted in the selection of representative factors from groups of economic, demographic, political, credit and financial and economic-technical factors. According to Car (2009), the prices of residential real estate in the Slovak Republic the following factors are the most determined:

- GDP (economic factor),
- Average number of population aged from 25 to 44 years (demographic factor),
- The total volume of household loans (credit-financial factors),
- The volume of households loans for housing purchase (credit-financial factors),
- The volume of construction production of residential buildings (economic-technological factor).

The intensity of the dependence on the above factors and residential real estate prices is very high. Identifying of determinants is an important step towards completion of regression analysis, model construction and subsequent prognosis of the future, says Car (2009).

According to Panik (2014), based on the results of correlation and regression analysis, he mentioned as a key determinant of development of real estate prices:

- Population aged from 25 to 44 years,
- GDP
- Interest rates on loans granted to households.

Development of residential real estate prices in Slovakia and city of Nitra and related economic determinants

Development of average prices of residential real estate in the Slovak Republic since the first quarter of 2005 to the fourth quarter of 2015 is shown in Figure 3.

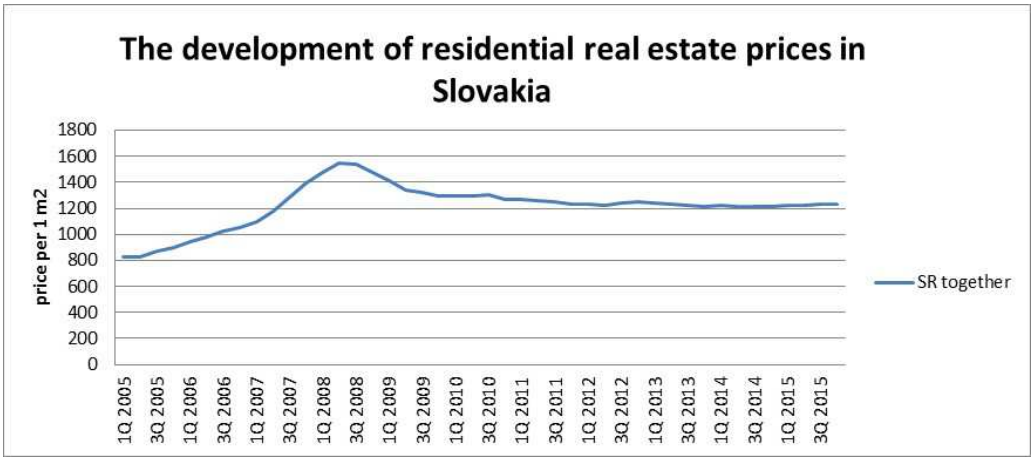

Fig. 3 Development of average prices per m2 of residential real estate in Slovakia
Source: Authors

Real estate prices in Slovakia rose slightly from the first quarter of 2005 to the third quarter of 2007. This increase is generally attributed to the positive expectations of foreign investors, mainly arising from the accession of Slovakia to the European Union in 2004. However, in late 2007 could be observed extreme increase in prices, which peaked in mid 2008. This phase is referred to as the real estate bubble, which is associated with various distortions of the real estate market, e.g. equal and many times higher price of older apartments as new buildings.

At the end of 2008 was a turning point in the evolution of prices. Due to the global mortgage crisis and overall economic recession, there was a bursting of real estate bubble and subsequent sharp decline in property prices which slowed down at the end of 2009. In 2010, prices have stagnated on the level of prices from 2007. From 2010 until now, the price trends are approximately a constant sometimes slightly decreases, sometimes slightly increases.

The average price of housing are now little above its long-term average €1,217 per m2 and corresponds to about half the level of 2007. The increase in average housing prices in the half of Slovak regions resulted in slowing improvement in housing affordability. However, housing is relatively the most affordable in the modern era of Slovakia (Car, 2015). Overall, it may be said that the residential real estate market in Slovakia recorded in 2015 a slow, but stable expansion.

Regional disparity in residential real estate prices

Residential real estate prices in Slovakia are strongly differentiated by regions. The most significant difference between the prices is in the Bratislava region and other regions. The decline in prices in 2009 is the most evident precisely in Bratislava (capital city) and Trnava (PSA Peugeot Citroën) regions, while the smallest decrease was recorded in the Zilina region (KIA Motors). The price development by regions is shown in Figure 4.

Fig. 4 The development of residential real estate prices in Slovakia by regions
Source: Authors

Follows from the foregoing that the Nitra region has the lowest average prices per one m2 of residential properties in Slovakia.

Impact of investment - Jaguar Land Rover on housing prices in Nitra and its surroundings

Notice about Jaguar Land Rover investment came in August 2015 and already in September was recorded the first wave of growth in real estate prices. One-room, not renewed apartment, which costs €44,000 increased to €55,000. Prices increased mainly in older apartments.

The arrival of Jaguar Land Rover has caused a significant increase in prices of residential property in Nitra and its surroundings. According to real estate agents, the apartments and houses in the region are sold by 20% more expensive than a few months ago. The arrival of a new automobile company initiated into Nitra a small local real estate psychosis, states Hudzovicova (2015).

Within a few months, after the initial information came that Jaguar Land Rover invests in Nitra region, housing prices has increased rapidly. Investors immediately expressed their interest in the construction of houses in the surroundings and immediately after the notification of the investment they were interested in the vacant building land (Brtka, 2015). Selection of cases which shows an increase in prices of residential real estate is documented in Table 2.

Table 2 Real estate bubble in Nitra
Source: SME, 2015

Type of appartment	prices in September 2015	prices in December 2015
1 room appartment	€44,000	€52,000
2 room appartment	€54,000	€60,000
3 room appartment	€55,000	€65,000

People from the city of Nitra and its surroundings will come to work to the new car company, unemployment will decrease and these workers will need someplace to live. It is already seeing an increased demand for real estate which, based on the above-mentioned economic theory will inevitably increase housing prices. In Nitra and nearby was created a small real estate bubble, which still will push prices up in a few months. Afterward, this bubble will burst. Real estate agents expect a subsequent prices decline from 4 to 7%. However, we estimate that the real decline will be even greater around 12-16%. Then the result would be a long-term increase in residential property prices by approximately 5%. This raises in new equilibrium price around which will probably the price converges in the future.

Currently are buying apartments or houses in Nitra only those people for whom it is convenient due to favorable bank loans or those who need as quickly as possible to resolve their living issues. Others prefer to wait.

Development of real estate prices in the Nitra region is shown in Figure 5. The figure shows the forecast according to real estate agents for 2016, i.e. prices increasing of 20%. An alternative forecast is pessimistic version, real (long-term) increase of housing prices by 5% to which authors are inclined like the more probable alternative.

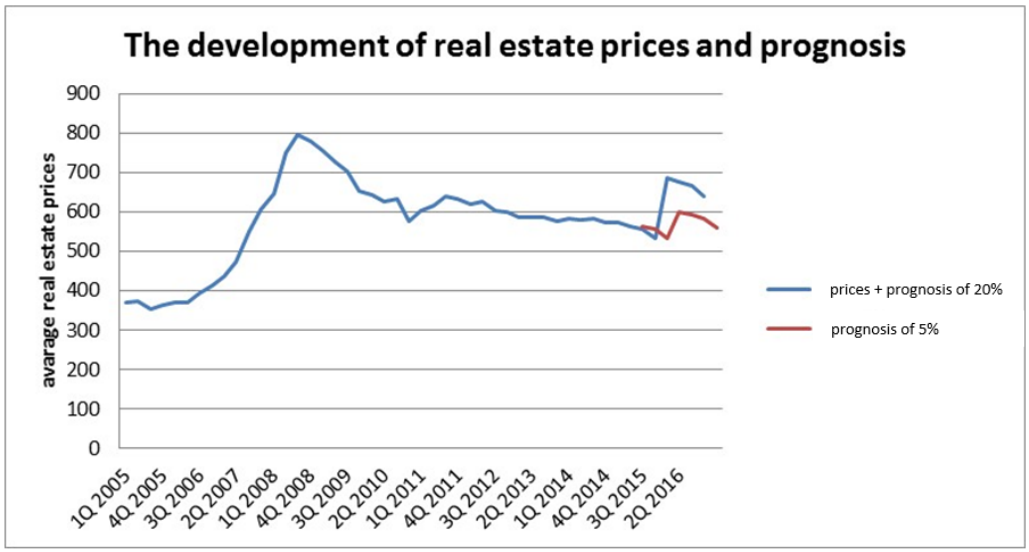

Fig. 5 Development of real estate prices and the prognosis in Nitra region
Source: Authors

Conclusion

Real estate prices in the Nitra region, in the long-term have stagnated and declining. However, now, after the arrival of new investment - Jaguar Land Rover, the level of residential real estate prices has moved upwards. This caused changes in consumer behaviour and increases the demand for housing, both for purchasing into private ownership or renting. We expect that the new equilibrium price will be increased by an average of 5% compared with the past.

Several authors have reported that the currently observe the increase in prices, up to 20%. However, they expect the equilibrium price on the edge of 13% of increase in the last year. In the city of Nitra is visible local real estate bubble, largely due to psychological effects and expected further growth of real estate prices. The main determinants of housing prices increasing in Nitra and neighbourhood is speculative behaviour of sellers who artificially raise real estate prices since they expect recovery in demand. This the demand is pushed by the expected growth of regional employment, and housing needs of newly employed workers of car company. Our findings are also consistent with practical experience in other regions of Slovakia, where after the arrival of similar investments were also observed a steady increase in residential real estate prices. In conclusion, we can say that, although the impact factor of foreign direct investment in the form of automobile company Jaguar Land Rover on housing prices in Nitra is not consistent with theoretical economic concepts of real estate prices. Furthermore by using statistical and mathematical methods it cannot be clearly demonstrating its dependency. However, it is necessary to add that this investment definitely has a psychological, and speculative impact on real estate prices in this area.

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Hacia Un Modelo De Liderazgo Educativo Transformacional Y Prosocial En La Gobernanza De Las Instituciones Educativas

Towards A Model Of Educational Leadership Both Transformational And Transcendent

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Resumen

El liderazgo educativo es uno de los factores clave para el desarrollo de una educación de calidad. Basado en una exhaustiva revisión bibliográfica, nuestro estudio explica la evolución de los principales modelos de liderazgo Se revisan las aportaciones más significativas y se destaca el modelo de liderazgo pro-social como forma de superar las limitaciones de otros modelos transformacionales y mejorar la gobernanza de las organizaciones educativas. Se concluye señalando la enorme vitalidad del liderazgo educativo en las últimas décadas y su capacidad de asimilar las virtudes de los diferentes modelos y erradicar sus limitaciones. Proponemos ahondar en el modelo de liderazgo trascendente para mejorar las instituciones educativas, tal como algunos académicos están realizando.

Palabras clave: liderazgo educativo; liderazgo transformacional; liderazgo pro-social; liderazgo distribuido

Abstract

Educational leadership is one of the key factors for the development of a high quality education. Based on an extensive review of the literature, our study explains the evolution of the principal models of leadership. The most significant contributions are reviewed and the prosocial leadership model is highlighted as a way to overcome the limitations of other transformational leadership models. We conclude by noting the enormous vitality of educational leadership in recent decades and its ability to assimilate the virtues of different models and eradicate its limitations. We propose to deepen the study of a transcendent leadership model to improve educational institutions, as some academics are already doing.

Keywords: educational leadership; transformational leadership; transcendental leadership; distributed leadership

Introducción

Las últimas investigaciones muestran que el liderazgo educativo es uno de los factores clave para el desarrollo de una educación de calidad y que existe relación entre liderazgo y resultados escolares, (Day et al., 2010; Hallinger y Huber, 2012; Harris et al. 2003; Louis, et al., 2004; Marzano et al., 2005; Mulford, 2013; Robinson, 2007; Robinson et al., 2008 y 2009). En este sentido, analizar los últimos estudios y conceptos clave relacionados con los principales modelos de liderazgo resulta indispensable para entender y emprender la organización y dirección escolar.

Por este motivo, con este trabajo pretendemos: en primer lugar, explicar la evolución de los principales modelos de liderazgo a lo largo de los siglos XX y XXI para extraer tendencias y mostrar caminos. A la vez, intentaremos dar respuesta a alguno de los muchos dilemas que surgen en torno al tema. El artículo revisa la bibliografía en torno a los modelos de liderazgo, explica sus ventajas y limitaciones y se detiene en considerar las aportaciones de varios autores, al modelo de liderazgo más extendido en la actualidad: el liderazgo transformador. Estos autores amplían el modelo con su propuesta de liderazgo transformador pro-social.

En segundo lugar, nos proponemos relacionar los modelos de liderazgo nacidos en el ámbito político y económico con los modelos del ámbito del liderazgo educativo. La investigación sobre liderazgo educativo ha seguido un camino muy parecido al de la investigación general sobre liderazgo, con algunas particularidades que la distinguen, y ha mostrado en las dos últimas décadas una enorme vitalidad no exenta de controversias.

En la actualidad, el liderazgo educativo adopta rasgos del liderazgo instructivo, el distribuido y el transformador en su sentido más contributivo (liderazgo transformador trascendente o pro-social). A este nuevo modelo de liderazgo se ha llegado a través de una historia a veces tortuosa llena de avances y retrocesos que explicaremos en las páginas que siguen. Nuestra propuesta es partir de este nuevo modelo de liderazgo para la transformación de las organizaciones educativas del siglo XXI.

Estado de la cuestión sobre los principales modelos de liderazgo en los siglos XX y XXI

Después de siglos de teorías que giraban en torno a los grandes hombres y que consideraban que los líderes nacen y son diferentes a los demás hombres, la aparición del liderazgo relacional constituyó en los años setenta del pasado siglo una auténtica revolución pues supuso pasar de un modelo centrado en el líder a un modelo centrado en la relación de influencia entre líderes y seguidores. El liderazgo relacional puede ser de dos tipos según el tipo de relación que se establezca: transaccional y transformacional (Burns, 1978; Bass, 1985; y Bass y Avolio, 1994).

Tabla 1: Tipos de Liderazgo Relacional

	Tipos de L. Relacional	**Subtipos**
Liderazgo Relacional	Liderazgo Transaccional	
	Liderazgo Transformador	Liderazgo Transformador Carismático
		Liderazgo Transformador Trascendente o Pro-Social

En la relación transaccional ("yo te doy y tú me das") líderes y seguidores mercadean con servicios y trabajos generalmente en relaciones de ordeno y mando basadas en premios y castigos. Burns (1978) consideró que las relaciones anteriores estaban basadas en motivaciones muy básicas y los seguidores no resultaban suficientemente tenidos en cuenta. Las teorías de Burns, que nacieron en el ámbito de la ciencia política, fueron adoptadas rápidamente y con gran éxito en el mundo empresarial a partir de Bass y Avolio. Sin embargo, las opiniones de uno y otros difieren en cierto sentido: Burns insiste sobre todo en el cambio social significativo (*significant social change*). Bass y Avolio están más preocupados por la consecución de los objetivos de una organización (*performance beyond expectations*). El tipo de líder que describe Bass tiene entre sus atributos principales el de la influencia carismática (influencia idealizada), motivo por el cual el liderazgo transformacional sufrirá años más tarde gran cantidad de críticas tanto a nivel empresarial como, sobre todo, a nivel educativo (Chirichell, 1999; Allix, 2000; López Yáñez, 2012; Northouse, 2007; Tourish, 2008; Bryman, 2004; Bottery, 2004; Gronn, 2000; Osterloch y Frey, 2003; y Sison, 2008).

El problema del liderazgo transformador es que resulta difícil distinguir cuándo una relación está motivada sólo por el atractivo de la tarea y la consecución de resultados para la organización, y cuándo lo que motiva la relación son las ganas que tienen los individuos de contribuir al bien de la sociedad o de la organización. Por este motivo, existe un grupo cada vez más numeroso de académicos que proponen un nuevo tipo de liderazgo transformador con diferentes ópticas. Estos nuevos modelos se denominan liderazgo trascendente, pro-social, altruista, transformativo, contributivo o antropológico (Bush y Glover, 2014; De Vries et al., 2010; Foster, 1986; Gardiner, 2006 y 2009; Grant, 2008 y 2013; Pérez López, 1996; Osterloch y Frey, 2003; Shields, 2010, 2014; Sison, 2008; Tintoré y Arbós, 2010 y 2012; Tintoré y Güell, 2015). Todos estos nuevos modelos comparten el deseo de ir más allá de las aspiraciones y necesidades del líder para intentar beneficiar a otras personas, organizaciones y sociedades.

Conseguir organizaciones de este tipo resulta difícil pero a la larga compensa pues el liderazgo trascendente genera unidad, lealtad y confianza. Todos ellos son elementos que aseguran "a priori" larga vida a una institución y una mejora en la situación de las personas que en ella trabajan.

En torno al cambio de milenio surgen nuevos modelos de liderazgo, muchos de los cuales serán propuestas perecederas. Sin embargo, en ese mismo momento, surge con fuerza el liderazgo distribuido, modelo que tuvo especial éxito en el ámbito educativo y el más duradero entre los liderazgos del nuevo milenio. Entre sus principales autores destacan Gronn (2002); Timperlay, (2005); Spillane (2005 y 2006), Halverson, o Diamond (Spillane, Halverson y Diamond, 2004).

El liderazgo distribuido se asocia al reparto de tareas (EPNoSL, 2013: 21) pero es más que eso: el verdadero liderazgo distribuido está relacionado con la implicación, y el compromiso de las personas de la organización.

La distribución del liderazgo es un elemento que crea capacidades en distintos lugares de la organización y puede contribuir a crear comunidad, cambio y efectividad (Day y Sammons, 2013: 35) pero el liderazgo distribuido, en nuestra opinión, no ha de considerarse como un modelo sino como una característica fundamental que ha de definir cualquier modelo de liderazgo para lograr una mayor eficacia y efectividad en las organizaciones.

Desde nuestro punto de vista, la gran contribución del liderazgo distribuido a la teoría general del liderazgo es que la difusión de este concepto ayuda a que el liderazgo deje de ser considerado como una característica individual y se considere una propiedad compartida dentro de un grupo de individuos (Aime et al., 2014; Spillane, 2006). Desde la aparición del constructo está más claro que nunca que "el liderazgo no es cuestión de rango ni un asunto individual" (Haimowitz, 2014).

Estado de la cuestión sobre los principales modelos de liderazgo educativo hasta 2010

La investigación sobre el liderazgo educativo comienza a desarrollarse con fuerza y de forma más autónoma entre las décadas de los 60 y 70 del pasado siglo y bebe, inicialmente, de la investigación más general sobre liderazgo a la que ya hemos hecho referencia (Murillo, 2006).

Durante los años 80, se desarrolla el liderazgo instructivo ligado al movimiento de investigación sobre eficacia escolar que evidencia la importancia de la dirección para conseguir escuelas de calidad. En este modelo, los líderes trabajan muy centrados en la enseñanza-aprendizaje (Neumersky, 2013: 318) y la investigación se centra en los directores (Elmore, 2000; Hallinger, 2005; Spillane et al., 2003). En realidad parecía que el liderazgo instructivo fuese sólo propiedad de los directores (Neumerski, 2013: 318) y según Sammons et al. (1995: 17): "el resultado de este movimiento fue un listado de características de las escuelas eficaces entre las que destacaba el papel del director como líder instructivo dotado de grandes poderes".

Philip Hallinger fue uno de los principales impulsores del liderazgo instructivo en los años 80 del pasado siglo y su cuestionario para medir dicho liderazgo (PIMRS), constituye uno de los primeros ejemplos para evaluar a los líderes instructivos (Hallinger, 1982, 1990 y 2011). Junto a Ronald Heck, desarrolló exhaustivas investigaciones mostrando los efectos positivos de este tipo de liderazgo en los resultados de los alumnos (i.e. Hallinger y Heck, 1996 y 1998).

Sin embargo, el propio Hallinger (2007) manifestó las limitaciones del liderazgo instructivo al que considera un enfoque excesivamente jerárquico y centrado en el director. Por eso, a partir de los años 90 se concedió un interés mayoritario al liderazgo transformador, que surge ligado al Movimiento de Reestructuración Escolar (Leithwood, 1996).

Leithwood define el liderazgo transformador educativo como aquel que "facilita la redefinición de la misión y visión de las personas, una renovación de su compromiso y la reestructuración de sus sistemas para cumplir los objetivos propuestos" (Leithwood, 1992: 9).

El liderazgo transformacional en educación pretendía desarrollar motivaciones intrínsecas hacia el trabajo y hacia los resultados en lugar de centrarse en un mero intercambio. Ello requiere mejorar las condiciones organizativas para conseguir un mayor compromiso de las personas en pro de los objetivos de la organización (Leithwood y Sun, 2012: 388).

Por ello, el liderazgo transformacional se centra en crear capacidades más que en el control y la dirección; en entender las necesidades de los individuos y en procurar el desarrollo de las personas mediante una serie de prácticas: definir y comunicar la visión, entender y desarrollar a las personas, rediseñar la organización como una comunidad de aprendizaje (Leithwood, 1992); y mejorar el programa de enseñanza (Leithwood y Mascall, 2008). De ahí que, en su desarrollo, el liderazgo transformador acaba por incorporar el liderazgo instructivo.

Las investigaciones de Leithwood y las basadas en sus trabajos, muestran que el liderazgo transformador aumenta la capacidad de los profesores para producir buenos resultados en los alumnos (Mulford, 2008: 42).

Pero a pesar de ello, el liderazgo transformacional va a ser objeto de críticas por el exceso de poder de un súper-director carismático (Mulford, 2008: 43). Ello lleva a que la literatura académica reclame un líder transformador más pro-social (Bush y Glover, 2014:6; Gairín y Rodríguez-Gómez, 2014: 820; Shields, 2004, 2010 y 2014; Tintoré y Arbós, 2010 y 2012).

Como en las empresas, con el cambio de siglo empieza a hablarse en educación de la distribución del liderazgo. Varios motivos hacen necesario este tipo de liderazgo (Hallinger, 2007 y Pont et al., 2008): la consideración de que los directores no lo pueden hacer todo solos, el desarrollo de la noción de las escuelas como comunidades de aprendices con un director como aprendiz principal (Louis et al., 2013) y la necesidad de conseguir un liderazgo más sostenible (Hallinger, 2009: 13) el cuál sólo será posible si el liderazgo está distribuido.

Existen pocos estudios empíricos que relacionen la existencia de liderazgo distribuido y la mejora en el aprendizaje de los alumnos aunque algunos parecen prometedores (Marks y Printy, 2003). Sin embargo, la existencia de un liderazgo distribuido por la organización no ha de suponer la desaparición del papel y autoridad del director, pieza clave para facilitar la distribución del poder por la organización (Hopkins y Jackson, 2002; Frost, 2010). En palabras de este último: "Los directores han de crear las condiciones para que el liderazgo se distribuya" (2010:213). Por eso, en opinión de Bush y Glover (2014: 10), y de Frost (2008: 337; 2010: 209) este modelo está muy ligado al del liderazgo de los profesores (*teacher leadership*).

A pesar de sus indudables ventajas, esta propuesta está muy lejos de ser una realidad en los centros educativos y –como ya hemos dicho – el liderazgo distribuido debería ser una característica de cualquier modelo de liderazgo y no un modelo en sí mismo.

Más allá del 2010: Liderazgo para el aprendizaje y propuesta de liderazgo pro-social

En la última década asistimos al desarrollo de un nuevo modelo de liderazgo educativo que – con diferentes denominaciones – suma algunas de las características de los modelos ya citados.

El origen de este nuevo modelo está en estudios que revisan las investigaciones sobre liderazgo educativo entre 1985 y 2006 y muestran que el impacto del liderazgo instructivo sobre los resultados de los alumnos es considerablemente mayor que el del liderazgo transformacional (Robinson, 2007; Robinson et al., 2008; Robinson et al., 2009). Otros autores, (Hallinger, 2007) sostienen que las similitudes entre liderazgo instructivo y liderazgo transformador son mayores que las diferencias y tienen muchas cosas en común. De esta forma se empieza a hablar de un nuevo tipo de liderazgo con características de los anteriores y mucho más distribuido.

El nuevo modelo asume del liderazgo instructivo su versión más pedagógica y menos autoritaria y controladora, el liderazgo transformacional lo desarrolla en su versión menos carismática y más pro-social teniendo en cuenta las necesidades de líderes y colaboradores y buscando su desarrollo y la mejora de la sociedad; y del liderazgo distribuido y el liderazgo transformacional adopta el objetivo de crear en los centros educativos comunidades profesionales de aprendizaje.

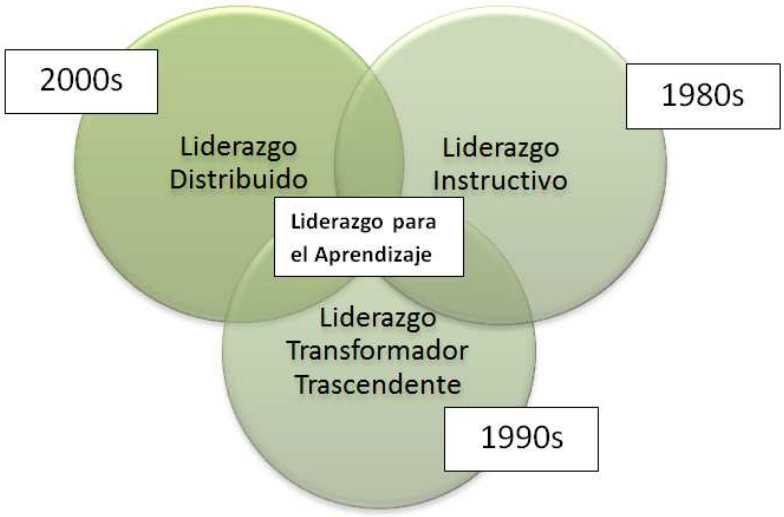

Fig 1: El nuevo modelo de Liderazgo educativo para el Aprendizaje

Este nuevo modelo muchas veces llamado "Liderazgo para el aprendizaje" y otras veces de nuevo "Liderazgo instructivo" rechaza que el director sea el único líder pedagógico de la escuela (Bush,

2013; Naicker et al., 2013; Mestry y Pillay, 2013: S1; Marks y Printy, 2003); sugiere el desarrollo de estructuras que favorezcan la distribución del poder (Mestry y Pillay, 2013: S2); considera que mejorar los resultados no consiste sólo en medir los resultados académicos de los alumnos sino en evaluar el desarrollo completo de dichos alumnos (Hirsh y Foster, 2013; Mulford, 2013) y por último integra características educativas basadas en concepciones del liderazgo instructivo, con otras características de los modelos transformacionales que mejoran la cultura de la escuela (Hallinger, 2003; Leithwood et al., 2002 y 2009; Robinson et al., 2008).

En un intento de crear sinergias entre todos los avances, pensamos que la propuesta de un liderazgo para el aprendizaje como el aquí descrito y que potencie las motivaciones trascendentes de los miembros de la organización daría respuestas a los interrogantes y polémicas a las que se enfrenta el liderazgo en el mundo educativo, de la misma forma que puede hacerlo en el ámbito empresarial.

Conclusiones

En el momento actual se está cerrando el círculo iniciado hace apenas cincuenta años. El liderazgo educativo, mostrando una gran vitalidad, ha sido capaz de incorporar las virtudes de los diferentes modelos de liderazgo desarrollados en la última mitad de siglo. Ha pasado de un liderazgo instructivo y autoritario a un liderazgo que vuelve a ser instruccional pero que adopta características más democráticas y se centra más en el aprendizaje que en la enseñanza (MacBeath y Dempster, 2009). El nuevo liderazgo supera el halo negativo que a veces envuelve al liderazgo transformacional cuando se centra en un líder carismático y visionario que resuelve todas las situaciones. Propone un liderazgo distribuido por todos los niveles de la organización escolar y también un liderazgo transformador con motivaciones pro-sociales en el que los miembros de la organización educativa trascienden sus propias necesidades en servicio de la comunidad. La preocupación por la mejora se ha extendido desde los resultados académicos a muchas otras facetas que pueden aprenderse. Y desde los alumnos a toda la comunidad educativa.

Siguiendo a Pérez López (1996, 1998), la adopción de un modelo de liderazgo de estas características debería permitir a las organizaciones educativas la consecución de un "óptimo de servicio" en el sentido de "hacer bien lo que la empresa ha de hacer y sabe hacer" (en el caso de las empresas educativas, educar). Y conseguir un "óptimo de desarrollo de las personas" contando con la libertad de las mismas, "porque sólo si las personas se desarrollan existirá la capacidad de lograr continuadamente los objetivos" educativos (Pérez López, 1998: 78) contribuyendo a la sostenibilidad del liderazgo.

Lograr estos objetivos y desarrollar este tipo de organizaciones no es tarea fácil pero puede hacerse. En otras investigaciones (Tintoré, 2014; Tintoré, Puig y Arbós, 2014) hemos mostrado algunos ejemplos de profesores y directivos líderes que han desarrollado y ayudado a desarrollar motivaciones extrínsecas, intrínsecas y pro-sociales en su trabajo. Líderes de muy diferentes zonas geográficas y en muy distintas posiciones que han sido capaces de ir más allá de sus propios intereses para ayudar a transformar sus organizaciones.

Existe casi unanimidad actualmente en que la principal tarea del director-líder es promover el aprendizaje de los alumnos a través de sus profesores (Bush, 2007; Southworth, 2002; Jenkins, 2009; Muijs, 2010; Hallinger y Heck, 1998; Muijs, Harris y Crawford, 2004. Citados por Glover, 2013: S179-80). A nuestro entender, eso está bien pero es el mínimo al que hay que aspirar. Centrarse en los resultados es necesario pero escaso, el liderazgo distribuido por la organización ha de encaminarse a conseguir el desarrollo de toda la persona y de todas las personas (alumnos, familias, profesionales, comunidad cercana).

Para conseguir un modelo de liderazgo que sea a la vez instruccional, transformador, pro-social y distribuido, los líderes han de crear las condiciones adecuadas en la organización: ha de existir visión y objetivos, una cultura de colaboración y confianza centrada en la enseñanza-aprendizaje, y estructuras que faciliten todo lo anterior y permitan llegar a constituir auténticas comunidades profesionales de aprendizaje (Marzano et al., 2005; Leithwood et al., 2010; Day et al., 2010).

Este nuevo modelo de liderazgo ha de tomar en consideración lo que se hace en la dirección y en las aulas, o sea, las prácticas de liderazgo (Begley, 2003; Bell et al., 2003; Day et al., 2009; Hallinger 2003; Leithwood et al., 2004; Robinson et al., 2008; Southworth, 2002 y 2003); cómo se hace, es decir, las características y actitudes de los líderes (Crossan, Ganz y Seijts, 2008 y 2012; Day y Sammons, 2013; Hallinger, 2007; Peterson y Seligman, 2004), y también para qué y por qué se hace (motivación). Considerar no sólo las motivaciones extrínsecas e intrínsecas sino también pro-sociales permitirá desarrollar liderazgos efectivos que desarrollan a todos los que participan en el proceso (Bush y Glover, 2014; De Vries et al., 2010; Foster, 1986; Gardiner, 2006 y 2009; Grant, 2008 y 2013; Pérez López, 1996; Osterloch y Frey, 2003; Shields, 2010, 2014; Sison, 2008; Tintoré y Arbós, 2010 y 2012; Tintoré y Güell, 2015).

En estos momentos, con muy diversas denominaciones, parece existir consenso en cuanto a las características que debe tener el liderazgo educativo en nuestro siglo. Ha quedado claro que es necesario pero no suficiente el liderazgo instructivo. Sabemos que hay que perseguir los buenos resultados pero eso tampoco es suficiente pues a lo que ha de aspirar el liderazgo educativo actual es al desarrollo de las personas y comunidades. Por eso el liderazgo ha de ser a la vez instructivo, distribuido, transformador y pro-social, sin olvidar que su objetivo no son los resultados sino las personas: educar y formar personas, y crear comunidades de auténtico aprendizaje para todos (Day y Sammons, 2013; Hallinger, 2009; Leithwood et al., 2004; Robinson et al., 2008; Stoll et al., 2006).

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Consolidated Groups of Taxpayers: Size and Correlation with Economic Growth Parameters

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Abstract

In our research we focus on consolidated groups of taxpayers, which had been implemented in the Russian Federation in 2012; on importance of taxes paid by consolidated groups of taxpayers and their correlation with economic growth parameters. The modeling of economic growth have demonstrated its statistically significant relation to the rate of profit tax paid by the consolidated groups of taxpayers. This allowed us to conclude about the key role of the CGTs for the economic development of Russia, which should be taken into account in reforming the institute of consolidated groups of taxpayers. The distribution of the profit tax revenue paid by the greatest companies may become a basis for modeling the CGT involvement threshold.

Keywords: consolidated groups of taxpayers, corporate profit tax, economic growth

Introduction

Taxation relations and the mechanisms of their functioning are the subject of many researches of economists (Dolgih, 2015: Chistyakova, 2015; Khaperskaya, 2015; Rumina, 2015), since namely the taxation relations together with the monetary and credit policy (Ivanov, 2015) embody the possibilities of state regulation of any economics. In 2012, the Russia had established the law «The Consolidated Groups of Taxpayers», which set up the norms and rules for the tax authority and the taxpayer – CGT participants.

The extensive discussion about the possibility to consolidate the tax liabilities in Russia had been ongoing since the beginning 2000th (Aktaev, 2015: Bannova, 2015). The necessity to form the state institute of the consolidated taxation was caused by the existence of the following reasons:

1) the necessity of more equitable distribution of profits tax revenues among the regions in the Russian Federation;
2) the increase of tax withdraw frequency on account of transfer pricing;
3) the business splitting with the purpose to change the routine taxation schemes (the simplified tax system, the payment of unified tax on the imputed income);
4) the desire of the greatest taxpayers to simplify the tax bookkeeping;

For large holding companies, the consolidated group of taxpayers is not only the opportunity to determine their liabilities for the profit tax for the whole group of companies and to distribute it fairly among the regional budgets, but also to avoid the burdensome procedures of paperwork and the possible audit problems relating to the transfer price control inside the country.

The CGT induced the greatest problems for the regional budgets with regard to their income. The occurred principally differing redistribution of the CGT tax revenues among the territories of Russia was inevitable under existing formula of the tax distribution base of CGT members among the

regions. The overall decrease of the profit, which the regional authorities also related to the creation of consolidated groups, as well as difficulties in forecasting the budget tax revenue of certain regions, also contributed to the situation. As a result, since 2015 the registration of new and completion of the operating CGT was stopped. This decision allowed the time to analyze their activity and impact on the budget income, as well as mapping out a further strategy with respect to such groups. However, the CGT expansion was stopped until 2018.
In discussing of perspectives for consolidated groups of taxpayers as key stakeholders are consider state in general, and regional budgets. In our opinion, in amending the CGT, it is important to consider the significance of the CGT-involved companies for the development of Russian economy.
The purpose of this article is a research of CGT impact on the economic growth, as well as importance of profit tax paid by the greatest Russian companies.

1. Methodology

To assess the rate of the CGT profit tax revenue and its relation to the economic growth, we used the correlation analysis:

the correlation coefficient, the graphic method of simple regression modelling, and the coefficient elasticity. Also, we have evaluated the equation parameters.

The linear correlation coefficient ranges from –1 to +1. The relation criteria of the variables (weak or strong (close)) were estimated using the Chaddock scale correlation:

$0.1 < r_{xy} < 0.3$: weak
$0.3 < r_{xy} < 0.5$: moderate
$0.5 < r_{xy} < 0.7$: evident
$0.7 < r_{xy} < 0.9$: strong
$0.9 < r_{xy} < 1$: extra strong

The graphic method is applied for visual presentation of relations between the studied economic indicators. For this purpose, the variables were plotted in the rectangular coordinate system, the coordinate axis being for the sampling results Y and the abscissa one – for the factorial characteristic X .
The relation between the resulting points and those of factorial characteristics is defined as the correlation field.
On the basis of the correlation, it is possible to draw the hypothesis (for the general population) that the relation between all possible X and Y values is of a linear character. The linear equation of the regression looks like $y(x) = bx + a$. An estimating equation of the regression looks like $y(x) = bx + a + Ɛi$,
Here, Ɛi is a random variable (deviation, disturbance).
The reasons causing the random variable:
1. Lack of important explicative variables in the regression model;
2. Aggregation of variables. For instance, a function of total consumption is an endeavor of common expression of the total decision of individuals about charge. This is only an approximation of different variables (indicators relations) having various parameters;
3. An incorrect description of the model structure;
4. An incorrect functional specification;
5. Errors of measurement.
6. Since the deviation Ɛi is random for every i^{-th} case , and since their extracted values are unknown, then:
1) Using the observations xi and yi, we can evaluate only the parameters α and β;
2) The evaluations of α and β in the regression model are the magnitudes a and b, respectively, which are random, since they are randomly sampled. To evaluate the parameters α and β, we applied the least square method. The least square method provides the best evaluations of the parameters of the regression equation (the most sustainable, efficient and unbiased). However, this occurs only in

the case, when the definite premise of the relatively random member (Ɛ) and the independent variable (x) are fulfilled.

To analyze the quality of regression parameters, we used the dispersion analysis, the control of residual autocorrelation and heteroscedasticity.

2. Impact of CGT on economic growth

The correlation between the profit tax of the involved CGT (RUR thousand) and the rate of economy growth have been analyzed (the GDP gain in comparison with previous year, in %). The data on the profit tax of the involved CGT were based on the assessments of Federal Tax Service of Russia; the definitions of main parameters were given by Rosstat, then it was pointed on diagram and regression was derived:

y (x)= 0.0482 x -20.582

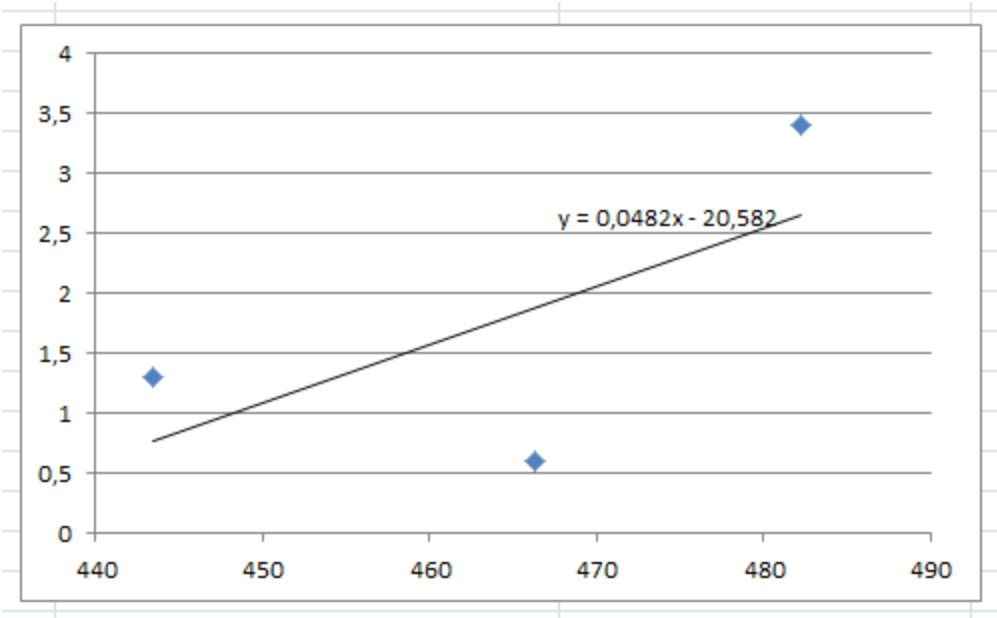

Figure 1 Graphical presentation of the empirical equation of regression

Regression equation (evaluation of regression equation)

The linear equation of regression looks like y(x) = 0.048 x-20.582
Thus, when the paid profit tax per RUR 1 thousand increases, the economic growth increases by 0,048

Correlation coefficient
The coefficient of linear correlation can be determined using the regression coefficient b:

$$r_{x,y} = b\frac{S(x)}{S(y)} = 0.048\frac{16.007}{1.19} = 0.645$$

Thus, the relation between the indicator Y and factor X is explicit and direct.
Elasticity coefficient

The average elasticity coefficient E indicates a percentage change of y indicator (the population mean) with respect to its average value if the factor x would change by 1% of its average value.
The coefficient of elasticity was found, using the following formula:

$$E = \frac{\partial yx}{\partial xy} = b\frac{\bar{x}}{y}$$

$$E = 0.048\frac{463.67}{1.77} = 12.59$$

In our example, the elasticity coefficient exceeded 1. Therefore, when X changes by 1%, Y would change by more than 1%. In other words, X significantly influences Y.

3. Evaluation of regression equation parameters.

Importance of correlation coefficient

Let us hypothsize:
H0: rxy = 0, there is no linear dependence between the variables;
H1: rxy ≠ 0, there is a linear dependence between variables;
To verify the null hypothesis about the equal-zero general correlation coefficient of the normal two-dimensional random variable under conditions of the competing hypothesis H1 ≠ 0, it is necessary to evaluate the sampled value (t_{nabl}) - a value of random error:

$$t_{nabl} = r_{xy}\frac{\sqrt{n-2}}{\sqrt{1-r_{xy}^2}}$$

and, using the table of critical points of a Student's t-distribution, a significance level α, and the number of degrees of freedom k = n – 2, to find a critical point of time (t_{kpum}) of bilateral critical area. If $t_{nabl} < t_{kpum}$, the null hypothesis cannot be rejected. If $|t_{nabl}| > t_{kpum}$, the null hypothesis is rejected.

$$t_{nabl} = 0.645\frac{\sqrt{1}}{\sqrt{1-0.645^2}} = 0.84$$

According to the Student's table, for significance level (value) α = 0.05 and k = 1 degrees of freedom, we find tkrit:
tkrit (n-m-1; α/2) = (1; 0.025) = 12.706
where m = 1 is a quantity of predictor variables.
If $|t_{nabl}| > t_{kpum}$, the obtained value of correlation coefficient is recognized as significant (the null hypothesis accepting the equal-zero correlation coefficient is rejected).
Since $|t_{nabl}| < t_{kpum}$, we can accept the hypothesis about the equal-zero correlation coefficient. In other words, the correlation coefficient statistically is insignificant. In paired linear regression $t^2_r = t^2_b$. Then, testing the hypotheses on the significance of regression and correlation coefficients is equivalent to the test of a hypothesis of the significance of regression linear equation.

Evaluation of correlation coefficient range (a confidence interval)

$$\left(r - t_{kpum}\sqrt{\frac{1-r^2}{n-2}}; r + t_{kpum}\sqrt{\frac{1-r^2}{n-2}}\right)$$

The confidence interval for the correlation coefficient

$$\left(0.645 - 12.702\sqrt{\frac{1-0.645^2}{3-2}}; 0{,}645 + 12{,}706\sqrt{\frac{1-0.645^2}{3-2}}\right)$$

r(-1;1)

Analysis of estimation accuracy of regression coefficient

The value

$$S^2 = \frac{\sum(y_i - y_x)^2}{n - m - 1}$$

$$S^2 = \frac{2.48}{1} = 2.478$$

is an unbiased estimation of the disturbance dispersion

$S^2 = 2.478$ is a non-predicted dispersion (the dispersion rate of dependent variable around the regression line)

$$S = \sqrt{S^2} = \sqrt{2.478} = 1.57$$

S = 1.57 is a standard error of evaluation (a standard regression error).

S_a – is a standard deviation of random value a.

$$S_a = S\frac{\sqrt{\sum x^2}}{nS(x)}$$

$$S_a = 1.57\frac{\sqrt{645729}}{3 * 16.007} = 26.34$$

S_b is a standard deviation of random value b.

$$S_b = \frac{S}{\sqrt{n}S(x)}$$

$$S_b = \frac{1.57}{\sqrt{3} * 16.007}$$

Confidence interval for dependent variable

The economic forecasting, which is based on the above model, assumes that earlier existing relations of variables remain for the predictor period. Forecasting the depending variable of promising indicator needs a knowledge of predictor values of all factors involved in the model. These predictor values are substituted into the model and points of the predictor values of the studied indicator are obtained.

$(a + bx_p \pm \varepsilon)$

Let calculate the interval space (range), in which 95% of acceptable Y values are under unlimited quantity of observation and Xp = 510.

$t_{крит}$ (n-m-1;α/2) = (1;0.025) = 12.706

y(Xp) = 0.048*510 -20.472 = 3.989

Let calculate the prediction error for the equation y(x) = bx + a

$$\epsilon = t_{kpum}S\sqrt{\frac{1}{n} + \frac{\left(\bar{x} - x_p\right)^2}{\sum(x_i - \bar{x})^2}}$$

$$\epsilon = 12.706 * 1.574\sqrt{\frac{1}{3} + \frac{(463.67 - 510)^2}{768.67}} = 35.368$$

or

$$\epsilon = 12.706 * 1.574\sqrt{\frac{1}{3} + \frac{(463.67-510)^2}{3(215243-463.667^2)}} = 35.3683.989 \pm 35.368$$

(-31.38;39.36)

The probability that Y would not be outside the scope predictor ranges under unlimited quantity of observations can reach 95%.

Let calculate the prediction error for the equation y = bx + a

$$\epsilon = 12.706 * 1.574\sqrt{1 + \frac{1}{3} + \frac{(463.67 - 510)^2}{768.67}} = 40.63$$

$(-36.64;44.62)$

4. Qualitative analysis of regression model

Dispersion analysis

Analyzing the quality of regression model, the theorem of dispersion factorization, according to which the general dispersion of indicator can be factorized into two components: one of them is the predictor of dispersion regression and another one is not.

The dispersion analysis is aimed at parsing the dependent variable dispersion:
$\sum(y_i - y_{cp})^2 = \sum(y(x) - y_{cp})^2 + \sum(y - y(x))^2$

Where

Ycp - marginal (means)
$\sum(y_i - y_{cp})^2$ - the total sum of squares of the deviations;
$\sum(y(x) - y_{cp})^2$ - the sum of squares of the deviations due to regression ("predicted" or "factorized");
$\sum(y - y(x))^2$ - the residual sum of squares of the deviations.

Source of variance	Sum of Squares	Degrees of freedom	Variance of 1 Degrees of freedom	Fisher's Exact Test
Model	1.77	1	1.77	0.71
Residual	2.48	1	2.48	1
Total	4.25	3-1		

Count Measures of quality regression equation

Count Measure	Value
R Square (R2)	0.42
Mean of the coefficient elasticity	12.59
Mean of the approximation error	91.87

Verification of existence of residuals autocorrelation

If the coefficient of autocorrelation $r_{ei} < 0.5$, we can reasonably affirm that the autocorrelation is absent.
To define a range of autocorrelation, let us calculate the coefficient of autocorrelation and verify its significance using by the standard error criterion. The standard error of correlation coefficient is calculated by the formula:

$$S_{eY} = \frac{1}{\sqrt{n}}$$

The autocorrelation coefficients of random sampling should possess the sampling distribution approximating to a normal with null population mean and mean square deviation being equal to

$$S_{eY} = \frac{1}{\sqrt{3}} = 0.577$$

If the autocorrelation coefficient of the first order r1 ranges within:
$-12.706 \cdot 0.577 < r_1 < 12.706 \cdot 0.577$
we can conclude (assume) that the data do not demonstrate the autocorrelation of the first order.
Using the estimation table, we obtain:

$$r_1 \approx \frac{\sum \epsilon_i \epsilon_{i-1}}{\sum \epsilon_i^2} = \frac{-0.275}{2.478} = -0.111$$

Since -7.336 < r_1 = -0.111 < 7.336, the dependent feature of residuals is fulfilled. There is no autocorrelation.

Durbin-Watson's criterion

This criterion is the well-known test allowing us to confirm the autocorrelation.
Usually, at an initial stage of statistical analysis of the regression equation, one predictor realizability is verified : conditions of statistical independence of deviations. At the same time, uncorrelated neighbor estimators ei are verified.
The Durbin-Watson's statistics allows us to analyze the deviation correlation:

$$DW = \frac{\sum (e_i - e_{i-1})^2}{\sum e_i^2}$$

$$DW = \frac{3.3}{2.48} = 1.33$$

The critical values d_1 and d_2 are defined using special tables of significance level α, the number of observations n = 3, and a quantity of predictor variables m = 1.
There is no autocorrelation, if the following condition is fulfilled:
d_1 < DW and d_2 < DW < 4 - d_2.

If 1.5 <dw <2.5, we can use a approximate rule and consider that there is no autocorrelation of residuals.

Since 1.5 > 1.33> 2.5, the autocorrelation of the residuals **is present**.

For more reliable (sustainable) conclusion it is reasonable to address tabular values.
However, the tabulated data seem to be more suitable for a reliable (exact) conclusion,
Using the Durbin-Watson's tabulated data, let find d1 = 1.08; d2 = 1.36 for n=3 and k=1 (a significance level of 5%).
Since 11.08 < 1.33 и 1.36 > 1.33 < 4 - 1.36, the autocorrelation of residuals **is present**.

Verification of normality of residual component distribution

The calculated value of RS criterion is equal to:

$$RS = \frac{\epsilon_{max} \epsilon_{min}}{S_i}$$

where εmax = 5,14 – is the maximum value of residuals, εmin =-5,36 – is a minimum level of the residuals number.
Sε – the mean square deviation

$$Se = \sqrt{\frac{\sum e^2}{n-1}} = \sqrt{\frac{2.478}{3-1}} = 1.113$$

$$RS = \frac{0.754 - (-1.279)}{1.113} = 1.826$$

The calculated value of RS criterion fall outside of the range (2,7-3,7), therefore, the feature of normal distribution is not fulfilled. Thus, the distribution normality of residual component of the model seems to be inadequate.

Conclusions

The performed researches, based on the correlation analysis and evaluations of the parameters for significance, has demonstrated the existence of essential direct correlations between the profit tax paid by the consolidated groups of taxpayers, and the economic growth. This correlation is due to a high concentration of business in the Russian Federation. In 2015, the total number of legal entities registered on January 1 was 4 659 623. 10 largest taxpayers had paid 7,52% of the total profit tax in 2014, 100 largest companies had paid 21,33%, 1000 had paid 36,81%. At the same time 9369 companies (or 0,2% of the total number of the registered legal entities) had paid 50% of the total profit tax proceedings.

Thus, we have to conclude that the revealed correlation of the profit tax paid by the consolidated groups of taxpayers and the importance of the largest taxpayers for budget revenues make any corrections of consolidation order crucially important.

Promising could be researches devoted to an evaluation of amendments concerning the impact of changing the CGT threshold on the federal and regional budgets revenues.

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Social-Economic Principle in Apportionment of Corporate Profit Tax Paid by Consolidated Group of Taxpayers

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Abstract

Consolidated group of taxpayers (CGT) in Russia, where the profit tax is very important source of regional budgets revenues, intensified importance of profit tax apportionment. The fact that CGT spans multiple regions has caused changes in the established procedures for the distribution of the profit tax among regional budgets. This has induced unpredictable profit tax revenues and conflicts of interests between the affected territories. Starting from 2015, in Russia was proclaimed a moratorium on creating new consolidated groups of taxpayers. This was due to the inefficient formula used for distributing the proceeds from the profit tax paid by the CGT participants. To resolve the situation, we suggest improved approach to the formula used for distributing the profit tax collected from CGTs. The suggested social-economic principle must base on three aspects: the contribution of each region into the state economy and the GDP, implementing factor-based approach, taking into account if the region is depressed (and how much). The suggested approach will facilitate the growth of the social and economic situation in the regions and improve social welfare.

Keywords: tax, consolidated group of taxpayers (CGT), taxation, revenues, regions, profit tax.

Introduction

In Russia, where the profit tax is shared between federal and regional budgets, tax consolidation by groups of companies causes complexity in regional budgets formation. The interregional character of the consolidated group of taxpayers had changed the established order profit tax apportionment among the regional budgets, which caused an unpredictable profit tax revenues and a conflict of interest between the territories.

In 2015 in Russia was proclaimed a moratorium on creation new consolidated groups of taxpayers, up to 2018. This moratorium was declared by reason of distribution the profit tax revenues between the territories. As a result appears distortion of horizontal tax competition. According to the estimations of the Russian Ministry of Finance, in 2014, the profit tax revenue of 53 regions increased by RUR 61.9 billion, those of 32 regions decreased by RUR 127 billion. The share of CGT amounted 3.3% loses from the general reduced profit tax revenue, as a result after creation of CGT the total regional revenues were reduced by 0.6%. In conditions of the economic downturn, the regions lose from the existing profit tax apportionment, and this induces the necessity to compensate this loss for the regions, which had been subjected to the strongest degradation.

Principles of profit tax distribution

According to the performed survey, the methodology of the CGT revenue distribution among the regions should correspond to the following principles:

1) The harmonization of interests– in this case it means an agreement of litigants to accept the model and to execute it without using another sides, indirect mechanisms of impact and pressure. For example, we consider the interest of the main company and its branches, the Federal Centre and subjects of Russian Federation, owners with a multilevel mutual participation of entities in the capital of others;
2) The budget predictability – the redistributive model should be clear and understandable and allow the financial and fiscal authorities to plan relatively expected profit tax revenues, taking into account intractable value of the profit.
3) The justice – in our case, the justice is understand as:
- the socio-ecologic justice meaning that the Russian Federation subjects, which realize mining, initial processing of natural resources must have the priority in taxation of profit. All of these should warrant the compensation of ecological harm and withdrawn non-renewable natural resources. Also to provide the socio-economic priorities for the contemporary population living in this land and its future generations;
- the budgetary and legal horizontal justice – preventing the political and some other pressure of some territorial subjects of Russian Federation upon the mechanism of tax distribution and subsequent financial transfers from the federal center;
- the social and budgetary efficiency - allowing the maximum social effect in the regional multilevel system at minimum expenses of budgetary funds of the regional and local budgets;
4) the joint responsibility - among the group participants arising upon signing the CGT;
5) The unification of approaches to tax obligations - each member of the group must participate in the tax payment as equal;
6) The simplicity of the tax system – defined by the state condition its stability, simplification of calculation procedures and taxation allowing an increase of the tax system efficiency, other conditions being equal;

7) The transparency - the mandatory publication of entity accounts on the performance of the involved CGT groups in the mass media. The report is published by a main company.
In the existing system of consolidated taxation in Russia, the economic welfare is the weakest principle of the CGT orientation, towards the profit tax distribution among the regions. This principle should be based on two aspects.

Firstly, it is necessary to take into account the investment of each region to the development of national economy and the GDP formation. For this purpose, we suggested to use theory of added value to calculate the share of each region the consolidated profit tax. Thus, the basic indicators of the revenue distribution among the regions seem to be: the net asset value, the quantity of personnel (rather than the gross wage) and the operation profit of every CGT participant.

Secondly, it is necessary to apply an indexation, which would include the importance of every indicator for every branch.

Finally, to reinforce the principle of social justice, it is necessary to take into account the degree of region development, in which the consolidated group of taxpayers performs their activity.

Distribution of profit tax paid by CGT among the regions

We suggest the approach based on indicators for reinforcing the social and budgetary principles of the revenue distribution among the consolidated group of taxpayers.

The offered model should be based on the principle of social and economic orientation, therefore, it is necessary to establish:

1. The coefficient to determine the importance of every indicator taking into account the branch structure (the economic importance).

2. The correction indicators taking into account the social efficiency.

Thus, the general formula of the consolidated profit tax distribution among the regions looks like:

$$d = K_{e1} \cdot \frac{K_{si} \cdot T_i}{\sum_{i=1}^{N} K_{Si} \cdot T_i} + K_{e2} \cdot \frac{A_i}{\sum_{i=1}^{N} A_i} + K_{e3} \cdot \frac{\Pi_i}{\sum_{i=1}^{N} \Pi_i}$$

where d – is a profit share for every CGT participant, %;
K_{e1}, K_{e2}, K_{e3} – are the coefficients of economic importance for every indicator;
T_i – is an averaged personnel list or the gross wage of the i^{-th} company participating in the CGT;
K_{si} – is the indicator of social importance (therefore, it is set only for the indicator "quantity";
N – is the number of CGT members;
Ai – is the net wage of depreciation property value of the i^{-th} company – participating in the CGT,
Π – is the profit of the enterprise.
To define the first group of indicators, we have chosen those which reflect the efficiency of application of the factors, proportionally to which the CGT revenue is distributed (Table1).

Table 1: Indicators reflected the efficiency of tax apportion factors applications to CGT

	Factors of profit tax apportionment	**Efficiency Indicators**
1	Net Asset Value	Assets Efficiency
2	Personnel Quantity	Productivity
3	Trading Profit	Production Profitability

To take into account the branch specifics, we analyzed the data of the CGT results. Till the end of 2014, 17 groups of CGT had been established. 47% of them are related to the oil-gas branch (307 companies). The second spot in the ranking is assumed by the metallurgy: 29% or 5 participants (51 companies), the third spot in the ranking is assumed by telecommunications – 12% or 2 participants. One participant of the CGT is related to the banking and energetics, respectively (Fig.2).

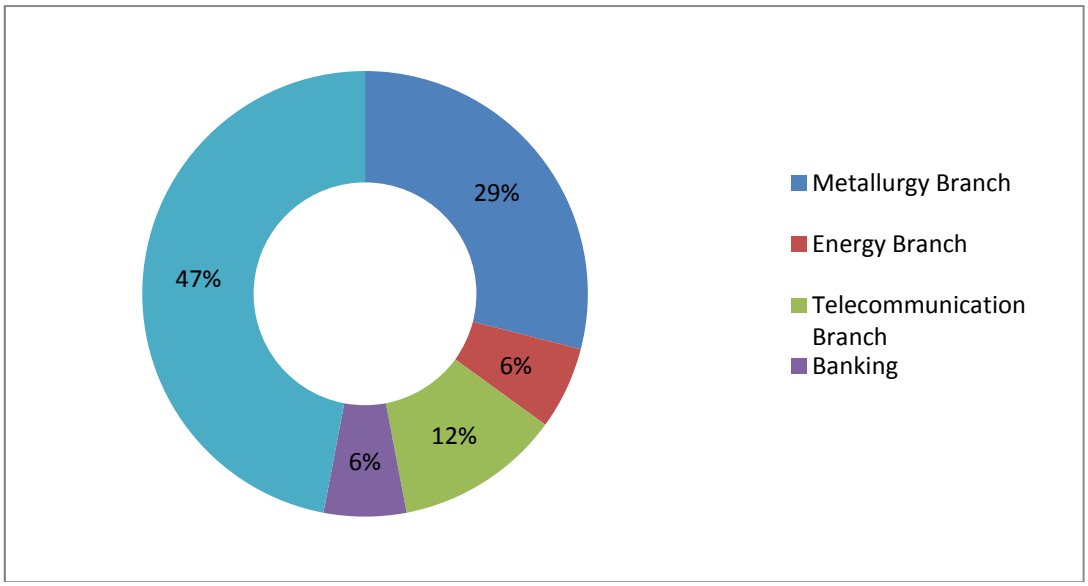

Fig 1. Distribution of CGT according to industrial branches in Russian Federation

In Table 2 we provide data for calculating indicators such as assets efficiency, productivity and production profitability.

Table 2: Database for calculations

Company	Fixed Assets (RUR million)	Personnel Quantity	Profit (RUR million)	Revenues (RUR million)	Asset Efficiency	Productivity, RUR million /person	Saling Profitabillity
JSC "Gazprom"	6722	431	921	3990	0,59	9,25	0,23
JSC "NK "Rosneft"	5666	228	593	5440	0,96	23,86	0,11
JSC "Surgutnefegaz"	1112	102	163	1361	1,22	13,36	0,12
JSC "AK "Transneft"	1706	86	233	774	0,45	9,00	0,30
JSC "Tatneft"	508	21	124	476	0,94	22,92	0,26
JSC "Novatekh"	292	7	128	358	1,23	52,98	0,36
JSC "Gazpromneft"	1294	58	213	1691	1,31	29,40	0,13
JSC "NK "Lukoil"	4583	110	401	8111	1,77	73,73	0,05
JSC "Mechel"	152	80	5	246	1,62	3,08	0,02
JSC "Severstal"	128	52	61	314	2,45	6,04	0,19
JSC "NLMK"	278	30	70	493	1,77	16,43	0,14
JSC "Metalloinvest "	76	60	75	238	3,15	3,97	0,32
" JSC GMK "Norilski Nikel"	394	71	182	456	1,16	6,42	0,40
" JSC Megafon"	225	13	82	315	1,40	24,22	0,26
JSC "Rostelekom"	328	153	40	299	0,91	1,96	0,13
CJSC Bank VTB 24	134	104	112	844	6,32	8,13	0,13
TOTAL	23598	1604	3403	25406	1,08	15,83	0,13

Using the method of multidimensional comparison, the compared figures are reduced to the common value, taking into account the dispersion (Table 3).

Table 3: Averaged efficiency indicators for the oil-gas branch

Company	Asset Efficiency	Productivity	Saling Profitability
Oil and Gas Branch			
JSC "Gazprom"	0,113	0,016	0,418
JSC "NK"Rosneft"	0,294	0,105	0,093
JSC "Surgutneftegaz"	0,478	0,033	0,112
JSC "AK "Transneft"	0,066	0,015	0,711
JSC "Tatneft"	0,281	0,097	0,531
JSC "Novatek"	0,480	0,516	1,000
JSC "Gazprom neft"	0,545	0,159	0,124
JSC "NK"Lukoil"	1,000	1,000	0,019
TOTAL	3,257	1,940	3,008
Coefficient value (indicator proportion)	0,40	0,24	0,37

Thus, the cost of fixed assets plays the main role in evaluations of the performance efficiency for the oil-gas branch. The general formula of the consolidated profit tax revenues distributed among the regional budgets looks like:

$$d = 0{,}24 \cdot \frac{K_{si} \cdot T_i}{\sum_{i=1}^{N} K_{Si} \cdot T_i} + 0{,}40 \cdot \frac{A_i}{\sum_{i=1}^{N} A_i} + 0{,}37 \cdot \frac{\Pi_i}{\sum_{i=1}^{N} \Pi_i}$$

The similar calculations for other branches are summarized in the following Table 4.

Table 4: Averaged efficiency indicators for other branches

Company	Asset Efficiency	Productivity	Saling Profitability
Metallurgy Branch			
JSC "Mechel"	0,27	0,04	0,00
JSC "Severstal"	0,61	0,14	0,24
JSC "NLMK"	0,32	1,00	0,13
JSC "Metalloinvest"	1,00	0,06	0,62
JSC "GMK "Norilski Nikel"	0,13	0,15	1,00
TOTAL	2,32	1,38	1,99
Coefficient value (indicator proportion)	0,41	0,24	0,35
Telecommunication Branch			
Coefficient value (indicator proportion)	0,37	0,31	0,32
Banking and other Branch			
Coefficient value (indicator proportion)	0,31	0,38	0,31

Thus, we can conclude that, the most important indicator for the oil-gas and metallurgy is an efficient use of the fixed asset. It can be explained by the specifics of branches which need high volume of fixed assets. In other spheres, all three indicators are practically equal. The chosen values of indicators seems to stimulate the realization of socio-ecologic equity principle, since the dominating revenue will be distributed into the Russian Federation subjects, where the gross wage of companies is allocated. It would compensate the ecological damage and withdraw of non-renewable natural resources.

We should take into account the degree of region development, in which the consolidated groups of taxpayers perform their activity to realize the social component of the offered technique.

The evaluation of the depression rate is very important for analysis of the socio-economic justice. There exists the technique of additional revenue distribution for poorly developed regions, which had been implemented by the Russian Federation Government in September 19, 1998, N 1112. The calculation is based on the budget endowment of the expenditures for socially important points by the income taking into account the financial assets not having the financial sources over a financial year, nor the mortgagee debts. The main criterion to define the depressive region, in this case, is the calculated overhang of expenditures over the budget revenues.

In 2013, was prepared the project of Federal Law N91010-3 (About the Principles of Federal Support of Harmful Russian Federation Territories), which defined more exactly the criteria of evaluation and formalization for such regions. A number of experts consider the multiple deceleration of production activity of key branches, which occurred for the recent 15 years, the unemployment exceeding the total over-Russia rate, and the reduced income compared to the living wage, as the criteria of depressive region.

We suggest to complete the technique defining the depression rate for regions, in which the CGT participants perform their activity, for the purposes of taxation. We also offer to define the depression rate of four levels – an extremely depressive region, an above-average one, a lower-average region, and a non-depressive region. This technique is to be enacted. The depression rate should affects the value of *Ks* coefficient (Table 5).

Table 5: The value of Ks coefficient

Rate of region's depressiion	K_{si} value- coefficient of social-significance
Extremely depressive region	4
Above-average depressive region	3
Under-average depressive region	2
Non-depressive region	1

Conclusion

Thus, ranking the region over the scale of depression state we could increase the revenues of CGT participants into the budget and raising in this way the socio-economic state and the population welfare. In our opinion, the offered method of the consolidated profit tax distribution seems to allow the company management and regional authorities to consolidate efforts increasing, in this way, the functional efficiency of companies expressed in creation of new working places, investment, as well as returns from the invested capital. These efforts would promote an increase of the socio-economic status of regions and enhancement of the society welfare.

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Sustainable Competitive Advantage in Small and Medium Enterprises through a Qualitative Lens: Insights on Intellectual Capital

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Abstract

Sustainable competitive advantage is important when companies keep searching new ways to offer value better than their competitors, especially when the competitive environment changes. Knowing which elements of competitive advantage to deploy would help companies set effective competitive strategies from the very beginning. Intellectual capital as intangible resources is important for a sustainable competitive advantage. The main concerns of this paper are to identify the elements of sustainable competitive advantage of small and medium enterprises and how intellectual capital influences sustainable competitive advantage. Focus group approach was used to explore the perception of sustainable competitive advantage and intellectual capital of SMEs. Content analysis was analysed using a mechanical method. The findings show that cost leadership and differentiation strategies are commonly used by SMEs to achieve sustainable competitive advantage. In addition, innovation is considered vital to create value for customers. The majority of the participants agreed that human capital is the most important element of intellectual capital regardless of industry. Innovation capital is regarded more important than relational capital and structural capital.

Keywords: Sustainable Competitive Advantage, Intellectual Capital, Small and Medium Enterprises

Introduction

In a turbulent and competitive environment, having competitive advantage will help a company stay profitable and ahead of its competitors. However, competitive advantage alone does not guarantee the company will remain relevant. Companies should strive for sustainable competitive advantage to remain in the business for the long term. This can be achieved by leveraging and capitalising their internal resources and capabilities. Intellectual capital is a key driver of innovation and competitive advantage in a knowledge based economy (Taie, 2014; Guthrie and Petty, 2000) where learning and knowledge are the key parameters of sustainable competitive advantage (Hana, 2013). Most studies on competitive advantage and intellectual capital employ the quantitative approach gather general ideas or perception of large population which means that the real and hidden answers were not recorded. Furthermore, SMEs have limitations compared to large organisations such as limited resources, lack of experts, and lack of impact especially in strategic approaches, role of owner/manager and lack of formalised policies and practices (Darcy et al., 2014). A qualitative study would help explore in depth of sustainable competitive advantage, intellectual capital, and innovative intelligence among entrepreneurs. This paper investigates the sustainable competitive advantage of SMEs and the link of intellectual capital and innovative intelligence of SMEs in Malaysia through the use of focus group.

Sustainable Competitive Advantage

Competition has forced SMEs to set their competitive advantage (Kocoglu et al., 2009; Hana, 2013). They have to identify new ways to satisfy their customers and provide value better than their competitors. When customer value firms offer more than that of their competitors, they attain competitive advantage (Choplin, 2002; Ipek, 2009; Ismail, 2014). Kotler (2000) defined competitive advantage (CA) as the capability of the organisation to carry out its activities in ways other cannot imitate. By having its CA, the firm builds its base for a strategy (Daou et al., 2013). A firm that differs from its competitors and remains outstanding to their consumers would gain sustainable CA (Darcy et al., 2014; Gonzalez-Loureiro and Dorrego, 2012; Khan, 2014). CA lies in the resources and capabilities that produce products or services (Papula and Volna, 2013).

Sources of CA depend on the internal resources or assets of the organisation either tangible or intangible. Tangible assets comprise financial, physical, and technological assets while intangible assets are human, innovation, creativity, and reputation (Papula and Volna, 2013). They emphasised that the source of CA is an intangible asset comprising human capital, structural capital, relational capital, and customer capital. In contrast, according to Alawneh et al. (2009), SMEs have unique characteristics that prevent them from developing a CA compared to large organisation. Nevertheless, Papula and Volna (2013) highlighted that SMEs can more easily differentiate from their competitors because they are fast to adapt to the changing environment compared to larger organisations.

Based on resource based theory, CA can be achieved if the organization's resources are valuable, rare, hard to imitate, and non-substitutable (Barney, 1991). Porter (1980) established three generic strategies which are cost leadership, differentiation, and focus. Cost leadership strategy focuses on cost reduction by selling cheaper than competitors. Differentiation strategy is where companies differentiate their products by features, product mix, services and product complexity. Focus strategy concentrates on a market niche where the company tries to maintain its market leadership. A company can achieve its CA either by operating at a low cost, or by charging a premium price, or by doing both (Porter and Stern, 2001). A survey in Europe found that differentiation strategy is more attractive and suitable to small companies as they are more innovative (3i European Enterprise Centre, 1994).

Barney (1991) emphasised that a firm possesses sustained CA when it adopts a strategy that is, "not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy." According to Coyne (1986), sustainable competitive advantage is when the company is able to maintain the durability of its attractive attribute gap for a certain period of time. As long as competitors cannot fill the gap, the company has a sustainable competitive advantage.

Intellectual Capital

Intellectual capital (IC) has gained popularity, especially in the knowledge based economy. IC studies have focused on large organisations. Studies of IC have extended to SMEs to help them perform better. Generally, IC is knowledge, information, skill, experience, intellectual property that can be put to use to create wealth (Stewart, 1997). Bontis (1998) further elaborated that IC is about the pursuit of the effective use of knowledge (the finished product) as opposed to information (the raw material). Cohen and Kaimenakis (2007) concluded that IC comprises valuable intangible resources containing knowledge that can be used by the firm to accomplish its goals. However, these intangible resources must be complimented with effective management to provide the firm with sustainable competitive advantage. Basically, IC can be located in its people (human capital), its structures (structural capital) and its relationship with stakeholders (relational capital) (Bontis, 1998; Marr, 2008; Ling, 2012;

Human capital (HC) comprises employees' skills, commitment, competence, attitude, capabilities, talents, creativity, and knowledge as an organisation's intangible assets that can be turned into CA (Cohen and Kaimenakis, 2007; Chen et al., 2004). HC can be described as, "knowledge, skills and experience employees take with them when they leave the company' (Djurica et al., 2014).

According to Mouritsen et al. (2002), HC contains creativity, innovativeness, initiative, adaptability, flexibility, motivation, persistence, expertise, skills, experience, devotion to organisation, teamwork training, flexibility, loyalty, ability to establish and develop relations with other employees in the company and its partners, readiness to accept changes, and ability to learn.

IC by itself is of little value without the leveraging effect of the firm's supporting structural capital resource. The structural capital (SC) comprises systems, structure, corporate culture, the organisational process efficiency, databases, information and production technology (Cohen and Kaimenakis, 2007). SC is the embodiment, empowerment, and supportive infrastructure of HC (Bontis, 1998). SC provides a platform for people to be creative (Stewart, 2000). It is owned by the firm. The management's dedication and efficiency is important for the firm's sustainable competitive advantage (van Zyl, 2005). SC comprises innovation capital, organisational capital, and process capital.

Relational capital (RC) embraces all the relations the firm has established with its stakeholder groups such as customers, suppliers, the community, and the government (Bontis, 1998; Allee, 2000). Specifically, RC fosters a knowledge-producing behaviour – providing a source of ideas for change and improvement by market information processing and marketing strategies (Keskin, 2006). However, this knowledge has little benefit if not appreciated and implemented to enhance firm innovation. According to Martin-de-Castro et al. (2004), IC, especially RC is very much into social networking where the relationship with external parties such as customers, suppliers, and the government play a crucial role in the organisation. However, Mc Elroy (2003) commented that IC itself does not emphasise the value of the relationships between people in firms and between firms and other firms.

More capital has been introduced to help companies achieve better performance and acquire sustainable competitive advantage. Innovation capital (Chang and Hsieh, 2011) and technological capital (Pedro et al., 2010) have helped companies capitalise their knowledge and turn it into innovation and intellectual property.

Sustainable Competitive Advantage and Intellectual Capital

IC components especially HC play a crucial role in establishing and maintenance of CA of a company (Djurica et al., 2014). Knowledge that resides in HC, SC, and RC is a source of a company's competencies and are thus vital in building sustainable CA (Lopez et al., 2006). The interactions of IC elements can result in sustained competitive advantage (Gannon et al., 2009). Researches have highlighted that IC is the basis for the generation of sustainable competitive advantages, and this relationship has been broadly studied in the case of medium and large-sized organisations (Ugalde-Blinda et al., 2014; Gannon et al., 2009; Daou et al., 2013; Akhtar et al., 2015).

Methodology

This is a qualitative and exploratory study. Focus group can be defined as, "a small group of people selected to discuss on a particular topic which is led by a facilitator" (Reinard, 1999 as cited by Kratt, 2003). According to Stokes (2000), focus groups provide the possibility of a shift in the power balance from the researcher to entrepreneurs. Furthermore, focus groups allow participants to focus on the researcher's emphasis (Threlfall, 1999). The focus session provides useful information on participants' perception, experience, and knowledge in their own terms and language (Stewart and Shamdasani, 1990). This paper intends to capture this primary information.

The participants for this study were selected through nonrandom methods. Purposive sampling and networking were used to identify the target group and invite volunteers to participate (Latham, 2007). Personal contact was used to identify the target group and the participants. Participants were informed of the date and venue of the session. Eleven entrepreneurs agreed to attend the session which is within the conventional group size of six to 12 (Millward, 2012; Cameron, 2005).

Two prime considerations for participants are convenience and comfort. We reserved a small business room that can accommodate 15 people. The participants were seated at a big round table so that they would be able to hear and listen to others clearly. Since all the participants are entrepreneurs, they were willing to participate in a two hour session. The success of the session will depend on preparation and good people skills (Greenbaum, 2000; Wilkinson, 2003 as cited by Millward, 2012). Three facilitators and two research assistants were deployed for this purpose.

Prior to the focus group session, a list of questions was prepared. The questions included: what is the sustainable competitive advantage to your firm, what elements of CA are for the firm, which of the elements are important for sustainable competitive advantage for your company and which of the IC elements is the most important for SMEs? During the session, an audio recorder was used to tape the discussion. The entire discussion was recorded directly on tape.

There is no single way to analyse the focus group data (Wilkinson, 2003). The form of analysis will depend fundamentally on whether it is the "content" or the "interaction process" that is the "data" of interest (Millward, 2012). The discussion of content analysis is used to analyse transcription data which can be done either through mechanical or an interpretative component (Krippendorf, 1980 as cited by Millward, 2012). For this study, a mechanical aspect involving physically organising and subdividing the data into categories is adopted.

Research Design

The participants for this study were selected using nonprobability sampling method. Nonprobability sampling is subjective whereby not all members of a population have an equal chance of being selected (Cooper and Schindler, 2003; Reinard, 1999 as cited by Kratt, 2003). The participants were selected on the basis of their accessibility or by the purposive personal judgement of the researcher. For this study, nonrandom tactics used included purposive sampling and networking. The researcher contacted an entrepreneur who is a member of few entrepreneurial associations. The researcher then requested her to extend the invitation to other entrepreneurs who met the requirements of this session. Eleven entrepreneurs agreed to participate in the focus group session.

Results of the Study

The results from the focus group discussion protocol are presented. It is organised under the sustainable competitive advantage, IC, and general reflections.

Sustainable Competitive Advantage

Sustainable competitive advantage (SCA) is important for SMEs to remain relevant in the industry. Depending on the industry, the focus on the elements of SCA would differ as stated by one participant that, *"between cost leadership and product differentiation, it depends on what stage the company is which is life-cycle…"*. Furthermore, the stages and level of maturity of SMEs are other factors that influence the focus of SCA. For example, in the service industry, cost leadership is more important than product differentiation as stated by one of the participants, *"For the service industry, I think cost leadership is more important because it is reflected in our financial budget…"* Another view of one of the entrepreneurs, "*I think depending on the industry, for example for manufacturer they have to focus on product to create CA, however, in service industry basically very competitive. You can imitate your competitor, your competitor could be your benchmark but at the end of the day, you must set your own CA."*

Most participants agreed that cost leadership and product differentiation strategies are equally important and have to be included in the company's CA strategy. However, depending on cost leadership and product differentiation strategies is not sufficient to sustain and maintain their position in the industry. In this study, innovation has been proposed as an element of SCA. In order to sustain the CA, *"…innovation is what we must do to sustain"*. *"I think when we are talking about SCA, we have to focus on innovation which means you to be innovative every day, every month together with*

your employees and so the company's CA can be sustained in the market". The company has to be innovative in creating value for customers and being different than its competitors, *"SCA for us is create value and do differently"*. As innovation is important in SCA, innovation performance should be included as an organisational performance measure. *"Cost-leadership is important to my company. Product differentiation is also what we must have, we should do what our competitors are not doing and do better than them where product and process innovation are important today"*. However, one of the entrepreneurs disagreed, as for her company product differentiation strategy and innovation performance are more important than cost leadership strategy.

Intellectual Capital

In a knowledge based economy, knowledge, which is an intangible resource, is more important than tangible resources like labour and capital. IC comprises HC, SC, and RC has evolved to help the organisation to perform and better acquire SCA. As IC goes in-depth, capitals like technological capital, innovation capital, and spiritual capital have been included. The participants agreed that all IC elements are important for achieving SCA. They are not familiar with the terms and did not realise the importance to identifying and capitalising on IC as stated by one of the entrepreneurs, "*I am glad that today I learned what IC is about. We don't have a proper plan but we have a goal. What we do we just set out our goals and do whatever necessary to achieve it"*. After the explanation of IC, the entrepreneurs were given questions on IC. Some thought that spiritual capital should be included, *"…spiritual capital is important in my company. Spiritual capital is about honesty among staff. Therefore, in order for them to be honest, it is good to have spiritual capital"*. However, another participant disagreed with including spiritual capital, *"I think spiritual capital can become very religious meaning I don't need money… I don't need anything"*.

Participants had mixed views on the importance of IC. One participant stated, *"For my training company, HC is a main priority, follows by RC, innovation capital, SC and technological capital"*. For another training company, *"For me HC is very important, then SC, RC, innovation capital and technological capital"*. SC is whatever is left behind after office hour which includes a database, system etc. *"…some of the structural elements are costly; there are many ways to cut costs. We know many ways to cut costs, for example, we fully utilised google.doc. Whatever transpired between customers and employees, all information will be shared among the employees through cloud application such as google.doc.…". We share information on google.doc between our staff and customers.*

Overall, all the participants agreed that HC is the most important element of IC as stated by a participant, *"even if you have the best SC but not HC, everything will be collapsed"*. For entrepreneurs from the IT industry, *"…in my industry, innovation can be easily duplicated. I have to innovate quickly ahead of my competitors. I have to understand my customers' needs and provide innovative solutions. Therefore, I would say HC is our main priority while innovation capital is next important element. The rest are equally important"*. For another entrepreneur, *"in SMEs we have to invest either in human or relationship. For me, RC is more important than HC"*.

Conclusions

Most entrepreneurs are unaware of how they achieve their CA. They have their own strategies which were rather general and on an ad-hoc basis. It is interesting to discover that entrepreneurs prefer to adapt strategies for cost leadership and product differentiation. The entrepreneurs agreed that in order for SMEs to acquire SCA, they must adopt cost leadership, product differentiation, and innovation performance. However, depending on industry and its life-cycle, SMEs did not necessarily adopt all three dimensions of the proposed SCA but select the one that gives them most advantage.

SMEs understand the importance of IC to achieve SCA. HC is considered the most important elements of IC. Although all capitals are considered important, innovation capital ranks second after HC. Interestingly, entrepreneurs did not rank SC as high as RC which is in contrast to Bontis et al. (2002) and Chen (2004). A qualitative research design proved fruitful in obtaining a description of

practices from entrepreneurs (Stokes, 2000). The focus group session helped the researcher acquire in-depth information which would not be obtained through a quantitative approach. Even though primary information was attained from the entrepreneurs, the findings are not generalisable (Threlfall, 1999). Innovation is important to businesses as highlighted by the entrepreneurs, especially in a creative and knowledge based economy.

This study showed that most of the entrepreneurs set their strategies based on their intuition without knowing the importance of CA. Their main target is to create value so that they are ahead of their competitors. It is important for entrepreneurs to develop their strategies to capitalise on their IC effectively. In addition, the term "IC" seems new to entrepreneurs. It would be beneficial if entrepreneurs knew the benefits of IC and how it would affect and influence their CA. This study was carried out on a small number of entrepreneurs from different industries and with different background. It would be interesting to select participants from a single industry to gathering information on their SCA and IC.

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Competitive Devaluation in the Context of Commercial Neo-Protectionism

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Abstract

In the current economic context, competitive devaluation has become a common practice both in emerging and developed economies. But, despite their more or less recent popularity, economic advantages of competitive devaluations are only apparent, involving huge long-term costs, inclusively for practicing states.

The main purpose of the present research is to reveal the economic and political consequences of currency devaluations and, also, to critically assess the neo-protectionist thesis that a country need to maintain a balanced trade with all their commercial partners. The paper contains also a brief analysis of competitive devaluation policies applied in China. The main finding of our research is that, although China is in the top of international statistics on export, the Chinese people hasn't got anything to gain in the long run, in terms of prosperity and economic wealth. In fact, exports' stimulation through currency devaluation is a hidden form of export subsidizing, i.e. subsidizing importing countries consumption of Chinese goods. Therefore, in the end, the country enforcing currency devaluation and, consequently, diminishing the purchasing power of the domestic currency, succeeds only to subsidize the consumption of foreign customers from the importing countries on account of lowering the income of its own citizens.

The proposed paper is mainly a theoretical research, aiming to refine existing arguments, to bring new arguments, and also to discuss relevant examples and cases for the announced topic.

Keywords: neo-protectionist, economic and political consequences of currency devaluation, China's neo-protectionism, competitive devaluation policy in China

Introduction

In the current economic context, the competitive devaluation of currencies has become common practice, the main goal being to encourage exports and reduce imports. This kind of policy is the hallmark of the neo-protectionism, current of thought that dominates currently international trade theory. According to neo-protectionist thesis a country need to maintain a balanced trade with all their commercial partners. This thesis stands in opposition with the free-trade basic idea, namely that trade deficits between countries occur naturally on the free market and they do not represent an undesirable situation *per se*.

The main purpose of the present research is to reveal the economic and political consequences of currency devaluations using both theoretical arguments and relevant cases and examples. In the first part of the paper, two of the main conceptions and theses, lying at the basis of the protectionism and neo-protectionism's rhetoric are criticized: (a) the holistic conception presupposed by the balance of payment calculation (i.e. the aggregation of individual transactions) and (b) the thesis according to which a country must have a balanced trade or must record trade surplus. The second part of the paper contains a theoretical analysis of economic and political consequences of competitive devaluation policies, while in the third part theoretical conclusions are illustrated, analyzing the case of neo-protectionism and the competitive devaluation policies applied in China.

Currency devaluation and Competitive Devaluation

Currency devaluation entails the application of certain monetary policies by the central bank of a country which lead, *ceteris paribus*, to a reduction in the value of domestic currency in relation to other foreign currencies. The objectives of such currency devaluation can be various: (a) to keep nominal wage rates at constant level or to increase them while decreasing actual wages; (b) to favor debtors to the detriment of creditors; (c) to encourage exports and reduce imports etc. (Mises 2008, 783-784). The competitive devaluation of a country's currency is meant to reduce the prices of the goods made by local companies in order to make them more attractive for foreigners. Moreover, in this manner, foreign merchandise becomes more expensive, and thus the objective of imports' reduction is thus achieved.

The first competitive devaluations occurred in the '30s, following the Great Depression and in the context of the abolition of the gold standard by Great Britain in 1931. Since 2000, in particular after the 2008 financial and economic crisis, competitive devaluations have become more frequent, under the form of the so-called "currency wars" (Lutsyshyn and Reznykova 2013, 58). The People's Republic of China is well-known for its policies of currency devaluation. Since the '80s, China has launched its mercantilist strategy to achieve commercial surplus, subsequently supported financially through successive currency devaluations. Lutsyshyn and Reznykova (2013, 52) have pointed out that, following such successive devaluations, the labor costs in China came to be even 80 times lower than in the USA, while in other developing countries such costs are 40 times lower than in the USA.

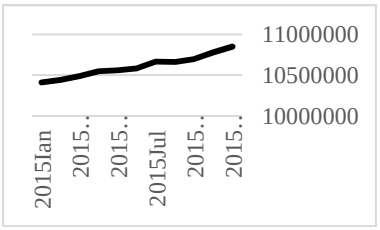

Fig 1. Evolution of monetary aggregates in the Euro area, 2015 (millions of euro)

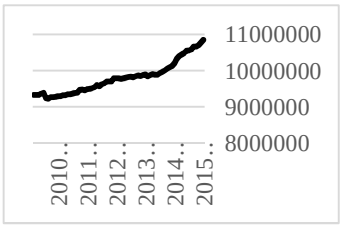

Fig 2. Evolution of monetary aggregates in the Euro area, 2010-2015 (millions of euro)

Source: Authors' representation based on European Central Bank data, 2015

In the 2000s, most countries in transition or emerging economies resorted to the competitive devaluation of currencies. After the 2008 economic crisis, developed countries also entered this game of competitive devaluations. For instance, in January 2015, the European Central Bank announced the implementation of a program to buy government bonds and private sector assets worth 60 billion euro per month until September 2016. Since February 2015 to November 2015, the monetary aggregates (M3) in the Euro area increased from 10438 billion euro to 10850 billion euro (Fig 1). In 2010, the monetary aggregates (M3) in the Euro area was around 9290 billion euro (Fig 2). The decision of the European Central Bank follows the same logic of competitive devaluations, given that such measure has been aimed at stimulating European economies, many of them in economic stagnation or recession.

Neo-Protectionism Rhetoric: A Critical Approach

The neo-protectionist thesis, reminiscent of mercantilist thinking, states that a country need to maintain a balanced trade with all their commercial partners, and even to target commercial surplus. Otherwise, protectionist "adjustments" might be required. If a country had a trade deficit the main policy prescriptions of mercantilists was the reduction of the consumption of imported goods. The implicit assumption was that the rights of individuals to consume, to buy, to sell, to invest etc. need to be limited according to the balanced trade schema.

This section focuses on criticizing two of the main conceptions and theses, lying at the basis of the protectionism and neo-protectionism's rhetoric: (1) the holistic conception presupposed by the balance of payment calculation (i.e. the aggregation of individual transactions) and (2) the thesis according to which a country must have a balanced trade or must record trade surplus.

(1) The first issue is the aggregation of individual transactions and the methods of recording them in the balance of payment. Starting from the principle of methodological individualism, we assume that the data collected in the balance of payment statistics is more significant if it has a meaning for economic agents of an economy. In fact, those who start and complete any activities related to imports or exports are the individuals and not such abstract entities like national economies. Assessing the relevance of the balance of payment statistics for each individual engaged in market exchange, brings lights to the deficiencies of the holistic approach of international trade and especially of the balance of payment.

The main issue is the aggregation of inhomogeneous data, which actually make sense only from the perspective of the individual who acts. For instance, in a trade balance of a country are aggregately recorded entries and exits of goods and services without considering that some individuals "get their income from selling tangible goods on the domestic market and spend their income, entirely or partially, as consumers of imported goods, or that some agents buy production factors from abroad and sell them in the country, abroad or make a combination of the two" (Spiridon, 63). Moreover, an aggregate recording of international transactions of goods and services does not consider that the period relevant to individuals not necessarily match the period taken into account in the calculation of national trade balance (the calendar year). Moreover, at the aggregate level, it does not matter if the parties involved in the exchange make profit or not, but only the contribution to the increase or decrease of the trade deficit is considered. However, without taking into account whether analyzed international transactions are mutually beneficial for the parties involved, the statement according to which a country's trade balance is unfavorable because its imports exceeds exports is either irrelevant or misleading.

(2) The second issue is the idea that a country's exports should exceed imports, on the basis that a country's trade balance is "unfavorable" when a deficit of the current account is recorded. Firstly, there are a number of problems and ambiguities related to the methodology typically employed to calculate the current account deficits or surpluses[1]. For example, in the calculation of the current account the sale of financial assets are not included, these being added separately in the capital account. If a current account deficit is recorded, the trade balance is considered "unfavorable", according to the protectionist rhetoric. Actually, the current account deficit is counterbalanced by a surplus in the capital account (Irwin, 2009, 138). Thus, it is unwarrantedly assumed that a current account deficit is undesirable, without taking into account the surplus in the capital account. After all, a country's current account deficit reflects an increased demand for foreign goods and services, compared to a decreased demand for domestic goods and services; while the surplus in the capital account is triggered by a higher demand of foreign investors for domestic financial assets, compared to a lower demand of domestic investors for foreign financial assets. There is no necessary connection between a balanced trade and economic prosperity of a nation. On the contrary, there are multiple counterexamples showing that during periods with high trade surplus for some countries, their economic situation was terrible (e.g. the USA during the Great Depression). Another example is the case of autarchic or isolated economies, obviously without any trade deficit, but whose citizens cannot be considered as enjoying economic prosperity. This is the reason why economists often warn that an "intense focus on sets of data – the aggregates themselves – might make us lose sight of specific, often heterogeneous information that individuals make use of to coordinate their daily plans and projects." (Heyne *et al.* 2011, 368).

Secondly, let's return to premises and analyze, from the perspective of methodological individualism, the thesis according to which current account deficit is undesirable. As one individual cannot produce everything by himself, a country cannot specialize in all types of economic activities and, therefore trade exchanges are necessary both at individual and country level. Purchasing cheaper economic goods from abroad cannot be a disadvantage; notwithstanding this is exactly the neo-protectionist

interpretation of international trade statistics. The condition of a person forced not to make exchanges with the "outside world" or to do so only under certain restrictions, could not be considered "favorable". A bilateral deficit, such as the deficit of country A in relation to country B, only means that the citizens from country A (given an increased purchasing power of their domestic currency, for instance) bought in one year more goods from the citizens from country B. Those in country A own the desired goods and those in country B own the currency; the payments were made or will be made. There is nothing to be balanced, the attempts to achieve a balanced trade through protectionist measures reflect a poor understanding of the international trade problem. Import restrictions are usually enforced by trade tariffs, which have the well-known unfavorable consequences, without even leading to a balanced trade. Trade tariffs affect the profitability of certain imports, which leads to a decrease of imported goods and services, but there are no beneficial effects regarding exports – "only in books" exports remain not affected. Importers owning the foreign currency want to spend it. "Even if the foreign currency is spent on other imports or on domestic goods, the result will be the same: imports at similar levels or decreased exports" (Spiridon, 118). In other words, *ceteris paribus*, a decrease in imports implicitly leads to a decrease of future exports. Also, an increase in exports implicitly leads to an increase of future imports (Hazlitt 2008, 69). In fact, imports enable exports and their limitation cuts the possibility of future exports instantly. The foreign currency received by the exporting country will be used by exporters or by interested parties from the exporter's country (or by individuals from other countries where the exporter spent the currency) to purchase goods and services from the importing country; otherwise the exporting country will not thrive economically. Therefore, the idea according to which individual or country prosperity depends on a balanced trade or on trade surplus is not economically justified.

Thirdly, there other important things when considering the adequacy of reducing the trade deficit, respectively: (a) the fact that exchanges do not occur between two nations, but are multilateral and also (b) the case when trading countries are of different size in terms of population: even if both counties exchange the same amounts of products per capita there will be a trade deficit for the less populated country. Thus, both countries benefit from voluntary trade even so there is a trade deficit (Mcgee 1996).

Therefore, we can conclude that trade deficits between countries occur naturally on the free market and they do not represent an undesirable situation *per se*. However, there are cases, especially since competitive devaluations became a current practice, when trade deficits occurs precisely because of different types of governments interventions, such as competitive devaluations and exchange rate manipulation. In such cases, protectionist measures only make things worse, the only acceptable solution being to abandon policies of competitive devaluation, which caused persistent trade deficits between countries.

Economic and Political Consequences of Currency Devaluation

The Illusory Economic Advantages of Currency Devaluation

What happens if states interfere economically to stimulate exports by currency devaluation? Are they economically favored in any way?

Ludwig von Mises (2008, 785) emphasize that the much talked about advantages which currency devaluation secures in tourism and external trade fully arise from the fact that the adjustment of prices and wages to the new state of affairs created by devaluation requires time. During this period of adjustment, exports are encouraged and imports discouraged, but the citizens from the country enforcing currency devaluation receive less for the goods sold abroad and pay more for goods exported by countries that do not devalue their currency. Therefore, although this effect seems like a benefit to those for whom the trade balance is the ultimate standard of domestic welfare, the citizens in the countries enforcing devaluation actually lose. For instance, if UK enforce currency devaluation, the British citizens has to export more British goods to buy the same quantity of tea they received prior to devaluation in exchange of a smaller quantity of exported goods (Mises 2008, 785).

In the context of currency devaluation, domestic goods become cheaper for foreign consumers. They can buy with the same currency unit more of the currency of the country that enforced devaluation. More exactly, the population has no gain from the devaluation of domestic currency and the taxpayers finance the consumption of citizens from importing countries that are the only ones to gain from such policy. Apparently, exporters from countries practicing currency devaluation are also privileged. Part of exporters may have, indeed, higher temporary profits from the increased demand for the goods and services they offer, but these holds only as long as adjustments of prices and wages are not yet completed on the domestic market. Once these adjustments are completed, the exporters' profits decrease or disappear. On the long-term, exporters might be at a loss or even go bankrupt if they do not anticipate the adjustments occurring on the market in terms of relative prices and wages following currency devaluation. Not lastly, we also have to consider that the exporters from a country enforcing competitive currency devaluation policies, can be adversely affected from a different perspective: for example, if exporters use imported elements to produce the final product they export. Moreover, the decrease in the purchasing power of the domestic currency will eventually affect the income of all agents on the domestic market, including exporters' and if currency devaluations occur through credit expansion, the economic cycle might appear with all its unpleasant consequences. However, competitive devaluation (to stimulate exports and decrease imports), irrespective of its occurrence, is a form of subsidizing exports, incurred by the citizens of the country where it is enforced.

The Increase of Calculational Chaos and the Ratchet Effect

Devaluations can be enforced by different methods. It is not our purpose to present a full taxonomy of the methods and techniques used by central banks to carry out currency devaluations, but we will focus on several examples, detailing their economic and political effects. Thus, two of the central banks' most well-known methods to devaluate currency are: (a) to increase the supply of domestic currency (monetary injection) purchasing foreign currency at the same time; (b) operations on the free market: the central bank buys government bonds and other types of assets, which could lead to the phenomenon of credit expansion.

Both methods of currency devaluation have adverse economic, social and political effects, but the inflation arising from credit expansion can include, among other different consequences, the increase of calculational chaos and economic cycle.

The terrible effects of the inflation generated by the artificial increase of the monetary aggregate are detailed, for example, by Ludwig von Mises (1998, 35-39) and G. Hülsmann (2008, 175-178): (1) debtor advantages and creditor disadvantages; (2) the purchasing power of the monetary unit decreases below the one which would have prevailed on a free market; (3) significant profits for the first beneficiaries of the new currency established on the market to the detriment of other agents (*i.e.* the Cantillon effect). For example, if the money newly entered on the market goes to arms manufacturers, the entrepreneurs and workers from these industries will be the first to make gain following inflation. All the other entrepreneurs and their employees will face increases in the prices of goods and services on the market and will incur losses until the prices of their own products will increase (Mises 1998, 36). The policy to stimulate exports and discourage imports through the devaluation of the domestic currency relies on this type of effect. Mises (1998, 36) emphasized that exporters benefit on the short-term, while the prices and wages adjust on the market. When the prices of all other goods and services rise as well, the exporters' disadvantages disappear.

If, for instance, currency devaluation is made through the mechanism of credit expansion, the list of probable consequences could include the boom bust economic cycle and also the increase of calculational chaos. Ludwig von Mises (1998, 39) has analyzed the causes of malinvestments during economic booms and showed that they are closely related to the decrease of bank loans' interest rate in the context of credit expansion. The decrease of the bank loans' interest rate does not change, however, how individuals evaluate on the market present goods compared to future goods. When the interest rate reflects again the time preference of individuals, readjustments will be necessary and

they could lead to losses and even bankruptcy for the entrepreneurs who took wrong investment decisions. Credit expansion does not generate more wealth and more goods, but induce errors in the calculations of entrepreneurs who evaluate erroneously the profitability of certain investments. In the context of a lower interest rate on loans, entrepreneurs bid for production factors and labor, overestimating the profitability of their investments. When, sooner or later, the interest rate returns to the point where it reflects the actual difference (on the market) between present goods and future goods, the adjustment process occurs and its effects are described by the theory of the economic cycle. If credit expansion bring profitable loans for exporters, the speculative bubble might occur in the production for export, entailing malinvestments and, thus, losses and bankruptcies for exporters and all related fields.

In fact, credit expansion phenomenon generates perverse incentives that encourage recklessness in entrepreneurial and managerial decisions. Entrepreneurs are allowed to access artificially cheaper loans to finance their companies. This will lead often to glaring malinvestments[2]. In such a business environment, the number of authentic entrepreneurs narrows down. Moreover, consumption is stimulated to the detriment of saving, because individuals will rather avoid to keep their savings in an inflationary currency. Abnormal indebtedness of companies and private individuals is also encouraged. Furthermore, in an inflationary economy, essential principles such as responsible behavior and moral conducts of persons are weakened (Hülsmann 2008, 175-188).

Inflation may stimulate increased intervention of central governments in various domains and Ratchet effect might occur (Higgs 1989, 57-77): once government's intervention expanded, usually in the context of a crisis (real or apparent), subsequently it does not shrink back to the level that existed before. Thus, through increased inflation large government projects in various domains might be financed, but of doubtful efficiency and without explicit public agreement, because citizens usually does not realizes the connection between the decrease of the purchasing power of money and the increase of government spending. Besides, inflation enables governments to finance wars or to dawdle existing wars. But, as R. Higgs (1989, 57-77) explains, once such government projects or activities started, the process might prove quasi-irreversible. Most of the time, new government projects entail the creation of new bureaucratic structures and new categories of government expenses, which get perpetuated over time. The expansion of the state intervention usually occur in the context of actual or apparent economic crises. Likewise, currency devaluation occurs in the contexts of recessions or economic crises and usually it is also a quasi-irreversible policy in current political environment. It is contended that such measures stimulate economic growth, and that there is a direct relation between balanced trade rhetoric and economic growth. But as we emphasized in this article, currency devaluation entails only disadvantages on the long term.

Neo-Protectionism and the Competitive Devaluation Policy in China

The yuan devaluation is part of the neo-protectionist model promoted by Chinese officials in the early '90s meant to increase exports and to bring about rapid growth and high rates of employment (Schmid, 2014). Our thesis is that, although through such policies China is on the top of international statistics on export, the Chinese people hasn't got anything to gain in the long run, in terms of prosperity and economic wealth. In fact, exports' stimulation through currency devaluation is a hidden form of export subsidizing, i.e. subsidizing importing countries consumption of Chinese goods.

The People's Bank of China – PBOC controlled the yuan/US dollar exchange rate buying US dollars from the Chinese exporters at a fixed rate and issuing yuan in exchange (Rajan 2010, 219). Empirical data denote a constant increase in China's foreign exchange reserves between 2000 and 2014, from 156100 million US dollars in January 2000 to almost 4000 billion US dollars in 2014. In 2015, however, China's foreign exchange reserves dropped to 33304 billion US dollars, i.e. around the level recorded in 2012 (Fig 3). To fight inflationist pressures, following yuan issuing, PBOC sold its own bonds to sterilize the issued liquidities (Rajan 2010, 219). Even so, China's monetary aggregate M3 increased constantly between 2008 and 2014 (Fig 4).

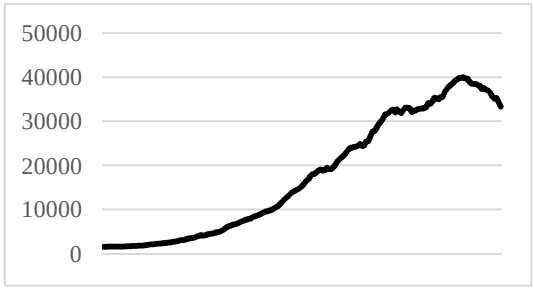

Fig 3. Foreign exchange reserves of China 2000-2015 (Hundreds of thousands of dollars)

Source: Authors' representation based on People's Bank of China data, 2015

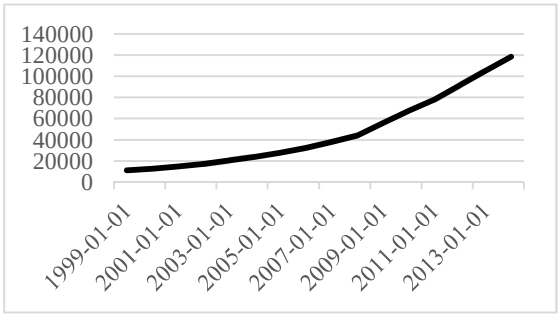

Fig 4. Evolution of monetary aggregate M3 in China, 1999-2014(Billions of yuan)
Source: Authors' representation based on Federal Reserve Bank of St. Louis data, 2015

The evolution of the US dollar/yuan exchange rate indicate a strong devaluation and/or depreciation of the yuan in 1994 compared to the US dollar, which corresponds to a significant decrease of the Yuan's real effective exchange rate. Until 2004-2005, the Yuan/US dollar exchange rate remained at a constant level (around 8.3 yuan/US dollar). Since 2005 until 2015, the yuan gradually rose compared to the US dollar (Fig 5).

The evolution of the euro/yuan exchange rate also indicates a devaluation or depreciation of the Yuan compared to Euro. In 2001, 1 euro was exchanged for approximately 7.5 Yuan, while in 2007 the exchange rate was 10.5 Yuan (Fig 6). After the 2008 financial and economic crisis, the yuan rose compared to both euro and the US dollar. The real effective exchange rate of yuan, based on consumer price index, point an upward trend, particularly after 1994. Since 2008, the real effective exchange rate of yuan recorded a higher level compared to real effective exchange rates of both euro and dollar (Fig 7 and Fig 8).

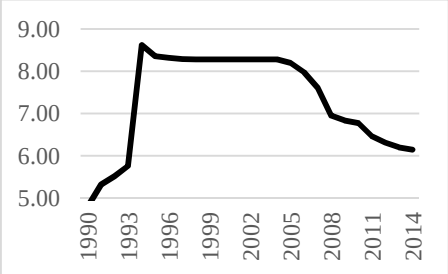

Fig 5. Evolution of the US dollar/yuan exchange rate 1990-2014 (yearly averages)
Source: Authors' representation based on data,

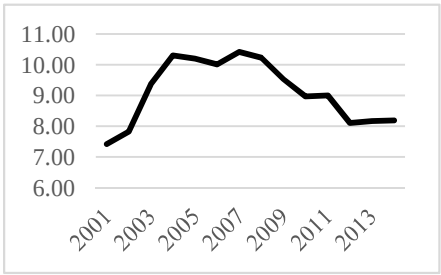

Fig 6. Evolution of the euro/yuan exchange rate 2001-2014 (yearly averages)
Source: Authors' representation based on

IMF 2015 *Eurostat data, 2015*

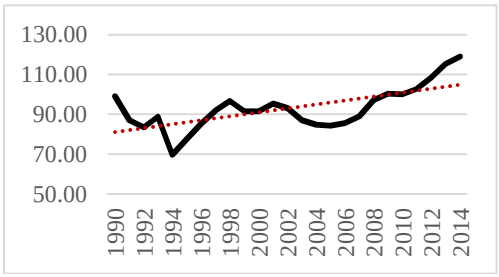

Fig 7. Real exchange rate of yuan* 1990-2014
Source: Authors' representation based on IMF data, 2015

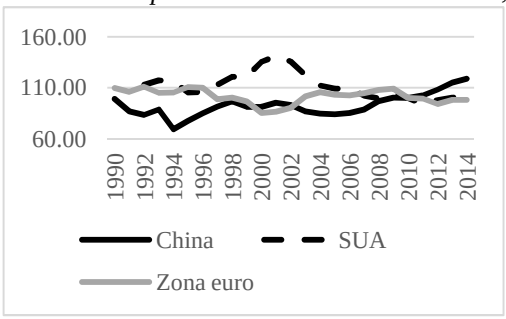

Fig 8. Real effective exchange rate* based on consumer price index, for yuan, US dollar, ecu/euro 1990-2014
*Based on consumer price index
Source: Authors' representation based on IMF data, 2015

For the first time after the 2008 crisis, a clear and consistent upward trend of the US dollar compared to the yuan was noticed in the second half of 2015. Moreover, in 2015, an appreciation of euro compared to the yuan was noticed, although in terms of annual averages, the yuan rose compared to euro in 2015 compared to 2014. The yuan's real effective exchange rate dropped, however, in 2015.

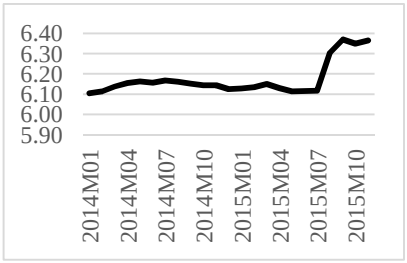

Fig 9. Evolution of the US dollar/Yuan exchange rate 2014-2015 (monthly means)
Source: Authors' representation based on IMF data, 2015

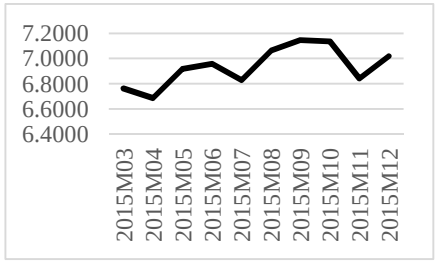

Fig 10. Evolution of the Euro/Yuan exchange rate 2015 (monthly means)
Source: Authors' representation based on Eurostat data, 2015

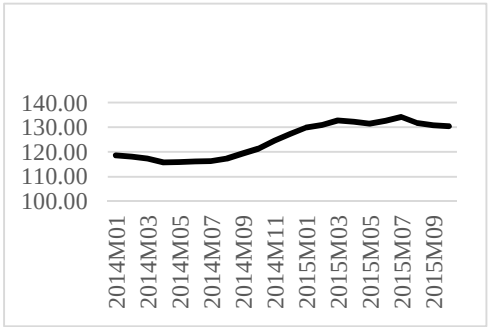

Fig 11. The real effective exchange rate of yuan* 2014-2015
* Based on consumer price index
Source: Authors' representation based on IMF data, 2015

China's exports to the EU have risen almost six times in the last 15 years and those to the USA almost five times (Fig 12 and Fig 13). Moreover, since 2008, China became the main investor in U.S. Treasuries, outperforming Japan, and kept its position in the following years (2009-2015). Thus, in October 2015 China's holding of U.S. Treasures reached 1254.8 billion US dollar.

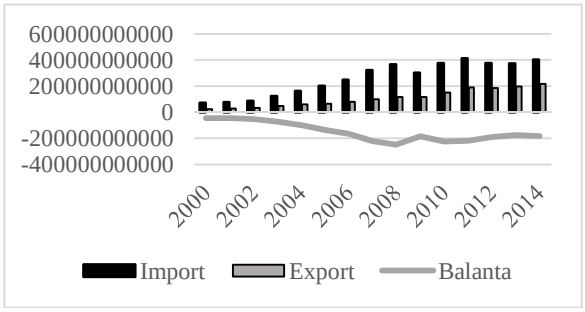

Fig 12. EU-China trade balance (US dollar) 2000-2014
Source: Authors' representation based on UN Comtrade data, 2015

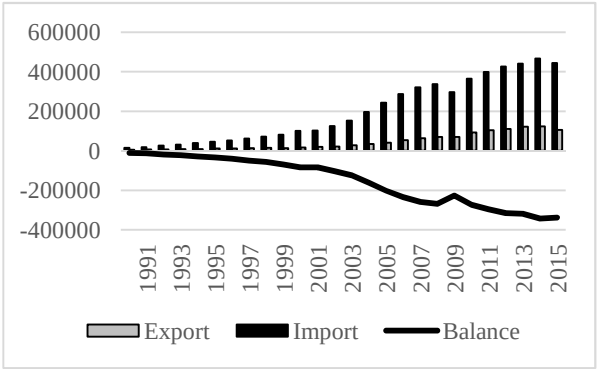

Fig 13. US-China trade balance (millions of US dollars)
Source: Authors' representation based on US Census Bureau data, 2015

Not all economists believe that the Yuan has been devaluated by the People's Bank of China monetary policies. Some authors have a different construal on this type of data and evolutions. Thus, Jiawen Yang and Isabelle state:

"Since price index, including the Big Mac index, contains components which are not negotiable, and the index of wages in China is significantly lower than that in the United States, the RMB's

assessment based on the measurement of gross purchasing power parity is always higher than the rate determined on the market of negotiable products. The US trade balance deficits with China have been affected by many other factors (such as low labor costs of China, market structure and the economic sanctions of the United States) rather than the exchange rate. China's surpluses both in trade and current bank accounts are relatively small and do not indicate that the currency is undervalued. The rapid accumulation of international bank reserves by China was basically built by increases in capital flows, which are the result of key factors that are not determined by the market (such as controlling the flow of capital and preferential treatment of foreign investment (Bajeux-Besnainou 2004, 19).

Other economists consider as revealing the Chinese state's measures enforced in order to lower inflationary pressure on the yuan (Lardy 2005)[3]. Most studies (Jo *et. al* 2010) (Morrison *et al.*, 2013) (Lipman 2011), inclusively those of the IMF, reached similar conclusions: in order to gain advantages on international markets by increasing exports, the Chinese currency was substantially devaluated compared to the US dollar and also relatively to other currencies. Although in recent years, the yuan appreciated significantly compared to the US dollar, yuan is still considered significantly undervalued.

As far as we are concerned, the problem as detailed above, is a false one. The main benefits are not gained by those countries that devalue most their domestic currencies. The forced cheapening of domestic goods cannot be to the benefit of the economy nor to the Chinese people, since such policies cannot really increase competitiveness and wealth. Let's assume that a Chinese producer made a good X, which is sold on the market for 8 yuan before devaluation. Let's assume further that the US dollar/yuan real exchange rate is 1 to 4. This means that the American importer has to pay 2 US dollar (1 US dollar buys 4 yuan) for the good X. Let's suppose that, after the devaluation, the US dollar/yuan exchange rate is 1 to 8. Thus, the American importer will pay only 1 US dollar for the good X. The obvious advantage belongs to the American importer, who bought the good for half of the initial price. The losing party is the Chinese producer, even if he owns after transactions 8 yuan; each yuan is worth half than before the devaluation. (Finegold 2010). From this perspective, importing countries have not good reasons to stop, through protectionist measures, the "gifts" offered by exporting countries. Millions of American or European consumers enjoy Chinese goods at lower prices. The companies from the importing countries are also favored because they can obtain production factors at lower costs and thus gain advantages on the international markets, derived from expense discounts obtained as such.

Whatever the reasons behind this measure, currency devaluation cannot be a winning strategy to increase competitiveness and wealth. Even if the purpose is to fix the problems arising from trade deficits, or to increase foreign exchange reserves, or to cut off debts – this policy leads only to illusory benefits and ends with real economic losses.

Concluding Observations

The main goal of the current paper was to determine the economic costs of the neo-protectionist strategy of currency competitive devaluations as a government tool to stimulate exports and reduce imports. We have pointed out the elements making up the illusion of creating a solid competitiveness through currency devaluations as form of the new protectionism. Moreover, we have tried to prove that, in fact, this strategy, as subtle form of taxation, triggers significant loss, economic instability and illusive earnings through: reducing the purchase power of the citizens, subsidizing (in fact) foreign citizens, weakening productive incentives and distorting economic calculations and those arising from those which supplement this measure such as the inflation policy. We can now draw the final theoretical implications of the discussion above.

Currency devaluation is a more subtle form of taxation and redistribution of wealth to several beneficiaries and, also, a source of political advantage, i.e. bureaucratic reporting of trade surplus. But, in fact, encouraging exports through currency devaluation is, for any responsible economist – despite expectations, regulations or claimed desiderata – a form of protectionism which impoverishes the economy of the country that enforced it, rather than protects it. The allocation of such privileges

implies inflation through the expansion of money supply (we used as an illustration the well-known case of yuan devaluation) leading to the terrible effects detailed above. In the end, the country enforcing currency devaluation and, consequently, diminishing the purchasing power of the domestic currency, succeeds only to subsidize the consumption of foreign customers from the importing countries on account of lowering the income of its own citizens.

Endnotes

[1] However, greater clarity is not probably welcomed at political level, an increased degree of confusion and complexity being considered more useful. If we take into account the suggestion of Paul Heyne (1983, 711) that trade deficits are, in fact, powerful political weapons it becomes clear why lack of clarity in this respect, arising from aggregated data might represent politically an advantage.

[1] A prominent example is the case of the famous "ghost" cities from China. Each year over 20 such metropolises with huge malls are built, but there are no willing people to inhabit them (McMahon, 2013). An interesting statement on the topic belongs to the former finance minister of El Salvador and collaborator of the World Bank, Manuel Hinds, who claims that the best example of resource waste with money printing are "the ghost cities built in China, without enormous amounts of money, created by the People's Republic of China in the wake of the 2008 crisis". He also says that the "People's Bank did that, in the spirit of the Nobel Prize laureate, Paul Krugman, who promotes currency creations as the cure of all aliments" (Hinds 2013).

[1] For further discussions on the topics above, see Lardy, R, Nicholas, *China: The Great New Economic Challenge?* in C. Fred Bergsten, ed., *The United States and the World Economy: Foreign Economic Policy for the Next Decade* Washington, DC: Institute for International Economics, 2005, p.134-136.

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Economic and Physical Food Accessibility in the Czech Republic

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Abstract

The paper focuses on the analysis of economic and physical accessibility and availability of food in the Czech Republic. Food security includes three main pillars - availability, access, and utilisation. There is precisely examined the area of access to food, in terms of affordability and in terms of the possibility of physical access to food, because in the Czech Republic the physical accessibility to food is ensured through a single network of retail stores very well, economical access - affordability, however, is lower for many population groups.

Keywords: Food Security, Access, Affordability, Purchasing Power

Introduction

Food security is defined as a condition where the physical and economic access to sufficient quantities of healthy and nutritionally balanced food is provided that meet the nutritional needs and preferences of the individual for his active and healthy life. (FAO, 1996) Concept of food security is defined by three main pillars – availability, access and utilization.

Possibility of access to food for individuals is crucial in the context of their basic needs. In terms of physical access to food it is possible to analyze the density of retail network in the Czech Republic, in terms of affordability of food there is the expenditure of households on food. In the Czech Republic an average household issues for food and beverages (including tobacco) on average 20.7% of their income, households of pensioners, however, up to 27%. In the following text there is an analysis of the evolution of prices of main food commodities over time and an analysis of physical availability of food in the retail network, focusing on the stores that are in the Czech Republic economically significant market power. In this paper attention is not paid to distribution or offer of water respectively. The issue of water management in the context of food security, i.e. the possibility of access to and availability of water for the residents, addresses the entire range of studies, e.g. Strohmandl et al., 2015. Attention is within the professional research in the Czech Republic also paid to other sub-pillars of food security according to access to food and transport of foodstuffs (e.g. Musil et al., 2014 and 2015, Strohmandl et al., 2015).

Research Design and Findings

A very important part of ensuring food security is to ensure the accessibility of food to citizens of the state - to consumers. It is one of the pillars of food security, as shown in Figure 1.

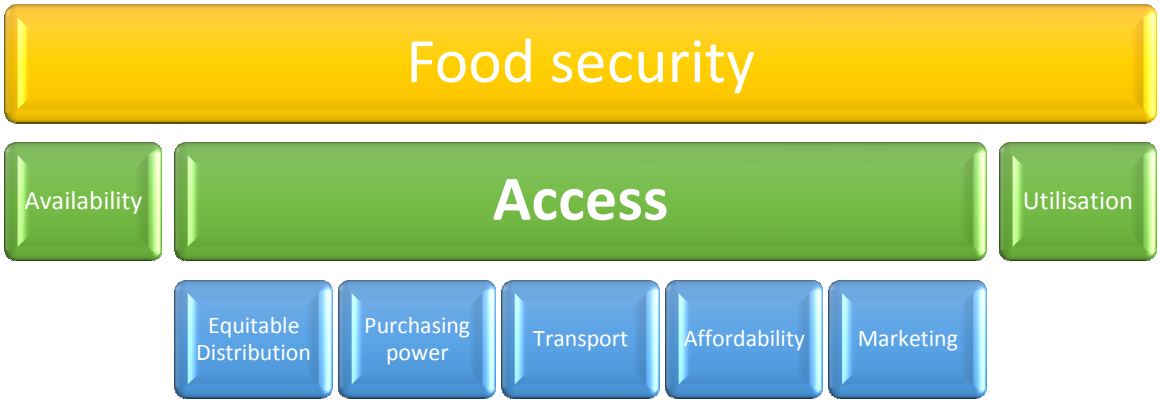

Fig. 1: Three Pillars of Food Security and Sub – Pillars of Food Access (source: India´s Water and Food Security, adapt by authors)

According to statistical data an average Czech household issues for food and beverages (including tobacco) on average 20.7% of their income, a household of pensioners but more than 26% despite the drop in food consumption. The data of food and non-alcoholic beverages expenditure for the third quarter of 2015 show that Czech household expenditures on the respective commodities are 18-24% of their income. Employed people without children issue the least - 18, 1% of their income, households with children then 18.7%. In terms of the above expenses are the most vulnerable groups of the population unemployed, pensioners and families where food expenditure shares of total spending 22-24%. The two population groups can be considered as groups that have a reduced economic access to safe food. (CSO CR, 2015) In recent years Czech consumers have changed their diet – they eat less and buy other types of food - the reason is the increasing price. In the long term the consumption of e.g. bread decreases, on the other hand the consumption of pasta, rice and potatoes in particular increases. According to developments in prices the consumption of fruits and vegetables is fluctuating (Málek et al., 2014, Lukášková et al., 2014).

Consumer food prices increased the most between 2011 and 2012, mainly due to the increase in VAT by 4%. In the given period prices of food and non-alcoholic beverages increased, compared to the EU average of more than 2.5 times. At present, prices of some food commodities are falling moderately (pork, milk, yogurt, butter), others grow (ordinary bread, vegetables and fruit) (CSO, 2016).

Table 1: Annual Change in Consumption of Chosen Foodstuff Commodities (CSO, 2013)

Commodity	Commodity Consumption in 2012	Annual Change in Consumption
Bread	41,3 Kg	- 1,1 Kg (↓)
Pasta	7,1 Kg	+ 0,4 Kg (↑)
Beef	8,1 Kg	- 1,0 Kg (↓)
Poultry	25,2 Kg	+ 0,7 Kg (↑)
Milk	57,3 l	+ 1,3 l (↑)
Eggs	245 pcs	- 9 pcs (↓)
Non-Alcoholic Beverages	278,0 l	- 9,0 l (↓)
Alcoholic Beverages	175,2 l	+ 6,4 l (↑)
Of which: Beer	148,6 l	+ 0,6 l (↑)
Wine	19,8 l	+ 0,4 l (↑)
Spirits	6,7 l	- 0,2 l (↓)

Another part of the research was to assess the status of the second sub-pillar of food security and physical access to food. There was conducted the survey of grid density of individual retail chains –

Albert (supermarket, hypermarket), Billa, Enapo, Globus, Lidl, Kaufland, Penny, Tesco. Results are shown in the following figures, where cartographic visualization was used (Fig. 2 – 4). Methods used for the spatial visualization were adapted from the thematic cartography (Slocum, 2010). We used ArcGIS for further analysis according to principles of regional development described e.g. in Trojan (2012).

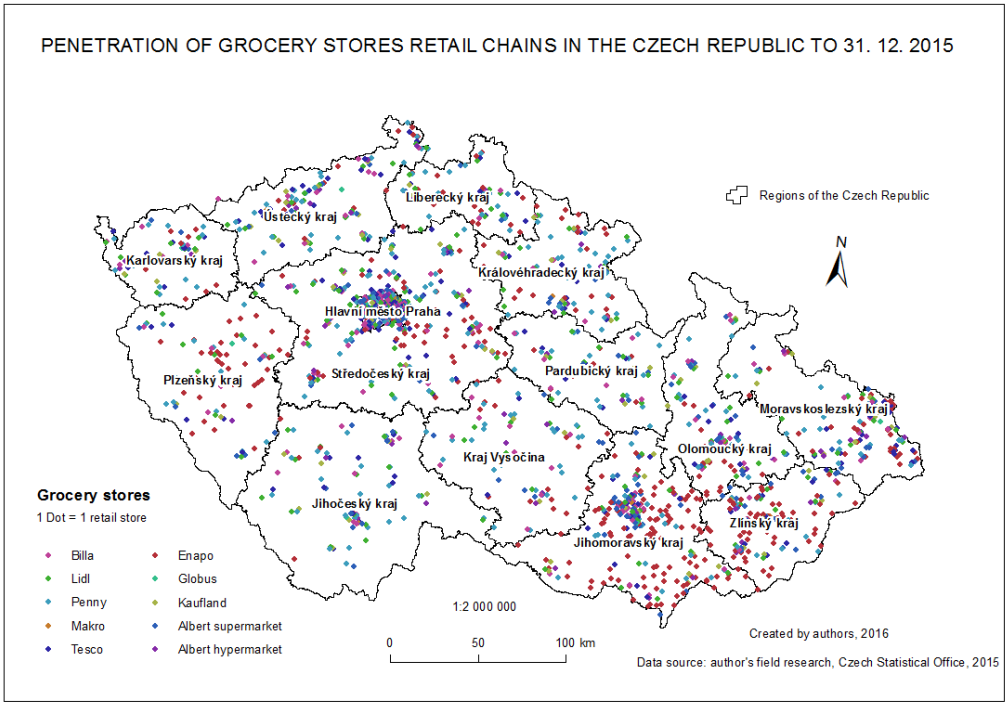

Fig. 2: Penetration of Grocery Stores Retail Chains in the Czech Republic to 31. 12. 2015

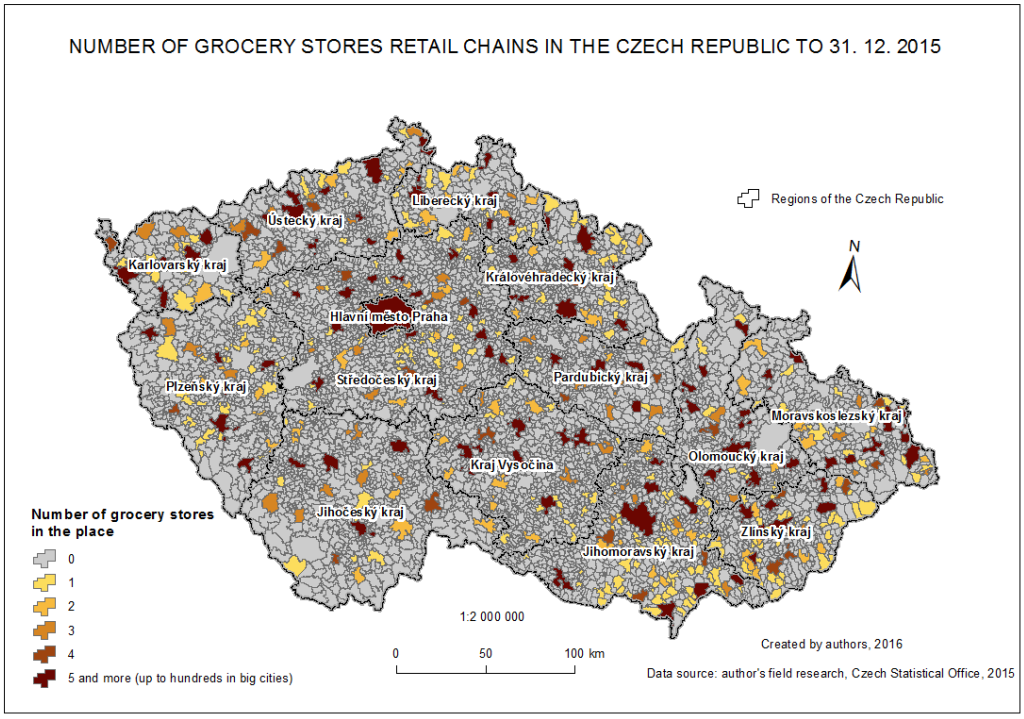

Fig. 3: Number of Grocery Stores Retail Chains in the Czech Republic to 31. 12. 2015

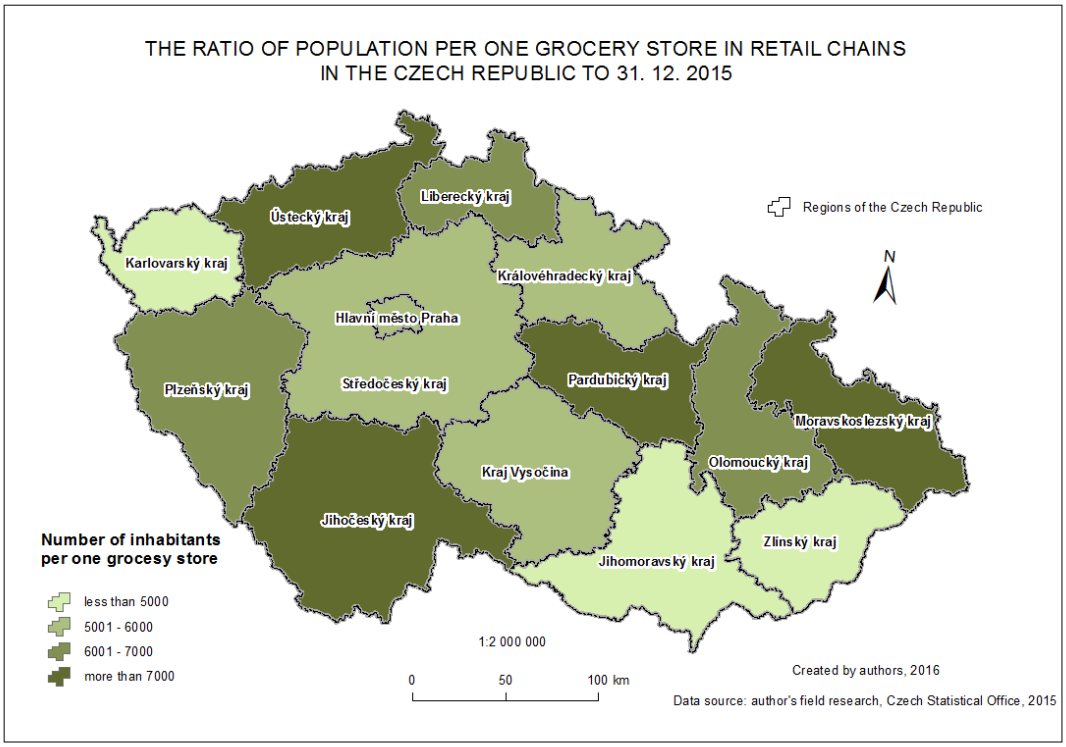

Fig. 4: The Ration of Population per one Grocery Store in Retail Chains in the Czech Republic to 31. 12. 2015

Conclusion

In the paper there was evaluated economic and physical access to food for the population in the Czech Republic. Based on the research results it can be stated that the physical availability of food is not a problem, mainly because of a dense network of retail chains in the country. In recent years, fluctuating value of economic access to food, which can be assessed both in terms of the amount of food prices and in terms of the volume of funds released for various household types of total expenditure on food consumption and non-alcoholic beverages. Significantly worse situation in terms of economic access to food occurred in the years 2011 and 2012, in particular because of the combination of rising food prices (and increased VAT on food) and also because of lower income situation of households due to the deceleration of economic recession. At present, mainly because of the increasing performance of the Czech economy which is accompanied by a decrease in unemployment and low inflation, the economic household access to food increases. That is documented in the above statistics.

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Transport Service Territories and Services for Residents

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Abstract

The article deals with logistics service territory. Presents logistical needs service territory. Technology presents logistic service territory. Discusses the choice of transport mode, and optimization service. It represents the state of development of logistics services in the territory of the Czech Republic.

Keywords: area, logistics, logistics center, service, territory, transport

1. Introduction

The transport sector is one of the important areas of the national economy, which affects virtually all areas of public and private life and business. It is a financially very demanding sector, on the other hand, it is a sector that contributes significantly to the revenue side of public budgets. It is a sector which is a prerequisite for increasing the competitiveness of the Czech Republic (*Nařízení Evropského parlamentu a Rady (ES) č. 1370/2007*).

Transport policy sets out what the state and its executives in transport must be made (international bond contracts) wants to do (security, sustainable development, economics, environment, public health) and can make a (financial and spatial aspects) *(Nařízení Evropského parlamentu a Rady (ES) č. 1370/2007).*

The European Union nearly 40 years after it adopted a new regulation for public services in road and rail transport - Regulation of the European Parliament and Council Regulation (EC) no. 1370/2007. Although the regulation applies directly, in the Czech Republic in relation to him, the law on public passenger transport services. The aim of the Act was a complex arrangement of public transport in one piece of legislation. Law applies to the adaptation of the Regulation sets out the conditions for the liberalization of public transport. United in that direction both modes. It is not a creation of conditions for the equivalence of different modes of transport, the possibility of linking the transport of individual Member States of the European Union, to open the market for transport services, to create conditions for free movement of goods and people and the exercise of the right of citizens to have a transport system.

2. Transport service

Transport infrastructure means ensuring the transport on all days of the week mainly to schools and educational institutions, the public authorities, to work, to health facilities providing basic health care and to meet the cultural, recreational and social needs, including return transport, contributing to

sustainable territory development (*Zákon č. 194/2010 Sb., o veřejných službách v přepravě cestujících a o změně dalších zákonů*).
Interest and duty of the state is to ensure conditions for transport services across the country. This also applies to less populated regions. Thus, the State ensures the conditions for the functioning of the article contact trade with the customer. Were this not so, there could also:

- the growth of unemployment, insecurity of supply and distribution of goods and materials for the operation of the business,
- outflow of labor force outside the region, higher demands on transport services transport to work,
- outflow of people from the region where it is accessible supplies and more jobs,
- decay and dissolution of municipalities.

Disintegration of the system of public transport due to board cuts would be negatively reflected both in the problems of "performing" transport areas (congestion, accidents, and overall increase externalities), and in other societal areas.

Definition of public transport in Act 194/2010 Coll. ensures the maintenance of public transport system in the Czech Republic, which contributes to social cohesion and regional development in the Czech Republic and regions. Transport services, the notion of Regulation (EC) no. 1370/2007.
Transport service is further defined by the specific purpose specification of individual transport modes. Individual transport implemented within public transport must ensure the availability listed in the law of public institutions, equipment or supplies to the public, every day of the week. Institutions, facilities and public needs stipulated by law must be made available to citizens by public transport always that it was the traffic on the territory (*Dopravní politika České republiky pro období 2014-2020 s výhledem do roku 2050).*

Besides the aforementioned institutions and facilities can be made available by public transportation and others not mentioned in the definition of the institution or facility. From this perspective, it is necessary to operate the territory considered as an integrated logistics system in which is included:

- transport of goods and materials,
- sorting services to the operation of the internal transport system,
- operation of warehouses and business networks,
- transport service enterprises on the side of the supply and distribution side of their goods,
- a system of basic transport services with the provision of transportation needs for purchases of goods.

The establishment of the logistics system only on a private basis is not possible. It must also provide support from public budgets:

- construction of a logistic service center (from the state budget, counties or municipalities),
- maintenance and operation of transport networks,
- operation and logistics services offered in the public interest.

Providing such support must be based on legislation.

3. Technology logistics service region

The region is a defined area which is in some way tied to certain ties to the center, which is able to provide the required type of logistics service. Regions by type of content and logistics service can be arranged hierarchically to the regions:

- local (basic),
- national (main),
- multinational (global).

Generally, technology and logistics service area referred to as a "Hub and Spoke". The essence of existence is one center (Hub) that receives or dispatches large shipments, assembles or disassembly of and radial (Spoke) operates a defined territory. A place in which to conduct operations defined as logistics services are called logistics centers. Function of logistics centers is mainly adopt consolidated shipment size from one transport or transport unit disassembly of bulk shipments arranged by the directions of the target beneficiaries and ensure their preparation for transportation from city customers, collect consignments exported from the region and create sets of them directional, directional tell shipments designed either direct customers or other logistics centers, storage and material goods as a public repository, providing users the additional transport services, securing the extent of its premium services, brokerage customs clearance, especially as regards the transnational region (Global) type.

Logistics center as a main activity does not create long-term stocks. Goods stored only for a temporary period of several hours, which derives from technology assembly and disassembly. This is a so-called flow store.

4. External and internal transport system

Utility transport system is divided into two areas:

- external transport system which caters transport links with other logistics centers, and suppliers of goods entering the region or with purchasers of goods that the region exports, shipments transported outside the transport system are mainly large volume and directionally arranged input and output,
- internal transport system that ensures delivery of shipments disassembly of arrow to the target recipient (for example, retail, retail store, warehouse enterprise.
-

External transport system mainly uses high-quality infrastructure and capacity and a corresponding mode

of transport. In the Czech Republic it is mainly about:

- rail, implemented at the national railways, usually at the logistics center connected siding,
- road transport, carried out in road capacity means,
- a combination of rail and road transport in an integrated (pallet or container) system, which requires appropriate technical equipment for handling containers or pallets inside the logistics center,
- inland waterways, but in the Czech Republic is used minimally (*Zákon č. 114/1995 Sb., o vnitrozemské plavbě, ve znění pozdějších předpisů).*

The internal transport system that ensures the collection and distribution of goods in the region is based on road transport and is carried out by means that are adapted:

- average weight of consignments,
- traffic restrictions corresponding to the type of communication (roads of various classes) and the requirements for compliance with environmental standards (for example, in the centers of some towns, in some European countries).

5. Election mode and optimization service

Modal choice in external and internal transport system depends primarily on:

- characteristics of the consignment and its transport properties,
- the nature and level of transport infrastructure,
- legislative framework for the various modes of transport,
- safety requirements,
- administrative constraints induced environmental protection.

Level shipment corresponds to each characteristic level of transport so that it always creates a dual level indicator shipment and shipment levels:

a) the level of shipments: defining the place of creation and destruction of transportation,
Level of transport: the determination of optimal transport routes, including for modal shift, using a multimodal transport system,

b) the level of shipments: define the size of the consignment in size and weight,
Level of transport: the selection of a suitable type of means of transport for a single shipment or transport ensemble composed of collected more shipping consignments,

c) the level of shipments: the need to speed the delivery conditional, for example, the possibility of perishability,
terms of delivery to the business, creating logistical stocks,
Level of transport: calculate the optimum transport speed by comparing costs and losses,

d) the level of shipments: reliability needs, such as supply consignments Just in Time restore stocks of individual

items automatically controlled warehouse in an optimized system,
Level of transport: the calculation of the optimal interval between deliveries and maximum permissible time deviation from the established delivery by comparing costs and losses,

e) the level of the shipment: shipments resistance against the effects of transport technologies that affect the properties of the product itself, secondly, such as toughness, fatigue, flowability, viscosity, and the like, as well the properties of the transport, container,
Level of transport: a selection of suitable transport and transport technologies,

f) the level of shipments: the need for additional services such as customs clearance, handling when changing mode of transport, or during loading and unloading,
Level of transport: the system services required. *(Pernica, P. a kol., 1998*).

Based on the comparison of dual indicators may make the optimal choice of the transport system. Subsequently examine the level of transport infrastructure. The next step is then verifies the legislative framework for the various modes of transport in the country of origin, course and termination of transportation. In selected categories of items Transportation is severely restricted or even banned. The last step is to verify the environmental and administrative measures on selected transport routes, for example in terms of standards of noise emission standards and other possible restrictions such as a ban on certain types of transport service vehicles in a certain day or night.

6. State of implementation of logistic services in the territory of the Czech Republic

Logistic service area began to emerge in the mid-nineties on a purely commercial basis, especially where it has already been built at least part of the infrastructure. Offer services resulted from the commercial interests of customers. Since 1996 have been launched, subsequent construction and development of logistics centers for servicing regional technology hub and spoke.

The basic solution was a statistical analysis of production (division-size factories and commodities) and consumption (with regard to the number of inhabitants and type of goods).
Based on the analysis of the number, size categories and spatial distribution of industrial plants and centers

of consumption in the Czech Republic have been identified as suitable sites for future logistic centers. Allocation of a network of logistics centers is continually confronted with the proposed and actual development of transport infrastructure. Also considered are the use of assumptions logistics centers

as gateways (gateways) for the logistical operation of urban agglomerations. For each city is analyzed basic assortment structure of logistics chains attached to industrial plants and anticipated demarcated areas of these centers. (*Strategie regionálního rozvoje ČR na období 2014-2020).*
We not always managed properly allocate logistic centers. The causes are in the turbulent development

of certain regions and vice versa in decline in other regions. This is related to:

- restructuring the industry,
- restructuring of agriculture,
- further depopulation in urban agglomerations,
- changes in living standards,
- changes in life values and habits,
- globalization,
- offshoring,
- the application of Schengen Convention,
- environmental protection.

Options allocation of logistics centers in the Czech Republic are places like Praha, Brno, Liberec, Plzeň, Ostrava, Pardubice, Přerov, Ústí nad Labem, České Budějovice and Tabor *(Pernica, P. a kol., 2001).*

If multinational companies operating in Europe, built its new logistics center with pan-European reach, then proposed logistics centers in the Czech Republic when exporting goods must meet the same requirements to supply products to several hours and days. It follows that the network of distribution centers must be differentiated (hierarchically structured), to:

- the main logistic centers with the best possible transport connections fast rail or road or air transport large logistics centers in major conurbations of the European Union, must be fully competitive corporate logistics centers of multinational companies and must provide superior logistics services in an unlimited extent,
- regional logistics centers are equally good transport links to the logistics centers in neighboring countries, which will lie on the same road or rail routes such as logistics centers.

7. Possible impacts on the Protection of Population

Options allocation of logistics centers in the Czech Republic can also create favorable conditions for the provision of services to the population in relation to safety. These are mainly dealing with emergencies such as natural disasters, floods, accidents and technical equipment like (*Svoboda, V., Latýn, P., 2003).*

If you build logistics centers of national companies or government, this aspect may also include the requirements for the allocation and construction. If multinational companies operating in Europe are building their new logistics center with pan-European reach, then this requirement is more difficult to promote.

Logistics centers can play an important role in dealing with emergencies. If you have the required structure and amount of material can be used to provide material assistance for emergency supplies of food and water, disinfectants, clothing, personal hygiene, cleaning and so on.

8. Conclusion

Transportation is an important area of the economy that affects virtually all areas of public and private life and business. One of the duties of the state is to ensure conditions of transport in the entire national territory. Operation area is an integrated logistics system several interdependent

processes. Logistic service area comes in several forms of general logistics. You can apply the appropriate utility transport system. Modal choice depends on several factors (*Šafarik, Z., Vičar, D., Lošek, V., Rak, J. and J., Trojan*). The decisive nature of the serviced territory. It can be a logistical operation regions demarcated area designated to some central (economic, administrative, to the settlement, and the like). In this type of service area is developed technology hub and spoke.

Logistics operator in the Czech Republic is developing and so is the territory of another type of big cities, which have a number of traffic restrictions for reasons of traffic flow in city roads, building density and environmental reasons. These territories will create systems collectively term "city logistics" and largely applied logistic Gateway technology.

And in Europe exists another type of territory, which we refer to as agglomeration, which could be described as an intermediate step between the region and the city. That is, it has strong core center to which they are economically or socially bound surrounding villages, housing estates and residential satellites. It does not reach the dimensions of the region and the operator assumes certain specifics of both previous types. For agglomerations it is necessary to create individual physical and organizational architecture and instructions take into account the diffusion of passenger and freight transportation on a common infrastructure.

Logistics centers can play an important role in dealing with emergencies. If you have the required structure and amount of material can be used to provide material assistance for emergency supplies of the population.

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Factors related to Presenteeism among Academics in Public Universities

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Abstract

Presenteeism behaviour continues to be a common issue at the workplace. This has resulted in various organizational problems, including loss of productivity at work. Thus, this paper is aimed to investigate: (a) work-related factors related to presenteeism among academicians at public universities, and (b) the association between work-related factors related to presenteeism and work productivity. This research study was conducted at the selected public universities in the East Coast region of Peninsular Malaysia. Respondents consisted of 194 academicians from three selected public universities. Data were obtained and gathered through the distribution of questionnaires to respondents. Descriptive statistics revealed that 61% respondents were female (61.3%) academicians with aged range of 30 – 39 years (33.5%). Most of them were married (70.6%) and work as permanent staff (64.9%) of the public universities. In correlation analysis, the study findings revealed that there was a significant positive relationship between work-related factors (job demand ($r=0.31$; $p<0.01$) and time pressure ($r=0.22$; $p<0.01$)) and the frequency of presenteeism in public universities. Academicians with high level of job demand were found to have high tendency and were more inclined towards attending at work while ill. In conclusion, the frequency of presenteeism could be reduced if the health status were improved. However, job demand and job security factors related to presenteeism predict the work productivity. An improvement should be made for future study in investigating the person-related factors relating to presenteeism in varying professions.

Keywords: Presenteeism, job demand, job security, time pressure and work productivity

Introduction

The prevalence of presenteeism continues to rise within the organization. Presenteeism occurs when employees are physically present at work, nonetheless their concentration is absent (Gilbreath & Karimi, 2012). Hirsch and colleagues (2015) emphasized that employees who are at work, but their mental energy is not devoted to their work can be considered as presenteeism behaviour. As Hansen & Andersen (2009) believed that an employee who is still present at work at the appointed time needs to be at home, due to health conditions, thus less productive at work. Many studies found that work productivity is one of the consequences of presenteeism behaviour (Scultz and Edington, 2007; Johns, 2010; Ospina, 2015). Several studies that investigating presenteeism behaviour were targeting various working adults, including office workers, nurses, computer workers, however, academics in

higher institutions was scarce (Scultz and Edington, 2007; Karimi, Cheng, Bartram, Leggat and Sarkesshik, 2014).

In Malaysia, the internationalization of higher education sector is a high priority for the government. Thus the Malaysia Education Blueprint (Higher Education) 2015-2025 was launched with the aim to produce holistic and balanced graduates with an entrepreneurial mind. The academicians are required to stay open to and adopt these new ways of working, to work collaboratively with all the stakeholders during the transformation journey. In addition, academics are urged by the industry and the policy makers to transform their traditional role of teaching and research by adding an additional pivotal role in economic regional development (Khairunneezam, 2011). This has resulted in a more sophisticated job design in an academic setting. Therefore, it is crucial to address the presenteeism behaviour among employees, particularly academicians as the nature of complexity academic work.

From the best of the author's knowledge, few studies were found investigating the contributing factors of presenteeism, in particularly targeting academicians (Ospina, Dennett, Waye, Jacobs, & Thompson, 2015; Johns, 2015; Schultz & Edington, 2007). This paper therefore attempts to investigate 1) the work-related factors of presenteeism among academics of public universities in Malaysia and 2) the association of work-related factors of presenteeism and work productivity.

Literature Review

Presenteeism behavior has variously described, which sometimes considered as well, however, it regards as obsessive when relates to employees's health and productivity (Johns, 2010). The presenteeim affects the health status as the employee is physically present, but is mentally absent. In other words, the employee is at the workplace, but their cognitive energy is not devoted to their work (Gilbreath & Karimi, 2012). The situation happens when the employee is not in good health condition, but still present at work in appointed time. Despite the health is worsening, present to work while ill gives the consequences on low productivity rate (Johns, 2010; Cooper, 1996).

In a research study conducted by Taifor, Abdullah & Hashim (2011) has found that presenteeism may cause the productivity loss as the employees have limited ability in completing tasks due to poor health conditions the employees experienced on. Apart from that, presenteeism carries a negative work environment, where the workers do not give full attention to their work (Johns, 2010). This may make the workers be less productive, commit more mistakes and produce a low quality of service compared to usual circumstances.

Presenteeism highly occurs among employees in the public sector due to the sense of high responsibility towards their clients which is welfare or service sector and especially the education area (Caverley et al., 2007; Aronsson, Gustafsson & Dallner, 2000). Meanwhile Aronsson, et al., (2000) found that employees in healthcare or welfare service or in teaching occupations have a substantially increased in number for being at work while ill. Consistently, a study conducted by Cocker et al., (2011) pointed out that professions which require voluntary actions, teaching, and job that demands for his/her assistant responsibilities like client, colleagues are strongly associated with presenteeism and productivity.

According to Aronsson & Gustafsson (2005), general health status is considered a prerequisite to presenteeism. They also suggest the act of presenteeism with the work and personal factor as the main antecedents contributing to presenteeism. Moreover, gender had been correlated with absenteeism and presenteeism (Claes, 2011). A study by Laaksonen, Martikainen, Rahkonen & Lahelma (2008) revealed that women have higher absenteeism than men; where it is just the same when it comes to presenteeism. Unfortunately, contrast to Aronsson & Gustafsson (2005) finding that gender had little no explanatory value for presenteeism. Nevertheless, downsizing also caused employees in an organization to present even sick, mostly among male.

In Malaysia, the development of higher education institutions has been rapid commencing with the establishment of the first public university, the University of Malaya in 1962. The internationalization of the higher education sector has become a high priority for the government. Hence the Malaysia Education Blueprint (Higher Education) 2015-2025 was launched with the aim to produce holistic and balanced graduates with an entrepreneurial mind. The academician is required to stay open to and adopt these new ways of working, to work collaboratively with the stakeholders during the transformation journey. In addition, academics are urged by the industry and policy makers to transform their traditional role of teaching and research by adding an additional pivotal role in economic regional development (Khairunneezam, 2011).

Many studies showed that various factors contributing to the prevalence of the act of presenteeism, including work-related factors (Johns, 2015; Schultz & Edington, 2007). Some of work-related factors that might associate with presenteeism were job demand, time pressure, job insecurity, replaceability and organizational commitment (Taifor et al., 2011; Johns, 2011; Collins & Cartwright, 2012; Claes, 2011; Aronsson & Blom, 2010; Hansen and Andersen, 2008; Aronsson & Gustafsson, 2005). Johns (2011) also carried out a study examining the factors and connection between presenteeism and productivity loss. Time pressure, control over work tasks, relationship with colleagues and employment conditions are among the work-related factor discovered (Hansen and Andersen, 2008). Ferreira and collegues (2010) revealed that presenteeism behavior reduced work productivity by 33%. Three common health conditions, namely obesity, depressive symptoms, and smoking, adversely affect the work productivity of high school employees (Alker et.al. 2015).

In line with the objectives of this paper, several research questions have been formulated. The research questions are described below.

RQ 1: What are the work-related factors of presenteeism behaviour among academics at the selected Public Universities at East Coast, Malaysia?

RQ 2: To what extend the associations between work-related of presenteeism and work productivity in the selected Public Universities at East Coast, Malaysia?

Methodology

Design and Procedure

The present research study can be considered as a descriptive and correlation research design. A cross-sectional method was used for data collection technique. In order to ensure the high return rate, several follow-up strategies were carried out. The target population of this study was academicians from public universities. However, only three public universities were selected in accordance with the established criteria. Data collection was carried out in the East Coast, Malaysia. Prior to data collection, approval was obtained to conduct the research study from the selected public universities. In estimating a sufficient sample size, the process of stratification initially conducted and followed by random selection of subjects. Disproportionate stratified random sampling was used in estimating the sample size since the different universities did not have the same sampling fractions as each other.

Data collection

A structured survey question was distributed to a total of 330 respondents through email. Of the total, 204 questionnaires were completed and returned. It is equivalent to 62% rate of response. Using guidelines from the American Association for Public Opinion Research (APPOR, 2011), a response rate of 60% and above is considered acceptable. However, only 194 questionnaires were valid for data analysis purposes. A survey questionnaire was used and adapted from established questionnaires in previous studies (Aronsson et al., (2011); Klandermans, Hesselink & Vuuren, (2010); Caverley et

al., (2007); Aronsson & Gustafsson, (2005). Overall, the questionnaire has four sections with 38 items.

Statistical Analysis

The descriptive and inferential statistics were employed in this study. The descriptive statistics included mean, frequency, standard deviations, variance and range. Bivariate analysis was used to investigate the correlation between the variables in this study. Regression analysis was also employed to predict work productivity from the work-related factors in relation to presenteeism. Data obtained was analysed by Statistical Package for Social Science (SPSS) version 22.0.

Results and Discussions

Demographic Profile

The demographic profile of the respondents includes gender, age, marital status, employment status, highest educational background, job tenure and university. Data findings of the demographic profile and background are described in Table 1. The study findings showed that more than half of the respondents were female (61.3%, n=119) and 38.7% (n=75) were male. Sixty-five respondents (33.5%) were aged between 30 – 39 years old and nearly 30% (n=57) were aged 23 – 29 years old. Meanwhile, 18% (n= 35) of the respondents were in the range 40 – 49 years old. Less than 20% of the respondents aged 50 – 59 (12.9%) and 60 – 69 years old (6.2%). The majority of the respondents were married (70.6%, n = 137), while, 26.3% of the respondents were single (n=51) and only 3.1% (n=6) were others status.

Table1: Demographic Charateristics of Respondents (N=194)

Demographic characteristics		Frequency (n)	Percentage (%)
Gender	Male	75	38.7
	Female	119	61.3
Age	23-29	57	29.4
	30-39	65	33.5
	40-49	35	18.0
	50-59	25	12.9
	60-69	12	6.2
Marital status	Single	51	6.2
	Married	137	70.6
	Others	6	3.1
Employment status	Permanent	126	64.9
	Contract	60	30.9
	Others	8	4.1
Job Tenure	Less than 3 years	68	35.1
	3 – 7 years	58	29.9
	8 - 12 years	34	17.5
	More than 12 years	34	17.5
Highest education	Ph.D	53	27.3
	Master Degree	122	62.9
	Bachelor Degree	19	9.8

University	University A	71	36.5
	University B	55	28.4
	University C	68	35.1

Demographic variables fall into the first category. The results showed that older employees were found to be more likely to attend work while sick with average age 30-39 were likely to attend work while ill. According to Hansen & Andersen (2008), presenteeism and age are positively correlated. The study findings showed that female (61.3%) respondents are more than half compared to men and have higher intentions for presenteeism (77.8%). This has resulted in women put more effort into family life and child care. However, Nyberg and colleagues (2008) found that in a hospital setting, men seem to be more prone to presenteeism as compared to married women. This supports the findings that the employees with dependent children are more likely to experience presenteeism (Aronsson et al., 2000).
In relation to employment status, more than half of them were permanently employed (65%, n=126). While 30.9% (n= 60) of the respondents were on contract basis and the remaining of 4.1% (n=8) was employed with other status.

In terms of working experience, 68 (35.1%) respondents had been working for less than three years and 58 (29.9%) had worked from three to seven years. Meanwhile, 34 respondents (17.5%) had been working from eight to twelve years and another 17.5% (n= 34) worked for more than twelve years.
Based on the Table 1, there are 62.9% (n= 122) respondents had master degree, PhD were 27.3% (n= 53) and another 9.8% (n= 19) were degree holder. It was reported that 40% (n= 71) of the respondents represented University A, 35.1% (n= 68) University C and the remaining 28.4% (n= 55) were University B.

According to Aronsson & Gustafsson (2005), health conditions of employees act as preliminary requisite in the act of presenteeism behavior among employees. Table 2 tabulates the findings related to health of the respondents. It was found that the majority of the respondents have a good health status (44.8%). It was followed by fair health status (30.9%), very good (11.3%), poor (8.2%) and excellent (4.6%). The health conditions of the respondents also had been analyzed. The results show that most of the respondents (30.4%) experienced an acute illness like fever and cough, flu and dizzy followed by arthritis or joint pain (22.7%). However, a systematic review conducted by Scultz and Edington (2007) found that health conditions such as allergies and arthritis are associated with presenteeism. In a recent study conducted by Johns (2015) found that although many medical conditions have been associated with reported productivity loss, the most prominent correlates include allergy, arthritis, depression, migraine, and musculoskeletal and respiratory problems.

Table2: Health status and conditions

Level of Health		**Frequency (n)**	**Percentage (%)**
General Health Status	Poor	16	8.2
	Fair	60	30.9
	Good	87	44.8
	Very good	22	11.3
	Excellent	9	4.6
Health Conditions	Common illness	59	30.4
	Arthritis or joint pain	44	22.7
	Asthma	21	10.8
	Back or neck disorder	37	19.1
	Breathing disorder	12	6.2
	Depression and anxiety	25	12.9
	Diabetes	21	10.8
	Migraines	34	17.5

Stomach or bowel	26	13.4
disorder	22	11.3
High blood pressure	13	6.7
Allergies	7	3.6
Heart – problem	13	6.7
Others		

Frequency of presenteeism is shown in Table 3. Majority of the respondents (77.8%) had the intention to be present while ill. It was also reported that most academicians of public universities in the East Coast Malaysia experienced presenteeism. Table 3 depicts that nearly 40% of academicians had episodes of presenteeism two to five times, while almost 30% had done so more than five times in a year. Only 16% of academicians had no experience of presenteeism and 17% had experienced it once. In a nutshell, 84% reported the act of presenteeism among academicians of public universities in the East Coast Malaysia.

Table3: Frequency of presenteeism (N=194)

Presenteeism		**Frequency**	**Percentage**
Intention to Presenteeism	Yes	151	77.8
	No	43	22.2
Experienced of Presenteeism (A year)	Never	31	16.0
	Once	33	17.0
	Two to five	76	39.2
	More than five	54	27.8

Presenteeism is prevalent in jobs where attendance has a great influence on other people and on their primary needs (Aronsson et al. 2000). The present study indicated that 39% of the presenteeism occurs 2 to 5 times a year and higher health reason for presenteeism is an acute illness like fever and cough (34%). The paves way for presenteeism is nature of academics itself which requires working closely with the students and the tasks mostly cannot be postponed or delegated. Moreover, Caverley et al. (2007) suggested that the decision to be at work despite being sick is related to replacement and responsibilities. Thus, in consistent with academics setting, the replacement is impossible and the sense of responsibility must be present to ensure the daily activities run smoothly.

The present study findings revealed that the act of presenteeism (84%) occurs among academicians. Among them, 31% were on contract basis. Job demand was also discovered as the most contributing work-related factor of presenteeism among academicians. Similar to a study conducted by John (2011), employees may come to work while ill so as to maintain their work performance. High job demand occurs when they are employed on fixed-term contracts and expected to achieve a permanent status later on (Caverley et al, 2007).

Summary of mean and standard deviation of the variables is presented in Table 4. Respondents rated their work productivity and work-related factors, including job demand, time pressure, job security, replaceability and organizational commitment. These constructs were measured using the five-point Likert scale format ranging from totally disagree to totally agree. Most of the means score for each item were below the scale of 4.00. All the standard deviation values were between in more likely narrow ranges. However, respondents rated their agreement with the statements as agreed for several items. The statements were shown in the Table 4. The work-related factors that influence preseteeism behavior were examined. Data findings showed the respondent agreed that job demand (M=3.86, SD=0.73), replaceability (M=3.63, SD=1.00) and time pressure (M=3.59, SD=0.92) were contributing factors of presenteeism. While the respondents assumed job security (M=3.28, SD =1.08) was not certain as a contributing factor of presenteeism.

Table 4: Mean and standard deviation of work related factors and work productivity

Construct	Statement	M	SD
Job demand	*Do you have to rush?*	4.05	0.79
	Do you have too much work to do?	4.13	0.84
	Do you have to work extra hard to finish a task?	3.90	0.85
	Do you work under time pressure?	3.73	0.94
	Do you have to work fast?	3.52	1.02
Time pressure	*I need to bring my work to home.*	3.71	1.11
	I often skip my breakfast and lunch.	2.54	1.25
	Sometimes I feel that I am not able to finish up my work during work hours.	3.52	1.11
	I often go home late because of having too much work.	3.51	1.29
Job security	*I am worried very much about becoming unemployed.*	3.38	1.40
	Loosing a job is very serious for me.	3.83	1.27
	The chances of losing my job are very high if I did not come to work.	2.93	1.26
	I am worried that I might lose my job if I did not come to work.	2.99	1.32
Replaceability	*I am inclined to attend to the job even though I am sick since I know the work is piling up.*	2.56	1.24
	It can be difficult to find someone else to take over and perform my work in my absence.	3.65	1.17
	I able to adjust my work by completing the most necessary work tasks and postpone the rest when I sick	3.61	1.12
Organizational commitment	*I am willing to put in a great deal of effort beyond normally expected in order to help the organization be successful.*	4.24	0.66
	I feel very little loyalty to this organization.	1.98	1.02
	This organization really inspires the best in me in the way of job performance.	4.05	0.75
	I really care about the fate of this organization.	4.22	0.72
Work Productivity	*Because of my health condition is not so good, the stresses of my job were much harder to handle*	3.24	1.12
	Despite of my health condition is not so good, I was able to complete difficult tasks in my work	3.36	1.03
	My health condition distracted me from taking pleasure in my work.	3.43	1.27
	I felt hopeless about finishing certain work tasks due to my health condition	2.87	1.12
	At work, I was able to focus on achieving my goals despite with my poor health condition	3.19	1.08
	I felt energetic enough to complete all my work.	3.13	1.19

M = Mean & SD = Standard deviation

Correlations

A bivariate correlation analysis was conducted to investigate the relationships between health status and frequency of presenteeism behaviour. The study results reported that there is negative relationship between health status and presenteeism ($r= -0.15$, $p<0.05$) among academics in the public universities.

Nevertheless, Lerner, Amick, Malspeis, & Rogers (2000) found that nearly one-third of adults with chronic health problems reported recent moderate to severe difficulty on the job in at least one of three areas. As number of conditions increased, so did odds of having a work limitation. In addition to that, in a research conducted by Van den Heuvel and colleagues (2010) found that poor general health and longstanding health conditions were associated with productivity loss.

A correlation analysis was also conducted to examine the relationship between frequency of presenteeism and the work-related factors; including job demand, job security, replacebility, time pressure and organizational commitment. Moreover, the association between work-related factors and work productivity was examined.

Table 5: Pearson correlation analysis

	Variables	1	2	3	4	5	6
1	Job demand						
2	Time pressure	.639**					
3	Job security	.206**	.293**				
4	Replaceability	.218**	.129	.028			
5	Organizational commitment	.333**	.202**	.124	.144*		
6	Frequency of Presenteeism	.310**	.224**	.085	.049	0.021	
7	Work Productivity	.201**	.086	.202**	-.031	0.094	0.122

***p< 0.01; *p<0.05*

As shown in Table 5, data findings indicated that job demand ($r = .310$, $p<0.05$) and time pressure ($r = .224$, $p<0.05$) have a significant positive relationship with frequency of presenteeism. Nevertheless, there was no significant relationship between replaceability and frequency of presenteeism among academicians ($r = .049$, $p>0.05$); job security and frequency of presenteeism ($r = .085$, $p>0.05$); and organization commitment and presenteeism ($r = .021$, $p>0.05$). Data findings also reported that job demand ($r=.201$; $p<0.01$) and job security ($r=.202$; $p<0.01$) were significantly correlated to work productivity. This data findings were supported by Quazi (2013), in which pointed out work-related factors contributing to sickness presenteeism include job demands, job security, and replaceability. According to Aronsson & Gustasson (2005), time pressure was also a contributing factor to presenteeism.

A linear regression was conducted to examine if the contributing work-related factors predicted the level of work productivity among academics in public universities, particularly in East Coast, Malaysia. The contributing factors of preseteeism were examined. Details of linear regression analysis are shown in Table 7. Using the enter method, it was found that the contributing factors of job demand, time pressure, job security, replaceability and organizational commitment explain a significant amount of the variance in the level of work productivity ($F(5, 188) = 3.374$, $p < 0.01$, $R^2 = 0.287$, R^2Adjusted = 0.058). The prediction model was only accounted for approximately 28% of the variance of work productivity.

Table 7: Multiple Regression Analysis for Work-related Factors of Presenteeism Predicting the Work Productivity of the Respondents (N = 194)

Variable	*B*	*SEB*	β
(Constant)	1.985	.539	
Job demand	.315	.119	.252**
Time pressure	-.125	.094	-.124
Job security	.156	.062	.186*
Replaceability	-.071	.065	-.078
Organizational Commitment	.038	.120	.024

Note: *R^2=0.287, R^2 Adjusted = 0.058, F (5,188) = 3.374, p=0.006, *p<0.05; **p <.001*

The data findings shows that the factors of job demand (Beta 0.252, t(193) = 2.64, p = 0.009) and job security (Beta = 0.186, t(193) = 2.54, p = 0.012) did significantly predict the level of work productivity among academics of public university in East Coast, however replaceability (Beta = -0.078, t(193) = -1.088, p>0.05); time pressure (Beta = -0.133, t(193), = -1.35, p > 0.05) and organizational commitment (Beta = 0.024, t(193), =0.317, p > 0.05) did not significantly predict the work productivity among them. Overall, the job demand is the most contributing work-related factor of presenteeism that influence the level of work productivity.

The present study revealed that job demand and job security influence the level of work productivity among academicians in the public universities. This is supported by a recent study conducted by Johns (2015) suggests that heavy job demand is one of variables motivates presenteeism and consequent productivity loss incurred. Consistently, in a study by Cooper (1994) suggested that presenteeism is crucial since it does not just affect one person but the rest of the organization, in which it increases cost, yet reduced the work productivity as well as the quality of work. In contrast, Collin & Cartwright (2012) found that time pressure and insufficient work resources had impacts on presenteeism and productivity. When there is scarcity of resources, it generates extra costs and give real negative impact on workforce morale as other people have to pick up more and more work. It can be suggested that is the reason why lost productivity from presenteeism is at least three times higher than from absenteeism. In addition, the employees themselves exaggerating their illness and becoming worse when the illness is pandemic. The challenge for the federal government or policy maker is a major culture and thinking shift. In order to reduce the presenteeism occurrence, preventive measures should be taken.

Excellent management of presenteeism can lead to productivity improvement, increase in employee motivation, loyalty and enhancement of employer branding. Morever, when employers focus on presenteeism as an important part of healthcare benefits, their employees' health can be transformed from a cost burdened to competitive advantage.

Conclusion

The results of the study provide an awareness among academicians regarding the phenomenon of presenteeism as it gave an impact toward their productivity. It is becoming a very challenging for an organization to maintain a healthy and productive employees. The findings show a majority of the respondents had the intention to be present at work while ill. The study found that there was a significant positive relationship between work-related factors and the frequency of presenteeism in public universities. It is evident that work-related factors contribute to presenteeism including job demand, job security, replaceability and time pressure. An improvement should be made for future study in investigating the organizational behavior relating to presenteeism. Therefore, future research should examine the relationship between presenteeism and person-related factors.

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Health and Hygiene Risks of Water and The Impact on Public Health

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Abstract

Within the context of public health protecting in the Czech Republic, the key law is the the law no. 258/2000 Coll.: "On protection of public health and amending certain related laws, as amended". To Human health is important to ensure quality and safe drinking water. The most important and comprehensive European Union's legislation is Water Framework Directive (2000/60/EC) of the European Union, which applies to all waters. The Czech Republic's or eventually European Union's population health status is influenced by a quality of drinking water, and water used for various purposes as well. The water is polluted by various substances, including remnants of drugs. The presented professional contribution is focused precisely on this subject, including some basic legal standards.

Keywords: European Union, Czech Republic, risks, drinking water, public health

Introduction

Act no. 258/2000 Coll. On protection of public health and amending certain related laws, in its basic concepts defines, among others, the notion of public health, public health risk assessment and more.

For human health is important to ensure safe drinking water. (*Rak Jakub, Jurikova Lucie, Sevcik David 2013).* Now mentioned Law on Protection of Public Health states that drinking water is all water in its original state or after treatment, which is intended for drinking, cooking, preparing food and drinks, water used in food industry, water, which is designed to body care, cleaning objects which by design come into contact with food or human body, and for other purposes of human consumption, regardless of its origin, state and manner of its delivery. Hygienic requirements for safety and purity of drinking water (hereinafter referred to as " the quality of drinking water ") is determined by hygienic limits of microbiological, biological, physical, chemical and organoleptic characteristics, which are regulated by the implementing regulation. *(Zákon č. 258/2000 Sb., o ochraně veřejného zdraví a o změně některých souvisejících zákonů). (Strohmandl Jan, Weinbergerova Silvie, Masek Ivan, Safarik Zdenek a*nd *Miroslav Tomek. 2015). (Strohmandl Jan, Tomek Miroslav, Masek Ivan and Taraba Pavel. 2015*). In terms of the European Union represents the Water Framework Directive (2000/60/EC), dated 23 October 2000, the most significant and comprehensive legislation in the area of water. The Water Framework Directive covers all waters - inland surface water, groundwater, transitional and coastal waters. Establishes the principle of a Europe-wide integrated approach for issues related to water quality and quantity, and regarding the issues of surface water, groundwater and for the water management the Directive introduces a management principle based on the unit of the river basin - in the Czech Republic this principle is implemented since the 60s of the last century. Water is therefore considered as a coherent whole. The primary objective of this policy is to achieve a "good status". *(Směrnice. Vodní rámcová směrnice 2000/60/ES).* To protect the population need to secure clean water. If this is not possible, then deal

with emergency supply residents with water. *(Musil Miroslav, Ludek Lukas a kolektiv. 2014). (Rak Jakub, Vicar Dusan, Tomek Miroslav, Svobodova Blanka 2015).*

Health and hygiene risks of water and the impact on public health

One of the problem areas that occurred in relation to the issue of drinking water in the Czech Republic are the remnants of pharmaceuticals in drinking water. Due to the reports of a possible presence of residues of pharmaceuticals in drinking water in the Czech Republic , which appeared in the media, the National Health Institute made its first horizontal mapping of pharmaceuticals in drinking water. In this first population-based screening of human pharmaceuticals in drinking water, carried out in 2009 - 2011 in a research project of GACR. „Occurence and health risks from human pharmaceuticals residues in drinking water ", five active substances were followed: naproxen, ibuprofen, diclofenac, carbamazepine and 17α - ethinylestradiol.

The substances were selected according their consumption greatest probability of occurrence based on the foreign and domestic findings or according the public anxieties based on media reports (the most feared hormone 17α - ethinylestradiol). The survey found that at the tap of the consumer , these substances occur very rarely, moreover in trace concentrations. In more than 100 sampled water supplies in three samples of two water pipes only, two of controlled substances were found in a concentration above the limit of quantification (LQ = 0.5 ng / l): three times it was ibuprofen (0.5 to 1.2 ng / l), one of carbamazepine (4.0 ng / l). When sampling in hazardous areas , that means at 23 water treatment plants that draw raw water to the middle or lower reaches of rivers , which are laden by wastewater , in the treated water at the plant outlet at 19 sites they were found one to three substances above the limit of quantification. Most seizures were with ibuprofen (16), followed by carbamazepine (11), naproxen (8) and diclofenac (3); concentration ranged from 0.5 to 20.7 ng / l, with medians below 6 ng / l. In the distribution network , however, they were collected from a values much lower, partly due to mixing with a ground water, probably partly due to chemical oxidation with chlorine.Amount of 17α - ethinylestradiol was in all samples under the limit of quantification (i.e. less than 0.5 ng / l, respectively less than 2 ng / l). For exposure to the detected amounts there is no known health risk because so-called Margins of Exposures comparing minimum daily therapeutic dose and a daily intake from drinking water, are in the order of thousands (7.5 x 10^3) 17α - ethinylestradiol (for exposure used theoretical value at the mid of LQ), respectively. in the order of 10^6 to 10^8 for other controlled substances .Favorable findings relate primarily to the structure of sources of water used for public supply in the Czech Republic, where half the water is produced from groundwater and most of the surface water is taken from protected reservoirs on the upper reaches of rivers. *(Státní zdravotní ústav (odpovědný řešitel za SZÚ: MUDr. Kožíšek). Grantová agentura ČR / číslo projektu: 203/09/1583. Výskyt a zdravotní rizika zbytků humánních léčiv v pitných vodách).* Based on the results of analyzes from 24 countries around the world, these showed that in some areas, particularly in the deltas of major rivers, the small remnants of drugs in water under certain circumstances may occur. Their condition is currently so low, that it becomes practically unmeasurable and can not have a concrete impact to human health . A statement that the water may contain residues of drugs is thus primarily psychological significance, not health. Drug consumption in the EU is constantly rising. Daily are utilized million packs of tenthousands drug kinds. They contain about 300 different active substances. Most often these substances are antibiotics, antidepressants, drugs for diabetes, hormonal contraception dampening pain or inflammation, cytostatics, beta blockers etc. The compounds of these drugs in the human body undergo metabolism. Some of them, however, are from the body still in active status excluded. On the other hand, many people destroys drugs with expired consumption by flushing it to toilet or throwing into the trash. According to the British research ends up in the garbage up to two thirds of expired medicines, into waste water gets up to fifth. Another possible form of water pollution by drugs are seepingfrom poorly secured landfills. To a lesser extent in some locations the pollution may be caused from waste or leaks during the process of pharmaceuticals production. In addition to human pharmaceuticals may be a partial answer to the water pollution as well the drugs applied to farm or domestic animals. In the process of waste water cleaning are substancesin medicines removed only partially, and in some cases hardly at all. In this way pharmaceuticals reach the surface and sometimes underground water, some of which may be a source of drinking water.

The ratio of drug concentrations at the inlet and outlet of the sewage treatment plant enables to identify pharmaceuticals that are removed during the cleaning proces at least. Regarding to the characteristics of these substances can not be assumed that their removal will occur during standard processes for drinking water treatment (aeration, sand filtration, disinfection etc.). More effective is absorption of the substances on activated carbon and ozonation. Even these processes, however, can not remove all of the pharmaceutical substances. To the presence of pharmaceutical residues in raw drinking water, the manufacturer must respond by adding a suitable degree of water treatment technology, if there is no other source of raw water. As an example can be used a water treatment plant in Amsterdam (Holland), where the source of water is located in an estuary of the Amstel river and an effective step in this water treatment plant is the membrane filtration (*Mohou nás ohrozit léčiva v pitné vodě?).* The question of the extent of water pollution by pharmaceuticals was gradually gaining more and more international attention.The project KNAPPE realised in 2008, (Knowledge and Need Assessment on Pharmaceutical Products in Environmental Waters) has mapped the occurrence of pharmaceuticals in the aquatic environment, totally 181 agents in 24 countries. The project was to process 58,600 data details, out of which the average value of a measured environmental concentration (MEC) was determined. The highest rate of pharmaceuticals water pollution was recorded in Germany. Out from all the data contained in the KNAPPE database, the vast majority relates to surface waters. Only 11% refers to the groundwater and 2.2% alone to drinking water. For the method of assessing the extent of the share of pharmaceuticals in drinking water and their potential risk still exist different approaches.

Any assesment method is chosen,while considered a worst-case exposure scenario, for any of evaluated substances was identified health risk in the context of detected concentrations in drinking water. In rare cases, the result can be described as nearly a borderline, but mostly the gap in several orders of concentration was identified, which could be described as human health affecting. However, data based on surveys abroad, can be used in the Czech Republic only partially. The volume and structure of pharmaceutical drugs consumption, the proportion of surface and groundwater use for drinking water production and water treatment used technologies varies from country to country considerably. It is therefore necessary to continue intensively in dealing with this issue in the Czech Republic. So far it is obtained very little data, mostly out of the locations which do not serve as a source for drinking water. In autumn 2009, was realised extraordinary analysis of water in Prague, where in addition to standard and regular checks of drinking water, the samples were also subjected to extensive testing on content of pharmaceuticals.

According to the analysis conducted by an accredited laboratory of state enterprise Vltava River basin - VHL Plzen, in all collected water samples, the compound of medicinal substances was in a such small quantities, that it was impossible even to determine them exactly. Laboratory samples were available from the water treatment plant Želivka of waterworks Káraný and directly from Prague's water supply, as well. (*Mohou nás ohrozit léčiva v pitné vodě?).* One of the kinds of substances that remain in the water after cleaning,are so called “PPCPs” (pharmaceuticals and personal care products)- the active ingredients of drugs. These are artificial, to the nature environment foreign substances (xenobiotics), whose degradation is problematic. They can be found in commonly used detergents, personal care products and of course in medicines. These active ingredients remain active even after they get into the waste water and then into the water cyrcle. There even in small quantities can cause great damage. Other unpredictable effects can arise by their synergistic effects or long-term accumulation in the environment. PPCPs problem is relatively new.

The boom of the pharmaceutical industry in its current form broke out after World War II. Mass drugs and personal care products use is the result of contemporary highly - developed civilizations ,for example we can mention Ibuprofen, the active ingredient in a variety of painkillers. Ibuprofen belongs to one of the most common used substances. Annual consumption in the Czech Republic is about 200 tonnes (plus about 10 tons of pure ibuprofen from illegal drug factories). Ibuprofen provides high stability and it is very difficult to be captured in a wastewater treatment plant. In the past, there were traces of ibuprofen captured in surface and ground waters. Small amounts of ibuprofen was measured recently in the tap water. Currently, however, not the amount that would endanger human health. Another group consists of antibiotics which are decomposed by UV radiation.This method is costly and it is uncertain what effect on other substances contained in the water it would have, therefore in sewage treatment plants it is not commonly used. Antibiotics used

in human and veterinary medicine and in various stages of decomposition penetrate into water and soil. Antibiotics present in the water and sludge deposits in addition reduce the effectiveness of friendly bacteria responsible for decomposition and nutrient cycling. Antidepressants in the Czech Republic in comparison to other countries do not use so often yet.Hormonal contraceptives are a separate group of drugs. They belong to a group of EDC (endocrine disrupting compounds) - substances that can interfere with glandular activity. In this case are meant, substances with estrogenic activity. This means that they imitate the behavior of the hormone estrone. Hormones were the first recorded physiologic substances in waters draining out of sewages. *(Veronica. Ekologický institut).*

Conclusion

This was only a brief overview and an excursion to the issue of drinking water, need to secure the high-quality of drinking water for the population of the Czech Republic , but also the European Union, if we talk about this issue only in a part of Europe. In terms of legislation I mention the basic standard, which is the Act no. 258/2000 Coll. “On the protection of public health and amending and supplementing some related laws”. Implementing legislation for the law On the protection of public health and amending certain related acts can be found in other source. *(Česko. Zákon č. 258/2000 Sb., o ochraně veřejného zdraví).* Under the term water treatment is understood the pollution elimination of the raw water, so as to obtain drinking water, that is sufficiently clean and suitable for human consumption. Regulation of the World Health Organization (WHO) are worldwide generally perceived as the requirements on drinking water quality. In addition to the WHO regulation, each country or region is able to apply their own standards. European countries must abide by the EC Drinking Water Directive. Selection of water treatment methods generally relate to the nature and availability of water resource and the standards set by local authorities. *(Pitná voda. Standardní model - chemická úprava). (Tomek Miroslav, Strohmandl Jan a Jakub Rak. 2014).* Decree no. 252/2004 Coll . in accordance with European Community law establishes hygiene limits for microbiological, biological, physical , chemical and organoleptic indicators of the quality of drinking water, including drinking water, bottled water, hot water supplied by piping, hot water or indoor water pipes, which are structurally interconnected using mixing water pipe with water supply pipe of drinking water and the hot water produced from an individual source for the personal hygiene of staff. The Decree also establishes the scope and frequency of checking compliance of drinking water quality, as well the requirements for methods checking the quality of drinking water. Drinking water must have such physico - chemical properties, that do not pose a threat to public health. Drinking and hot water should not contain micro-organisms, parasites and substances of any kind in the number or concentration that could endanger public health. Indicators of the quality of drinking water and hygienic standards are listed in Annex no. 1 of the Directive. For raw or drinking water, in which the treatment process is artificially reducing the content of calcium or magnesium, the magnesium content may not be after treatment of less than 10 mg / L and a calcium content of less than 30 mg / l. Radiological indicators of drinking water and their limits is determined by special legislation. This legislation regulates the sampling of drinking water and the sampling points. Samples of drinking water, are taken to a control in a manner so that they are representative of a drinking water quality consumed throughout the year and for the entire water supply network, as well. The number of sampling points must at least be equal to the number of shortened analysis according to Annex no. 4, by water supply systems supplying more than 5,000 inhabitants, the number of sampling points must be equal to at least 80% rate of shortened analysis according to the Annex no. 4. The sampling sites should be selected so that more than 50% of the sampling sites were not permanent, but changed each year. Changing sampling points shall be chosen by random selection or any other suitable method that ensures that none of the buildings supplied will be excluded from the possibility of control. Sampling of drinking water is done in places where they should be met water quality requirements (§ 8). In the case of antimony, arsenic, benzene, beryllium, boron, bromates, nitrates, fluorides, chlorides, cyanides, microcystin LR, ozone, pesticidal substances, mercury, selenium and sulfates in which it is not anticipated that their concentration could during distribution between the converter and the point of consumption increase, can be samples of drinking water taken either at the plant outlet

or at appropriate places of water supply network , such as reservoirs, if it demonstrably do not produce changes in the measured values of the indicator. (*Česko. Zákony. Vyhláška č. 252/2000 Sb*.).

Law no. 378/2007 Coll., on Pharmaceuticals, as amended in §88 and §89 provides operators of pharmacies obligation takeover of unusable drugs and drugs of unsatisfactory quality,with expired shelf life, stored or prepared under other than specified conditions, obviously damaged or unused (unusable drugs) must be disposed off, including their packaging, so as not to endanger human life and health or animal health or the environment. When handling unusable drugs shall be treated as the handling of hazardous materials, including lead their evidence under special legislation. Unusable transfusion products and products for advanced therapy, are disposed off as waste, whose collection and disposal is subject to special requirements in order to prevent infection.Disposal of unusable pharmaceuticals are conducted by legal persons or individuals on the basis of consent granted by the regional authority in delegated competence or, in the case of radiopharmaceuticals, by the State Office for Nuclear Safety. About granting consent informs the authority which granted the approval, the Ministry of Health , in the case of human medicine, or the Ministry of Agriculture in the case of veterinary medicine, and communicated information includes the name of the process equipment serving the disposal of unusable drugs, operated by a legal person or an individual.Operators are obliged to hand over unusable pharmaceuticals to the persons referred to §88 paragraph 3. Unusable medicines handed over by individuals to the pharmacy, must be accepted and the pharmacy is obliged to overtake them. The costs arised to a pharmacy to drop off drugs to persons referred to in §88 paragraph 3. and with their removal executed by these persons, is paid by state through the regional office. (*Státní ústav pro kontrolu léčiv. Převzetí nepoužitelných léčiv k likvidaci*). It should be noted that the relevant legislation in this area are for example: Law no. 185/2001 Coll., On waste, the Decree no. 383/2001 Coll., On details of waste management, and law no. 500/2004 Coll., Administrative Procedure Code, and more. Although the situation of water pollution in the Czech Republic through the drug residues is not alarming,it should be noted that this situation may become an important society-wide risk and may result in a significant deterioration of the health status of our population. Contamination of drinking water affects the production of safe food, beverages and quality of the environment on our planet. *(Lukaskova Eva, Pitrova Katerina, Taraba Pavel a Helena Velichova. 2015). (Chlachula Jiri, Sefcik Vladimir a Eva Lukaskova. 2012).*

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Management of emergency drinking water supply

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Abstract

A great deal of attention is being paid to the protection of the population in the Czech Republic both on the part of the executive bodies of emergency management and the government of the Czech Republic as the administrators of these matters. The implementation of all activities is administrated by means of a series of conceptual documents issued by the government that include tasks for individual state administrative bodies in order to secure all necessary activities. One of the fundamental tasks in this field is to solve problems related to supplying the population with drinking water during extraordinary or emergency situations.

Keywords:security, management, crisis, population, plan, water, supply

Introduction

By its Resolution No. 805 of 23 October 2013 the Government of the Czech Republic (CR) approved the "Concept of protection of population by the year 2020 until the year 2030". In the previous period the population protection gradually changed from rigorous planning and implementation of measures laid down by the Geneva Conventions to a broad and comprehensive multi-departmental discipline which became a coherent set of activities and tasks for the responsible authorities that contributed to the protection of life, health, property and the environment in accordance with the current legal regulations of the Czech Republic as well as international humanitarian law. This qualitative step forward was possible due to a close cooperation of professionals from other departments involved (education, health, local development, transport, defense, interior, foreign affairs, agriculture, environment, state material reserves, and nuclear safety) and emergency services of the Integrated Rescue System (IRS). *(Report on the situation of population protection in the Czech Republic, 2015)*
The growing dependency on natural resources leads to greater global competition related to providing access to strategic raw materials and energies. The importance of critical infrastructure protection and means of transport of strategic raw materials in particular increases; these raw materials are characterized by a high degree of vulnerability that could be misused by any state and non-state parties. A trend for abusing the position of an exclusive supplier of these materials or the position of a transit country in order to enforce one's own political and security interests affects the provision of the basic needs of the CR and its allies and what is more, it imperils the political consistency of NATO and the European Union and therefore, it can be classified as an asymmetric threat of a

strategic nature. Also, impacts of climate change on the population's health and environment are very difficult to predict.

However, the actual concerns about this change may lead to an increased tension among countries and what is worse this can result in humanitarian crises with direct impacts on local, national and international structures, including possible escalations of local conflicts accompanied by increased migratory pressures.

A higher frequency of extraordinary events (EE) related to disasters of both natural and anthropogenic origin places growing demands on securing protection of the population, environment and property as well as on increasing the resilience of the whole society and adaptation measures. *(Security Strategy of the Czech Republic, 2015)*

Population protection is a broad "multi-departmental" discipline that cannot be explained and solved only as the fulfillment of tasks of civil protection, in particular warning, evacuation, sheltering and emergency survival of the population (in connection to the Geneva Conventions of 12 August 1949) but it should be understood as a set of activities and tasks of the responsible public administration bodies, artificial and natural persons as well as citizens that in compliance with current legal regulations helps to secure the protection of life, health, property and environment. The tasks of individual bodies are non-transferable and their performance is based on specific provisions of legal regulations. By way of illustration it is possible to mention:

- warning, evacuation, sheltering and emergency survival of the population under the responsibility of the Fire Rescue Service of CR (FRS CR),
- securing public order under the responsibility of Police of the CR,
- protection of life and health of the population under the responsibility of the Ministry of Health and regions,
- management of flood hazards under the responsibility of the Ministry of the Environment, the Ministry of Agriculture and individual flood control bodies,
- ensuring the operation of state and local administration during EE or emergency situations under the responsibility of individual public administration bodies and others.

Emergency management is a necessary extension for solving the increasing impacts of EE, emergency situations and other hazards or interferences in operation of critical infrastructure when it is no longer possible to solve the given situation by means of the standard procedures of public administration bodies, emergency services of IRS or private entities. *(N. Husáková, J. Gurecka, D. Kubala, 2012).* Emergency measures as organizational and technical measures for dealing with emergency situations represent an effective tool for the application of extraordinary procedures, forces and means (for instance by interfering with fundamental human rights and freedoms) and thus help to solve the emergency situation. Since the beginning of 2011 the protection of critical infrastructure has been an integral part of emergency management. *(G. Fedorko, A. Rosová, V. Molnár, 2014).* It is, therefore, a comprehensive system of tools, procedures, rights and obligations, which enables the effective management of the emergency situation. Emergency management represents one of the main pillars that specifically define utilizable measures within the system of population protection. *(Concept of protection of population by the year 2020 until the year 2030, 2014).* One of the essential tasks in the field of population protection which results from the "Concept of protection of the population" is also solving problems connected to emergency drinking water supply to the population. The emergency drinking water supply is highly significant from the perspective of protection of human health and preventing diseases of the population.

Organization of emergency drinking water supply

The organization of emergency drinking water supply to the population during emergency situations is based on the current legal regulations, contractual relationships and demands placed on structural consistency and institutional support. It is prepared and implemented at all levels of public administration starting from municipalities in accordance with the legal regulations of the CR for

dealing with emergency situations and their course. Preparation for managing emergency situations is implemented by means of processing and approval of contingency plans and taking necessary measures arising from them. *(Strohmandl Jan, Tomek Miroslav, Masek Ivan, Safarik Zdenek and Silvie Weinbergerová, 2015).*

When dealing with emergency situations the bodies of the emergency managements proceeds from these contingency plans and based on the particular situation these plans are further specified; subsequently, the bodies provide organizational and coordinating activities in collaboration with the main operators of water supply systems, municipalities, bodies of sanitary services and other selected entities in order to fully cover the given administrative territory. The operators of the water systems, who are also responsible for their standard operation, provide the supply of drinking water to areas affected by emergency situations. In the case of individual water supplies this duty is entrusted to the municipalities (if the affected do not operate their own water main).

The emergency water supply service (EWSS) is the organizational and coordination component of the emergency water supply which upon the origin of the EE and during the states of crisis creates conditions for providing an emergency water supply. In particular, the service lies in the organization and distribution of all necessary water supplies for the population and obtaining information about new sources of drinking water from ground or surface waters. Furthermore, it provides conditions for treatment of raw water into potable water and for provision of repairs and renewal of water facilities and hydraulic structures.

Evidently, the main task of the emergency water supply service is to provide emergency water supply in emergency situations, and namely:

- implementation of security and salvage operations related to water facilities that serve as water suppliers,
- preventive measures to avoid leaking of dangerous substances into groundwater, surface water and soil,
- elimination of possible accidental leakages of dangerous substances into groundwater, surface water and soil,
- searching for new water sources and setting up water collecting systems for emergency water supply,
- provision of a sufficient number of alternative sources of electricity.

To improve the quality of EWSS the artificial and natural persons can also be contractually included into executive entities of the EWSS. In particular, these persons can provide some expert services to ensure the following:

- inspection of water mains and water source protection zones,
- organizational and technical preparations for states of crisis within the framework of the preparation of executive entities of EWSS,
- carrying out emergency repairs or providing technical support during repairs,
- monitoring the situation in the given territory, notifying the appropriate administrative authorities and local authorities as well as informing the population,
- patrols,
- management of water supplies,
- documentation work, evaluation of the EE or emergency situation including calculating expenses incurred, evaluation of the effectiveness of measures taken and suggesting possible changes and additions to them or their cancellation.

The emergency supply of drinking water (alternative supply) may occur during:

- a long-term failure in the electrical power supply,
- accidents caused by weather influences, *(Safarik, Z., Vicar, D., Losek, V., Rak, J. and J. Trojan, 2015).*
- accidents on the main feeder roads of towns and municipalities,
- water sources accidents (an immediate decrease in water yield or contamination by pollutants), *(Safarik Zdenek, Vicar Dusan, Strohmandl Jan, Masek Ivan and Miroslav Musil, 2015).*
- the attack on the sources by an unknown perpetrator.

From the perspective of quality control the most significant hygienic indicators are considered to be odor, taste, the presence of coliform bacteria, enterococci, etc. which are also recommended for daily monitoring. However, on no account is this a closed or fixed set of indicators. The operator and a public health protection body can expand this to set other specific indicators especially if there are suspicions about the presence of dangerous substances or biological agents. *(Lukášková Eva, Pitrová Kateřina, Taraba Pavel and Helena Velichová, 2015).* Similarly, the required frequency of checks should be decided case-by-case (for smaller sources the suggested frequency may not be feasible). *(Cempírek, M., Málek, Z., 2004).*

The quality analyzes of drinking water should be performed:

- daily (for example, for the presence of pathogenic substances, nitrites and for sensory properties of water, etc.),
- weekly (for example for conductivity, chlorides, nitrites and the like), based on the type of pollution with a focus on indicators the values of which were increased during the initial analyze compared to their usual concentration in the given source and as needed *(Rak, J., Vičar, D., Tomek, M., Svobodová, B., 2015).*

In the event of contamination from radioactive substances the competent authority (the State Office for Nuclear Safety) decides on the frequency and extent of inspections. After the available means of supplying drinking water have been exhausted (bottled water, water cisterns, mobile water treatment plants, etc.) and upon request of an emergency response team the ways of water bottling which are not in compliance with current regulations for production of bottled water may be permitted. Nevertheless, it is necessary to comply with the following conditions:

- bottling line: if not used for the bottling table, baby, mineral or soda water, it must be thoroughly rinsed with hot water before using, sanitized and rinsed again with clean water, *(Lukášková, Bilíková, Málek and Šefčík, 2014).*

- water treatment: regular water treatment; for harmlessness it is recommended – where possible – to use a UV lamp, a micro filter (porosity: 0.2 micro pore size) or chemical disinfection by chlorine, ozone or other disinfectant approved for drinking water,
- container: must comply with requirements for contact with drinking water,
- if water is filled into returnable containers their safe and effective sanitization is required prior to bottling,
- labeling of containers: the container must be labeled as “DRINKING WATER – EMERGENCY SUPPLY” and contain the name of the producer, place and date of production and expiration date (determined by a body of sanitary services),
- the method and frequency of inspections of the product will be decided by the body of sanitary services.

Tasks and responsibilities of the municipality during emergency drinking water supply

Organization of the emergency drinking water supply by the municipality plays a significant role; the municipality must secure clean drinking water to be delivered to the right place at the right time and without any deterioration in its quality. The most important factors that affect the emergency supply of the population are as follows:

- nature of the emergency situation,
- number of persons affected by the emergency situation,
- weather conditions,
- hydrological conditions,
- extent of pollution (contamination) of water sources,
- time of pollution (contamination) of water sources,
- duration of contamination of water sources,
- quantity and condition of equipment for drawing, treatment, transportation and storage of water,
- possibilities of transporting water on roads,
- choice of the right way of supplying,
- norms for drinking water consumption,
- possibility to use the assistance provided,
- management work of persons responsible for providing emergency drinking water supply and the like.

Each emergency situation is unique and requires special dealing and therefore it is necessary to consider the fact that every territory can be characterized by various consequences of emergency situations which also significantly affect the process of supplying emergency drinking water to the population. The required amount of drinking water is specified to suppliers of the drinking water by the town or municipality. Among other things, a part of this requirement is:

- specification of the delivery method of drinking water to the population in the first three days of the emergency situation,
- specification of places designated for distribution of drinking water,
- calculating the number and means of transport intended for the supply, their capacity and the capacity of drinking water containers,
- designation of the supplier's representatives who shall be authorized to receive and subsequently distribute drinking water at the distribution point.

In the event of an emergency situation the use of a combination of sources of drinking water supply is expected.

When planning the volume of drinking water for the supply it is necessary to proceed from the minimum amount of drinking water required as an emergency supply of drinking water. In the event of a deteriorated situation when it is not possible to secure specified amounts of drinking water in specified periods and days the municipal authorities can adjust the amount of drinking water according to the situation and the expected development in supplying the population of the municipality.

The total emergency need of drinking water is determined by the sum of the emergency need of water of the population and emergency need of water of all economic mobilization subjects, medical and other facilities serving in the securing the life of the population during the emergency situation.
Emergency drinking water supply during emergency situations is a demanding and complex process of operations that is connected to the planning and taking preventive measures in order to provide sufficient quantity of clean drinking water for the population, economic mobilization subjects, armed forces, security armed forces, health service and other selected entities.
In preparation for the emergency drinking water supply prior to emergency situations it is necessary to suggest and revise different variants of supplying drinking water to the population and other entities in the spirit of principles of logistics *(M. Andrejiová, A. Pavlisková, N. Husáková, 2012, R.*

Németh, V. Molnár, L. Olexa, 2014, G. Fedorko, M. Weiszer, M. Borzecký, 2012). For the actual provision of the emergency supply of drinking water the responsible persons, authorities and organizations must carry out the following tasks:

- to analyze the current state of drinking water supplies,
- to analyze hazards, vulnerability and capacities,
- to draw up feasible documentation which deals with drinking water supplies to the population and to keep the records clearly and flexibly during the course of supplying,
- to take preventive measures to avert hazard or reduce the impact on persons affected by emergency situations,
- to notify the population exposed to hazard in time using all available means,
- to solve any problems arising, to suggest measures and define specific tasks of the responsible authorities, organizations and persons,
- to coordinate activities of all services that participate in solving the tasks set for drinking water supply (objectives, time and place), to deal flexibly with the differences between the planned and the actual state of supplying,
- to secure entities involved in solving problems of supplying.

After a phase of preparation for emergency supply which consists in preparing the analyzes before the occurrence of the emergency situation there is a much more demanding stage of the entire operation of emergency supplying and that is the actual supply after the onset of the emergency situation.

The actual **preparation process for water supply during the emergency situation** consists of the following steps:

- **the analysis of the current state of the drinking water supply,** in which:
  - physical geographic and economical geographic conditions are evaluated and the characteristics of the areas to be supplied with drinking water are evaluated together with the supplying methods,
  - the current situation of the drinking water supply is evaluated based on the data about drinking water consumption of the population, industry, or agriculture and based on the data about the supply systems,
  - the dependence of the drinking water supply on electric energy supplies is assessed, namely from the perspective of production and transportation of drinking water to the consumers,
- **the assessment of security risks and hazards during emergency situations,** in which:
  - potential sources of contamination of the water sources and processing facilities are identified in areas to be supplied with drinking water; these can be agricultural, industrial or other manufacturing facilities which in the event of their destruction during emergency situations may become a source of pollution,
  - environmental conditions of the area to be supplied with water are evaluated in order to analyze the possibility of natural disasters and accidents that could expose the sources of drinking water to hazard *(Mihoková Jakubčeková, J., Benčíková, E., 2014)*,
  - the sensitivity of the used water sources and water processing facilities to the expected security risks and hazards are evaluated,
  - the possibility of taking crucial water sources and facilities out of operation is considered and alternative solutions after their removal from service are suggested,
- **the cooperation of authorities and entities involved in emergency supply:**
  - by creating an overview of technical and other means at the disposal of the given authorities and entities,
  - by close cooperation of entities whose means can be used for emergency supplies, such as adjacent municipalities, companies and other *(Mihoková Jakubčeková, J. 2015)*,
  - by a precise specification of initial cooperation between authorities and entities to avoid delays in managing the emergency situation due to initial confusion and problems which occur immediately after the onset of the emergency situation.

All required information must be processed in the documentation on the emergency drinking water supply which is a part of the contingency plan. The documentation must contain all the necessary information about the area where the emergency supply is expected to be used. Furthermore, it must specify the causes, the number of persons in need of help and it must also contain information about who shall take care of these persons, what means will be used as well as information about mutual cooperation.

Conclusion

Problems of the population protection, especially in the field of the emergency supply of drinking water, are quite extensive and complex. On the one hand, they are regulated by the current laws and regulations of the bodies of the emergency management, and on the other hand they are at the same time dependent on specific measures during the preparation of the actual activity. The actual supply is dependent on many factors the most significant of which is the availability of water sources, drawing and subsequent treatment including the transportation to the affected areas and distribution for the needs of the population (*Rak, J., Juříková, L., Ševčík, D., 2013*). It also depends on the specific knowledge of the situation, sources, means of transport and the actual distribution to the population. This activity is properly planned during the preparation and practice and in the event of the extraordinary or emergency situation it must be fully implemented in order to protect the health and life of the population.

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Reliability of models predicting financial distress – Czech models and models from developed economies

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Abstract

This paper is focused on the topic of models predicting financial distress. These approaches are also known as bankruptcy models. The aim of this paper is to compare results for models created in different conditions. On one hand there are national approaches (in our case Czech formulas), on the other hand there are models from developed economies. Formulas from developed economies were created sooner and they are based on financial accounting data of publicly traded enterprises or at least of enterprises operating on the most developed markets. Czech models were created later after replacing centrally planned economy by market economy when the entities had been started to be exposed to the risk of business default. Although there exist critiques against using models predicting financial distress in different time, area and other conditions this research would like to prove that models from developed economies have enough accuracy also for the Czech businesses. The analysis uses methods as Type I Error and Type II Error. The models are verified on the financial accounting of Czech enterprises classified as defaulted as well as non-defaulted.

Keywords: accuracy, bankruptcy models, Czech national approaches, approaches from developed economies.

Introduction

Models predicting financial distress occurred as a serious research task in 1960's in the United States. The beginnings are connected with authors as Altman (1968) and Beaver (1966). These efforts have also spread to other countries. The Czech Republic (formerly Czechoslovakia) was a part of Soviet bloc in that time and therefore these efforts had not started immediately. The reason is that enterprises in Soviet bloc could not bankrupt because of market forces and enterprises performance due to centrally planned economy. The entities could finish only because of the decision of a central authority. After the economic-political shift in 1989 the Czech enterprises have started to be exposed to the risk of business default own or related entities. The need of prediction bankruptcy raised. First step was using foreign approaches and formulas. Second step was creating own formulas for default prediction because the traditional critique of the bankruptcy models states that accuracy is connected only with the models created in the same time, area and with similar data (Grice and Dugan, 2001). The Czech Republic belongs to posttransition economies nowadays which implemented free market economy in 1990's and joined the European Union in 2004. The conditions of the Czech Republic are comparable with conditions of developed economies although Czech capital market is not efficient, there are not many IPOs and Czech accounting standards are used. After the last global economic crisis there has been reopened the debate about the usage of models predicting financial distress. Due to economic changes and further development of the Czech republic it could be possible that prediction formulas from developed economies will provide reliable results for decision making and they will be accurate enough.

Literature overview

There has been created plenty of models predicting financial distress since 1960's. This paper will be based only the Czech national models and then on the approaches which were created in the developed economies but they are also highly discussed in the Czech academic sources. The Czech approaches predicting financial distress are most known by the family indices IN – IN99, IN01

(Neumaierová and Neumaier, 2002) and IN05 (Neumaierová and Neumaier, 2005), followed by Grünwald Bonita Index (Grünwald, 2001) and Balance Analysis System by Rudolf Doucha (Doucha, 1996). New concepts are still coming as or Karas and Režňáková (2013) or Hálek (2013). These two last mentioned cannot be verified because of reasons mentioned by Čámská (2014). The formulas from the developed economies are presented by Altman Z-Score (Altman, 1993), model created by Austrian professor Kralicek (2007) and Bonita index (Wöber and Siebenlist, 2009) from the German speaking area. These foreign approaches are used for example by Klečka and Scholleová (2010) or Čámská (2015) in the Czech economic area. The approaches which will be verified in this paper have already been introduced. The page limitation of the paper does not enable to write full formulas and evaluation tables. The interested readers can find full formulas and evaluation tables in the relevant literature which is quoted in this paper.

Methods

The selected models predicting financial distress will be verified with the elementary methods based on error and reliability rates. The main advantage of tools used for verification is simplicity which enables to present results to auditorium without high mathematical statistical knowledge as in the case of neural networks or rough sets etc. Table 1 displays how the error rates are defined. It works with two kinds of error – Type I Error and Type II Error.

Table 1: Type I Error and Type II Error, Source: author based on Fernandes (2005)

		Estimated	
		Non-Default	**Default**
Observed	**Non-default**	True	False Alarm (Type II Error)
	Default	Miss (Type I Error)	True

Type I Error shows how many defaulted entities are classified as a non-defaulted entity by the specific bankruptcy model. Type II Error is a mistake in the case of classification of non-defaulted entity. It means that non-defaulted entity is classified as a defaulted entity by the used bankruptcy model. The total error rate would be a figure of sum of Type I Error and Type II Error divided by a number of all analyzed enterprises. The total error rate is not an appropriate measure when the analyzed groups are not balanced. It means that the number of defaulted enterprises should be equal or almost equal to the number of non-defaulted enterprises.

Data Samples

There will be used two data samples for the models' verification. One sample contains enterprises coded as non-defaulted because they created positive Economic Value Added (EVA) for three consecutive years. The positive EVA can be indicator of good enterprise performance (approved by Synek and Kislingerová, 2010 and Veber and Srpová, 2005) This sample consists of more than 650 enterprises. The second sample contains enterprises coded as defaulted because their insolvency proposals have been declared. This sample consists of almost 100 enterprises. Both samples contain financial accounting data of Czech enterprises belonging to construction and manufacturing industry. The limitation is that many enterprises do not publish their accounting data (Čámská, 2013 or Czech Credit Bureau, 2013) although it is an obligation.

This section should follow keywords. This section should provide background of the study and highlight research motivation.

Results

The enterprises from the data samples are classified by the selected models predicting financial distress. After the models are evaluated because their classification is compared with the real state of enterprise – defaulted and non-defaulted. The results are displayed in tables 2-5. Tables 2 and 3 show results of models using three evaluation zones ad healthy, grey zone and unhealthy. Tables 4 and 5 introduce results for models using more evaluation zone. It is Bonita Index and Grünwald approach.

Table 2 contains evaluation of the selected models predicting financial distress on the defaulted entities. There are absolute figures in the columns unhealthy, healthy, grey zone and unevaluated and as well as there are relative figures which are more important because they enable better comparison. Type I Error is a ratio which shows the number of incorrectly classified defaulted entities divided by all defaulted entities from the data sample. The highest error ratio is connected with Balance Analysis System by Rudolf Doucha. This approach has also very low reliable ratio (the number of correctly classified defaulted entities / the number of all defaulted entities). The low reliable ratio is caused by three reason – high error ratio, high number of entities classified in the grey zone and unfortunately high number of entities unevaluated. The models sometimes are not able to compute results for specific accounting data because some items are equal to zero and authors have not let any recommendation how to modify their approaches in this case. IN05 and Kralicek have the highest reliability ratio but it does not mean automatically that these approaches are the best. It is necessary to compute results also for other kind of entities – non-defaulted. The well performed models can be very strict and they can punish non-defaulted entities.

Table 2: Evaluation of national and approaches from developed economies on defaulted entities, Source: author's own computation based on financial accounting data

Model	Unhealthy	Healthy	Grey Zone	Unevaluated	Reliability	Type I Error
Altman	71	5	21	1	0.72	0.05
IN99	71	6	20	1	0.72	0.06
IN01	77	3	17	1	0.79	0.03
IN05	83	5	9	1	0.85	0.05
Doucha	51	19	12	16	0.52	0.19
Kralicek	82	4	8	4	0.84	0.04

Results for non- defaulted entities are displayed in Table 3. Balance Analysis System by Rudolf Doucha has repeatedly the highest error rate. Kralick has the highest reliability rate and it is followed by Altman and IN05. The older versions of IN indices IN99 and IN01 are too strict and they punish even entities creating the possitive Economic Value Added. If we compare Altman and Kralicek it seems that Altman provides better results for a decision making process because its error rate is significantly lower compared with Kralicek. Sum it up Altman, IN05 and Kralicek provided enough accuracy in the case of the verification on non-defaulted entities.

Table 3: Evaluation of national and approaches from developed economies on non-defaulted entities, Source: author's own computation based on financial accounting data

Model	Unhealthy	Healthy	Grey Zone	Unevaluated	Reliability	Type II Error
Altman	12	438	209	1	0.66	0.02
IN99	17	157	485	1	0.24	0.03
IN01	6	364	289	1	0.55	0.01
IN05	18	424	217	1	0.64	0.03
Doucha	89	297	262	12	0.45	0.13
Kralicek	44	455	159	2	0.69	0.07

Table 4 is dedicated to Grünwald approach whose results have to be displayed separately. It is caused by the reason that this model originally uses four evaluating zones – very unhealthy, unhealthy, good health and very good health. There is no middle zone between unhealthy and healthy. For computing error rates and reliability rates in the case of both data samples the evaluation zone very unhealthy and very good health were used. The error ratios for both groups are low. Unfortunately the reliability ratios are lower because of non-evaluation of many entities. The share of unevaluated entities is very high in the case of both data samples and therefore the use of this Czech approach is limited.

Table 4: Evaluation of Grünwald approach, Source: author's own computation based on financial accounting data

	Defaulted entities	Non-defaulted entities
Very unhealthy	48	11
Unhealthy	2	1
Good health	2	33
Very good health	9	423
Unevaluated	37	192
Reliability	0.49	0.64
Error	0.09	0.02

Table 5 is dedicated to Bonita Index whose results have to be displayed separately. It is caused by the reason that this model originally uses eight evaluating zones – extremely good, very good, good, mild good, bad, mild bad, very bad, extremely bad. The valuating zones are ordered from the healthiest one to the most unhealthy one. For computing the reliability rate in the case of the defaulted sample the evaluation zones extremely bad and very bad were used very unhealthy and very good health were used. For computing the error rate in the case of the defaulted sample the evaluation zones extremely good and very good very used. For the non-defaulted sample it was used oppositely. Both error rates are very low. It means that this index does not classify entities incorrectly. Middle zones are used but not extremely because the reliability rates especially in the case of non-defaulted entities are high. The share of unevaluated companies is almost not detectable.

Table 5: Evaluation of Bonita Index, Source: author's own computation based on financial accounting data

	Defaulted entities	Non-defaulted entities
Extremely good	4	262
Very good	2	99
Good	2	125
Mild good	0	87
Bad	17	86
Mild bad	2	0
Very bad	12	0
Extremely bad	57	0
Unevaluated	2	1
Reliability	0,72	0,91
Error	0,08	0

Conclusion

This paper was focused on the verification of the selected models predicting financial distress. The verified models were Czech national approaches as well as approaches designed in the developed economies. The verification was done on the financial accounting data of almost 800 Czech enterprises. At the end it is possible to answer a question which models should be recommended for the further use. The recommended approaches are Altman, IN05, Kralicek and Bonita Index. These models predicting financial distress have very low error ratio in both data samples and as well as high reliability ratio in both data samples. The other tested approaches did not have enough accuracy for decision making or they are based on obstacles that they do not evaluate many entities because their accounting items are equal to zero. Some errors occurred but it is no exception for researches verifying models' accuracy and even not for models' construction. Some level of errors is natural. The models predicting financial distress are not a physical law, they just work on probabilistic roots.

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A Framework for the Annotation of Arabic Legal Documents

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Abstract

Improving retrieval systems performance involves discovering more relevant answers and at the same time reducing the number of non-relevant ones that will be retrieved. Providing advanced query functionalities can serve as support to the improvement. In the legal domain, known by its complexity, advanced querying requires on beyond a rich annotation of documents that takes into account their semantic content as well as their structure. The proposed approach demonstrates that the use of NLP techniques and tools in conjunction with a domain ontology that automate the process of information extraction from legal texts through a meaningful annotation is of paramount importance to provide a better access to Arabic legal information.

Keywords: Legal documents annotation, Document's structure, Document's semantic content, domain ontology.

Introduction

Usually non-professional readers analyze a sentence related to a specific subject alone without considering other ones having the same topic. Yet, another sentence may disrupt the idea extracted from the former and so on, which can lead to the so-called radicalism. The best idea to overcome this problem is to always consider the text as a block. This means that gathering all sentences having the same topic, produce certainly a coherent, reasonable and non-radical sentence offering a global vision.

In a highly specialized and professional field such as Law, textual resources are highly delicate. Lexical, syntactic and semantic features characterizing these texts are the origin of this delicacy. Thus, a simple misunderstanding may induce to bad analyses. The idea already mentioned can be applied to legal texts and this is justified by the fact that its subjects are not linear (separate themes). The legal text is rather a single network composed of related and overlapped topics, covering a trellis that one should always take it as a block.

Having an efficient retrieval system, in the legal field, able to return all pertinent documents of a specific type that focus on a given topic defining a particular legislation, as well as their relative jurisprudence can even open new perspectives of interpretation and therefore of argumentation.

Getting from a corpus of textual information an annotated output is a demanding task, generically referred to as the knowledge acquisition bottleneck. A potential solution to this problem Information Extraction from text (IE) considered as a promising technique to improve the performance of information retrieval systems. This ability has been identified in many legal areas as in ontology construction by Lame (2004) and Peters (2009), text summarization by Moens et al (2009), Hachey and Grover (2006), extraction of precedent links by Jackson et al (2003) and factor analysis by Ashley and Brninghaus (2009) equally by Wyner and Peters (2010).

Since the annotation of unstructured linguistic information presents a challenge in legal information processing, we aim in this article to provide an approach to produce annotated Arabic legal texts from which information can be extracted, by using domain ontology and a linguistic tool. The paper is organized as follow. Section 2 reviews some recent Arabic related works. Section 3 and 4 present

characteristics of legal documents in terms of structure and content respectively. The approach, which combines the use of a domain ontology and linguistic tool, is described in Section 5. Section 6 presents results analysis. We conclude our research work and give some ideas for further works in last section.

Annotated Arabic Documents

Arabic language has received less attention compared to other languages especially in the field of annotation.

Laymen and Al-khalifa (2009) have established AraTation tool, one of the earliest tools for semantically annotating Arabic News content on the Web documents. The tool is capable of extracting named entities using an Arabic location ontology designed specifically for this purpose. Although AraTation uses an ontology for the annotation process, the ontology only covers location names and is not useful for lexical semantic relations.

Zaidi et al (2010) have presented a different work on Arabic language annotation based on GATE NLP toolkit elaborated by Cunningham and Peters (2010). The presented system was dedicated to annotate Quranic Corpus through predefined patterns that use tokenized and morphology analyzed corpus with Part Of Speech (POS) features for extracting also named entities. It's a good approach for extraction collocation, but the authors presented few forms of extraction only Noun-Adjective annotation with low result.

The majority of tools is based on Arabic named entities recognition and they are not available for download and testing. As a result of this brief literature review, we concluded that there are limited resources publicly available to semantically annotate Arabic sources, which motivates us to perform our research work.

Structures of Legal Documents

Legal documents are explicitly structured in three dimensions:

- **The document architecture dimension:** It defines the overall logical organization of information contained in the document called "logical structure" of the document. It describes the relationships that may exist between its component parts (books, chapters, sections, paragraphs, etc). A legal code is, for example, composed by a title, and books, themselves composed of a title and chapters and so on down to the basic elements. An extract from its tree representation may be in the form presented in Figure1.

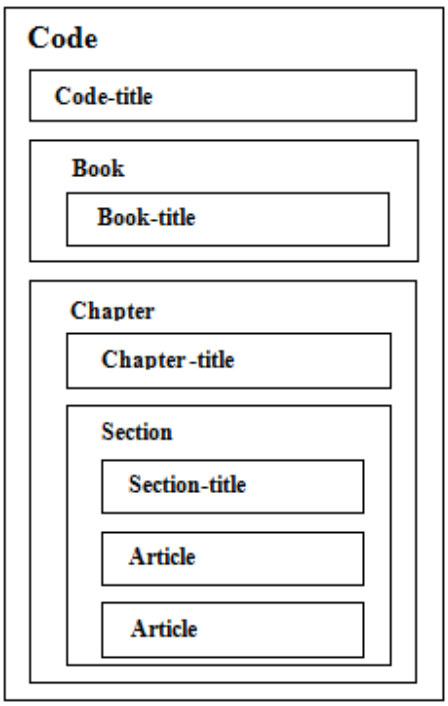

Fig 1. An example of a code's levels

- **The Meta-data information:** Meta-data are particular information that aren't in the original content of the document. Metadata are added to improve comprehension and classification of the document.
- **The Reference dimension:** It defines the relationships with other documents. These references can be to legislation, court decisions, modification, repeal, codification, etc.

Vocabulary of Legal Documents

Legal language is a language of specialty that, compared to the common language, has the obvious linguistic specifications reflecting the ambiguity and inaccuracy of the legal vocabulary. On the other hand, Arabic is a Semitic language that suffers from important morphological and orthographic characteristics that make the extraction of knowledge more complicated.
Arabic legal language combines thus several challenges in different levels.

- **Lexical level**

Legal language suffers from a high lexical heterogeneity coming from derivation, composed terms (like: Noun+Noun, Noun+Adjective, Noun+Adjective+Adjective, etc.) and sometimes caused by borrowed words from other languages.

- **Morpho-Syntactic level**

An important number of aspects are noted at this level. Words are written from right to left; Word formation: The presence of agglutinated forms (forms with proclitics and enclitic) causing several lexical ambiguities. Figure 2 illustrates what can be agglutinated to terms. They are given in Arabic along with their English translation and their transliteration using Xerox Morphology System[i].

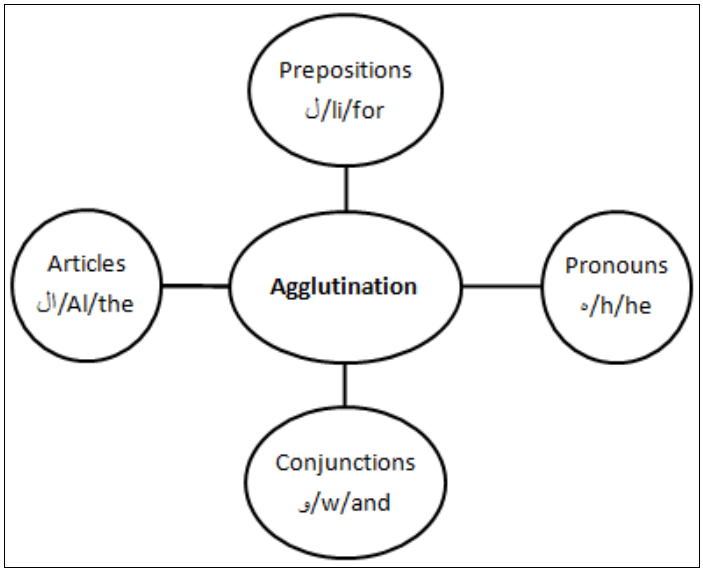

Fig 2. Agglutination's forms

Furthermore, words are complex and the meaning of some words is not composed of the meaning of their parts, the context in this case is very important; Arabic is a morphologically language providing flexibility in word formation. Besides this, sentences are long and complex which complicate the syntactic patterns; other issues consist of the absence of diacrities (voweling) leading to a high ambiguity in word analyzing and of the use of the undefined. This case concerns the Arabic words denoting a non-specific thing. Among the signs indicating that the word is undefined is the presence of "tanwine", however most of texts are not vowelized, and suffer from the absence of the article before the word; Uncompleted passive structures (characterized by the absence of the agent or complement of the subject of the sentence, which is implied); Negation and restriction marks having conditional value; Demonstrative marks and Modal marks characterize likewise Arabic legal texts.

- Stylistic level

Three different styles represent the legal documentation: Legislative style; Judicial style and Doctrinal style.

- Pragmatic level

- The implicit reference to the issuer of the legislative statement;
- The implicit reference to a possible situation, etc.

Proposed Approach

Document's structure constitutes a valuable source of information that would be important to take into account in the information extraction process. In fact, distinguishing clearly between the document's hierarchical outline structure and relations between them (especially generalization and specialization) helps to locate quasi-automatically key terms in the document, through automatic natural language processing (NLP) tools. Moreover, the structure of documents in the collection and the cross-document relations reveal additional relevant data concerning the meaning of document's elements. Metadata aims too at facilitating in the discovery of relevant information, more often classified as resource discovery.

Most methods for documents processing exploits the natural language they contain and ignore information from its structure. On the other hand, few approaches use the structural elements of documents to generate automatically or semi-automatically models or patterns based on structure. We cite the example of Kamel and Aussenac-Gilles (2009) which uses the document's structure in the process of

ontology's construction. Their approach is based on two stages. A first stage is based on the definition of structural patterns to take into account the hierarchical structure such as headings, lists and enumerations for providing a first core ontology. The second phase is to enrich this core by analyzing the text by natural language processing tools for the definition of lexical-syntactic patterns to take into account lexical, syntactic and semantic elements of plain text.

Amardeilh et al (2005) represents the structure of a document as a conceptual tree in which each node is mapped to a concept from the ontology via rules defined manually whereas Aurlien (2009) shows the interest of structural and linguistic analysis of the documents for summarization.

To the best of our knowledge, there is no previous works that deal with the processing and annotation of Arabic legal documents which make the task a real challenge. The approach, shown in Figure 3, based on the simultaneous use of domain ontology as well as a linguistic tool. It has five main steps.

1) Corpus Selection and Preparation.
2) Identification of documents Types by the use of "Arabic Legal Document Ontology (ALDO)", an ontology that we have created manually composed of the distinct types of documents.
3) Derivation of corresponding structural grammars.
4) Application of morphological then syntactic grammars by the use of NooJ tool.
5) Projection of grammars on documents for obtaining tagged files by XML Format.

Corpus Selection and Preparation

Given the obvious lack of Arabic resources and the unavailability of the existent free corpora, we built our own corpus "PenalAr". Our intention is to share it in the future with other researches either for making a comparative study with us or absolutely for other applications.

The used documents are collected from the Tunisian official publication Journal which gathers laws, decrees, and decisions from various administrations. PenalAr consists of the Criminal Procedures Penal Code (46 articles are used) and 20 Criminal Law Decisions of the Cassation Court is composed of 16737 tokens as presented in Table1. These documents are available on an internet site "http://e-justice.tn" which intends to be a web portal of Justice and Human Rights. The work on this code is justified by the fact that codes are good points of entry for conceptualization of the legal field. In its first version, the corpus was submitted to be subjected to a treatment sufficient to ensure its cleaning from orthographic errors and normalization. As a result to the following steps, the corpus will be automatically annotated with syntactic grammars elaborated through the linguistic platform NooJ constituting the final version.

Table 1: Corpus description

Document	Tokens
Code	2737
Decisions	14000

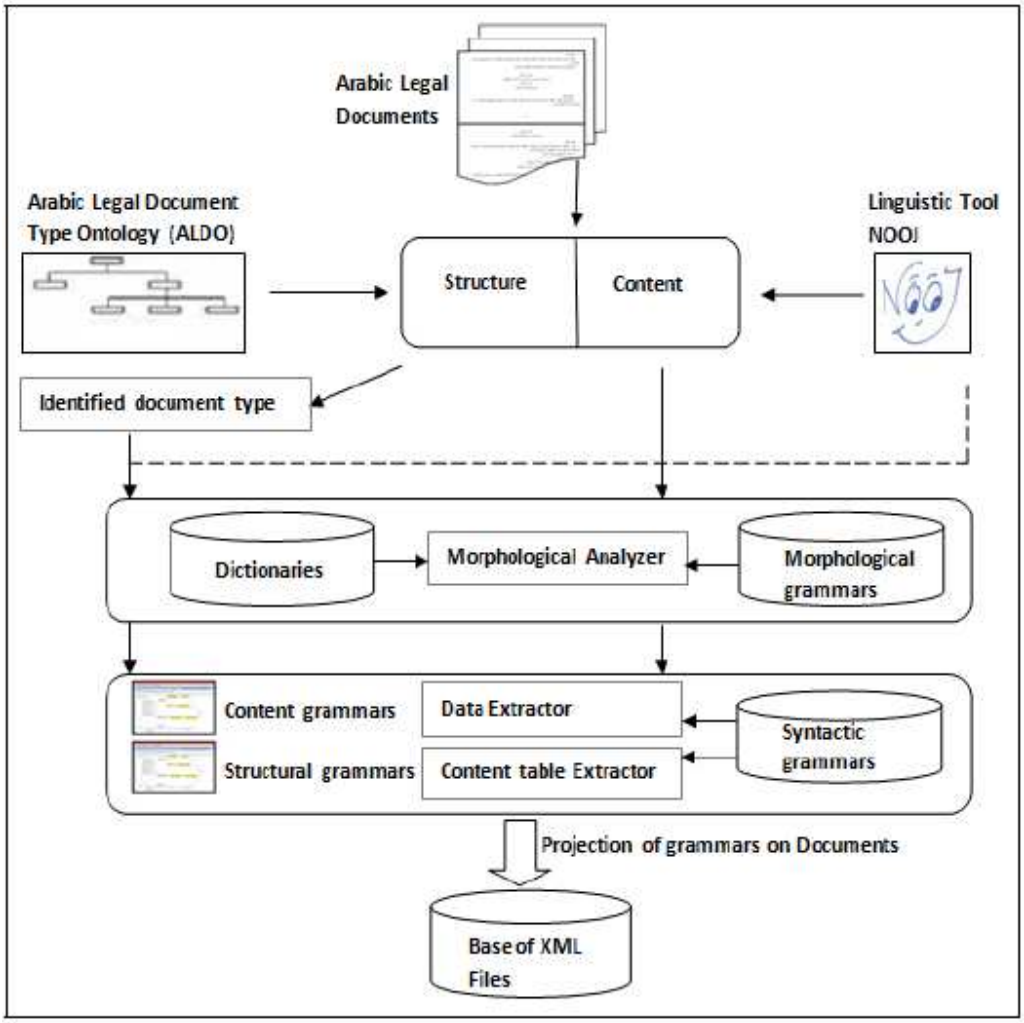

Fig 3. Approach Architecture

Identification of documents Types

Legal documents have different types, distinct structures (hierarchical structure, collection structure) and meta-data. These specific structures can be grouped by families or more precisely by document types called generic logical structures, that's why we have developed an Arabic Legal Document ontology (ALDO) defining a general legal document class, specifying all types of elements that can be used in the logical structure of a document of this class. Relations between these sub-classes are modeled while their content is not modeled here, in order to make the ontology very flexible and interoperable thus make each component directly accessible and reusable.

On the other side, legal documents are interrelated and cannot be considered in isolation. They usually contain a lot of references to other texts. References to other texts which is called "Intertextuality" is so relevant in the context of legislation and jurisprudence so it is greatly important to follow the cross references in the underlying legal documents and consider the additional information in the cited documents that contribute to the interpretation of the source texts. The document relations taken into

account in the ontology are categorized into three different types: Jurisprudence / Jurisprudence: J-J, Jurisprudence / Legislation: J-T and Legislation / Legislation: T-T.

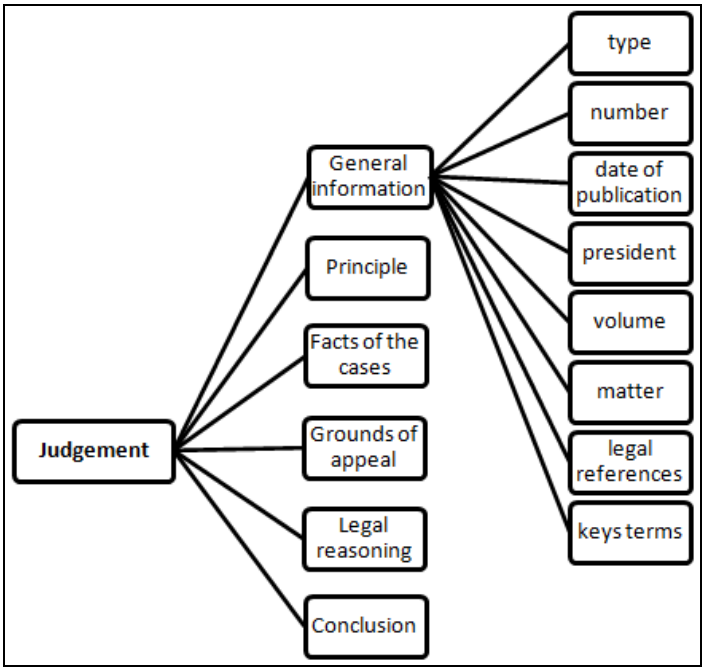

Fig 4. The judgment's structure

Figure 4 shows the judgment class from (ALDO) defining the structure of a document of judgment. We underline the existing structural models that are visually prominent of the judgment such as general information; including the judgment's number, type (criminal, civil, administrative), date of publication, the volume in which it was published, the matter, the cited legal references and some keywords; principle, facts of the cases, grounds of appeal, legal reasoning and at the end a conclusion.

Identification process is simply carried out by comparing the document title with the ontology. The title is often comprised by the first words in the document. In the legal documents, they are sometimes preceded by the republic and ministry names.

Derivation of corresponding structural grammars

Once the document type is identified, the corresponding path in the ontology will be translated by a syntactic grammar that will be applied to the document for extracting its "table of contents".

In fact, key terms are generally introduced in the document's header (title, table of contents: the introduction, the chapters and sections titles, enumeration lists, the conclusion and the reference list). Both document's authors and readers usually focus their attention on these parts. In order to recognize them, we have elaborate grammars represented as directed graphs and apply them to documents.

The graph in the Figure 5 detects the hierarchic structural information of a legal code by recognizing its table of contents. Noting that each code is thematically divided into chapters, sections and subsections and its basic elements are articles which can contain various kinds of enumeration lists. Enumerative structures benefit from an easily identifiable layout, maintain relations between their different items, present regularities and occur frequently. The result is then a list composed of titles for rapid information on the main topics of the document.

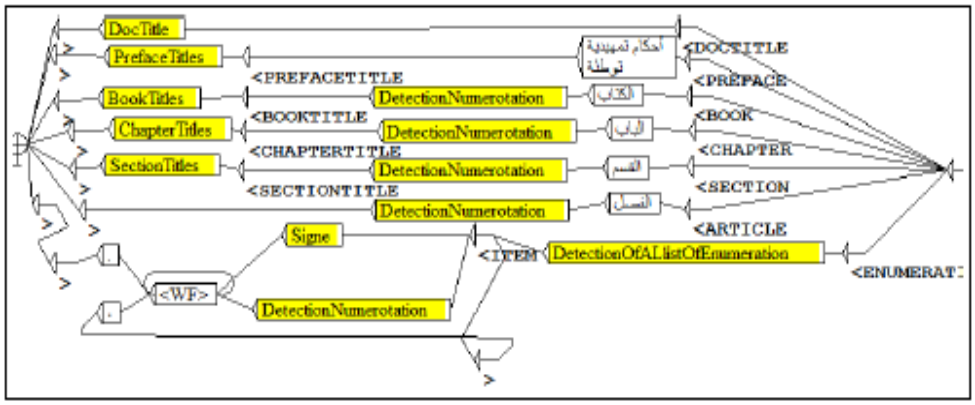

Fig 5. Grammar of legal code structure detection

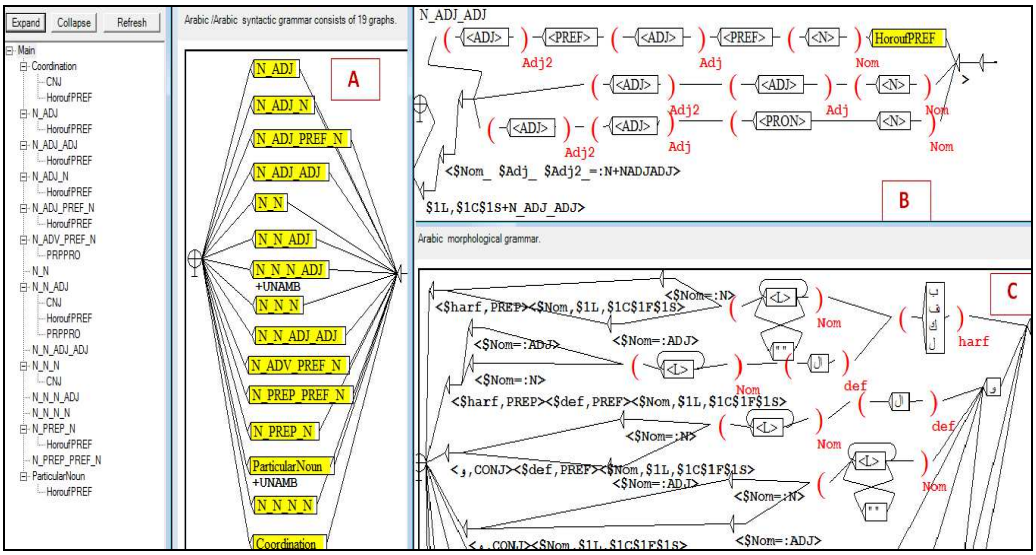

Fig 6. A,B. Graph of Syntactic grammar, C. Graph of morphological grammar

Application of morphological and syntactic grammars

Legal written sources are currently almost exclusively composed of natural language texts (unstructured information) so information extraction from texts requires especially NLP.

NooJ built by Silberztein (1993) is used as a software tool to recognize linguistic elements. It is a freeware, linguistic engineering development environment used to formalize various types of textual phenomena (orthography, lexical and productive morphology, local, structural and transformational syntax) using a large gamut of computational devices. It includes tools to construct, test, debug, maintain and accumulate large sets linguistic resources, and can apply them to large texts.

This step is consisting of three fundamental tasks:

- Construction of morphological grammar

Agglutinative forms are not present in the NooJ's dictionary of inflected forms. To solve this issue, a morphological grammar of agglutination is constructed. A part of this grammar is shown in Figure 6.C.

- Creation of an Arabic dictionary for legal compound terms

NooJ can treat simple and compound word using a set of dictionaries in different language except the Arabic concerning the compound terms. For this reason, it is crucial to create a dictionary of legal compound terms so as to recognize them later.

Compound terms are extracted manually. Noting that Arabic NooJ's dictionary generally associates each lexical entry with an inflectional and/or derivational paradigm to describe its syntactic and semantic and inflectional (gender, number, conjugation...), and derivational features. For instance, each Noun in the dictionary entry has the form presented in the following form: "محكمة, N+tribunal+FLX=Flexion2+DRV=Manazil30:Flexion16". This line means that the entry محكمة/mHkmp/court has the category Noun (N), described in French as 'tribunal' and that is conjugated by applying the grammar 'Flexion2' and its derivation follows the grammar 'Manazil30:Flexion16'. In the same way, manually compound terms are added to the dictionary.

In the same way, manually compound terms are added to the dictionary (legal dictionary) with its semantic attribute referring to the category of the compound noun in order to treat each category separately in the syntactical grammar. For facilitating this step, we designed a java prototype allowing the insertion of new terms in a semi-automatic way. The insertion process is based on the determination of the category of the new term and its classification among existing input. We apply the nearest neighbor algorithm to return the class of the term. A new type will be added to the dictionary if this latter is not determined. The designation of the term is extracted from some terminologies uploaded and stored in the same project. By this way, our framework can be extended to endure various matters of the law and even to other domains.

- Construction of syntactical grammar

In order to treat each category separately in the syntactical grammar, we have added semantic attribute referring to the category of the compound noun. Also we have studied to each entry their possible different derivational, inflectional forms as it is illustrated in Figure 7. To allow this process, Inflectional and Syntactical grammars are constructed. The former, based on generic commands as shown in Figure 7, concerns the Inflectional/Derivational description in order to generate the different voweled forms of the dictionary entries. For us, this grammar is obviously costly in terms of time since the legal text is usually very rich by variants. The latter is dedicated to extract all related derived and agglutinated forms.
As it is illustrated in the Figure 6.A, the root graph called the grammar is composed of sub-graphs where each one contains the appropriate treatments of the specific grammatical category like for the category N_ADJ_ADJ in Figure 6.B.

```
# Generic Commands:
# <B>: keyboard Backspace
# <C>: change Case
# <D>: Duplicate current char
# <E>: Empty string
# <L>: keyboard Left arrow
# <N>: go to end of Next word form
# <P>: go to end of Previous word form
# <R>: keyboard Right arrow
# <S>: delete/Suppress current char
# Arguments for commands <B>, <L>, <N>, <P>, <R>, <S>:
# xx number: repeat xx times
# W: whole word
Flex_Deriv_NADJ=
Ó<P>/un |
Ó<P>/an |
Ọ<P>/in |
Ó<LW>J|<P><LW>J|<R><S>/a |
Ó<LW>J|<P><LW>J|<R><S>/u |
Ọ<LW>J|<P><LW>J|<R><S>/i |
#Plural form
Ó<LW>J|<P><L3>|<L2><S><LW>J|<R><S>/N+p+a |
Ó<LW>J|<P><L3>|<L2><S><LW>J|<R><S>/N+p+u |
Ọ<LW>J|<P><L3>|<L2><S><LW>J|<R><S>/N+p+i |
Ọ<P><L><S><L><S><L2>|<L2><S>/N+p;
```

Fig 7. Flexion grammar

Projection of grammars on Documents

The projection of constructed grammars on documents with NOOJ is articulated around three steps:

- Selection of the used dictionaries in the "Lexical Analysis" in Preferences from Info Panel
- Selection of the appropriate Grammars in the "Syntactic Analysis" in Preferences from Info Panel
- Performing the Linguistic Analysis in TEXT Panel

After having applied the grammar to the document, NooJ can extract the matching sequences and builds a concordance. It is also possible to ask NooJ to produce an annotated text by applying the grammar to the text. The resulting text can be exported as an XML document, in which XML tags have been inserted.

Evaluation

The data used in the experiments consists of the new-tunisian-constitution's draft released on June 2013 after Tunisia's 'Jasmine Revolution' and 20 decisions 20 Criminal Law Decisions of the cassation Court containing 9870 tokens. The constitution is composed of 164 articles. It is published on the Tunisia OpenGov site[ii]. We use a sample of 50 articles for the test including 1342 tokens. The decisions are available on the web portal site of Justice and Human Rights "http:// ejustice.tn".

The example given in Figure 8 presents a structural annotation of the Tunisian-constitution document and the sample given in Figure 9 shows a portion of an article before and after the whole annotation.

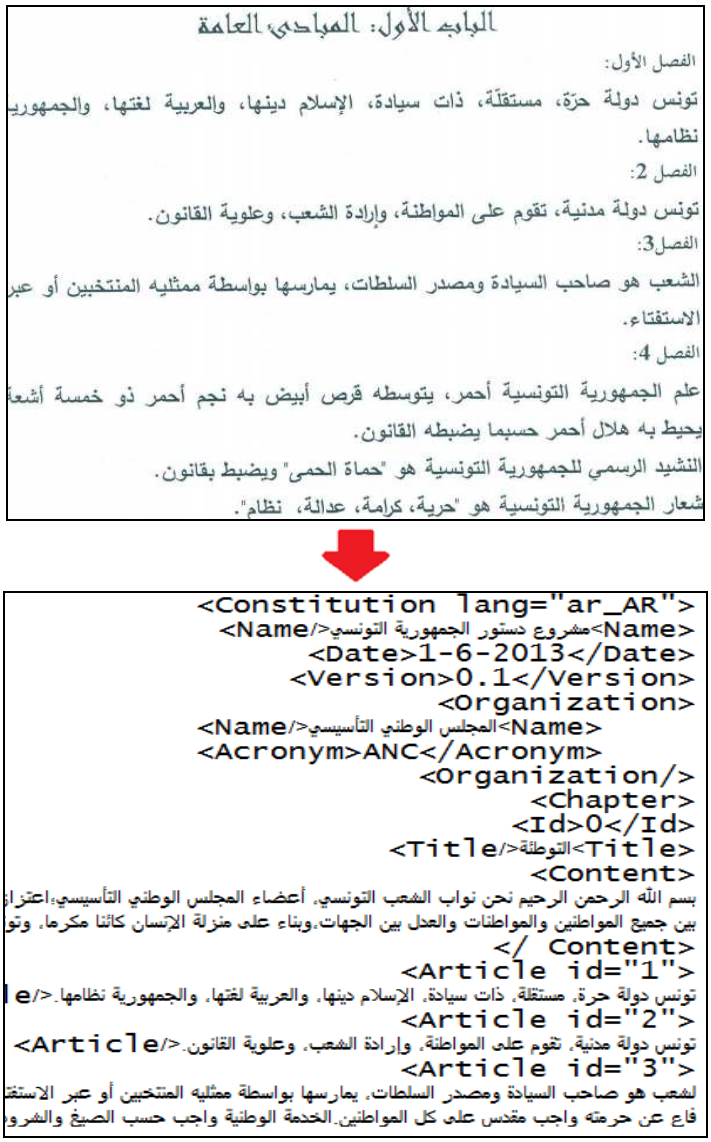

Fig 8. An excerpt of Tunisian-constitution and its corresponding structural annotation

At this point, it is necessary to mention that the results presented are the consequence of the recognition of the expressions expressed by grammars (structural and syntactic). Each annotated term (simple ST or compound CT) is defined by its lemma and semantic attributes referring to its description as well as its grammatical category.

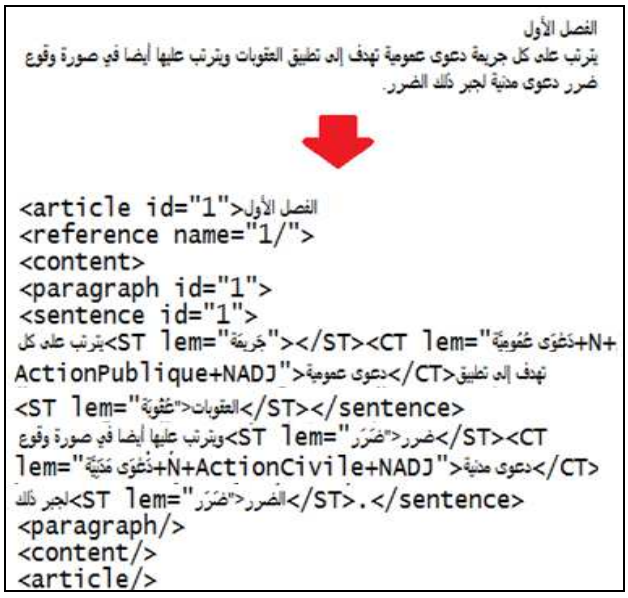

Fig 9. An example of the result annotation

We depend on two important measures which are commonly used to evaluate such process: precision and recall.

- **Recall:** is defined as the returned number of relevant annotations divided by the total number of existing relevant annotations.
- **Precision:** is defined as the returned number of relevant annotations divided by the total number of annotations.

Table 1: Result of evaluation

Measures/Annotation type	Syntactical	Structural
Precision	85%	73.7%
Recall	94.43%	100%

From our experimentation, we can say that our approach achieved best results as shown in Table 1 which confirm its performance since as regards testing and results on this data, satisfactory ratio are reported for syntactic annotation as well as for structural annotation.
The incorrect matches correspond mostly to the syntactic annotation due to sequences containing anaphora.

The provided results by the approach have been assessed and validated by two legal experts, a lawyer and a Professor of Law. The former assessed the structural annotation while the latter evaluated the second kind of annotation: the syntactic annotation. Their relevance judgments have achieved an acceptable level of agreement since the proposed approach offers a potentially useful alternative to the manual assignment of index terms. For comparisons with other methods, since no previous work in Arabic domain using NooJ in the process of documents annotation and retrieval and other methods found. So we cannot compare our methodology with other researches.

The aim of the evaluation is to assess the framework's performance, for that we implement a prototype of a search process. Indexing is used for the quick retrieval of relevant documents for a search query. The corpus of all annotated documents is stored in a database to begin the process of indexing and searching. We depend on LUCENE search engine in this process which is free open source information retrieval library released under the Apache Software License. LUCENE was originally written in Java, but it has ported to other programming languages as well.

After the identification step, the user can begin writing his query which will be the annotation type coming from the process of documents annotation and then send the query. The search process starts over the annotated documents and the results will be presented in the form of documents that match the query as shown in Figure 10 A and B.

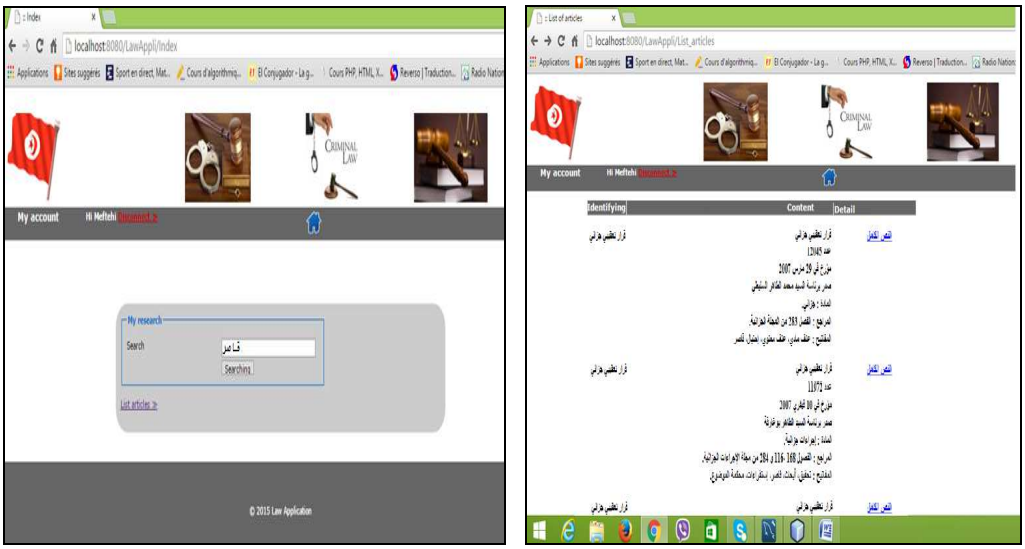

Fig 10**. A,B. Search using the word "قاصر/minor" and its result**

Conclusion

The present paper has given an overview of how the Semantic Web technology, notably the ontologies, and Natural Language Processing (NLP) apply to Arabic legal textual information to support annotation for effective retrieval. In our view, it holds great promise in making legal information more transparent and available to more legal professionals. The use of NLP in conjunction with ontologies to annotate legal texts is a fast-developing, results-oriented area which targets meaningful applications for legal professionals. The annotation will be more fruitful by resolving textual grammatical cohesion. We will be charged of this deficiency as perspective.

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Analysis of Key Factors of High Level Monthly Earnings in the Czech Republic

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Abstract

This paper focused on the analyzing the key drivers of differentiating the high level salaries from the middle and low ones in the Czech Republic. Two segments were examined separately: employees at the managing position and employees who are not at the managing position. The main data source was the Survey of Adult Skills (PIAAC). Importance of the different predictors in the differentiating the high level salaries from the others was examined by Stochastic Gradient Boosting approach. The evaluation of the final model was conducted based on the AUC value using the testing set: for employees who are at managing position the AUC is equal to 0,7304; for the segment of employees who are not at the managing position the AUC is 0,8176. For both segments the level of education, gender, regionality, area of study, learning activities, index of readiness to learn and index of using ICT skills at home play a significant role in the differentiating between the high monthly earnings and middle or low earnings.

Keywords: stochastic gradient boosting, over-fitting, tuning parameters, AUC, ROC

JEL Classification: C52, C53

Introduction

There are many factors which can have an impact on the monthly earnings. It can be the level of education, the area of study, work experience, different kinds of learning activities, personal and professional skills, some demographical features and many other factors. The key factors determining the person's monthly earnings may differ for different groups.

The current paper examines the key drivers of differentiating the high level salaries from the middle and low ones in the Czech Republic. Due to the fact that for the employees at the managing position and for employees who are not these factors can be different, the analysis of the earnings' dependence on the different factors was conducted separately for employees who are at the managing position and for employees who are not. Importance of the different predictors in the differentiating the high level salaries from the others was examined by Stochastic Gradient Boosting technique.

The paper is structured into three parts. Firstly, the data set used in this research is described. Secondly, the methodology, determining the continuity of the steps in the empirical part, is introduced. The final chapter is focused on the empirical analyzing and modeling. The paper is finalized by the main conclusions.

Data Set

This section discusses the input data used in the analysis. The main data source was the Survey of Adult Skills (PIAAC[1]) which took place from August 2011 to March 2012 in 24 countries. For the purpose of the current research the Czech Republic data set was examined.

The remuneration of the employees and self-employed people is described by monthly earnings including bonuses for wage and salary earners and self-employed, PPP corrected measured in US $. The respondents with monthly earnings more than 10 000 USD were excluded from the analysis. The explanatory variable (y) takes the value 1 when the monthly earnings are equal or exceed 2000 USD,

[1] http://www.oecd.org/site/piaac/publicdataandanalysis.htm

otherwise the value is equal to 0. The explanatory variables, which impact on the monthly earnings' level is examined, are the following:

- AGE_C - respondent's age (9 categories: aged 19 and younger, aged 20-24, aged 25-29, aged 30-34, aged 35-39, aged 40-44, aged 45-49, aged 50-54, aged 55 or older)
- GENDER_R - respondent's gender (2 categories: male, female)
- EDLEVEL3 - educational level of the respondent (3 categories: high, medium, low)
- AGE_FIN - age of finish of the highest education (6 categories: aged 15 or younger, aged 16-19, aged 20-24, aged 25-29, aged 30-34, aged 35 or older)
- AREA_STUDY - are of study of the respondent's highest qualification
- LEARN_ACT_LY - (number of learning activities last year, 5 categories: no learning activities, one learning activity, more than one, respondent reported learning activities but number is not known, information on learning activities is not known)
- ACTIVITY_SPEC - the specification of the learning activity last year (4 categories: a course conducted through open or distance education, a seminar or workshop, an organized session for on the job training or training by supervisors or co-workers, other kind of course or private lesson)
- JOB_REL - the learning activity last year related to job (2 categories: yes, no)
- JOB_USEFUL - how the learning activity last year was useful for job (4 categories: very useful, moderately useful, somewhat useful, not useful at all)
- ACT_W_START_NO - there are some learning activities, which respondent wanted to start but did not (2 categories: yes, no)
- LIVING_PAR - living with spouse or partner (2 categories: yes, no)
- WORK_PAR - working situation of spouse or partner (9 categories: student, apprentice or internship, full-time employed (self-employed, employee), part-time employed (self-employed, employee), fulfilling domestic tasks or looking after children/family, in retirement or early retirement, permanently disabled, unemployed, other)
- CHILD_NUM - number of children (4 categories: 1, 2, 3, 4)
- HOUSHOLD_PEOPLE - people in household (4 categories: 1, 2, 3 or 4, more than 4)
- EDUC_M_FG - mother's or female guardian's highest level of education (3 categories: ISCED 1, 2 and 3C short, ISCED 3 (excluding 3C short) and 4, ISCED 5 and 6)
- EDUC_F_MG - father's or male guardian's highest level of education (3 categories: ISCED 1, 2 and 3C short, ISCED 3 (excluding 3C short) and 4, ISCED 5 and 6)
- REGION - geographic region in the Czech Republic (8 categories: CZ01, CZ02, CZ03, CZ04, CZ05, CZ06, CZ07, CZ08)
- EDWORK - interaction between adults' work and education status (5 categories: in education and work, in education only, in work only, not in education or work and has not participated in education or training in last 12 months, not in education or work but has participated in education or training in last 12 months)
- READYTOLEARN_CA - Index of readiness to learn (6 categories: lowest to 20%, more than 20% to 40%, more than 40% to 60%, more than 60% to 80%, more than 80%, all zero responses)
- ICTHOME_CA - Index of use of ICT skills at home (6 categories: lowest to 20%, more than 20% to 40%, more than 40% to 60%, more than 60% to 80%, more than 80%, all zero responses)
- INFLUENCE_CA - Index of use of influencing skills at work (6 categories: lowest to 20%, more than 20% to 40%, more than 40% to 60%, more than 60% to 80%, more than 80%, all zero responses)
- NUMHOME_CA - Index of use of numeracy skills at home (basic and advanced) (6 categories: lowest to 20%, more than 20% to 40%, more than 40% to 60%, more than 60% to 80%, more than 80%, all zero responses)
- WORK_PAID_YEARS - years of paid work during lifetime (9 categories: no years of paid work, two or less, more than 2 to 5, more than 5 to 10, more than 10 to 15, more than 15 to 20, more than 20 to 30, more than 30 to 40, more than 40)

- START_AGE - age of starting of work for employer (current work) or starting work for business (current work) (9 categories: aged 19 and younger, aged 20-24, aged 25-29, aged 30-34, aged 35-39, aged 40-44, aged 45-49, aged 50-54, aged 55 or older)
- ECON_SECTOR - economic sector (3 categories: a non-profit organization, the private sector, the public sector)
- IND_MANAGE - managing other employees (2 categories: yes, no)
- EMPLOYER_WORK_NUM - amount of people working for employer (5 categories: 1 to 10, 11 to 50, 51 to 250, 251 to 1000, more than 1000)

In case of the labels: "Valid skip", "Don't know or "Refused" the category "miss" was introduced.

Methodology

Boosting is one of the most powerful machine learning technique for classification and regression problems. Boosting works in a similar way as Bagging, but comparing to it where each tree is built on a bootstrap data set independent of the other trees, in case of Boosting the trees are grown sequentially, which means that each tree is grown using information from previously grown trees. Instead of bootstrap sampling in Boosting each tree is fit on the modified version of the original data set. Boosting involves combing a large number of decision trees. The tree is fitted using the current residuals rather than the outcome. In the current model the decision tree is fitted to the residuals from the model, then the new decision tree is added into the fitted function in order to update the residuals. In boosting the construction of each tree depends on the trees that have already been grown. (James, G., Witten, D., Hastie, T., Tibshirani, R., 2013, p.321)

Boosting has the following tuning parameters:

- the number of trees (*n.trees*)
- the shrinkage parameter (λ). This controls the rate at which boosting learns.
- *interaction depth* - the number of splits at each tree, it controls the interaction order of the boosted model.
- the number of observations in leaves (*n.minobsinnode*) - the minimum number of observations in trees' terminal nodes.

Let y is a response variable and $\mathbf{x} = \{x_1,...,x_n\}$ is vector of explanatory variables. $\{y_i, \mathbf{x}_i\}_1^N$ is training sample of known (y, **x**) values. The aim is to find a function $F^*(\mathbf{x})$ that maps **x** to y, so that over the join distribution of all (y, **x**) values, the expected value of some specified loss function $\Psi(y, F(\mathbf{x}))$ is minimized (Friedman J., 1999)

$$F^*(\mathbf{x}) = \arg\min_{F(\mathbf{x})} E_{y,\mathbf{x}} \Psi(y, F(\mathbf{x})).$$

Boosting approximates $F^*(\mathbf{x})$ by the "additive" expansion of the form

$$F(\mathbf{x}) = \sum_{m=0}^{M} \beta_m h(\mathbf{x}; \mathbf{a}_m),$$

where the functions $h(\mathbf{x};\mathbf{a})$ ("base learner") are usually chosen to be simple function of **x** with parameters **a.** For $m = 1, 2, \ldots, M$

$$(\beta_m, \mathbf{a}_m) = \arg\min_{\beta,\mathbf{a}} \sum_{i=1}^{N} \Psi(y_i, F_{m-1}(\mathbf{x}_i) + \beta h(\mathbf{x}_i, \mathbf{a}_m))$$

and

$$F_m(\mathbf{x}) = F_{m-1}(\mathbf{x}) + \beta_m h(\mathbf{x}; \mathbf{a}_m).$$

The algorithms of Gradient boosting and Stochastic gradient boosting can be found in (Friedman J., 1999) and (Friedman J., 2001).

Variable Influence

Consider that the tree has *L* splits. The influence of the variable *j* in a single tree *T* can be defined as (Natekin A., Knoll A., 2013)

$$Influence_j(T_i) = \sum_{i=1}^{L-1} I_i^2 1(S_i = j)$$

The measure is based on the number of times a variable is selected for splitting.

The overall influence of the variable *j* in the ensemble can be calculated as (Natekin A., Knoll A., 2013).

$$Influence_j = \frac{1}{M} \sum_{i=1}^{M} Influence_j(T_i).$$

Empirical Modeling

In the empirical part the factors that may have an impact on the differentiating of the high earnings from the middle and low monthly remunerations are examined in two segments: employees who are at managing position and employees who are not at the managing position. All calculations were done in R Studio.

Fig 1 shows the distribution of the monthly earnings including bonuses for wage and salary earners and self-employed, PPP corrected $US with corresponding median for the employees who manage other employees and for those who do not.

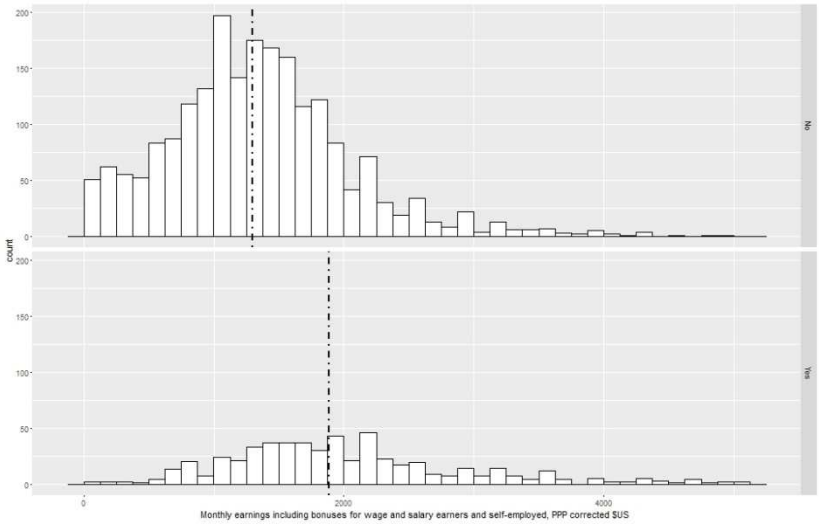

Fig 1. Distribution of the monthly earnings including bonuses for wage and salary earners and self-employed, PPP corrected $US for the employees who managing other employees and for those who do not. Own calculation in R Studio, *ggplot2* package. Data source: PIAAC.

According to the methodology part the Stochastic Gradient Boosting approach was applied. In R Studio the calculations were performed by using *caret* (Kuhn M. et al., 2016) and *gbm* (Ridgeway G., 2015) packages. Firstly, the stratified random split of the data was performed, where in case of the first segment (employees at the managing positions) 80% of data were allocated to the training set and the rest 20% create the testing set; in case of the second segment (employees not at the managing position) 75% of data were allocated to the training set. In order to avoid over-fitting and find the reproducible structure in the data, the resample techniques have been used. For both segments 5 repeats of 10 cross-validation and tuning parameter grid was specified as:

- *n.trees* from 100 to 1000, step is 100
- *interaction depth* - equality to 3, 5 or 9 was examined
- the *shrinkage* parameter (λ) was set equal to 0,001
- *n.minobsinnode* was set equal to 10

The optimal model has been chosen based on *ROC* metric.

Before applying the Stochastic Gradient Boosting technique the data preprocessing was performed. Firstly, the factor variables have been dummified, the "near-zero-variance" predictors have been eliminated prior modeling.

Employees, managing position

As it was stated above the optimal model was used based on the ROC metric using the largest value. The final values of the tuning parameters used in model are: *n.trees* = 1000, *interaction depth* = 5, *shrinkage* = 0,001 and *n.minobsinnode* = 10. The model's evaluating was performed using the data allocating in the testing set based on the AUC value. AUC is equal to 0,7304.

Based on the final model's results the variables, which have been indicated as the most important, are the shown at Fig 2.

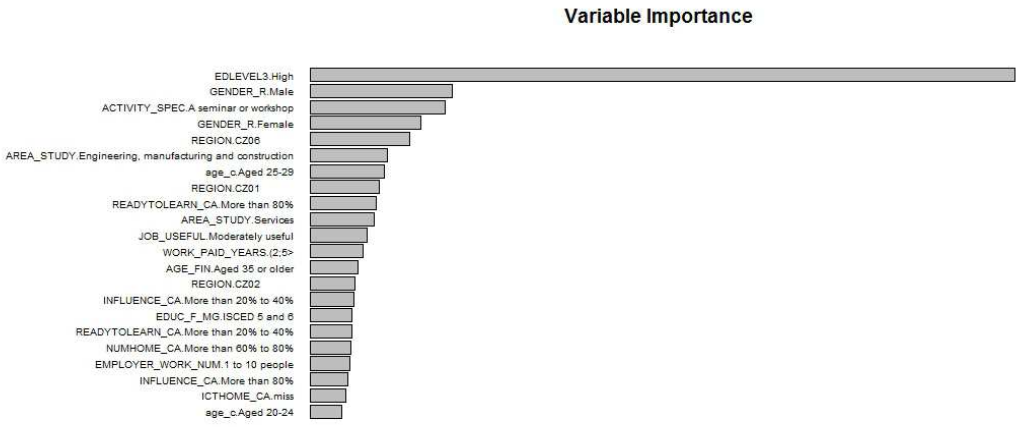

Fig 2. Variable importance based on the Stochastic Gradient Boosting model (employees are at the managing position). Own calculation in R Studio, *caret, gbm* packages. Data source: PIAAC.

Based on the results (Fig 2) in case of the employees at the managing position the greatest impact on the differentiating the high level monthly earnings from the middle and low ones is the indicator of the high level of education. Gender also plays a significant role. Fig 3 shows the distribution of the outcome variable (*High*) for the different levels of education for male and female separately.

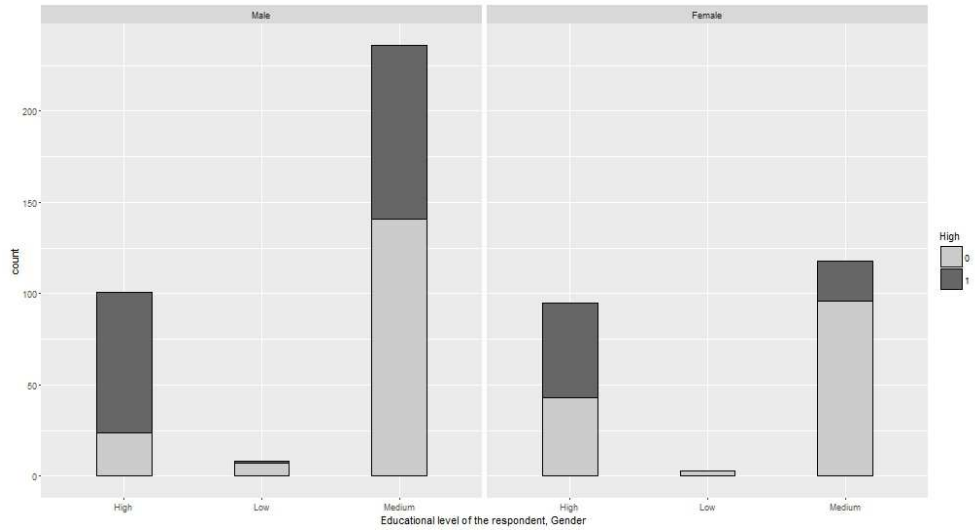

Fig 3.Distribution of the outcome variable (*High*) for different level of education for male and female. Own calculation in R Studio, *ggplot2* packages. Data source: PIAAC.

Based on Fig 3 it can be noticed that for both male and female employees at the managing positions the prevailing proportion of employees with high level monthly earnings is in the high education level category, but in case of male employees this proportion is higher (76%) than in case of male employees (55%) .

The distribution of the outcome variable in case of area of study (chosen categories with biggest representation) of the respondent's highest qualification for male and female can be observed at Fig4.

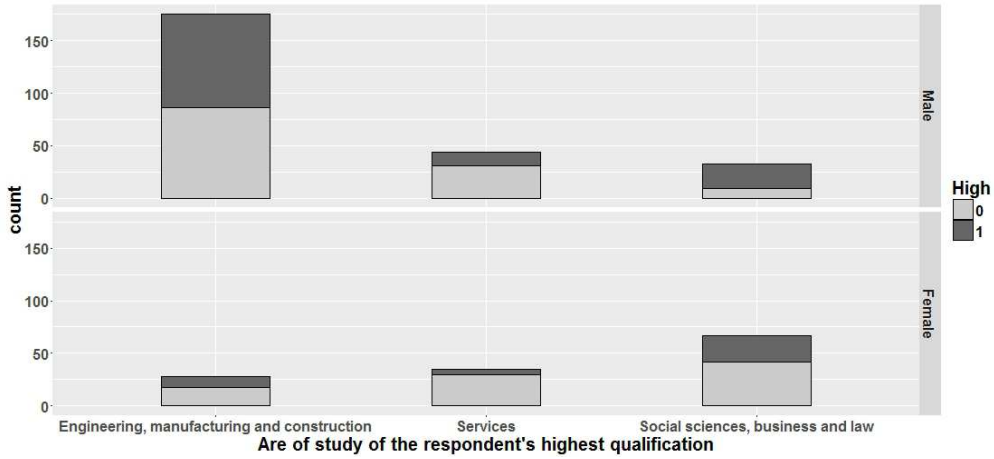

Fig 4.Distribution of the outcome variable (*High*) for the chosen areas of study. Own calculation in R Studio, *ggplot2* packages. Data source: PIAAC.

It can be observed that for male the category *Engineering, manufacturing and construction* has the biggest absolute representation comparing to others categories and in this category for male employees the proportion of employees with high level monthly earnings is 51% ,while for the female employees it is equal to 36%; for female the category *Social sciences, business and law construction* has the biggest absolute representation in this category for female employees the proportion of employees with high level monthly earnings is 37% ,while for the male employees it is equal to 73%.

According to the model's results (Fig 2) personal and professional kills measured by different indices are also among the most important variables.

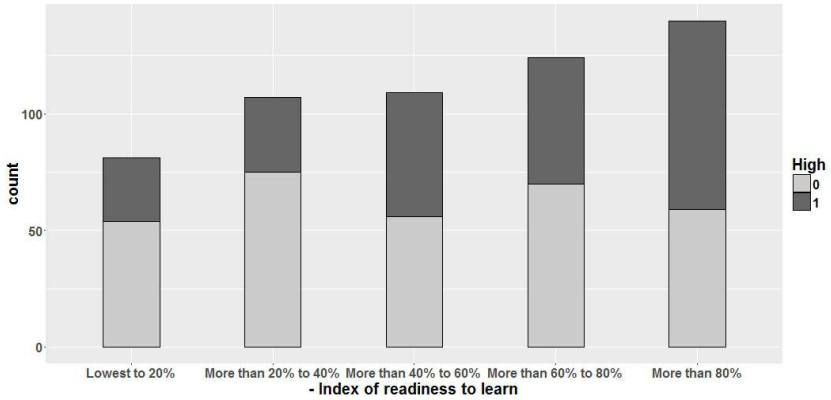

Fig 5.Distribution of the outcome variable (*High*) for different categories of Index of readiness to learn. Own calculation in R Studio, *ggplot2* packages. Data source: PIAAC.

Looking at Fig 5, it can be seen that employees at the managing position with high level of monthly earning are most relatively represented in the last category (more than 80%). In case of indices of using numerical and ICT skills at home the greatest relative representation of the employees with high level earnings is for the highest categories (more than 60% to 80% and more than 80%).

Based on the results provided by the model it can seen that the learning activity last year (category: *seminar or workshop*) plays also a significant role in the differentiating the high and other levels of monthly earnings. Ragionality plays also a significant role in the differentiating between the high level of monthly earnings and other levels. The greatest representation employees with outcome value equal to 1 is in Prague and Stredni Chechy region.

Employees, no managing position

The final values of the tuning parameters used in model are: *n.trees* = 1000, *interaction depth* = 9, *shrinkage* = 0,001 and *n.minobsinnode* = 10. The model's evaluating was performed using the data allocating in the testing set based on the AUC value. AUC is equal to 0,8176.

Fig 6 shows the most important variables based on the final model's result.

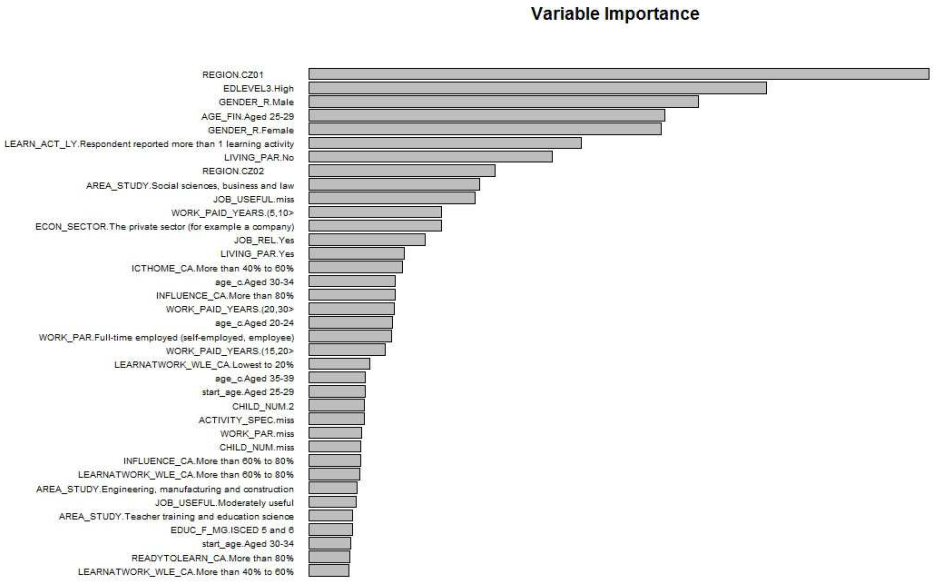

Fig 6. Variable importance based on the Stochastic Gradient Boosting mode (employees are not at the managing position). Own calculation in R Studio, *caret, gbm* packages. Data source: PIAAC.

Based on the Fig 6 it can be noticed that in case of the employees who are not at the managing position the ragionality plays a significant role as well in the differentiating the high levels of monthly salaries from middle and low levels. Similarly to the segment of the employees at the managing positions Prague and Stredni Chechy have the major share of the employees with high earnings. As well as in the previous model high level of education, gender, learning activities, area of studying, indices of readiness to learn or using ICT skills at home are important in the differentiating between high and middle with low monthly earnings. Looking at the distribution of outcome for the different categories of the father's or male guardian's highest level of education (Fig 7 and Fig 8) for two segments (employees are at the managing position and employees who are not), it can be observed that for both segments the major relative representation the outcome with value equal to one is in case of the category OSCED 5 and 6, but for employees at the managing position the share of employees with high level salaries exceed the employees with middle and low salaries in the category of OSCED 5, 6 of the father's or male guardian's highest level of education.

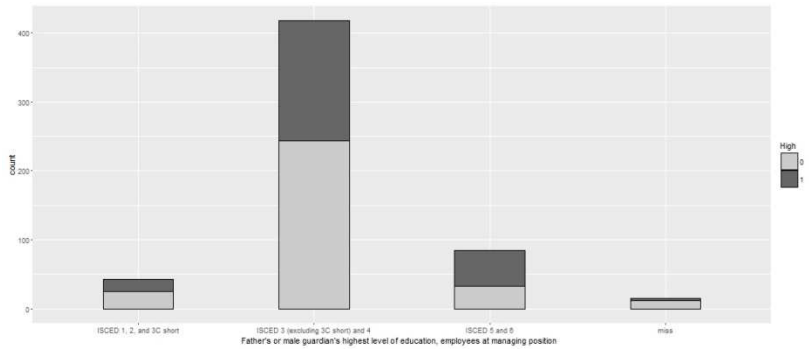

Fig 7.Distribution of the outcome variable (*High*) for different categories of father's or male guardian's highest level of education, employees are at managing position. Own calculation in R Studio, *ggplot2* packages. Data source: PIAAC

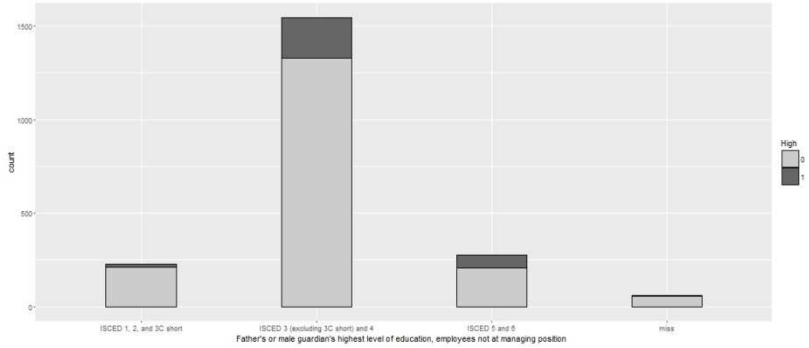

Fig 8.Distribution of the outcome variable (*High*) for different categories of father's or male guardian's highest level of education, employees are at managing position. Own calculation in R Studio, *ggplot2* packages. Data source: PIAAC

Analyzing the demographic features also provides the interesting findings. In table 1 there are proportions of the categories of outcome variable for different categories of number of children for both segments. It can be noticed that in case of managing position the category of 2 children has the highest relative representation while for employees who are not at the managing position this category is the second after the category of "no" children.

Table 1 Proportion of the outcome's categories for different categories of number of children

Number of children	Manag.position (y =0)	Manag.position (y =1)	No.Manag.position (y =0)	No.Manag.position (y =1)
1	0,188	0,162	0,164	0,200
2	0,408	0,441	0,343	0,321
3	0,073	0,113	0,079	0,053
4	0,025	0,037	0,035	0,026
no	0,306	0,247	0,379	0,400

Conclusion

The current paper examined the factors that have an impact on the differentiating of the high earnings from the middle and low monthly earnings in the Czech Republic. As a high level monthly earnings were considered the earnings which are equal or exceed 2000 USD. The analysis was performed separately for two segments: for employees at managing position and employees who are not at the managing position. The main data source was the Survey of Adult Skills (PIAAC). The analysis was conducted with the use of Stochastic Gradient Boosting approach. For both segments such variables as: level of education, gender, regionality, area of study, learning activities, index of readiness to learn and index of using ICT skills at home play an important role in the differentiating between the high monthly earnings and middle or low earnings. The father's or male's guardian highest education (category: OSCED 5 and 6) is among important variables for both segments as well, but in case of the employees at the managing position the share of high level earnings in this education category (OSCED 5 and 6) exceeds the share of middle and low earnings.

Acknowledgements

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Consumer Behavior in the Banking System. Romania's Case on Real Estate Loans

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Abstract

This research paper represents the highlights found in a study done by using a questionnaire in trying to reach the level of adversity towards risks on contracting a real estate loan, the level of knowledge and understanding had on the way financing tools work when it comes to loans and the perspective towards were does an emerging economy situates itself, in this situation being the case of Romania.

The main goal of the study was to observe if something changed in their behaviour during these years of economic and social turmoil and to highlight an answer to broad question: how do Romanians react and quantify the risk had by a real estate loan or investment? The dynamic answer given to this question resulted by using an online questionnaire that had 1214 respondents between December 2015 – February 2016. The data that resulted is explained here with the purpose to map how Romanian's economically feel were they are heading and to better understand what are their main concerns regarding their expectations and motivations.

Keywords: consumer behavior, real estate loans, interbank interest rate, banking system

Introduction

In the years following the economic crisis businesses went bankrupt and with them the lives of those owning the businesses or employed at those companies. For those that went on and reached their potential in other jobs, nothing changed, but for those that remained unemployed there was some pressure developed, reaching their basic needs each day, and in Romania's case, for 800.000 of them, reaching the ability to pay their mortgages and loans.

To better understand the social pressure developed by not paying your loans we will present both sides, the banks that offer loans, the population that borrows, but both sides are regulated and shaped by the National Bank of Romania and the Romanian Parliament.

The social pressure – unchained

Radu Ghetea, Honorary President of the Romanian Association of Banks and the President of CEC BANK, a state owned bank in Romania, declared in 2015: "If You have taken something as a loan, You have to take it back. So, no one should imagine that s/he will get rid of the debt: s/he will either go to prison for the debt, or all his/her goods will be taken." Such a declaration form the part of a bank official may create frustration on the bank customers.

In Ancient Rome, the people that were in a state of bankruptcy were killed and cut into as many pieces as the number of creditors s/he had, and each creditor took a piece (Bodislav, Cheptea, 2011).

In the Middle-Eve, the so-called pillory was used for blaming the people that are in debt, and there was a practice to blame the debtor in the public square and also the debtor was exposed on the streets. There was also a "debtors' prison", where family heads were incarcerated.

Romania had also a "debtors prison", that was regulated in the 1864 civil code, but over the years it has changed, from killing the debtor to giving him/her a second chance in 2014, through the law of personal bankruptcy.

In November 2015, 800.000 Romanians, were fighting bank instalments, facing great difficulties in paying them, being placed under terror by private credit collection enforcers or bank officers.

The sad part of the story

Furthermore, we will present some social cases developed by the inability to cooperate with the banking system and the inability of the state to intervene and protect its citizens against themselves (Geltner, et al., 2013) when it comes misfortunate situations of poor financial investment knowledge (Munneke, Womack, 2016). 32 people have committed suicide because of high debt, and we'll present some of the cases in the following pages (their names aren't written due to psychological reason regarding their families):

1. Emanoil O. took a loan in 2008, when he had wage of 15.000 RON, in 2010 became unemployed because of a management problem facing the worldwide crisis, he had a monthly 1752nstalment of 5000 RON and his house and mother's house placed as guarantees in the bank's favour. The currency was the loan was CHF, namely Swiss Francs. Emanoil hanged himself not being able to accept the bank's harassment. He left behind 2 children, one of 2 years and another of 4 years old, a homeless mother and a homeless wife. Emanoil's family accuses that the moral authors of the suicide are the bank. Through the procedure of sending notifications, raising penalties and interest rates, plus the situation of the bank instalments, had brought the 2 husbands on the verge of divorce.

A simple simulation of CHF credits shows as follows:

In the table below will show the increase of CHF versus RON, yearly.

Table 1: A simulated credit between two currencies: RON (Romanian Leu) and CHF (Swiss Franc)

YEAR	CHF ~ RON exchange rate	RON Credit Value for 300CHF	Increase in % compared to 2008
2008	2.2	660	-
2010	2.8	840	27%
2011	3.3	990	50%
2012	3.6	1080	63%
2013	3.6	1080	63%
2014	3.7	1100	68%
2015	4.2	1260	90% more.

Source: authors own calculations.

1. A man of 34 years old from Pitesti, who's wife has left him because of misunderstandings created by the difficulties of paying the monthly instalments, has committed suicide. Moreover, the daily tensions and stress related to their current situation had driven the man on the verge of hitting his wife. Although the neighbours and friends have confessed regarding the 2, that they were an extraordinary perfect family, the daily issues have led the 2 on offending, hitting, molesting and ultimately divorcing each other. The P. family, as they were called a 3 years old boy and a CHF loan contracted in 2007.

2. A policeman of 30 years old from border police of Sannicolaul Mare, northern area, has committed suicide, after his food compensation implied by his job was cut-off,

and he became unable to pay the 2000RON monthly instalment. He had passed all his psychological tests prior to the event. He had a 7 years old daughter.

3. A man of 41 years old hanged himself by the stairways that led to the terrace of the building he lived on. His family declares that the man was terrorised by the phone calls the bank used to give him every week, different numbers. Their problems as a family not being able to repay the debts, have began when the man's wife fell severely ill, lost her job in the meantime, and they became unable to repay the loans.

4. A 24 years old committed suicide for not being able to pay a loan taken, in the equivalent of 700 euros, for buying a television. He had a 400 RON wage, a wife, a 7 months old child and 2 parents to take care of. The man has been described by his fellow workers as being honest, positive, trustful in the future, and none of them justifies his gesture.

5. Ion I., 53 years old has committed suicide because of the bank's inflexibility, that had all his goods executed over the debt of the company he owned. He shot himself in the heart.

6. Emeric H., 44 years old, from Arad, hanged himself, for not being able to pay his personal debts. Friends had shown that his honesty was way higher than was thought to believe, fact that his taxi company, prosperous, never got robbed to repay the banks.

7. Ion G., 55 years old, has committed suicide after the banks had executed his home, after losing his job, not being able the repay the debt, and by bank's fault of not processing an unemployment insurance. The bank, after executing the house, went further and pushed him to pay leftover amount remained from not covering the debt. He hanged himself in the small room, his former working colleagues had given him as a place to stay.

8. Mircea B., 49 years old, father of 3 children, 2 of them underage, an agent of the public order and protection institution, has shot himself with the working gun, not before calling his 22 years old son, to tell him that he does not foresee any solution regarding the bank debts.

9. Gheorghe P., 41 years old, a heavy machine operator had a working accident, that led to 100 days in a hospital and a major cut in his wage. He found himself in the impossibility of paying the bank loan, he did a big mistake and asked the help of loan sharks. When things gone completely mad, he decided to commute suicide, his wife has remained to deal with the bank and also the loan sharks.

10. Eugen C., from Galati, 34 years old, has jumped over a bridge after the bank has executed his parents house, and got close to execute his grand parents house, as endorsers of his loan. He had a 3 years old daughter.

11. A very interesting case is the case of the woman from Cluj-Napoca, who has won the trial against the headquarter of a bank. The bank used to call the woman's house, sometimes when she was not at home, talking with the woman's 9 years old daughter and threatening that the family will end up on the streets. This was done repeatedly, and with the consent of the bank's procedure, the child now needing therapy.

32 people have committed suicide during the last years, due to unregulated market problems regarding exchange rates skyrocketing too fast, too soon, with no control by the authorities. All the

cases incumbing monthly instalment payments led to a hysteria, permanent fights and tensions, among husbands, and ultimately divorce.

The children with parents that have committed suicide are dealing with serious psychological issues, some of them being inside state social security system. According to the child's age the effects the debt of one of his parents may become an event that will trace his entire life. The remaining parent, caught in his own emotions, may ignore the child's needs and feelings.

Among the psychological effect of a parent's death over a child, may be: depression, insomnia, nightmares, a behavioural regression like talking problems, peeing in bed, losing appetite, anxiety, guilt feelings, memory loss, hyperactivity, learning difficulties, introvert behaviour. Small children manifest their feeling through developing disease.

The law of giving into payment so much disputed this days, and so much contested by the banks, has proven the truth face of the financial institutions, interested exclusively into profit, no matter the means.

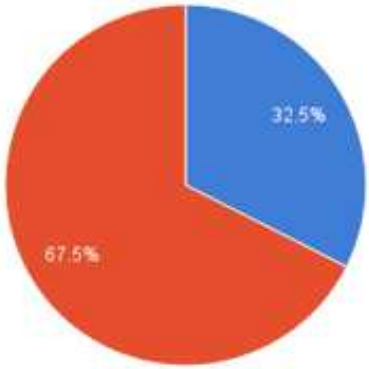
In the equation profit vs. humanity, the banks always go with the profit, leaving behind, broken lives, broken families, wing-cut children facing a gloom perspective over life (Norhtcraft, Neale, 1987). The 32 tragedies and the following ones, could have been avoided by having a constructive perspective over business and human lives (DiPasquale, Wheaton, 1996). Short term solutions are not so difficult to be found. The state must have an active attitude towards these matters protecting his citizens.

Where are we now?

After almost 8 years of social turmoil and acknowledging that the banking system is for those that have better knowledge of their savings and consumption mechanism we will present the results of a study done between December 2015 and February 2016 on a pool of 1214 respondents by using an online survey which was sent towards acquaintances and to "cold pool" of unknown subjects. The purpose of the study was to observe if something changed in their behaviour during these years of economic and social turmoil and to highlight an answer to broad question: how do Romanians react and quantify the risk had by a real estate loan or investment?

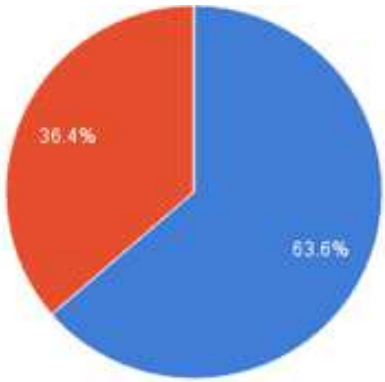
We'll have to state that 61.4% of our respondents where women and 38.6% men, with age groups divided with a bias towards that are between 25 and 35 years old (38.1%) and 35 to 45 years old (31.3%), these two age groups are important because they are main clients for buying a small apartment of their first apartment/house, the first group, or they are searching for something bigger to settle and prepare for their elderly times, the second group. Regarding their studies, those that have only graduated from high school or less are in a minority (less then 13.3%), so the level of knowledge on the domain should be above average. When it comes to their employment status, our respondents are most of them occupied (employed, entrepreneur or student total up to 82%). Almost half of them are owners of their houses/apartments, but almost a quarter still live with their parents, the rest are paying a monthly rent. Regarding their available living space/per person, we can say that 57% of them live in a space between 15 to 30 sqm/person. One interesting fact is that more than half of them don't have any children (54.6%) and slightly over 50% aren't married (50.6%). When it comes to their monthly revenues, almost half earn less than 2500 lei (the equivalent of 550 euro), a quarter of them between 2500 lei and 4500 lei (equivalent of 1000 euro).

After the part that socially scales our study, we can go further and evaluate how are they in line with how they behave from their financial perspective, or on how they decide to buy a house/apartment.



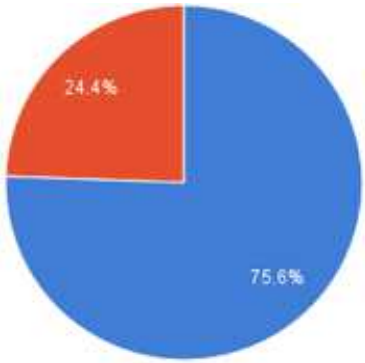
67.5% answered YES, 32.5% answered NO

Fig 1. Are you afraid of a decrease in your monthly income and the ability to contract a real estate loan?



63.6% answered YES, 35.4% answered NO

Fig 2. Are you afraid of a future unemployment situation in the ability to contract a real estate loan?

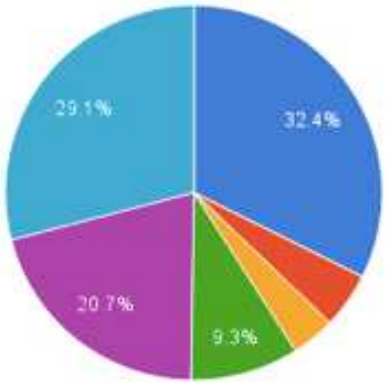


75.6% answered YES, 24.4% answered NO

Fig 3. Is the level of your monthly income so low that you cannot contract a real estate loan?

From these 3 direct questions regarding our subject we can observe the adversity towards the idea of contracting a real estate loan. Most of the respondent's fears are based on the fact that they aren't expecting any improvements of the global economic situation in general, and especially they aren't fond of the actual and the trend of the Romanian economy, they aren't sure about their future and about their financial well being, but the large majority isn't able to contract a real estate loan, so there is a long way until they'll buy themselves a house/apartment (similar findings, but on the entire economy of Romania, we'll find in Dinu, Bodislav, 2015). During the study we also asked the respondents if the exchange rate and the inflation rate would scare them in not to contract a real estate loan, but the answers were around the 50% threshold for each them, with a slight advantage towards Yes for the exchange rate (50.7%) and No for the inflation rate (53%), the latter one being more dangerous than the first one if we filter the thought process through a macroeconomic perspective.

In Figure 4 we can observe what is most frightening for the respondent and what stays in his path to be happy.



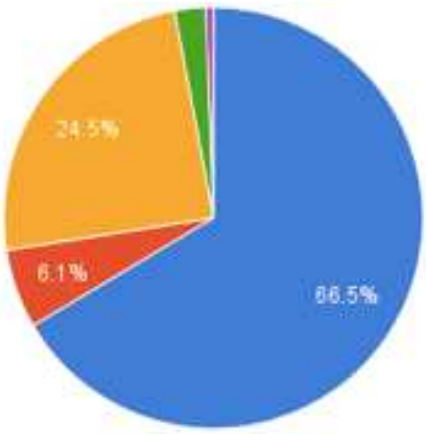
32.4% - Income level, 29.1% - Unemployment, 20.7% - A drop in income level, 9.3% - Corruption, 4.5% - Inflation rate, 4% - The exchange rate.

Fig 4. What frightens you the most?

Our first three questions regarding the subject of our research 82.2% of the worries of our respondents, so we could state that these areas need to be enlightened and reformed by legislators and filtered positively by the banks.

The willingness to own a house or an apartment is huge, almost 94% of the respondents answered yes to this question, but only 74% would buy that home though a loan, the difference of 20% are the mass that we can say it is afraid of the future, they don't trust the employers, the banks, or even the legislators.

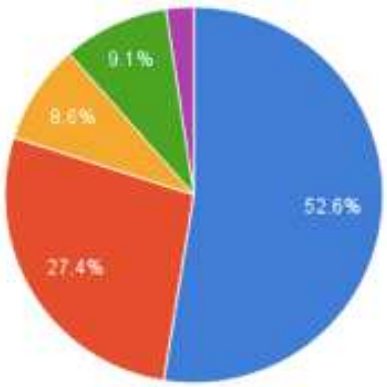
To evaluate their behaviour towards taking a real estate loan that could endanger them into being unable to repay it, we introduced three questions:



66.5% - answered that they don't want a reduction of the down payment to receive a higher interest rate
24.5% - answered that they would accept this measure, if the interest rate will be linked with the interbank rate (robor) plus 5 percentage points
6.1% - answered that they would accept this measure, if the interest rate will be linked with the interbank rate (robor) plus 3 percentage points
2.9% - were divided between accepting the offer and having an interest rate with 5 to 10 percentage point higher than the interbank interest rate (robor) and also said yes for an offer with an interest rate with maximum 2 percentage points above the interbank interest rate (robor)

Fig 5. If money isn't an issue for a down payment to buy a house/apartment through a loan, would you accept a higher interest rate and having a smaller down payment?

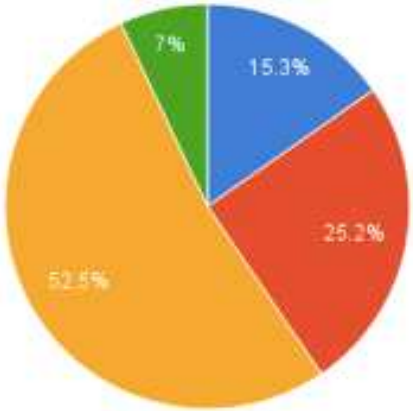
From this question we understand that the adversity towards a risky future is still present, that is why two thirds wouldn't accept the offer, but the others, especially those 24.5% would accept an offer that would double their monthly instalments, because today in Romania, the ROBOR is around 0.85% and banks offer real estate loans with a margin of 2 to 3 percentage points over the robor, so if the respondents had knowledge about the market they would have answered in a higher number for lowest voted solution or at most for the one chose in only 6.1% cases.



52.6% - answered maximum 3 years above
27.4% - answered between 3 to 5 years above
9.1% - answered between 7 to 10 years
8.6% - answered more than 10 years
2.3% - answered between 5 to 7 years

Fig 6. If you are buying a house/apartment through a loan and you are able to increase your real estate loan's lifespan over your pension age (63 yrs – women, 65 yrs – men), how many years you would go above?

This question was developed to see if the respondents are able to process the fact that they can go further then their retirement age, but played it safe by choosing 80% to a maximum 5 years of prolonged debt.



52.5% - answered maximum 30%
25.2% - answered maximum 50%
15.3% - answered maximum 40%
7% - answered maximum 60%

Fig 7. If you are buying a house/apartment through a loan and you are able to set a maximum threshold as a percentage of your monthly income, what would that be?

It is clear that Romanian's still fear the future from the economic perspective because they chose as main answer a level of monthly instalments of maximum 30% which means that they are more cautious than the actual banking system that goes to a level of 33.3% the level of monthly instalments, and for the bank employees could reach 50% the level of monthly instalments compared with the monthly income. More than 40% of the respondents went on the idea that they should reach

a level of 40 to 50% in the level of monthly instalment, fact that shows us that there is an important pool of people that are willing and hungry to have a moderate risk to reach their Nirvana, buying and owning a home.

Conclusion

We can observe that Romania's economy isn't well prepared for economic crisis, be it a tangential one. Its public institutions, its legislators and the banking system need some fine tuning at least, because they should protect the market place through a soft proactive manner developed by using knowledge, know-how and legal injections in the system.

From our study we understand that Romanian's afraid of the ability to contract a real estate loan and not being able to repay it, this fear being doubled by their lack of knowledge when it comes to understanding the banking system and how loans work. The entire study offers us a counterpart to the first part of the paper were we presented the macro-social case, the sad stories of those that lost their homes and some of them their lives. There is hope in reaching Nirvana, buying and owning a home, but the path to reach that goal is as close, but yet so far for those that aren't mentally and financially prepared for the road they part on.

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Influence of Innovation Management on Project Management in an Organization

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Abstract

Innovation is a phenomenon of nowadays and inevitable activity of any company which strives for success. The innovation activities require skills of strategic thinking, system approach and financial management with very strong proactive approach and customer orientation. Most of innovation activities are implemented as a project. For a successful project it is important to the organizational structures. The objective of this article is to identify and determine the importance of different factors influencing the organizational structure.

Key words: ICT, innovation, organizational structure, project

Introduction

In broad context, innovation is one of indicators of measurement of competitiveness level. Innovation can significantly contribute to the increase of organization's revenues, to achievement of its strategic objectives, to product quality improvement, to customer satisfaction, to better satisfaction of customer needs, to market position improvement. The role of organization's management supporting innovations consists in identification of opportunities which are connected with the company success and influence its competitiveness in the market. Analysis and improvement of these opportunities are a result of scientific and research activities of the company. They are an outcome of efforts to be an active player in the market and response to changes in external conditions. Innovation is implemented typically using a project. The project success depends on the project management and organization. These factors are shown in fig 1. Each project is organized in certain way, necessitates a specialized expert team led by an experienced project manager and is demarcated by budget, defined target and allocated funds. The team can be made up both of existing working positions and new positions requiring specialization for successful implementation of the project.

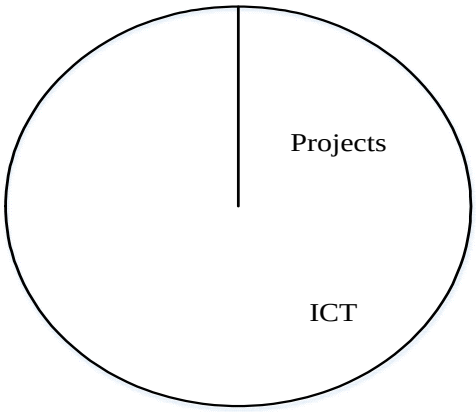

Fig 1. Key innovation factors

Utilization of projects for improvement of the company position requires definition of implementation methods and procedures in the form of innovation strategy. The innovation strategies are built on introduction of changes in internal environment of the company which will lead to the desired modification of its entrepreneurial behaviour (Pitra, 2006).

The opportunities for innovation can be (Pitra, 2006):

1. Manufactured products or product series;
2. Customer and its preferences;
3. Influence of information technologies and technological development;
4. Competitors and their competitive advantages.

It should be noted in relation to the opportunities for innovation listed above that, for example in case of products, value analysis can be applied to evaluate the different functions fulfilled by the product. This way their importance can be quantified and express the relation between the degree of fulfilment of function and costs associated with the function using the indicator of relative effective value. In European context, statistic data of EU countries can be retrieved to indicate the level of sales yielded by the innovated products as % of total sales (Eurostat, 2016)

As far as the customer preferences are concerned, it can be identified which products stand in the forefront of interest of the customer groups and based on it innovation concerning the additional services such as after-guarantee service, etc. can be made. The production process can also be restructured using process reengineering. This notion relates to Michael Hammer, a US professor at Massachusetts Institute of Technology, who expressed the idea of continuous improvement of processes with the view of performance improvement. Today certain level of support in the form of ICT is largely demanded. ICT can significantly affect daily operations and functions of the businesses and managers cannot imagine their decision making process without a use of information technology (Bazsová, 2013). The most conspicuous example might be sale of product through e-shop. Another example of opportunity for innovation may be introduction of performance management system using software application. It is also possible to focus on analysis of visit rate of web pages of the different products, etc.

Support of innovations

The support of innovation implementation using a project also entails certain unification (unique) effect in the form of managed project which consists of well-known phases – definition of project objective and purpose, specification of implementation means, implementation process and review.
Innovation activities cannot be implemented without financial support which cannot be inconsiderable. It is generally known that internal company funds are insufficient. For that reason companies have to try to obtain finance from the operational programmes or apply joint projects involved in contractual research. The innovation efforts often include cooperation with universities, research institutes or incubation centres. Support of innovative activities can be realized with support from the structural funds, where, in the framework of the Operational Programmes, to which the EU member states are involved, it is possible to receive subsidies, for example, under the Operational Programme Enterprise and Innovation (Czechinvest, 2016). The amount which a company can get is based on the level of support of the EU structural funds and partly on the state budget of the individual member countries.
Innovation activities are not supported only at national level but also at international level, as evidenced by challenges e.g. from the COST program, Eurostars, Eureka, Mobility, and more.

Innovation indicators measuring innovation level of countries were created to enable international comparison. The most commonly applied measuring indicators include research and development expenditures spent in different industries, number of issued patents, number of issued publications, number of researchers and the number of universities and postgraduate students. A possible tool for comparing the attractiveness of the European Union (28) countries in terms of their innovation potential and competitiveness is an innovation barometer (Jedlička and Macháček, 2015). The barometer is compiled from 9 monitored statistics that determine competitiveness, innovation potential and future prosperity of the country. This research was brought by many authors, for example Halásková and Halásková (2015).

Organizational innovations

Gunday et al (2011) state that organizational innovations are closely connected with administrative efforts to change organizational procedures, routines, mechanisms, systems, etc. (According to Zaied and Affes, 2015). Innovation results in change in creation of new models of organizational structures, new relations among members of personnel, changes in thinking of personnel and can also induce changes in business strategy of the company. As concerns the process reengineering mentioned above, the focal point is assignment of roles in the team composed of the process owner, team leader, facilitator, external consultant, coordinator and, if appropriate, other members and the following is necessary:

1. Determine the way in which the teams are to be made up and how the process is to be formalized. The establishment of implementation team is up to the managing director. The selection of team members depends on the order nature. A factor with important role in the selection of team members is competences. Competences can be divided into personal and specific ones. The personal competences include, for instance, people skills, negotiation skills, constructive discussion skills, etc. which are essential in decision making on admission of a member to the team. This will prevent unnecessary conflicts. The managing director assigns the order to the team leader and they select the team members together.
2. Determine decision making rights of the team members. The team leader clarifies the performance requirements for the different team members. Required time and project completion date are determined. The team leader also decides the order in which the requirements will be addressed.
3. Be informed on the project all the time. The team leader must be aware of the project progress all the time. The information must be provided by the team members. The team leader must know which sections have been finished, if the delivery dates are met and if the other conditions are met by external suppliers.
4. Method of integration into organizational structure. The implementation teams are integrated in the organization typically in the form of matrix organizational structure or purely project organizational structure. In case of matrix organizational structure a problem of double or multiple subordination of personnel has to be faced. Matrix OS has two groups of units - functional and target (project) oriented. The number of goal-oriented units corresponds to the number of projects that the organization implements. Functional units include specialization in economic, and also commercial and technical units. Functional units are generally subordinate to the director (manager) of the organization. Project managers, project engineers or project leaders are in the lead of the target (project) oriented units. The problem can be caused by overloading and excessive demands placed on the staff being members of several teams. In project oriented organizational structures an employee is often engaged in several teams. This type of structures is commonly seen in software oriented organizations. The advantage of this organizational structure is its flexibility and target-orientation; also main problems of the organization are addressed here. The disadvantage is a violation of a classic principle of single seniority. Another disadvantage is that the workers of the functional units are not or only partially released from their functions in the current organization.

Role of project manager as team leader

Nowadays is necessary to be able lead the professional group. If the company want to be innovative, it should support project managers and develop their competencies. The project manager receives and manages the work on project. He or she accepts the work taking into account its complexity as well as all other official requirements for the project. The project manager must be selected based on his or her experience in the concerned field. Certification of the project managers in the Czech Republic is the duty of the most famous standard and platform IPMA (International Project Management Association. Part of this standard is to define the requirements for the competence of the project managers and their teams. Within this standard, it is possible to obtain certification of the so called grades A – Certified Project Director, B – Certified Senior Project Manager, C – Certified Project

Manager, D – Certified Project Management Associate, which differ in skill requirements. According to IPMA standard, technical competence, both behavioural and contextual, are defined (Doležal et al, 2009).

In case of a production company the team leaders are selected typically from personnel from design, production, installation and inspection departments.
Tasks:

1. Creation of team – The team leader in liaison with the managing director makes up the team of employees who will be involved in the order execution. The team leader selects the candidates and the technical director approves their admission to the team based on assessment of their workload and any membership in other teams.
2. Project progress monitoring – An important of task of the team leader is to monitor the order execution to an extent enabling him or her to inform the customer or company management of the order execution progress at any time. The information is provided in the form of reports from the team members to the team leader. They include in particular summary of finished products and work-in-progress, and results of inspection analytically divided according to the different manufacturers and sub-suppliers.
3. Communication with sub-suppliers – The team leader orders a part of the work from external partner specifying the delivery and payment terms and required quality, if not stipulated in the contract. Further communication with the sub-supplier during the production related to normal production process and delivery of the required components is managed by a member of the inspection department staff.
4. Communication with customer – Communication with customer is one of the most important tasks of the team leader. He or she must be able to update the customer on actual situation and order execution progress at the customer's request at any time. It of great importance for the team leader to have communication skills allowing him or her to properly identify the customer's requirements and desires so that the customer satisfaction can be maximized. This task of providing the information to the customer can be fulfilled also by a member of the marketing department staff.

The organization currently faces the challenge to create a comprehenshive model of performance evaluation based on performance indicators balance and competency models. These indicators create assumptions for achieving the strategic objectives of the company. The unique combination of competencies forms the culture of an organization that promotes learning and education deemed as an important business process by the top-level and line managers that are committed to it and that are permanently engaged in it (Armstrong, 2009). In practice, a series of competency models was created (see fig 2). Most of them are based on three pillars - focus on the product, customer and service and system.

It is necessary to identify competencies and responsibilities, which have employees. Developing of the employees competences also becomes an opportunity for success and innovation process. The success of any project depends on the characteristics and experience of a project manager, i.e. on his/her competence. It is crucial to integrate PM into the organizational structures of companies. (Řeháček, 2015a). Among the important and currently widely used organizational structures that reflect the project design contract performance, include matrix organizational structure.

Matrix organizations try to use advantages of functional and projectized organizations and combining them into one. The project team is free to focus on the project objectives with minimal distractions from the functional department (Řeháček, 2015a). It is based on connection of existing jobs with the project structure. It consists of 2 teams - a team of existing functional departments and task-oriented team formations. Transitional design departments have the responsibility to tackle the project task. These units after completing the task expire. Vertical and horizontal organizational relationships often blend, when the worker is subordinate to the project and line manager (according to Řeháček, 2015b). The functional managers have all the power in this structure. Project office is among the permanent organizational structure (Doležal et al, 2007). It is used in the case the projects in the

organization cease to be in the minority. According to Doležal et al (2007) it should cover four main functions - definition, control, implementation and support.

The definition function is based on the project definition and allocation of the team for a particular project. The control function is designed for checking the implemented projects. The implementation function serves as a storehouse of information, experiences, evaluation, i.e. the resources needed for any project and various stages of the project lifecycle. The support function is mostly a sharing of software products and databases that are used within the project portfolio management (Doležal et al, 2007).

The advantages of the project office include: narrow specialization for the individual projects, pooling of resources necessary for its management and use of highly skilled project management. It can be less hierarchical for the individual projects, usually it is flat, which means that one to two hierarchical stages are created, and it is strictly subject to individual projects. It is assumed a high success rate for individual projects. Disadvantages can include its considerable independence that may arise as towards the director (owner) of the company so as towards its other permanent structures (other permanent departments in an organization).

The PMO manage the portfolio of projects and provides a framework (standard methodology) for the sustainable management of projects in accordance with corporate objectives and strategies. PMO is a centralized, coordinating authority within the organization (or project) (Řeháček, 2009). Project managers are responsible for the organization within project. It is necessary to clearly define scope, activities and responsibilities of this PMO. The benefits may include the improvement in management of projects and their scope and improving skills and knowledge of PM through training and mentoring, coherence and consistency in the implementation of the project. According to the PMI (2012), the PMO helps to:

- reduce the number of failed projects,
- complete projects within budget,
- increase productivity,
- increase cost savings.

On the basis of an expert assessment of the experienced manager (see fig. 2) are determined 5 main groups of competencies – professional, general, managerial, language and PC competencies (Bazsová, 2015a). These are also valid in the PMO structure:

- Professional
- General
- Managerial
- Language
- PC

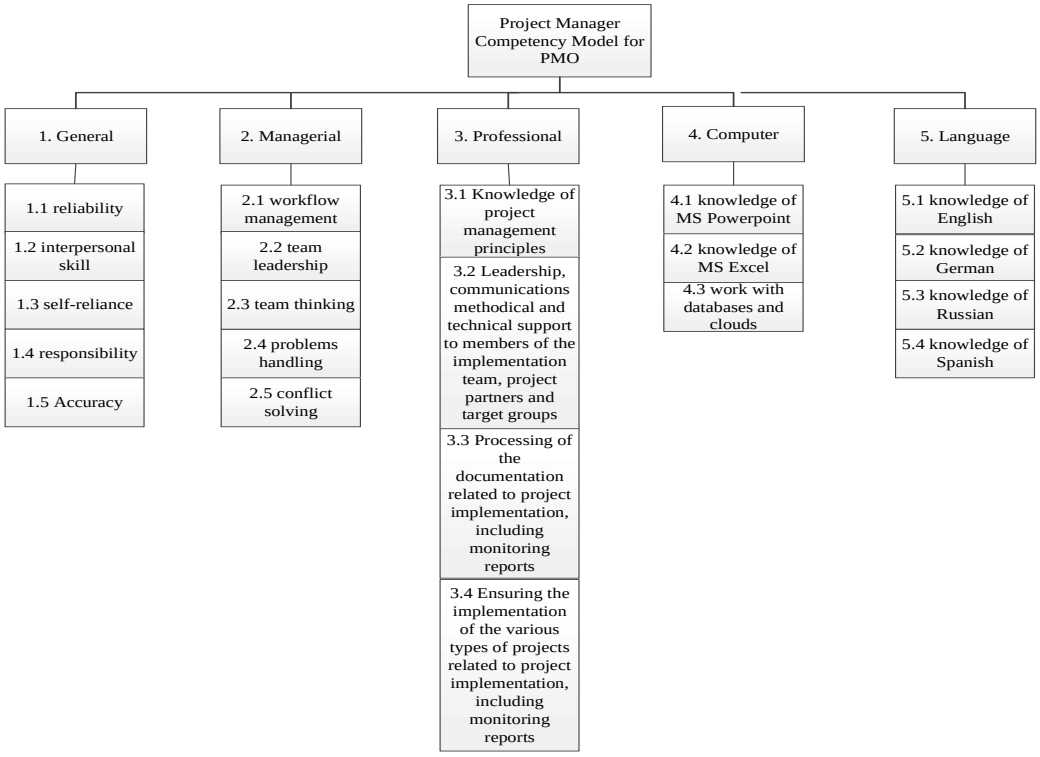

Fig 2. Competences of the project managers (Bazsová, 2015a, modified)

The research question and research design

Adaptation of organizational structures to a condition of competitiveness and innovation needs qualitatively new attitudes towards employee position and work positions. The aim of this paper is to quantitatively evaluate the usefulness of what the preference in the use of both structures from the perspective of experts who act as lecturers, as well as project managers in companies. A group of experts from the Czech Republic were interviewed. They chose criteria (1-8) for evaluating organizational structures. They determined, which of these structures is suitable for a small manufacturing organization (to 20 employees), and then discussed the advantages and disadvantages. There are many aspects which influence the structure design - decentralization, formalization, hierarchical levels, departmentalization, communication among the project team members, etc. (Bazsová, Křížová and Řeháček, 2015b). Based on the experience of project teams of consultants were the most important aspects of assessing these kinds of organizational structures, the eight basic criteria:

1. Expenses of the department
2. The project effectivity and effectiveness
3. Interconnections with other departments
4. Interconnections with costumers
5. Level of formalization
6. Degree of decentralization
7. Degree of hierarchy
8. Competencies

Results

Results opted all the criteria scores on a scale from 1-100%. Experts created results and comment aspects of both structures. Expenses can be measured by personnel costs associated with the existence

of jobs on the line and participation in the project. PMO is a specialized unit for which the organization must train most of their workers and cannot be bought through an advertisement in contrast to the matrix structure. The implications of this are that the costs of establishing a PMO are considerably higher. (see tab. 1). The project effectivity is related to its completion date. The speed of projects with a PMO is faster, as in matrix organizations (without a PMO) conflicts regarding the workload of personnel, and financial and technical resources must constantly be resolved. The interconnections can be difficult measured. The advantage of a PMO, where the competencies are clearly given, is the ability it provides to influence the transition points between the workplace and its processes, e.g. purchasing and implementation, which is the most common source of disputes. In a matrix organization the project manager provides communication between workers involved in the project. A PMO permits communication between processes and workplaces, and sometimes between specialists in the organization. Interconnections with customers solve communication project manager who is responsible for the project and its progress, including compliance parameters. Therefore, in practice it denotes the so-called. Customer Care or Customer Representative. Level of formalization – A PMO makes the description of an operation easier, assuming that a typical matrix organization is already operating. In the matrix organization the rules for project management, i.e. competence, communication, compensation, workload, risk, motivation etc. have already been established. Degree of decentralization – A PMO is a center in which strategic decisions are made, including marketing, economic, and future return. This is when a matrix structure is usually instituted at the management level of organization. Although competencies must be clearly formulated, a PMO is still at a higher level of competence in terms of decision-making and risk management priorities.

Table 1: Aspects of structure designing for evaluation

Aspects of structure	Matrix structure	Project management office
Expenses of the department	50	100
The project effectivity (success)	40	80
Interconnections with other departments	60	90
Interconnections with costumers	80	30
Level of formalization	50	80
Degree of decentralization	50	90
Degree of hierarchy	40	40
Competencies	60	80

PMO is a specialized unit for which the organization must train most of their workers and cannot be bought through an advertisement in contrast to the matrix structure. The implications of this are that the costs of establishing a PMO are considerably higher.

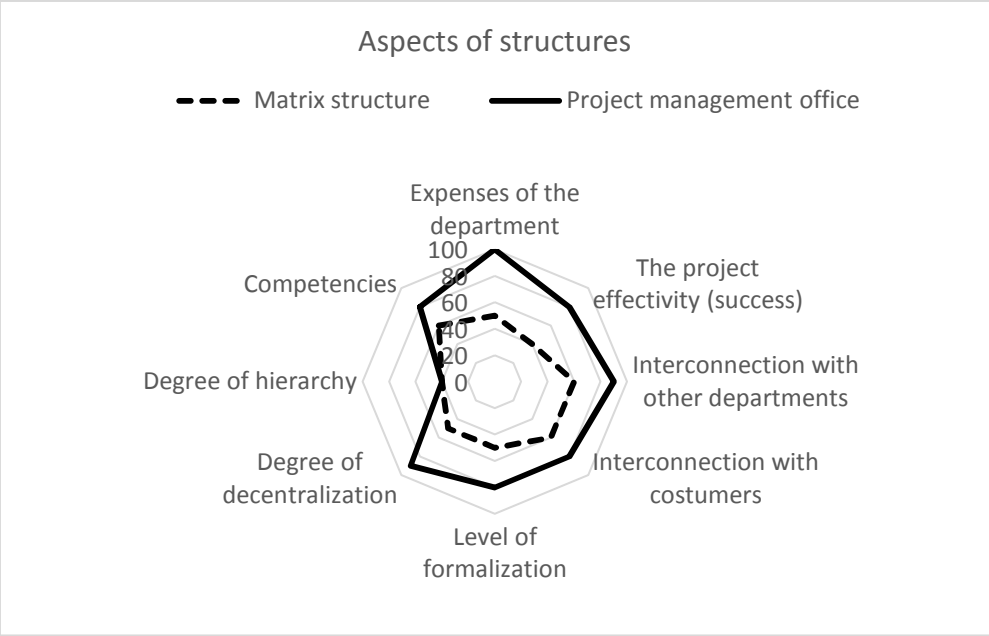

Fig 3. Evaluation of aspects

Conclusion

In the framework of the innovation can organization replace its current structure. It can choose matrix structure or open the project management office. The results from the spider graph shown, that it depends on eight variables – expenses of the department, the project effectivity (success), interconnection with other departments interconnection with costumers, level of formalization, degree of decentralization, degree of hierarchy and competencies. More efficient is the project management office for the organization focused on products (see fig 3).

Acknowledgement

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Preserving the Electronic Records Event History Metadata (PEREHM): Model Verification Technique

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Abstract

This paper has highlighted the model verification technique used in the study of preserving the e-records event history metadata. The preservation of electronic records event history metadata (PEREHM) model has act as a solution in solving the issues on unavailability of electronic records (e-records) event history metadata model. In ensuring the ten (10) selected elements on the PEREHM Model were viable, the verification process need to be conducted. In the achieving the verification and approval on the PEREHM Model, a Delphi technique was being adopted. This technique has been used in identifying the group of experts that will become the key personnel in verifying the elements of PEREHM Model. After the group of experts has been identified, Face to Face (F2F) interview technique has been used in this study. This was to ensure each of the process of verifying the model elements can reach to maximum result during the verification session. Then, through collective verification statement from the experts, the Atlas ti software has been used in analyzing the findings. This is where the interpretivism technique has been applied. At the end of this paper, it will present the findings from the expert's verification statement. On top of this, the problem identification (Phase 1) and steps in constructing the model (part of Phase 2) of this study have been presented in the previous paper publication (Bunawan at el. 2015; Bunawan & Nordin 2015).

Keywords: Electronic records, preservation, event history metadata, model verification technique

Introduction

In Malaysia, for ensuring the volumes of e-records created in Malaysia Government Agencies (MGA) can National Archives of Malaysia (NAM) has introduced the Electronic Records Management System (ERMS) (Shafie, 2007). On top of that, there were various International Standards Organization (ISO) have governed the process in implementing the ERMS. This is to ensure the management of e-records and its metadata can be preserved properly.

However, the changes of metadata on e-records have continuously increased. This is because the e-records have been transacted to others for accessing and reviewing. Indirectly, it has change the e-records metadata in terms of date, time and access. According to Kettunen & Henttonen (2010), the

sixty four percent (64%) of entire of metadata is about event history. This has shown that the preservation of event history metadata on e-records needs to be attentive.

As being discussed above, this has shown that the issues and challenges in preservation and e-records event history metadata have become the critical issues. A study by Niu (2014) has proves that there were insufficient e-records events metadata that were described by the archives management community. In ensuring this study has provides a factual solution, the discussion with staff from MGA has been conducted. Based on the discussion, the unavailability of e-records event history model has become the main issues that have been addressed by the staffs. As being reported, the development of dedicated model in preserving the e-records event history can become guidelines for staff in MGA. Therefore, this has shown that the objectives of this study are to develop an appropriate model for preserving the e-records event history metadata.

Verification

The verification technique used in this study was adopted from the Verification and Validation technique (V&V). According to Cook & Skinner (2005), *V&V is most effective when the selection of techniques covers the entire life cycle of the model instead of other 75 techniques*. Thus, Harmon & Youngblood (2008) stated that the primary purpose of *V&V is to collect the evidence needed to support an acceptance decision for an intended use*. Therefore, in this study the V&V technique has been used. The Verification technique has been used in verifying the PEREHM Model elements while the validation technique has been apply through a prototype testing.

Technique

In this section, it has focused on the model verification techniques that have been used in the formulated model for this study. Therefore, the figure below has visualized the technique and approach used in this study.

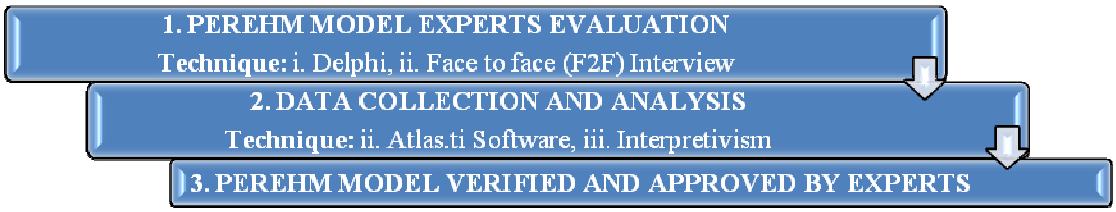

Fig 1. Model Verification Technique

Based on the figure 1 above, there were three (3) process have involved in verifying the PEREHM Model. These include PEREHM Model Experts Evaluation (Process 1), Data Collection and Analysis (Process 2) and PEREHM Model Verified and Approved by Experts (Process 3). In each of these processes, there were several technique needs to be apply.

Delphi Technique

In seeking the approval and verification of the developed model (PEREHM), the type of respondent need to be precisely identified. In this study, the Delphi technique has been used as a mechanism in identifying the qualified respondent. According to Hsu & Sandford (2010) that cited by Konu (2015), One big advantage of the Delphi technique is that it can be used to gather subjective judgments from panelists on issues that have not previously been researched or when there is no documented

information available. Thus, Focht & Ponton (2015) that cited from Gordon (1994), *Delphi technique is that expert consensus is believed to more likely be accurate than an individual forecast*. Therefore, there were eight (8) NAM branches including the headquarters have been identified.

Face to Face (F2F) Interview

As being discussed above, the Delphi technique has been used in identifying the experts. These experts have includes every Directors of NAM state branches. In this study, the verification of experts has been conducted using Face to Face (F2F) interview approach (Grovermann at el. 2015; Requena at el. 2012). According to Gorovaia & Windsperger (2010), *Face-to-face is the richest communication mechanism because it has the capacity for direct experience, multiple information cues, immediate feedback and personal focus.* Therefore, the verification of PEREHM model elements has endured an in-depth F2F discussion with each of the Directors in separate session.

Atlas ti Software and Interpretivism

In analyzing the data collected, this study has used the Atlas ti Software 7.0 Version. According to (Candy, 2006), Atlas ti is an application for the visual qualitative analysis of large bodies of textual, graphical and audio video data. According to Mena (2015) in his Doctoral Dissertation stated that, the *Atlas ti is a computer assisted qualitative data analysis software program that uses a grounded theory approach to code, display, and systematically analyze for thematic patterns across cases*. Greene (1994) has defined interpretivism *is about contextualized meaning*. Nicholls (2009) stated that *phenomenology sits firmly within the philosophy of interpretivism, or hermeneutics (which derives from the Greek word to 'interpret')*. In this study, the interpretivism approach has being mapped to the data collected in producing nodes based on Atlas ti data process result. Through the interpretivism process of data analysis, the creation of nodes becomes precise to be used as concrete evidence in achieving the PEREHM Model viability. Therefore, this has shown that the used of Atlas ti software in this study has completely in analyzing the qualitative data for model verification purposes.

Discussion

Based on the technique driven, the table below has presented the findings on the verification of the PEREHM Model in this study.

Table 1: PEREHM Model Verification Statement

No	Model Verification Based on Ten (10) Selected Variables	
	NAM State	**Verified**
1.	NAM Headquaters	This model must be used for the completeness of e-records reports submission towards preservation purposes.
2.	NAM Kelantan	This model must be used as a tool in capturing e-record transaction activities.
3.	NAM Terengganu	This model must be used as the mechanism for effective e-records process flow.
4.	NAM Pulau Pinang	This model must be used as the completion of e-record metadata process.
5.	NAM Kedah/Perlis	This model must be used for standardization aspect on e-record preservation metadata.
6.	NAM Pahang	This model must be used as an important process in preserving e-record event history metadata.
7.	NAM Perak	This model must be used as a general model for preserving e-record metadata in e-records system.
8.	NAM Johor	This model must be used to structure the event history metadata on the e-records management system.

The table 1 above has visualized the entire statement from the experts that have been completely analyzed using the selected verification technique. This has shown that, in verifying the new proposed model, the selection of technique was important. This was to ensure each of the process in verifying the model elements and its viability towards the issues driven can be fulfilled effectively.

Conclusion

As a conclusion, the verification technique that being used in this study has contributed to the completeness of process in verifying and approving the PEREHM Model elements. The findings have shown that the PEREHM Model can be used as a qualified solution in solving the issues driven. The verified PEREHM Model can also be used as guidelines in managing the e-records. Using the MGA as a sampling of the model development case, this study can become guidelines for producing a new model in other perspective and domain. Thus, as for this study, the validation process of the verified PEREHM Model needs to be completed. Through development of prototype, the process of validation can be completed. The development of prototypes will be explained in the next phase of this study.

Acknowledgement

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Consolidated Group of Taxpayers as the Way of Sustainable Of Economics[1]

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Abstract

At the last five years rapid development of world economics is related to use raw materials key world power. As a result possible of raw material export has becomes complementary incentive economic development of developing country. The main raw materials became ore, timber, natural gas and oil. The last one is the crucial product for economic development of many oil-producing country. The striking specimen that country is Organization of Petroleum Exporting Countries (OPEC) and Russia. Consequently, the level of mining operation and export of raw materials has been ascertained sudden change to economic development from at 2008 to 2014 years.

Keywords: OPEC, major of raw company, tax payment, consolidated group of taxpayers, state.

Introduction

In 2014 an abrupt decreasing of oil price was observed. The decreasing influenced on economic situation at the OPEC and Russia. Extensive method of development of the oil branch in the countries leads to increasing of the mining operation volume. As a result, the satiety on the raw material market was observed. Thus, Russia needs to look for the optimal correlation between the volume output and price, for support their economics, which in many respects ascertained the level tax payment.

Anticipate instability on the world primary (including the oil) market, the Russian taxing authority in 2012 was introduced a new system «Consolidated group of taxpayers» (CGT). Similar system is much used in international practice. It was intended for stimulated grown of company by way of replacement of fixed assets. As the result of using the CGT-system the cost saving of product, the improvement quality of products are expected. All of that led to development of company. The practice distinctive feature of using the CGT in Russian is the support the major of raw company (Gazprom, Rosneft, Lukoil, Transneft and others). This support is aimed to alleviating the financial commitment of largest company afore the state for certain functioning on the world market. Finally it is expected the increasing of tax payments on account of stable position of the company in the world. Thus, it can be conditionally divided two way for supported stability of economics by the OPEC and Russia: to find out the optimal correlation mining operation and price for oil and used the system of CGT correspondingly. The work is devoted to analyses of effectiveness of the ways.

To analyze of economic situation in the OPEC and Russia we choose the period from 2012 to 2015 year. The period noticeable for the fact that first half is describe the top price for oil, while the second - low price. In that condition it is succeed to make the analysis of tax payment dynamic and determinate of effectiveness way stability of economics.
To make the analysis of way stability of economics, which used by the OPEC. For the analyze choose the country of top five: Saudi Arabia, Iran, Iraq, Kuwait and Venezuela. At figure 1 chart of tax payments is presented from budget of state, in according to the official data.

[1] This research was financially supported by Russian Foundation for Basic Research (RFBR) in the frame of the project for scientific studies (Mathematical modeling of the formation activities consolidated group of taxpayers to harmonize the interests of the state and taxpayers), project No. 16-36-00184.

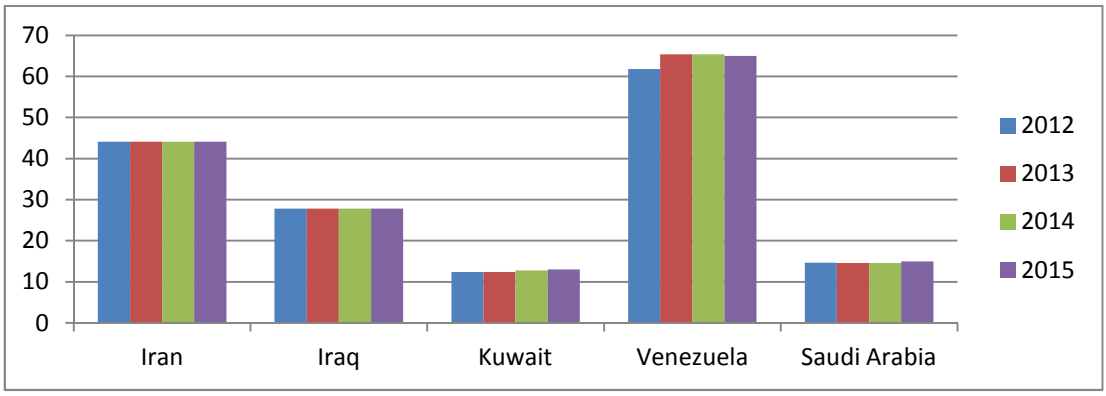

Fig.1 – The time dependence of tax payments.

It is shown that dynamic of oil market is not render material effect to the tax payments. That stability of tax payments can be the explained in the following way. Obviously, that the main correlation index of economic situation for OPEC is export and Gross Domestic Product (GDP). Consequently, the quantitative research for assessment of stability the tax payments, should carried out based on three parameters: export, CDP and tax payments. For assessment correlation that parameters calculate the correlation coefficient:

$$r_{XY} = \left[\sum_{i=1}^{n} \left(X - \langle X \rangle \right)^2 \sum_{i=1}^{n} \left(Y - \langle Y \rangle \right)^2 \right]^{-1/2} \sum_{i=1}^{n} \left(X - \langle X \rangle \right) \left(Y - \langle Y \rangle \right), \qquad (1)$$

were n – number of years.

Table 1

The data table for calculation

	2012	**2013**	**2014**	**2015**
Export				
Saudi Arabia	388.4	377.0	359.4	395.1
Iran	67.0	93.0	95.7	97.4
Iraq	97.2	89.8	94.4	99.7
Kuwait	121.0	112.7	109.9	125
Venezuela	97.3,	88.8	83.2	96.5
Gross Domestic Product (further GDP)				
Saudi Arabia	740.5	927.8	1616.0	1740.0
Iran	997.4	987.1	1284.0	1296.1
Iraq	130.6	221.8	232.2	243.1
Kuwait	165.9	165.8	283.9	294.3
Venezuela	402.1	407.4,	545.7	551.2

The result of calculation present on figure 2.

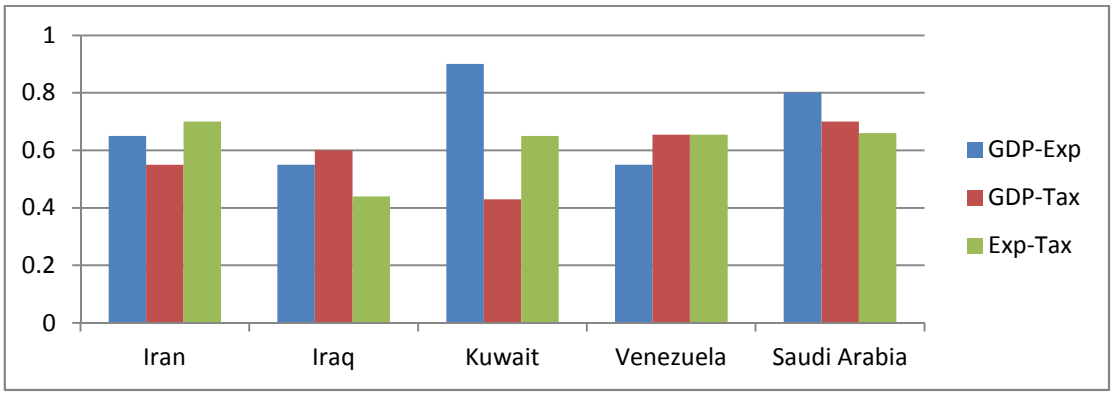

Fig. 2 – Correlation coefficient between export, GDP and tax payments for OPEC

It is shown, close coupling between the parameters. That declarative of optimal policy for the OPEC, which admit to correct of tax payments by increasing of export during the unstable situation on oil market.

Perform the similar analyses for Russia. At figure 3 presented the time dependence of tax payments for Russia.

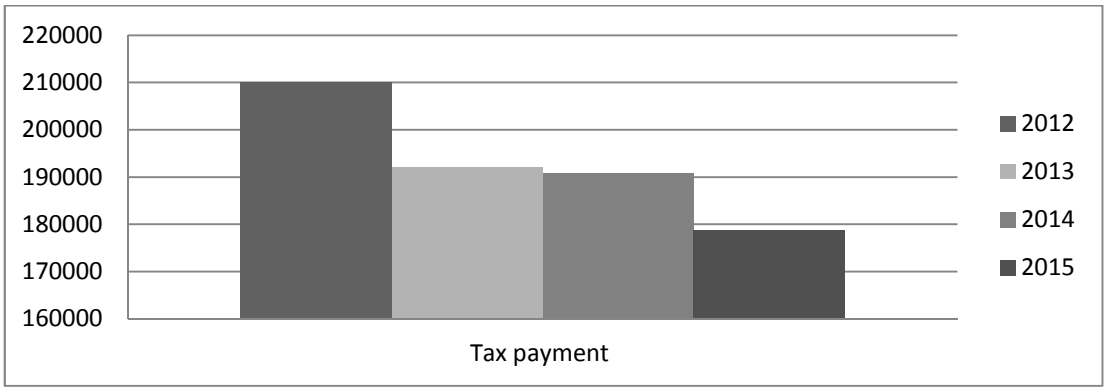

Fig 3 – The time dependence of tax payments (in thousand rub.)

It is shown, that tax payments in Russia at 2012 was decreased. In part of decrease can be due to the fact that in 2012 year system of CGT was introduced. The system was designed to support the main raw material company by the side of state. Obviously, as the result of support one can expected hardening that company on the world market and as consequence increased tax payments in treasury of state. To analyze the activity of the companies we performed similar calculation by the OPEC. The results of the calculation are presented on figure 4.

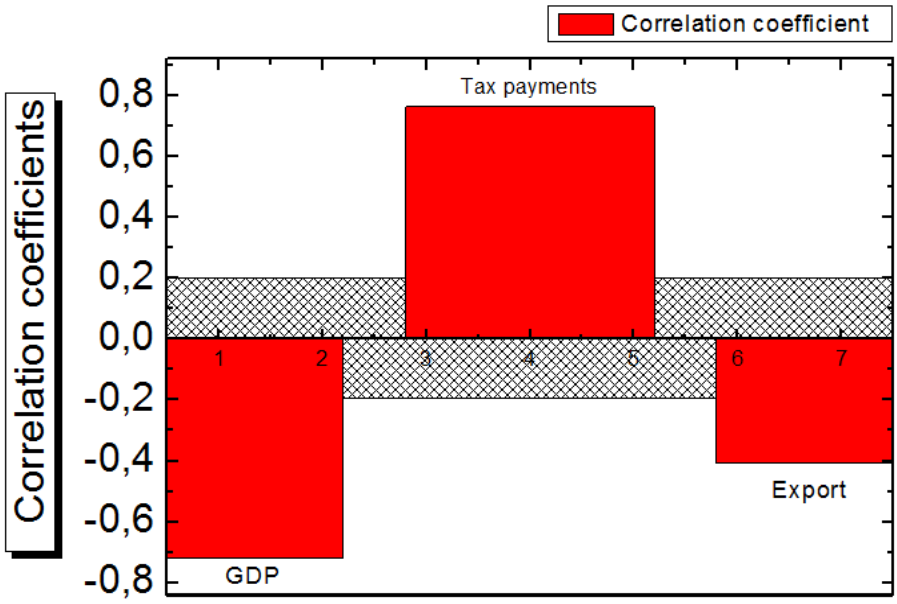

Fig 4 – Correlation coefficient between export, GDP and tax payments for Russia

It is shown the correlation dependence between falling the tax payments and grown GDP and export.

The consider contradiction can be associated with the falling of course ruble. To make the assessment conditional value equal multiplication of course dollar and the level of oil production (the level of dollar revenue). Obviously, this value characteristics the corporate income. The results of calculation are presented on figure 4.

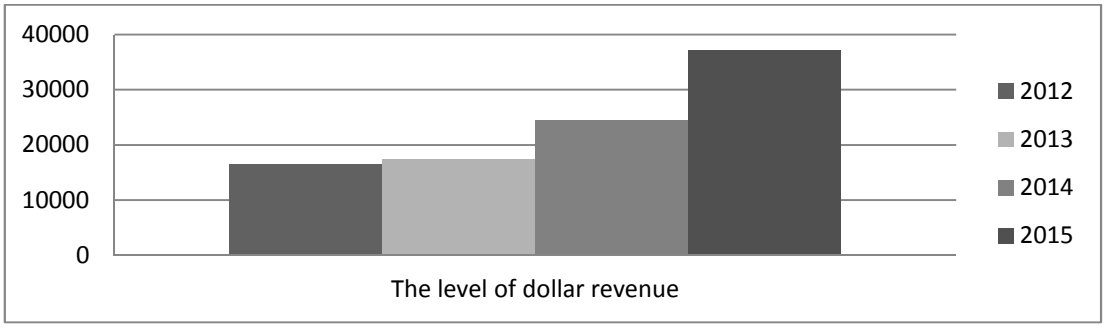

Fig 4 – The level of dollar revenue

One can see that each years was increased the dollar revenue. Obviously that this increased should increase the tax payments. However, as previously discussed look at fig.3 the level of tax payment is not only increased, but also decreased. About that leading similar time dependence of revenues, which is shown in figure.5.

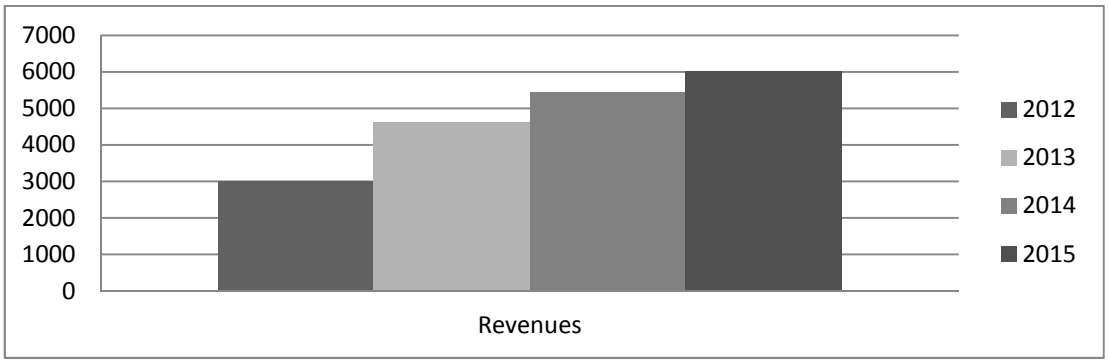

Fig 5 – The level of revenues

Thus, our investigation shows the gap between profit tax to be paid by the company that was estimated on the basis of their financial activity indicators, and actual profit tax paid in budget; estimated profit tax is significantly higher than the actual one. Russian oil companies after forming of CGT began seriously to develop: was proportionally increased cash flow, oil production, exports. However, this has not led to the desired results: the volume of tax proceedings significantly reduced. That leads to destabilization of the economic situation in Russia. Therefore, we can conclude that way of the economic situation stabilization due to the export of oil resources applied by OPEC, is optimal. A Russian model CGT needs to serious revision.

Conclusion

In our research we analyzed the economic situation in 2012-2015. As part of this analysis, we discussed the effectiveness of two ways of the economic situation stabilization by OPEC countries and Russia. The way used by the OPEC is to increase oil production to adjust tax proceedings. The way applied by the Russia is to use the system of the consolidated groups of taxpayers. We evaluated the effectiveness of both ways by means of the correlation coefficient. Indicators in regression with significant correlation are the follows: exports volume, GDP and the level of profit tax paid by oil companies. A key factor in this correlation was the tax proceedings. We revealed that the profit tax proceedings level in OPEC countries remained unchanged regardless of decline in oil prices. In Russia – on the contrary – profit tax proceedings decreased despite the growth of GDP and exports volume. Thus, in our point view the Russian CGT system is needed to modify.

Acknowledgement

This research was financially supported by Russian Foundation for Basic Research (RFBR) in the frame of the project for scientific studies (Mathematical modeling of the formation activities consolidated group of taxpayers to harmonize the interests of the state and taxpayers), project No. 16-36-00184.

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Study on international forms of cooperation for companies in the context of globalization

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Abstract

This paper highlights the international forms of cooperation in research and development for medium enterprises and it is based on the example of an enterprise from Germany.Medium enterprises face more and more difficulties to state a self-maintained position in the context of commercial competition since the modern production techniques, the high-tech large-scale enterprises often favored and the competition growing due to largely saturated markets. When the autonomous growth ceases because of the financial reasons, the only possibility is to merge with other enterprises from research and development field.This paper is based on a literature review from "international cooperation forms" field and on the study of an enterprise from Germany.The aim of this paper is to present different methods of international cooperation and to derive their optimal shape based on a study of an enterprise. To realize this objective, the authors conducted an analysis of an enterprise from electronic industry field in the period of PhD studies.

Keywords: supply chain management, risk management, outsourcing and insourcing

JEL Classification: G10 General

Introduction

The aim of this paper is to highlight the reasons and advantages of cooperation in the international context using the study on an enterprise within R & D cooperation from Germany.

The opening of global market offers to companies expansive opportunities for activities[1]. The increasing competition, intensive trade and increasing international mobility on internal market, are leading to an enhanced pressure. This pressure is forcing local enterprises to adapt themselves.

The increasing constraints for internationalization of various companies make it clear that the nature and extent of their internationalization activities are afflicted with very large gaps.

By analyzing the companies' current market situation we may conclude that the internationalization of companies is well advanced.

In Germany, medium enterprises are already about 30% in some form internationally active, being heavily distinguished by the outnumbered large enterprises[2].

Literature review

Cooperation, from the Latin “cooperatio" (cooperation, collaboration), is the interaction between two or more individuals, persons or systems, particularly on economic or political basis. This work considers begins from cooperation between companies; therefore the main focus lies on business cooperation. In most cases it is about the cooperation of two or more companies for increasing their common competitiveness[3]. The literature addresses two main criteria[4]:

- Maintaining the economic and legal independence of enterprises
- Coordination and implementation of joint activities

For the implementation, the participants of such network cooperation are using shared resources and expertise. The alternative is to ensure the same performance through own forces by building up resources or by acquisition on the free market. In this respect, the business cooperation can be considered as an alternative form of organization, which occupies an intermediate position between the market and hierarchy, meaning it stands between contractual regulated and over hierarchy controlled cooperation[5].

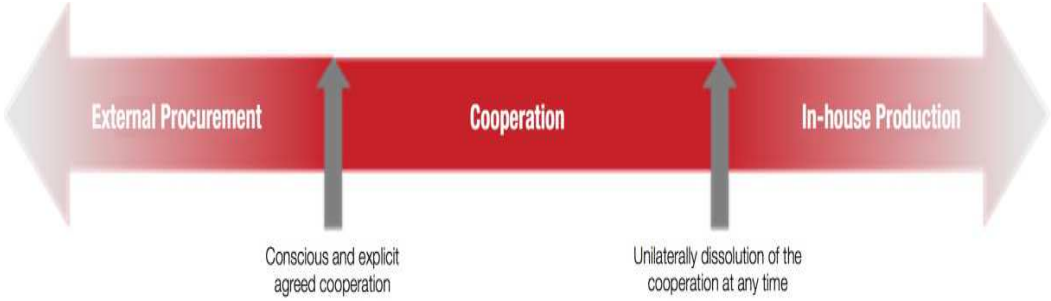

Fig. 1 The continuously cooperation in market-hierarchy

Source: Becker, 2005

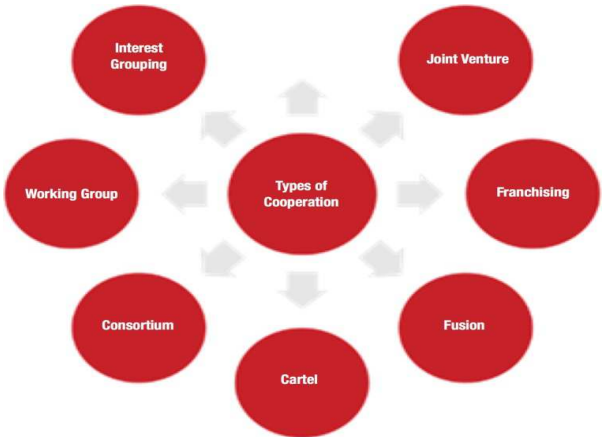

Fig. 2 Types of cooperation

Source: made by authors

The figure 2 presents the different types of cooperation.
Each type of cooperation is detailed in the table below:

Table 1: Types of cooperation

Types of cooperation	
Social group/Interest group: A social group is composed of few or more enterprises which set the goal of enforcing common interests. This form of cooperation is usually controlled by a simple contract and is headed by a chairman employed for this purpose. A classic example is the employer representative[6].	**Strategic Alliance:** Strategic alliances, often temporary interrelations (often horizontal) between companies in the same industry whose action relates to a specific business segment. In this form of cooperation it is about pooling resources to achieve a competitive advantage over competitors.
Working group: Working group is especially common in the construction field and serve more companies in a merger for the joint implementation of a project, for example, a major construction project. This form of cooperation is limited in time and usually occurs as a company constituted under Civil law.	**Joint Venture**: The cooperation model of Joint Venture represents the founding of a legally independent company by two or more legally independent enterprises, wherein the reason for the collaboration is to accomplish certain tasks jointly. Joint ventures are usually unlimited and in any direction, i.e. horizontally, diagonally or vertically possible[7]. The reasons for founding a joint venture, may be the association of capacities, pooling of resources or avoiding duplication of investments.
Foreign Trade Cooperation Foreign trade cooperation could take the form of export or import cooperation. For export cooperation or export association single or multiple delivery tasks are divided among the cooperation's partners. Import or buying cooperatives achieve financial benefits by pooling purchases at national and international procurement markets[8].	**Franchising** Franchising is a collaboration between legally independent franchisors and franchisees, whereby the franchisor is responsible for the tasks of planning, implementation and control of a previously successful operation type. The franchisee, in turn, receives the license, of this concept including the services and products to be distributed according to the existing concept[9].
Cartels Generally, cartels are characterized of existing based on a contract which is suitable to influence the market conditions by restricting competition, whereas legally ineffective according to restriction of competition law[10]. The companies are connected horizontally and remain legally independent.	**Fusion:** The merger represents the most extreme form of cooperation; as independent companies legally merges into one company under one name. Often, smaller companies are this way taken over by stronger partners.

Source: made by authors

Research Methodology

To reach this objective, the authors had conducted some interviews with the two managing directors. The interviews are used to identify the reasons for business cooperation and to derive the future type of cooperation.

For giving a better statement of an appropriate international cooperation form, it was made a detailed business analysis on the enterprise studied and were summarized the results in a core competency matrix.

Based on these results and the interviews conducted, the reasons for the cooperation between companies inside of the example company was worked out on the basis of theoretical fundamentals and possible cooperation ways in the field of R & D.

These results lead to the recommendation of the possible business cooperation.

Research results for international forms of cooperation on the example of the enterprise studied

For industrial companies, research and development[11] is a popular area for cooperation within the strategic alliances cooperation type and therefore an indispensable part of daily work.

To withstand the mentioned pressure of competition and innovation, small and medium-sized enterprises are often forced to close development collaborations.

Attributes of such cooperation initiatives are that the partners participate voluntarily to the cooperation, follow common interests and register economical profits from that specific project[12].

The collaboration can, but must not, be restricted to a certain time frame or achievement of specific targets.

While taking into account common targets, subtasks of the cooperation are being completed and jointly worked out. The cooperation is legally underpinned by tacit or contractual agreements[13].

The analyses undertaken revealed that the grounds for entering cooperation in the R & D area may be completely different. The most important considered targets and opportunities for the Sample

However, the objectives are not clearly separable, but often interconnected and are mutually reinforcing each other.

Table 2. Grounds for R & D collaborations

Grounds	Targets and Opportunities
Complementarity	Companies are entering a cooperation if own resources are not enough to conduct a sought R&D project. Therefore, resources may be used additive or complementary. At an additive bundling it is about a project which is simply too large and more capacities are needed; whereas, conversely, in the complementary method it is about connecting not existing resources with its own. Thus, an effective implementation of a project can be better realized[14]. The pooling of resources continues to bring scale economies, which may lead to a reduction of variable costs. This advantage is particularly important for small-sized companies. They can implement many projects through the pooling of resources with partners[15].

Cost reduction	Companies are urged by the increasing time and cost pressure to a steady reduction of costs. Through resources, procurement, installation and usage of equipment, development and further production, costs are rising in any phase of the innovation process. Basically, cost savings can be realized through economies of scale, economies of scope or learning curve effects, respectively knowledge building. Costly redundancies can be avoided and business processes run more efficiently by integrating information and communication technologies. In addition, double investments are thus avoided and the development costs shared within the cooperation[16].
Time savings	Through cooperation, development initiatives have more human, technical and financial resources and can thus be carried out more quickly and efficiently[17]. This is a necessary consequence which must be drawn from the trend towards more rapid innovation and technology cycles and shorter product life cycles, while increasing product complexity[18]. The resulted shortened duration of the project reached by pooling of resources are also reducing the binding of cost-intensive resources[19].
Knowledge gain	The company's internal know-how is one of the most important resources to secure competitive advantage. Within an efficient cooperation, know-how can be exchanged controlled, whereby both parties achieve best results. In this respect collaboration is an opportunity to acquire new knowledge. This is done by the targeted knowledge transfer, yet also by generating expertise. Know-how transfer means that previously existing knowledge of a company is incorporated in the cooperation and the partners acquires this new knowledge. Similarly, through the cooperation, partners can benefit from the so-called Innovation Learning (Best Practice)[20]. If the associate members are liaising knowledge and experience to new ideas than Innovation Learning takes place[21]. The gain of knowledge in turn leads to cost and time savings and can bring other positive effects, such as quality improvements.
Capacity supplement	A capacity supplement follows a similar pattern as the economies of scope. It means pooling of resources through which larger projects can be realized. Those might be among others, financial capacities or for example, output capacities, equipment or personnel.
Risk reduction	Each R & D project is associated with risk factors. If the costs are shooting up, the developed “passes over the market” or feasibility problems appear, development projects can turn into million graves, which cause the company long term negative consequences. To reduce the threat, the allocation of such risks on several network partners is an effective measure, as at the occurrence of such risk factors the entire cooperation spreads the cost or have enough resources are available to improve or save the project[22]. From a risk management perspective a higher risk means also a higher return, which in case of a partner would be cut in half.

Market access facilitation	Market entry and mobility barriers can generally prevent the entry into a new market. Increased capital investment or gain of know-how and technology can overcome these barriers. The missing resources may be provided by cooperation partners and the access to new markets from home or abroad is obtained through business connections. Especially abroad the resident partner can help to overcome commercial barriers. Through partners also knowledge of the new market can more easily be acquired and making the chances of success best improved[23]. These new contacts can be strengthened by further successful collaborations which buildup a healthy corporate network[24].

Source: made by authors

Within the first step, the results of the study answered the question about the grounds for a business cooperation of the sample company.

Based on the range of occupations, the sample company is more of a specialist - and not a complete range products provider. With its division as controller, image processing and computer systems, the sample company is more application-oriented and less product-oriented.

Since the company is not a technology leader, the sample company uses new technologies in electronics, respectively in the field of microelectronics and image processing for the research and development of the own products.

In order to make statements about the core competencies of the sample company, was developed a core competency matrix.

The results of the conducted interviews and the business analysis are represented below:

Table 3. Core competence matrix

Area of competence	Critical skills	Is-situation	2015
1. Product/Project specific competencies	- technological workout, further development and manufacture of existing product solution	+	
	- development and manufacture of new product solutions based on existing or new technologies	+	+
	- maintaining and further development of the technological level	+/0	
2. Market specific skills	- reccognising customer's new needs and development and execute them effectively		
	existing markets	0	+++
	new markets	0/-	
3. Functional abilities	- delivering customer specific top solutions	+	
3.1 Production processes/Departments	- push through high prices	-	
- Development	- offering complete product range	-	
- Distribution	- offering good services	+	
- Technical contract development	- new customer acquistion	-	
- Purchasing and Manufacturing	- offering complete solutions	0	
3.2 Supporting Processes	- delivering system solution	0	++
- Technology	- efficiently manufacturing	0/-	
- Human Ressources	- cost efficiently procuring	0/-	
- Infrastructure (IT, QM, FI)	- using, binding and recruiting highly skilled employees	+/0	
	- fast pay-back from R&D Investments	-	
	- low quality management costs	0	
	- procure new financial resources	-	
4. Cross key topics	- strategical marketing	+/0	
	- product management / V-products	0	
	- first class cost management	-	+++
	- management and control of heterogeneous businesses	-	
	- technological/commercial Project management	0	

Capacity + high developed / 0 medium developed / - low developed

+++ very high ++ high + less high

Source: made by authors

Looking at the picture more closely, it can be seen that the sample company is aligned technically-technologically and can provide customized solutions in the mid and high-end segment. However, the skills for R&D are not sufficiently pronounced to generate here a great added value for the sample enterprise. This problem is reflected, among other things, by the accepted and sells research contracts without knowing how long will take the development of the appropriate solution. The consequence therefore is that are needed more days for the development, which cannot be charged. This results, in

a great financial loss for the sample company, which, in most cases, cannot be retrieved on the sale of the developed product.

From this, can be derived the following strategies for research and development:

Table 4. Objectives for the research and development

Goal / Strategy	Example
Cost reduction	Develop cost-optimized product solutions for defined applications or customers
Quality improvement	Develop quality-oriented products for defined applications or customers
System solutions	Deliver system-solutions and not components or modules

Source: made by authors

Because the sample company of medium-sized companies is too small, for ensuring a cost-optimized R & D business it has to enter into the cooperation area. This way, synergies can be reached which creates added value not only for the Sample Company but are also interesting for the cooperation's partners. Because only this way can the cooperation's partners withstand the cost, innovation and market competency pressure[25]. Through the one international cooperation form new funding can also be obtained, which initially takes the cost pressures of the new research and development projects. The international development cooperation have also the advantage that thereby new distribution channels can be developed with which new markets are opening up to.

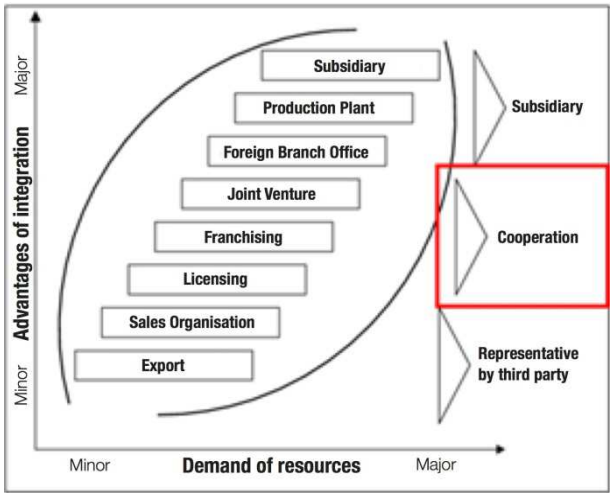

Fig.3 Market Entry forms

Source: Gabler, 2015[26]

Another reason for entering into collaborations is that incentives are not made as prior to the extent of the country. Thus, the Sample Company is formally compelled as a medium-sized company to cooperation. Incentives are critical, especially since the projects are often lost and the actual research and development costs are not covered and completely supported by the Sample Company.
The company tried to be successful with various cooperation types. Therefore, company has strategic partnerships in the areas of customer and supplier relationship that were used for entering new markets and increasing sales. In addition, this type of co-operation is used to strengthen customer relationships and to obtain access to new contacts and trade fairs.

In the past, the enterprise studied has cooperate with another company, which is commercially distribution-oriented. However, cooperation lasted only one year and was dissolved by the partner,

due to commercial reasons. The aim of that company was to learn about the Sample Company out from the cooperation and buy it cheaper afterwards. Finally, the Sample Company had a whole range of incentive projects, which have not brought the desired long-term success.

Just this past cooperation example shows that the Sample Company has always had a weak partner and the last one was focusing only on its own advantage.

Considering the problems in the past, which have occurred in different collaborations of the Sample Company, it becomes quickly clear that the company must take a different approach to reach long-term success in international markets. A strategic alliance in the field of research and development (R & D cooperation) may be for the Sample Company a good option in order to step abroad and continuing to be international. Through this type of cooperation, it becomes possible for the Sample Company to remain legally independent and still having the opportunity to carry out collectively certain tasks, especially in the area of research and development. In this context, it is of secondary importance whether the strategic alliance in the field of research and development, is unlimited or made only for a specific research project.

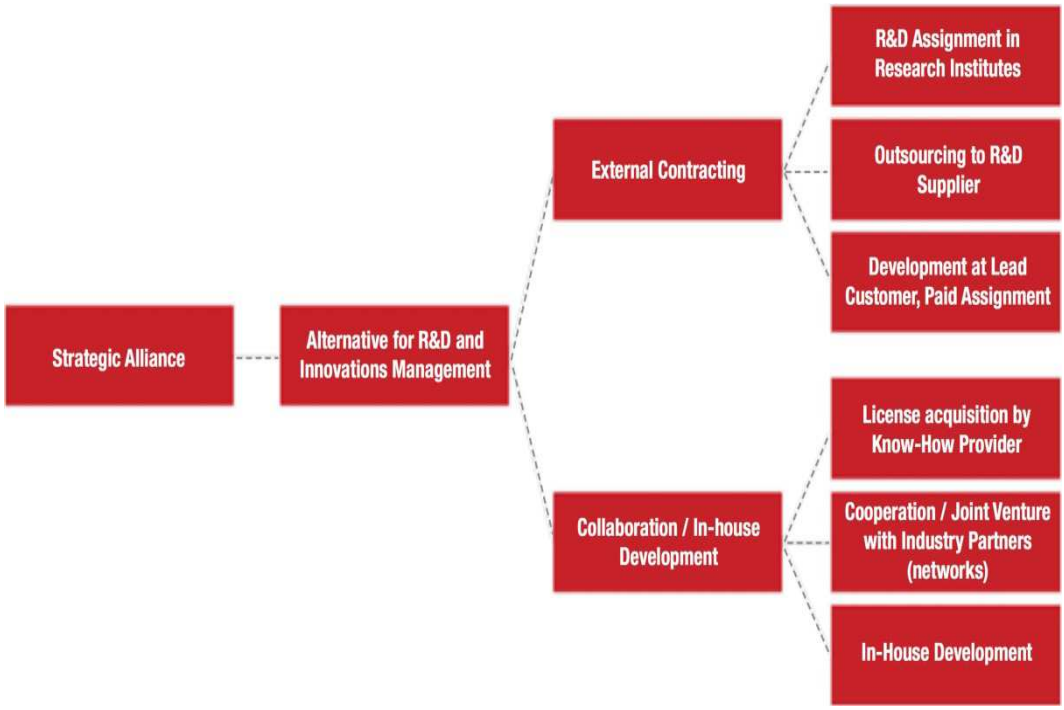

Fig.4 Example of cooperation types in the enterprise studied

Source: made by authors

Conclusion

The results of the research undertaken showed that regardless of size and industry cooperation, in research and development companies is included within the daily operations. While earlier research was done by individual scientists with pencil and paper and carried out in inexpensive laboratory equipment, nowadays, it is necessary to cope with the immense costs of research that can only be worn by several companies together.

Today we speak about an European economy, where companies operate mainly international. The interaction between national and collaborative funding of the EU Member States can lay the foundations for a European dimension of cooperation in research and development.

Cooperation is becoming more complex, dynamic and multi-faceted. The cooperative abilities of both large and small-sized companies have become the main criteria for a long-term success. This is accompanied by process and IT standards, which are the basis for an effective collaboration between several enterprises. Reports and comments from all research-intensive sectors show that it needs a greater cooperation. Classical approaches of "competitive markets" are reconsidered and increasingly efforts are sought in the context of cooperation and competition in complex "co-opetition" networks. A prevailing example in literature and the news is the automotive industry.

Equally, similar surveys of companies in various industries are documenting that cooperation are carried out in all areas and gain even more importance in the future development. By standardizing and optimizing cooperation from process perspective by the aid of modern communication and organization tools, efficiency and effectiveness can be increased, thus leading on ensuring company's success for the cooperation partners, and on the advancement of national and international science.

Research results showed that the enterprise studied has illustrated the opportunities given by a research and development cooperation. The success is primarily given by the grounds of this form of cooperation, through which, medium-sized companies competitively remain. R & D cooperation can thus serve as a successful alternative collaboration for remaining successfully in the market. For the Sample Company, an R & D cooperation is a good way of growing internationally. For this reason it is recommended to implement R & D cooperation in the context of a market entry strategy as of the Sample Company to permanently be successful on the international market.

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Managing Halal Foods through Power Collaboration Between Supply Chain Actors

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Abstract

Labeling Halal foods must consider the difficulty to achieve the business goal by individual organizations because relationships between supply chain actors in Halal foods is affected by the power collaboration an entity to influence another entity to ensure quality assurance system. The purpose of this paper develops a conceptual framework of supply chain Halal foods with considering the power collaboration between supply chain actors from a literature review. The framework is conducted using the SCOR model as modeling tool to investigate the power collaborations between suppliers, manufacturers, distributors and buyers in producing Halal foods. Finding of this study provides a conceptual framework of supply chain Halal foods to develop effective collaborations within the partnerships. Further research suggests conducting other factors that can affect the supply chain Halal foods involving regulations for each region that implement the policy of Halal foods in greater detail.

Keywords: Halal foods, SCOR model, supply chain, power collaboration.

Introduction

Halal foods required to adopt the supply chain strategy from upstream to downstream to provide the best service in term of quality assurance system to the market. In this way, the buyer has sufficient confidence in consuming Halal foods through basis of trust in the Halal certification as shown on the consumer product or outlet such as a meat shop or restaurant. This certification provides assurance that the product involving the source and facility has been verified by an independent Islamic Certification Authority to be compliant with Shariah laws (Bonne and Verbeke, 2007). Nevertheless, to ensure in labeling Halal foods, the individual organizations must consider the collaboration between supply chain actors that is affected by the power an entity to influence another entity in producing Halal foods. Therefore, Katunzi (2011) revealed that for successful implementation of SCM practice, it depends on the need for breaking down barriers not only between internal issue and business processes, but also across companies within the whole supply chain.

Some researches noted the concept of power collaboration is defined as the ability of one entity to influence the strategies of another entity in order to achieve the effective workings in the relationships and success to gain the competitive advantage (Belaya et al, 2008; Ke and Kee Wei, 2008). Moreover, firms developed the collaborations between others supply chain actors in order to achieve efficiencies and competitive advantage in greater benefits for companies (Quesada et al, 2012). Indeed, supply chain practice gained considerable importance because it is difficult to achieve the business goal by individual organizations. Nevertheless, it is easily achieved through collaboration between supply chain actors (Koçoglu et al, 2011).

The aim of this study develops a conceptual framework of supply chain Halal foods with considering the power collaboration between supply chain actors from a literature review. The framework more is conducted using the SCOR model as modeling tool because this model able to manage the supply chain strategy that provides benefits for business process as networking that associated with suppliers, manufacturers, distributors and customers (Fitra el al, 2013). The paper reviewed several publications available was mainly conducted through online databases in order to search related articles about Halal foods, supply chain practice and power collaboration. Taking into account the limitations below, the total number of 50 papers was found in this study. In addition, the research considers only journal paper and other references published in the period 2000 to 2015. Obviously, this study is expected to be able to contribute in developing the conceptual framework of supply chain Halal foods based on power collaboration between actors of the supply chain.

Supply Chain Strategy

Supply Chain Operations Reference (SCOR) model is able to utilize the process reference in the supply chain strategy. Moreover, this approach is used as a set of key performance indicators (Singh et al, 2013), a modeling tool (Bolstorff, 2011), a benchmarking tool (Ambe and Africa, 2014). This method also is used to investigate the collaborations between suppliers, manufacturers and customers (Wang et al, 2010). In addition, for reengineering business process using SCOR model, it is done based on the stages that have been standardized involving *plan, make, source, deliver and return*.

SCOR model is a methodology that can facilitate the blending of business objective, strategy, process and technology in the supply chain (Gulledge et al, 2001). In addition, the SCOR model develops the business processes of an interconnected flow material between business networking as a modeling tool (Verdouw et al, 2010). The advantage of this model, users can design business chain and to develop strategies and improve on technology within a business process. Moreover, SCOR model defines the process into several levels (Cheng et al, 2009). Moreover, SCOR model is also a tool for benchmarking and configuring the strategy of the supply chain which emphasizes there are several measurements in supply chain management (Drzymalski et al, 2006). This measurement is a tool for benchmarking between companies and competitors (Yakovieva et al, 2009). Best practice is a way to improve and configure a set of supply chain processes. Improvement can be done through automation, technology, special skill applied in the process and unique method for distributing. Several software's provide modules to do best practice based on process at each level.

Power Collaboration

The concept the power collaboration adopted based on the marketing and competitive strategy concepts which it is frame thinking of five force competitive models by Michael Porter at 1980. Pother's five frameworks are a model to configure industry and its competitor in order to identify entity and interactions. There are five frameworks, basic of the competitive strategy model involving industry competitors, threat of substitute products, bargaining power of suppliers, bargaining power of buyers and threat new entrants. This model provides a simple perspective for assessing and analyzing the competitive strength and position of a corporation or business organization (Rachapila and Jansirisak, 2013). Some researches success to leverage Five Forces of Competitive Model to develop other models of competitive model (Jaradat et al, 2013; Grundy, 2013; Renko et al, 2011).

The collaboration between supply chain actors give impacts on competitive strategy. Lemke et al, (2003) studied at four engineering companies in Germany. They revealed manufacturer required to develop effective collaboration with other partnerships in order to provide the best service to the customer. Moreover, Mohanty and Gahan (2012) conducted in the Indian manufacturing sector. They found the role of the manufacturing shows that buyers and supplier becomes more crucial in building collaboration for long lasting partnership with supply chain partners. Thus, it is necessary to conduct the collaboration manufacture in term of competitive strategy in business process. Moreover, there are many partnerships to support firm or manufacturer to run the business process involving

suppliers, distributor and customer. Thus, the collaboration among supply chain actors is expected to determine the power position.

Previous studies on supply chain strategy that support power collaboration including the power of suppler, power of manufacture, power of distributor and power of buyer. Then, it also can be seen in Table 1. There is the power of the supplier to affect the manufacturer in order to push the product based on the supplier's forecasting. It means the supplier holds substantial power to affect company's margin and volume (Braak et al, 2013). According to Gadde and Snehota (2000), this condition occurs because there are very few suppliers of a particular product so it causes there are no substitutes of the product. Furthermore, the product is extremely important to the manufacture because they cannot run the production without product from the supplier. Echtelt et al (2008) evaluated long term and short term relationship with the supplier. It is helpful in understanding the certain collaborations are effective.

Table 1: Power collaboartion in the previous literature

Power Collaboration	Prominent Authors	Dimension and perspective on power
Supplier	Al-Abdallah et al (2014)	Cost, quality, flexibility, delivery, and on time product launch.
	Krause et al (2007)	Supplier development, commitment, social capital accumulation and buying performance.
	Echtelt et al (2008)	Long-term strategic processes and short-term operational processes.
Manufacturer	Mukhtar and Shaharoun (2002)	The impact and position of a powerful player in supply chain strategy
	Huang and Iravani (2005)	Production policy under selective-information sharing.
	Stojanova et al (2013)	Mass customization of finished product.
Distributor	Ng (2012)	Information, quality, non-retrievable investments, goals, joint working and knowledge value.
	Chinomona and Pretorius (2011)	Trust, relationship commitment, relationship satisfaction and channel cooperation
	Djafar et al (2013)	Power of distribution channel.
Buyer	Cox (2001, 2007)	Power structure in procurement and supply management.
	Auka et al (2013)	Dimension of service quality involve tangibility, reliability, responsiveness, assurance and empathy.
	Soliman (2011)	Structural relationship on customers, customer knowledge management, and marketing performance.

Moreover, improving the productivity in a business process can be achieved with the appropriate relationship between manufacturer and other entities such as suppliers, distributors and buyers (Parvatiyar and Sheth, 2002). Thus, it is expected there are the sharing of information between entities through a system. It means manufacturer and other entities conduct joint forecasting and jointly decides on time and size of the delivery (Mukhtar and Shaharoun, 2002). On the other hand, few enterprises do not require yet arranging in order to collaborate relationship between manufacturer and other entities. The company tends to pick up the production based on orders because there is no information sharing (Huang and Iravani, 2005). According to Mleczko (2011), most of this type considers high of variant product. In addition, some manufacturer produces the customize product to the customer (Stojanova et al, 2013).

Supply chain strategy face problems more complex when product delivered using long distribution channel. To design the optimum distribution strategy, the firm required to consider transportation issue involving cost, variability and transportation service provider (Djafar et al, 2013). Power collaboration with the distributor to be crucial part should be considered. To keep the service quality to the customer, the relationship model can be made in the form of agreement that is approved by the firm and distributor (Kim and Mahoney, 2006). In addition, violation of the agreement in the contract gets the punishment because it damages the relationship to win the market. Moreover, Ng (2012) noted that the developing sustainable relationship with distributor enable mutual benefits and improve competitiveness in the industry.

The activity of business process is determined by the buyer requirement because manufacturers produce a number of products from information of the buyer and the demand based on production capacity (Duffy and Fearne, 2004). It means the buyer gives pressure in the place on a business. In addition, according to Cox (2001), reason of the buyer has the power to switches for another product is simple. Therefore, there is a small number of buyers influence the sensitivity of buyer price. Moreover, there are many dimensions that affected the power of the buyer. Auka et al (2013) studied in retail banking in Kenya. The results indicate that several the dimensions of service quality to the customer have a positive and significant influence on customer loyalty.

Halal Foods

Halal is derived from the Arabic language which means authorized, legal, permitted and allowed to any object or activity that is used or implemented in the religion of Islam. This term is most often used to indicate the food and drinks that are allowed to be consumed by Islam based on the kind of food and how to obtain it. Therefore, Islamic laws prohibit the consumption of alcohol, pork, blood, dead meat, and meat which has not been slaughtered according to Islamic rulings (Zulfakar et al, 2011). These laws are binding and must be observed at all times. Especially for foods, it is the most strictly regulated of all products in Islam. In addition, Zulfakar et al (2014) noted that many of the foods prohibited by religions on a temporary or permanent basis are of animal origin.

Nowadays, to identify the critical Halal foods, the industries is pushed to control their products with certified Halal products through HACCP (Hazard Analysis Critical Control Points) in order to ideally yields guaranteed and trustworthy halal credence quality of foods. Moreover, this method is a worldwide recognized and applied quality assurance system within companies situated at different levels of the agro-food chain (Tieman et al, 2012).

Halal foods represented a chain that mutually collaborate among supply chain actors and applied the same principles as conventional supply chain with special exception on the type of products that are been handled. Ab Talib et al (2015) revealed supply chain Halal food involves the process of planning, implementing and controlling the efficient flow and storage of Halal certified product from source to the demand point. It can be also referred to the process of managing the procurement, movement, storage and handling food products through the organization and the supply chain in compliance with the general principles of Sharia law.

Conceptual Framework of Supply Chain Halal Foods

This research developed the conceptual framework in managing Halal foods through power collaboration in between Supply Chain Actors. It is expected to give implications for any aspects such as industry, policy maker and scholar's knowledge in order to explore the concept supply chain Halal foods. Figure 1 shows the conceptual framework of supply chain Halal foods which it breakdown from SCOR dimension into power collaboration in Halal food processing.

SCOR Dimension	Power Collaboration	Halal Foods Processing
Source	Power of supplier	*Supplier* : - Breeding - Livestock Farming - Slaughter Process
Make	Power of manufacturer	*Manufacture* : - Meat Processing - Packaging - Labeling
Deliver	Power of distributor	*Distributor* : - Retailing and outlet - Transportation - Storage
Return	Power of buyer	*Buyer* : - Safety - Haelth - Quality assurance

Fig 1. Conceptual framework of supply chain Halal foods through SCOR model and power collaboration

The conceptual framework above focuses on the business process in of Halal foods which were then incorporated into the stages of process modeling using the SCOR Model. Although foods processing have similar the core business, they differed in operational strategy in production systems. Therefore, strategy of particular operations within the business process depended on type of collaborations in a supply chain (Miguel and Brito, 2011). Barber (2011) and Kähkönen (2014) revealed that there was some power position of collaborations in the strategy of the supply chain that affected the relationship between supplier, manufacturer, distributor and buyer. These relationships were constructed as power to emphasize certain supply chain actors. Thus, each actor can cooperate to optimize the supply chain network in order to reduce the costs of supply chain in the system (Mizgier et al, 2010).

Moreover, this conceptual framework found that power collaboration within supply chain actors in Halal Food is necessary to be considered in order to develop effective collaborations with the partnerships. Therefore, the actors must identify their own power position in the collaboration to provide the best service of Halal foods to the customer in run the business process. Noémi (2012) revealed in his study that the operation of a supply chain strategy cannot be described without investigating its collaborations.

Conclusions

This paper has explored in previous studies performed on the basis of the paper on Halal foods, supply chain strategy and power collaboration. As the result, this study has shown the development of a conceptual framework of supply chain Halal foods from a literature review to a conceptual framework. Therefore, the case study in Halal foods represented the supply chain of business processes that cooperate with other supply chain actors such as suppliers, manufacturers, distributors and buyers. To support this study, further research is suggested to consider other factors that can affect the supply chain Halal foods involving regulations for each region that implement the policy of Halal foods in greater detail. Moreover, the finding of this study should compare with the research

that success to adopt supply chain Halal foods in Islamic countries in order to validate this conceptual framework.

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Modeling Human Activity Recognition by Dimensionality Reduction Approach

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Abstract

Human activity recognition (HAR) is a very hot research topic in computer vision nowadays. Recently, numerous application (HAR) systems and approaches have been proposed. The prediction in human mobility using big data however still remains a challenge to the classification problem. This is mainly due to the huge variations, such as growing information amount and high dimensionality of data, the difficulty in modeling the precise relationship between the large number of feature variables, and the class variable. In such cases, it is highly desirable to reduce the information to a small number of dimensions in order to improve the accuracy and effectiveness of the classification process. Nevertheless, the performance of (HAR) is not high enough yet. This paper aims at improving the performance of human mobility modeling and mining by employing dimension reduction based on statistical techniques. The developed method has been applied on a new and publicly available human activities dataset. The obtained results are effectively interpreted, and the efficacy of the suggested method over the well-known methods is discussed.

Keywords: Dimension Reduction, Classification, Human Activity Recognition.

1. Introduction

With the rapid aging of the population, a reflection emerged around the technology providing practical solutions to the needs of the elderly, for home care, with enhanced safety and improved quality of life. Shares of recognition-based technologies arouse more interest because of their effectiveness. The tracking behavior and, specifically, the person's ability to perform everyday activities are important to detect the entry into dependence of the person and detect risky situations.

Human activity recognition generally comprises a step of extracting primitives and a classification step. The extraction of primitives is to identify distinctive characteristics while being robust to noise. In the classification stage, we are interested in the possibility of identifying the actions using machine learning methods, taking into account the variability that a class action may be exposed, especially if performed by different subjects and different kind of size and speed and different way.

Classification, one of the popular human activity recognition, has been applied in many areas of human decision-making. A number of methods and algorithms have been developed for human activity recognition problems, including statistical models, decision and regression trees, rules, connectionist networks, probabilistic networks. Supervised classification forms the core of what has been recently called the data mining. The methods originated in statistics in the early nineteenth century, under the Moniker discriminant analysis. The applications of supervised classification in real life are very vast, like human activity recognition, automatic speech recognition, face detection, signature recognition, customer discovery, spam detection, systems biology etc.

Nevertheless, in the last decades, the interest in the dimensionality of many classification problems has increased. Much of human activity recognition problems have provided results of high dimensionality, along with a substantially growing trend. One of the major current challenges concerning many classical classification algorithms is, dealing with large high dimensional data. At this stage, some of the increase in dimensionality, where the number of variables or features (p) and the number of samples (n) are greater, can affect the performance of classification algorithms. Examples of datasets

include text data, speech data and digital images often have thousands of features and hundreds of thousands or millions of objects. This makes it difficult or even impossible to apply supervised classification methods (e.g., logistic regression, discriminant analysis).

A general framework is therefore suggested for the structural (HAR) problem that can be formulated for dimension reduction and class prediction. This framework will be applied on a new and publicly available human activities dataset, and the obtained results will be interpreted and discussed.

2. Background

Among the branches of computer sciences, human activity recognition, artificial intelligence, and data mining are the branches which are related to each other and to statistics and mathematics. Their goal is to allow computers to perform tasks involving learning or reacting to data.

2.1. Human activity recognition

Computer vision is an exciting topic of research to develop the computer systems analysis and interpretation the visual capabilities of a scene close contents to those of human vision. One of the major objectives in computer vision is to recognize and understand human mobility, in order particularly to define the classification of human activities.

2.2. Dimension Reduction

The problem of dimensionality reduction can be defined by assuming that we have dataset represented in a $n \times p$ matrix 'y' consisting of n datavectors $y_{i_{(i \in \{1,2,\dots,n\})}}$ with dimensionality 'p'. Assume further that this dataset has intrinsic dimensionality 'k' (where$k < p$, and often $k \ll p$). Here, in mathematical terms, intrinsic dimensionality means that the points in dataset 'y' are lying on or near a manifold with dimensionality 'k' that is embedded in the p-dimensional space. Dimensionality reduction techniques transform dataset 'y' with dimensionality 'p' into a new dataset 'x' with dimensionality 'k', while retaining the geometry of the data as much as possible. In general, neither the geometry of the data manifold, nor the intrinsic dimensionality 'k' of the dataset 'y' are known. Therefore, dimensionality reduction is an attention-demanding problem that can only be solved by assuming certain properties of the data (such as its intrinsic dimensionality).

2.2.1. Dimension Reduction based Sliced Inverse Regression (SIR)

A parametric regression model describes the relationship between a dependent variable $y \in \mathbb{R}$ and a predictor $x \in \mathbb{R}^p (p \gg 1)$ with $\mathbb{E}(x) = \mu$ and $\mathbb{V}(x) = \Sigma$ of the form:

$$y = f_\theta(x) + \varepsilon,$$

Where 'f_θ' belongs to a family of functions parameterized by 'θ' (vector parameters real) and 'ε' is a random error term. In this type of model, the ultimate goal is to estimate the parameter 'θ'.

The parametric estimation techniques (methods of maximum likelihood and least squares for example) are efficacies when the family 'f_θ' is correctly specified. However, in many applications, highlighting a suitable parametric model is not simple. Also, when a parametric model is not available, the nonparametric regression techniques appear as an alternative, providing the desired flexibility in modeling. In that case, the above mentioned relation is transformed into:

$$y = f(x) + \varepsilon \ ,$$

Functional regression is based on a local smoothing that utilizes the properties of continuity and differentiability of the regression function 'f'. The quality of the local smoothing at a point, therefore, depends on the presence of sufficient data in the vicinity of this point. When the variable is univariate ($p = 1$), we can mention among others the method cores or smooth splines. However, when the dimension of 'x' becomes large, the number of observations required for the local smoothing grows exponentially with dimension. So unless you have a huge sample size, these nonparametric methods are no longer appropriate due to the low number of points in the region of interest.

To overcome this problem known as the "curse of dimensionality" some methods for dimension reduction suppose that 'x' can be replaced by a vector of dimension 'k', strictly less than 'p', without losing information on the conditional distribution of 'y' at given 'x'. The corresponding model assumes dependency between the predictors, and the response variable is described by linear combinations of predictors.

2.3. Linear Discriminant Analysis (LDA)

Linear Discriminant Analysis or (LDA) method is a statistical discriminative way. Let the probability that an element with measurement vector 'y' belongs to group 'g' is $P(g_i|y)$.

We consider the set of distributions $\{P(g_1|y), P(g_2|y), \ldots, P(g_N|y)\}$ which are multivariate normal distributions $N(\mu_i, \Sigma_i)$ with the common variance:

$$\Sigma_1 = \Sigma_2 = \ldots = \Sigma_N = \Sigma \ ,$$

Each element is classified into the group 'g_i' where the posterior probability $P(g_i|y)$ that it is a member of that group, given its value of y, is the largest. (LDA) applies Bayes formula to evaluate $P(g_i|y)$ using $P(y|g_i)$ and the prior probability $P(g_i)$. This posterior probability is calculated using Baye's rule as: $\mathrm{p}(g_i|\mathrm{y}) = \frac{\mathrm{p}(y|ig_i)\mathrm{p}_i}{\Sigma_{k=0}^{N}\mathrm{p}(y|g_j)\mathrm{p}_k}$, Where '$p_k$' is the prior probability that a case is a member of group 'k'.

3. Methods

A general framework is suggested for the structural (HAR) problem that can be formulated for dimension reduction and class prediction. Under this framework, our procedure consists of two basic steps (Fig 1): the first step is dimension reduction, in which data are reduced from higher p-dimensional vectors space to a lower k -dimensional factor space. The second step is the construction of learned model for human activity prediction, in which response classes are predicted using a class prediction method on the extracted factors.

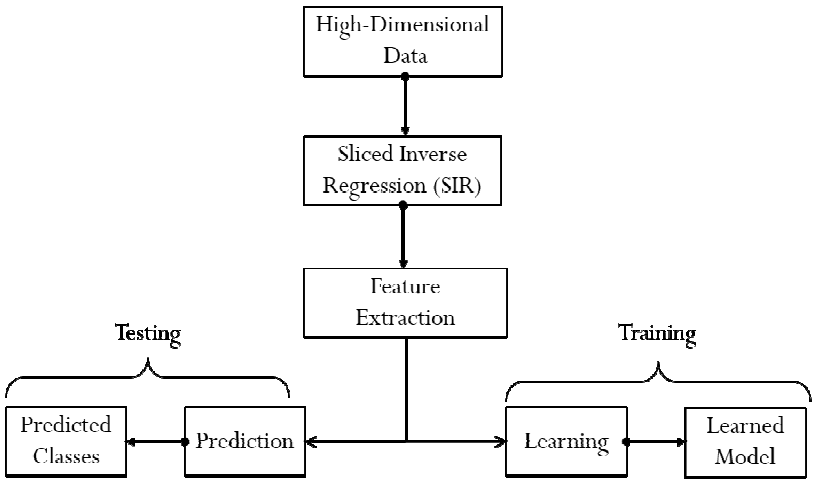

Fig 1: A dimensionality reduction framework (HAR)

3.1. Dataset and Preprocessing

The established algorithms are applied to a publicly available dataset 'Human Activity Recognition Using Smartphones Data Set'. HAR-database built from the recordings of 30 subjects performing activities of daily living (ADL) while carrying a waist-mounted smartphone with embedded inertial sensors. The dataset contains 561 attributes with 10299 instances. The experiments have been carried out with a group of 30 volunteers within an age bracket of 19-48 years. Each person performed six different activities (walking, walking upstairs, walking downstairs, sitting, standing, laying) wearing a smartphone (Samsung Galaxy S II) on the waist.

3.2. Feature Extraction

Although the procedure described here can handle a large number of attributes, it may still be too large for practical use. While, the model assessment procedure requires fitting the data many times, it is very time-consuming process due to cross-validation and re-randomization. In addition, a considerable percentage of attributes do not show differential expression between the groups and only a subset of attributes is worthy of interest. A dimension reduction is performed in this study, for function extraction by sliced inverse regression (SIR).

3.3. Class Prediction

The high dimension of 'p' is then reduced to a lower dimension 'k' after dimension reduction. The original data matrix is constructed by a matrix of factors ($n \times k$, where $k < n$), constructed by (SIR), as described in the previous section. Once the k-factors are composed, prediction of the response classes using linear discriminate analysis is taken into consideration.

4. Results and Discussion

The interest of dimension reduction by considering applications for the class prediction of HAR-data has been illustrated. We compare the results produced by our procedure with the performance of the direct classification approach.

4.1. Application to HAR-Dataset

After data preprocessing, the proposed performance evaluation procedure on the HAR-dataset is applied. We choose 8000 instances randomly to train model and the 2299 remainder instances are used to test the model. Table 1 gives the estimates of common factors 'k' after the dimensionality reduction and the classification accuracy performances.

Table 1- p: number of selected variables; k: estimated number of factors.

Dataset	p	Reduction model	k	Classification model	Classification accuracy %
HAR	561	SIR	**61**	SIR-LDA	98,49
			26		93.46
			15		92.35
	561	PCA	**61**	PCA-LDA	98,04
			26		92.89
			15		92.22
	561	Pristine	**561**	LDA	98.31

4.2. Discussion

In this paper, the possibility of dimensionality reduction by employing dimension reduction based on sliced Inverse regression (SIR) to solve the course of dimensionality problem arising in the context of big data is explored, and its performance in class prediction framework for human activity recognition using LDA is evaluated. A priori, LDA can handle a large number of variables. However, as many other multivariate methods it is challenging due to large computational time and risk of over-fitting. Therefore, dimensionality reduction for many variables so as to reduce the large computational time has been used.

Table 1 represents the results obtained by applying the three models; SIR-LDA, PCA-LDA and LDA on the experimental dataset. Concerning dimensionality reduction task, three different criteria to estimate the number of common factor have been defined. The first criterion is the higher eigenvalue to one which provides us 61 common factor, the cumulative variance equal to 80% as the second criterion, which produces 26 common factor. After dimensionality reduction the results of class prediction show that, for $k = 61$ the best accuracy is obtained by SIR-LDA model 98.49 %, which is followed by PCA-LDA model 98.04 %. For $k = 26$ the highest accuracy is obtained from SIR-LDA model, and then PCA-LDA model with values 93.46 %, 92.89 % respectively.

In the case of third criterion, the number of common factors from the best classification accuracy is evaluated which provides a near classification accuracy of second criterion (93.46%) and the respective 'k' is lower than 26. The results demonstrate that the achieved accuracy is comparable with the other two criteria, furnishing k=15. For the excellent classification accuracy, SIR-LDA model 92.35% is obtained, which is pursued by PCA-LDA model with 92.22% accuracy. It is evident that the number of common factors are equal to quarter of the first criterion, and about half of reduction has been accomplished in comparison with the second criterion, inferring the efficacy of the proposed framework. The descending order of the number of common factors can be described as following:

$$\boldsymbol{k_{SIR-LDA} < k_{PCA-LDA} \ll P_{LDA}}$$

5. Conclusion

This paper reports an efficient dimension reduction approach for the class prediction related to the human activity recognition. The proposed algorithm performs dimensionality reduction with two processes, i.e. the SIR-based dimensionality reduction and the PCA-based dimensionality, and the obtained results are compared, interpreted, and discussed. The principle advantage of this approach is that the number of features can be remarkably reduced from p=561 to k=15 for HAR-dataset, with a fine classification accuracy (92.35%). In addition, the suggested method is capable of addressing some crucial dimensionality reduction issues as well. The application of the proposed method on the experimental dataset results in the achievement of the best performance for dimensionality reduction (in terms of least time consumption and CPU-expenditure). It is also emphasized that the suggested method appears to be more effective than the well-known methods of its kind, and it may possibly be generalized on different types of machine learning with the reduced data.

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The Impacts of IT Capabilities on Teaching and Learning Mathematics: A Conceptual Framework for Malaysia

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Abstract

The steep fall of mathematics performance of Malaysian students in International Mathematics & Science Study (TIMSS) 2011 signaling urgent needs to ensure effective teaching and learning in mathematics. The insufficiency of Information Technology Capabilities (ITCs) is a major challenge for teaching and learning mathematics in Malaysia. The key objective of this research is to propose a comprehensive framework, which incorporates crucial ITCs such as collaborating, data management, dynamic and integrating capabilities for Malaysian schools to improve mathematics performance. A systematic literature review (SLR) was carried out to design the appropriate ITC framework for teaching and learning mathematics. Based on the findings, an applicable model for representing and reasoning about ITC in improving mathematics performance will be designed. This study is particularly important to assist Malaysian government to achieve one of the key aims of Education Malaysia Education Blueprint 2013-2015 and National Key Results Areas (NKRA), which is to provide quality Mathematics education to all Malaysian students. Since currently there is a lack of established framework and IT application in Mathematics education, the outputs of this study will be served as the preliminary confirmation of integration of ITC to mathematics education.

Keywords: Information technology capability, IT, Performance of mathematics, Technology integration in teaching and learning, Malaysia.

1. Research Background

The results of Malaysian students have declined severely in International Mathematics & Science Study (TIMSS) among all tested countries; remarkably in Mathematics subject. The ranking of Malaysia was dropped from 20th in 2007 to 26th in 2011.

The average mathematics score was “above average (474)” in 2007 and “below average (440)” (TIMSS 2013). Meanwhile, the gap between Malaysian students’ outcomes of high performing schools and low performing school is also widening and worrying.

Although the integration of information technology (IT) in mathematics education has widely accepted and supported by researchers, practitioners (Drijvers, et al, 2014; Sam, et al, 2009; Wen & Yu, 2012) and Malaysian government (Ministry of Education (MOE), Malaysia, 2012); the ways of integration of proper ITCs in mathematics in Malaysia is still at the infancy stage (Sam, et al, 2009). One of the difficulties of integration is the lacking of IT resources and IT capabilities (ITCs) in mathematics (Chong, et al, 2005; Drijvers, et al, 2014). Hence, the findings of this study could address the appropriateness of using ITs (when teaching and learning mathematics) by identifying the ways of integration in the school system (Chong, et al, 2005). Furthermore, very few works on the application of causal knowledge-driven approach in student performance analysis; in particular, learning causal models from survey data. In this study, the author introduces learning Bayesian networks from survey data as an applicable model for representing and reasoning about ITC in improving mathematics performance. These steep fall results depict a comprehensive framework using ITCs to improve performance of Malaysian students in mathematics is crucial. A special ITC framework for high school is fortunate to develop to address this pressing issue.

Therefore, this study is conducted to address the appropriateness of using IT when teaching and learning mathematics and integrate IT capability (ITC) in the mathematics education of current high school system.

Objectives of Research

The overall goal of this study is to determine the impact of information technology capabilities (ITCs) on teaching and learning mathematics. Specifically, this study is to answer the following research questions:
1. What are the appropriate information technology capabilities (ITCs) to improve performance of teaching and learning mathematics?
2. How do ITCs affect performance of teaching and learning mathematics?
3. How to integrate ITCs in the mathematics education of current high school system?

Significance of Research

The developed framework is aimed to improve the mathematics performance. This aim is in line with the aspiration of Malaysia Education Blueprint 2013-2015, particularly in the area of Education National Key Results Areas (NKRA), in which providing quality education to all Malaysian students and enhancing school system and results.

The teaching and learning difficult mathematics lessons can be conducted effectively with the developed IT application that incorporated all the IT capabilities from the developed framework. While mathematics being a fundamental knowledge for all disciplines, improving student outcomes in mathematics could develop further viable and sustainable workforce while transforming Malaysia to a developed nation by 2020.

Furthermore, using the developed IT application particularly in low performing schools can improve the mathematics performance in overall. This expected outcome is tied in closely with NKRA's aim which to "reduce the number of Band 6 and 7 schools by 20% and increase the number of Band 1 and 2 schools by 8% in the course of the GTP" (Ministry of Education (MOE), Malaysia, 2014).

2. Literature Review

Mathematics Education with Information Technology (IT)

In recent years, researchers and practitioners (Drijvers, et al, 2014; Sam, et al, 2009; Wen & Yu, 2012) have paid attention to the positive impacts of teaching and learning mathematics using information technology (IT). The Ministry of Education (MOE) believes that the integration of information and communication technology (ICT) is an essential component for providing quality education to all Malaysian students and enhancing school system and results (Ministry of Education (MOE), Malaysia, 2012).

However, the ways of integration of proper ITCs in mathematics in Malaysia is still at the infancy stage (Sam, et al, 2009). Hence, when teaching and learning mathematics, the appropriateness of using ITs in the school system nurtures the latest issues among researchers and practitioners.

With special consideration to Malaysian high school context, this study tries to answer these questions generally based on the three most useful ITCs in mathematics educational perspectives. The three most useful ITCs described IT as: "(1) tools that help students accomplish more, (2) can be used for interesting simulations students can learn about through exploration and interaction and (3) offers new ways of structuring the curriculum to both support student inquiry and cover more content" (Ferbar & Trkman, 2003).

Information Technology Capability (ITC)

Knowledge acts as a foundation for knowledge management (KM), KM activities and information technology capability (ITC). Sequentially, both ITC and KM activities are reinforced by IT resources (Tanriverdi, 2005). Sher and Lee (2004) demonstrated that IT resources lead to larger ITC frequently. Performance resulting from the development and utilisation of IT resources was investigated (Chang & Chuang, 2011; Jee-Hae, et al, 2012) and the primary finding showed that organisations that possessed ITC often enjoyed better performance.

Adopted from Lew and Yuen (2014), ITC is opeationalised as a group of capabilities; detailed as:
1. Collaborating capability,
2. Data management capability,
3. Dynamic capability and
4. Integrating capability.

Many ITCs cannot be replicated in other ways such as "the capability of visual and digital media which are displayed through animation, audio/ visual, simulation, or interactivity especially those media involving the students to participate" (Pope, 2013). Therefore, this research aimed to connect the teaching and learning mathematics in classrooms with the media-rich world to improve mathematics performance.

Adopted from Pope (2013) who describes ITC as "the capability of visual and digital media which are displayed through animation, audio/ visual, simulation, or interactivity especially those media involving the students to participate"; there is a significant relationship between IT resources (visual and digital media) and IT capabilities (Collaborating capability, Data management capability, Dynamic capability, Integrating capability). Hence, the following hypothesis is outlined:

H1: There is a significant relationship between information technology resources and information technology capabilities (ITCs).

Independent Variable (IV) 1: Collaborating Capability

A German automotive supply chains would be benefited from collaboration capability in organisational operation (Wiengarten, et al, 2010). Timeliness, accuracy, relevance and value added on information-distribution and collaborative accomplishment were among the enhanced information. Common collaborating tools consist of blogs, bulletin boards, calendars, corporate portals, discussion groups, document sharing, email, instant messaging, project workspaces, SMS, task lists, wikis (Christopher, 2006; Tinker, et, al, 2007). As an example, a sharing platform such as corporate portals can give organisational members a common place for collaborative works (Benbya, et al, 2004). With collaborating capability, collaborators perform better for a sharing and common work (Minkyun, 2010) as well as mathematics education (Tinker, et al, 2007). In this study, "collaborating capability refers to the ability of linking students so that they can learn together and the teachers can share their teaching materials or methods together".
The following hypothesis is formulated:

H2a: Collaborating Capability affects performance of mathematics.

IV 2: Data Management Capability

Data is initially meaningless. Changing a meaningless data to meaningful data, a series of processes such as "stored, grouped, analysed, processed and summarised" is needed. According to Zack (1999), "knowledge consists of data and information that has been processed to produce understanding, experience and expertise in a particular circumstance". In view of the fact that knowledge is sourced from data and information (Ngai & Chan, 2005), organising and processing knowledge are essentially the activities of knowledge management (KM). For this reason, "data management is operationalised as the capability to manage any data that related to learning and teaching mathematics" (Tinker, et al, 2007).

This data management capability comprises the capability of managing database management systems and storing data (Kim, 2001), transacting data, tracking data, analysing data and translating data (Zack, 1999). Hence the following hypothesis:

H2b: Data Management Capability affects performance of mathematics.

IV 3: Dynamic Capability

Dynamic capability is defined as "the capability to confront external challenges through organisational flexibility and the ability to integrate, build and reconfigure internal and external competencies" (Alavi & Leidner, 2001). Organisations and individuals must be greatly adaptable and innovative for the period of speedy technological revolution. In international marketplaces, this capability of quick to response is very much required to challenge unpredictable environmental changes (Evers, 2011). Hence, dynamic capability is needed to enable rapid adaptation in any unpredictable changes for students and teachers in their learning and teaching. Hence, the following hypothesis is outlined:

H2c: Dynamic Capability affects performance of mathematics.

IV 4: Integrating Capability

Diverse data and resources are available across organisations; particularly knowledge and technology intensive organisations. These diverse data and resources provide assorted and distributed organisational knowledge and information which required to be united in its place (Benbya, et al, 2004). With the wide variety of references such as text books, notes and audio visual materials, the integrating capability enables teachers and students access and utilise mathematics knowledge effectively throughout the schools (Alavi & Leidner, 2001; Tinker, et al, 2007). In brief, "integrating capability refers to the ability of linking individual components and services for the purpose of sharing knowledge, communication and data resources" (Kim, 2001). Hence the following hypothesis:

H2d: Integrating Capability affects performance of mathematics.

As described in above paragraphs, although every IIC is distinctive but greatly interconnected. The IICs facilitate and reinforce each other (Lew, et al, 2015). Therefore, in this study, ITCs are considered as the foundation for teachers and students in teaching and learning of mathematics.

3. Methodology

This study used systematic literature review (SLR) to collect the secondary data. As for primary data that is customised for Malaysia, pilot survey will be carried out and followed by actual survey.

Pilot Survey

Based on the review of literatures, a research questionnaire will be developed as instrument to answer the research questions. A pilot survey of 5 teachers and 20 students will be conducted to measure face validity and reliability of the developed questionnaire. 5 mathematics teachers. The suggestions and comments from the pilot study will be evaluated and incorporated into the survey prior to the actual study. The revised questionnaire will then be sent to 5 information system experts for further reviews. These experts will be senior lecturers in academic institutions.

Actual Survey

Focus group study will be conducted to identify key information technology capabilities (ITCs) that influence mathematics performances of high school students, followed by a questionnaire survey of 250 teachers and 250 students to determine the relationship between ITCs (cause) and mathematics results (effect).

Based on this actual survey results, mathematics lessons will be delivered to 2 different groups of students “with” and “without” the IT application. Mathematics performances of both groups of students will be compared to verify the effectiveness of the proposed ITC model and IT application in improving students’ mathematics performances in high schools.

Data Analysis Techniques

The application of causal knowledge-driven approach in student performance analysis; in particular, learning causal models from survey data will be used in this study. An applicable model for representing and reasoning about information technology capability (ITC) in improving mathematics performance will be designed from learning Bayesian networks from survey data. Bayesian Network is a network representation or graphical representation that represents conditions that affects decisions by assisting to solve problems in the domain. Bayesian networks offer good analysis for model-based domain descriptions and represents knowledge in situations involving updating a belief. Bayesian networks are essential in various fields for decision support and are capable to provide causal knowledge based on data domain, experts’ knowledge domain or Bayesian classification.

Bayesian networks are directed cyclic graphs with nodes as random variables and arcs that indicate causal interpretation. Bayesian causal maps were described to represent and analyse domain knowledge of experts (Nadkarni & Shenoy, 2001). Bayesian causal maps are Bayesian Networks that graphically represents expert’s knowledge for probabilistic causal reasoning (Verma & Pearl, 2013). It states that Bayesian Networks are the design of a joint probability distribution of several variables in terms of conditional distributions for each variable. Bayesian Networks enable the use of causal maps to make inferences to facilitate decision-making under uncertainty, ambiguity and incompleteness. The evidence of Bayesian networks rely on the observation of specific state. A situational example of a Bayesian Network implies A -> B -> C whereby A directly causes B and B directly causes C.

4. Proposed Framework

The proposed framework is presented in Figure 1.

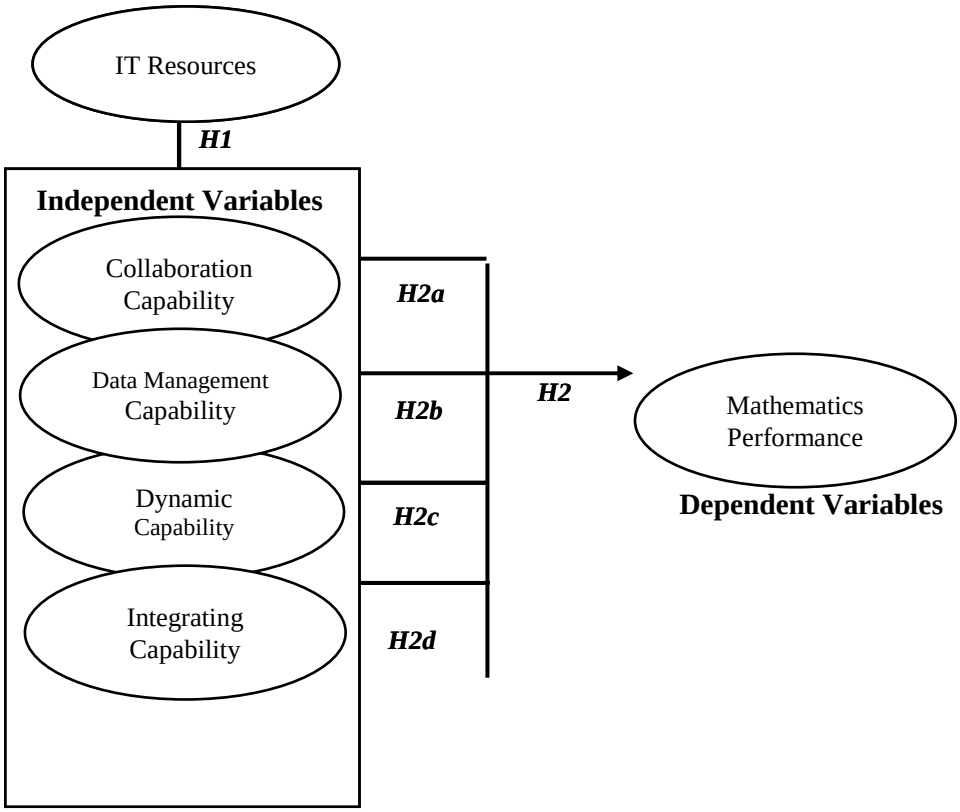

Fig 1. Proposed Research Framework

Notes:

H1: There is a significant relationship between information technology resources and information technology capabilities (ITCs).

H2 is a set of collective hypotheses of all the 4 information technology capabilities (ITCs) as follows:

H2a: Collaboration Capability affects performance of mathematics.

H2b: Data Management Capability affects performance of mathematics.

H2c: Dynamic Capability affects performance of mathematics.

H2d: Integrating Capability affects performance of mathematics.

Summary of Variables

The information technology capability (ITC) is the independent variable. Mathematics performance is the dependent variable. ITCs are conceived as "cause", which influence mathematics performance as "effect". Consequently, students that have high can learn mathematics effectively to achieve higher mathematics performance which will be reflected in better academic results.

Table 1 summarises the variables and sources.

Table 1: Summary of Variables

Item	Variables	Sources
Independent		
IV	Information Technology Capabilities (ITCs)	
	IV1: Collaboration Capability	(Benbya, et al, 2004; Christoph 2006; Minkyun, 2010; Tinker, et 2007; Wiengarten, et al, 2010)
	IV2: Data Management Capability	(Lew & Yuen, 2014; Ngai & Cha 2005; Tinker, et al, 2007; Zack, 1999
	IV3: Dynamic Capability	(Alavi & Leidner, 2001; Evers, 2011)
	IV4: Integrating Capability	(Alavi & Leidner, 2001; Benbya, et 2004; Tinker, et al, 2007)
Dependent		
DV	DV1: Mathematics Performance	(Drijvers, et al, 2014; Sam, et al, 200 Tan, et al, 2015; Wen & Yu, 2012)

5. Conclusion

In this study, the author has reviewed previous studies of integration of information technology capability (ITC) in mathematics education. Lacking of IT resources and ITCs in mathematics are among the core constraints of integration IT in mathematics education. Therefore, based on the results of survey and Bayesian network analysis, an IT application will then be developed. It is hoped that by knowing and integrating the appropriate ITCs in mathematics education, the mathematics performances can be improved.

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The Relevance of Social Media – Introduction and Basic Knowledge for Small and Medium Sized Companies

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Abstract

For several years social media is becoming more and more popular and famous in the 21st century. Especially so-called social media networks are having huge relevance in daily (online) business. But nowadays many small and medium-sized enterprises (SME) are facing the missing practical and feasible solutions how to integrate and implement social media activities in their current structures. This is based on the fact that many German medium-sized companies are facing difficulties with social media business. On the one hand this is based on the fact that there is no know-how about the possibilities of social media activities. On the other hand this is based on the fact that there are no resources and the big fear of wrong investments into tools concerning Web 2.0. Social Media is a very complex topic. With regards to the changing environments and fast moving online Web 2.0 conditions, companies need to face social media activities increasingly. Within the given research paper - which carries exclusively the secondary data approach - only some of the basic tools were introduced. It needs to be taken into account that there a much more tools. It is highly recommended to face all corresponding influence factors in order to avoid a poor performance and implementation.
Keywords: Social Media, Networking, Blogging, SME

1 Introduction

For many years, classical marketing tools are used over generations to support many companies and brands to build brand awareness and to strengthen sales activities. Known worldwide, the so called Porter's 4 P's set the foundation for many marketing activities and strategies. But in the last years a new digital "communication tool" occurred and gained big power/ relevance: Social media. Social media usually refers to the term Web 2.0 and is used throughout daily business worldwide.

In general, social media connects brands, organizations, customers and potential partners effectively. And there is one bigger advantage: Social media mainly targets other customers through the shift from pontification to a two-way communication, rather than classical marketing. This means that consumers do not only trust in classical marketing or in classical messages and no longer believe in corporate messages. Rather, customers want their information from people / groups they know, they believe and trust in. These social media aspects count on the fact of building relationships which are more lasting and will result in higher sales, less returns and greater word-of-mouth impact. But this competitive advantage needs to be prepared and implemented in order to have this advantage.

Therefore, the given research paper provides a brief introduction of the basic social media tools which small and medium sized enterprises might have to take into account. Due to the fact that social media cannot stand alone but needs to be considered within an integrated marketing strategy, the paper

can be seen as a first guidance for companies and their marketing managers who are considering social media in the near future.

Since this research paper is in progress, it needs to be taken into account that there are more social media tools than mentioned in the given paper as well as the fact that not all tools might fit a company´s marketing - and overall presence - strategy.

2 Social media

In order to understand the importance of social media, it is necessary to approach and define the basic knowledge of social media first in order to get an understanding of the topic. Therefore, a short insight into the main guidiance and keyfactors of social media will be outlined. These keywords briefly cover the features of social media and provide the basis to analyse the relevance of social media.

2.1 Approaching the topic – What is social media?

Following Safko (2012, p. 4), social media is defined as the media which is used to be social. This means that hundreds of technologies which are available for someone to connect with someone else are used. The terminology social media consits of two parts.

The first one, *social*, "refers to the instinctual needs we humans have to connect with other humans" (Safko 2012, p. 4). This behaviour goes back to the point when the species began. Human beings try to be in groups and around with other human beings of similar like-minded people. This is based on the fact that these people or groups are feeling the same and sharing their thoughts, ideas and experiences (Grabs and Bannour 2014, p. 25).

The second terminology, *media*, defines the connection of how human beings get connected. This connection can be any possible way to get connected, for instance by written words, audio, web, television, email etc.

Combining the two terminologies, Bernecker and Beilharz et al. (2012) define social media as the process of how all these technologies can effectively be used to reach out and connect with other humans. Safko (2012, p. 4) goes even one step further and states that human beings then create a relationship, build trust and eventually these relationships develop to the point that the people become customers and buy the offered product. In order to clearly define social media, Meyer (2012, p. 10) highlights that social media generally solves not the marketing woes of companies and create instantly wealth for all involved parties. It is fundamental to question whether a company wants to do marketing and how much it is willing to spend. Social media is not seen as the solution for companies facing difficulties with current marketing activities. Following Safko, "social media is only a new set of tools, new technology that allows us to more efficiently connect and build relationships with our customers and prospects." (Safko 2012, p. 5)

Before defining the different categories and tools of social media, it is indispensable to question why social media should be used. Ever since the human beings began to interact, they pontificated. Nowadays, social media is seen as a two-way communication. Safko (2012, p. 5) defines the change as a shift from pontification to a two-way communication. This means the consumers do not trust classical marketing, classical messages as well as the fact they no longer believe in corporate messages. The customer rather want their information from people / groups they know, they believe and trust in (Heymann-Reder 2011, p. 22). With this shift there is a new way to communicate by listening first, following and understanding the conversation and only speak at the end (Hettler 2010, p. 26).

Coming back to the introduction and definition part, social media is mainly used for marketing, sales, public relations, and communication tools to communicate with the customers. Furthermore, social media is defined as a set of highly effective tools for customer service, business-to-business (B2B), and internal communications (Safko 2012, p. 8). Kerpen defines social media as a must have in customer service since it is the perfect tool to stay connected with the customers after sale. On the other hand on

the B2B side, social media has to be an integral part of the company's strategy as the majority of customer benefit from it in the B2B and the B2C business as well - if only certain information would stay password-protected online. The last parties are the internal customers such as the employees. Social media is a perfect tool to communicate with the employees and get connected with them easily (Kerpen 2015, p. 14).

Figure 1 gives a brief overview of the corresponding social media tools which will be discussed in the following research paper more in detail (Rating and Reviews, Blogging, Social Networks and Media Sharing).

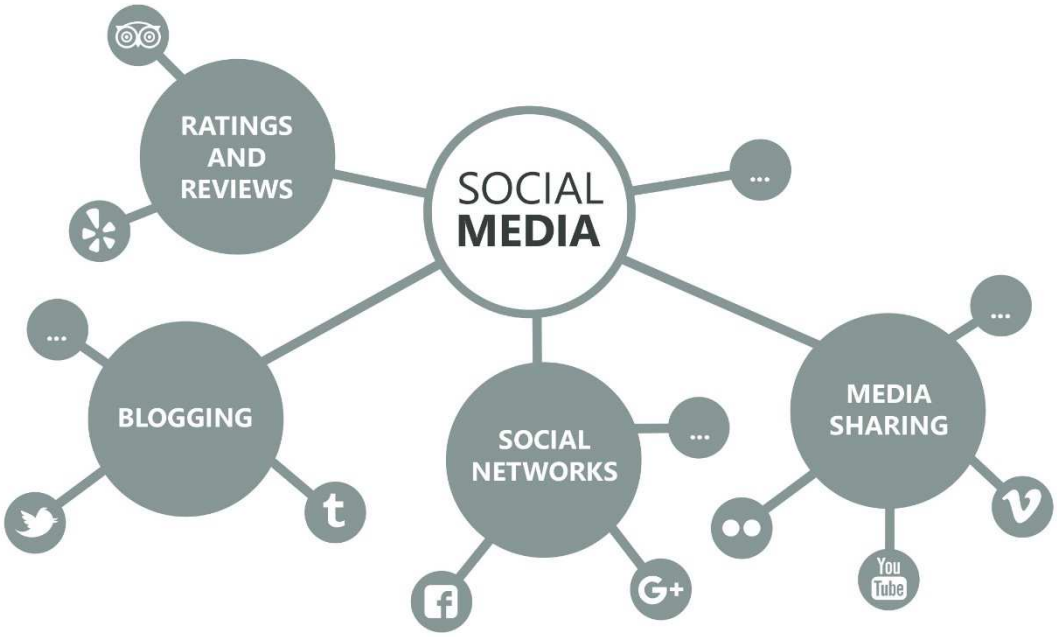

Figure 1: Overview of Social Media tools

Source: Own illustration

2.1.1 Blogging

In order to understand micro blogging, the term blogging will be defined first. Blogging started in 1999 when the two companies called LiveJournal and Twitter were launched. Only nine years later, at the end of the year 2008, 346 million people were reading blogs, and 184 million started their own blog (Safko 2012, p. 11). Following Wolff, a blog is defined as a type of content management system (CMS) which allows anyone to publish short articles, so called posts. Posts can have any lengths between 100 words up to many pages but should always stick to one topic. Wolff emphasizes the language should be conversational in tone and not corporate-speak press (Wolff and Panter 2013, p. 38). The so called blogging platforms share common traits and features that make them blogs (Meyer 2012, p. 12).

There is certain blog software which provides a variety of social features (e.g. blogrolls, trackbacks) in order to make blogging perfect for marketing purposes. Besides, blogs can be integrated in nearly every other platform and tool and make it a big hub for other social media marketing efforts. For companies it can be seen as a perfect opportunity to blog on news affecting the industry and catch therewith customer's attention for free (Wolff and Panter 2013, p. 40).

Micro Blogging

Micro blogging is a form of blogging. The only difference is the limitation of the size of the post. For instance, Twitter (one of the famous micro blogs) updates are limited to 140 characters (Hilker 2010, p. 37). This spawned a set of features which are entirely unique to the medium and helped Twitter to become more mainstreamed than any other comparable social media tool (Zarella 2012, p. 31). Only a valid email address is required to set up an account which is necessary to log into the password required area (Barker et al. 2013, p. 210).

Safko (2012, p. 257) states there are many reasons for people to contribute to social and knowledge-sharing networks like blogs. Usually people get motivated to contribute once they experienced useful support or information and recognition. Some other contribute to share information and provide the community with valuable information (Grabs and Bannour 2014, p. 173). Anyone can microblog without limits and can read posts from other like-minded bloggers. Micro blogging includes the ability to send messages and / or audio, enables the users to even attach files and make friends, purchase products and services online, get directions and above all - there are no real limits for users. "Micro blogging is the epitome of social media two-way communication." (Safko 2012, p.258) Micro blogging began with the advent of blog. But over the time detailed long-spend conventional blogs turned into microblogging as it is much faster, easier and immediately accessible. (Barker et al. 2013, p.209).

Twitter was launched in March 2006 and was used right from the beginning for sending messages, from so called conferences-goers to find one another and to comment on panel sessions in real time (Grabs and Bannour 2014, p. 227). Everyone can set up an account on Twitter for free, either a personal or company account. The settings on Twitter allow each member to customizes their account (Barker et al. 2013, p. 216). One big advantage is the space for additional information and other social sites/links (Meyer 2012, p. 14).

2.1.3 Social Networking

Social network is defined as a website where people are connected with friends. Every social network has its own possibilities and challenges (Barker et al. 2013, p. 179). Users have different expectations of commercial behavior and require certain opportunities. Besides, these networking sites are hot topics for marketers since they present a number of opportunities for interacting with customers. Moreover, these sites include the possibility of plug-in applications, groups, and fan pages (Zarella 2012, p. 53). Safko (2012, p. 24) goes one step further and defines social network as a group of people who interact through several media (newsletters, comments, e-mail, telephone etc.). These groups use audio, photographs and videos for social, professional, and educational purposes to build trust in a given community. Their level of interaction and participation differs among the members.

The history and roots go back to the early 1980s where the first users could log in to systems to share software and data as well as sending messages and post on public boards. Due to slow connections and high costs of long distance calls, these networks were mainly local communities. With the growth of the World Wide Web, the social network became more popular and the first social networking pages were set up (Weinberg 2014, p. 199). Since 2009 the most popular and worldwide known one is the social network *Facebook.*

Facebook (www.facebook.com) started as an exclusive network for students of Harvard in 2003 and has become the most dominant social networking site in the last years. According to Wiese (2016) 28 million people are using Facebook in Germany whereof 21 million people use it every day. Out of the 28 million, 24 million people use Facebook on mobile devices. Compared to other social networks, Facebook has the most useful features for social media marketer.

Facebook is seen as a funny playground and an easily to navigate place to get reconnected with old friends (Weinberg 2014, p. 167). Besides, Facebook also offers privacy settings right after setting up the account. The user has the chance to divide his friends into lists, such as family, work, online buddies etc. and can control / specify therewith which features are seen by which groups (Palme 2012, p. 17).

With regards to companies, Facebook allows businesses to create public profiles known as *pages*. Some of the features are the same as the user profiles. The pages are for free and can have custom applications, photos, public messaging walls, and events (Calleen 2012, p. 58). Palme (2012, p. 84) emphasizes companies have to have a Facebook page if they are engaged in social media marketing since it can serve as a central place to integrate other marketing campaigns. When setting up a page for business, it has to have a few applications to make the page more interesting to visitors. This also increases the like hood for visitors to return again to the page. The best pages are set up by fans, not by companies (Zarella 2012, p. 67).

Once the user becomes a member of a social network, the lifecycle varies from user to user. The life cycle starts with initiating their life in a community as lurkers, visitors, or trolls. As soon as users become comfortable, they begin to participate in the community (Barker et al. 2013, p.184). Depending on the user and after a certain time of contribution, some members become regulars and some others break through to leaders. The time to become a so called “elder” depends on the culture of the site (Safko 2012, p. 25).

Depending on the feature sets and reasons to enter a social network, there are some common elements across most of the social networks (Hilker 2010, p. 31). All social networks are built up with user pages, known as *profiles*. Every user can decide on her / his own which information (name, education, relationship status, contact information etc.) in his profile is shared with the community (Zarella 2012, p. 57).

Against this background it is important to highlight, that social network profiles are for real people. Following Wolff and Panter (2013) a person should have a profile; a company’s logo should not have one as profiles contain personal information. Brands cannot have a favorite movie or hobbies. But brands can stick to a page or group for the company’s information (Barker et al. 2013, p. 197).

Coming back to basic idea of social networks, the most important action of social networks is the act of two people connecting. Following Zarella (2012) social networks are conceived to emphasize strong connections between people. People - the user should know in real life. Depending on the user, the user accepts friend requests from people the user know well, other user accepts friend requests from people they do not know well or they do not know at all. All social networks impose limits. There are restrictions on how many people you can connect in a given amount of time. This is based on the idea that these social networks are a building process (Zarella 2012, p. 59).

Since social networks are not recommended for brands but for persons, it is to be questioning how companies can generate profit from these huge social networks.

Many social networks contain the concept of a group. Following Zarella (2012, p. 63) a group is defined as a collection of people joined by some common interest. Within these groups the group members can share information and discussions, as well as sending (private) messages to each other. Starting and joining groups is simple and requires only little time and resources. The disadvantage, which has to be faced, is there are many people who belong to tons of pointless groups. The exception of network is Xing as this network displays the logo of the group on the user profile which is seen by all other users. This means that many users are becoming more selective with joining groups. Another important point for companies is the category photos. This feature allows the user to share and link pictures (Weinberg 2014, p. 306).

2.1.4 Media Sharing

Media sharing will be the penultimate tool which will be briefly introduced in the context of social media. So called user-generated content (UGC) allows users to create and upload multimedia contents on media-sharing sites. Nowadays this is a popular way to upload videos and pictures easily. Especially for marketers this idea is brilliant as they can create videos, upload these to certain websites and reach millions of users shortly (Barker et al. 2013, p. 143). Merz goes one step further and defines photo sharing as fun. A picture is worth a thousand words (Merz 2015, p. 34). The high-quality and low-cost

exposure is a perfect match to integrate photo-sharing in the business and marketing plan. Uploading is for free and once the pictures are online, the company participates in the web and reaches out to millions of people (Heymann-Reder 2011, p. 195). Another advantage is that all (product) pictures can be uploaded, and can therewith perfectly complement the assortment of a company's product range online. According to Safko, there is a differentiation between pictures and video recording and uploading. Video recording is called video or *vlog* as the word blog stands for "weB LOG, vlog, comes from video web LOG" (Safko 2012, p.225).

Media sharing goes back to the 90s when the first short videos were uploaded on IFILM.net Back then many users had dial-up connections, which made watching videos a slow process. Today, mostly all users have the required software to watch videos immediately, without downloading special streaming video players' upfront (Hilker 2010, p. 42).

When discussing media sharing, so called *tags* are indispensable. Tags are used to search content that is not textual. "Tags are nonhierarchical, meaning they are not organized into a parent-child tree structure, and they are created by users rather than being determined by the site owner." (Zarella 2012, p.81) Whenever a first tag is set, the category is created into all tags which will fall under the term. In order to tag, Zarella (2012) describes the handlings as follows: It is better to tag too much than too few. When there is doubt, add more. To tag specific pieces of media the user can tag multiple words. The best way to start is to do "pyramid thinking". Starting with the most specific frames, going down to single words, such as categorical words (what is seen in the background, what the video / picture deals with). Any kind of content related relevant word helps to make the tag worth it for users (Heymann-Reder 2011, p. 198). The most common media sharing sites are YouTube, Flickr and SlideShare (Hilker 2010, p. 49).

2.2 Ratings and Reviews

Once the customers are talking about brands, products or services of a company, the company/ brand needs to have an online presence as well. Especially local businesses should have a presence and registration on local review sites. At this stage it is important to differentiate between users who are into socializing and review-site visitors. While the socializing users are simply having fun, the review-site user is in the midst of making a buying decision. This stage is important to companies as they have to be there where the visitor and potential customer is searching for them. For instance a person who is looking for a dentist is not willing to amuse her- or himself for medical help (Zarella 2012, p. 131). Rating and review sites are the most cost-effective marketing a company can do. This is a special online advertising form, which requires a low investment of time and money in terms of cost -effectiveness.

Many rating and review sites are for free and allow every user to post anonymously. Most of these sites have incorporated a reputation system, which enables the users to scale the usefulness and accuracy (Blanchard 2011, p. 239). For marketers, ratings and review sites have a high relevance – especially for those with local business focus. In order to find a business or service, the users go online on listings and start searching. Usually the findings are ranked (by relevance and the number of reviews). In order to be found by users, the company/ business should use words and phrases that people may search for. With regards to the reviews, some companies are looking for so called *sock puppets*. This means that there are business owners who set up faked accounts to increase the reviews of the business. Additionally, there are owners who pay people to post positive reviews on the business. As this is a very bad form, review sites have already started to implement algorithms designed to spot fraudulent activity. Chances to get caught are high and worse for all parties involved (Zarella 2012, p. 135).

Many review sites have a feature which allows responding to a post / review. If companies respond to reviews the action has to be taken and treated deliberately. Responses from customers are subjective and their perception of the business which cannot be wrong. There is only one chance to get this respond and issue fixed. The company has to check with the user if there is a way to get it done properly. Also, the company has to keep in mind that the response will be there for the entire web to read – probably for a long time (Sterne 2011, p. 199).

2.3 Measurement

Measurement is an important topic to be taken into account in the social media business as well. "A social media program, in order to be effective, needs to be measureable within the context of the business it serves: measurable, in other words, against the very objectives and targets it aims to influence." (Brito 2011, p. 194.)

Measurement is fundamental as it allows an adequate measurement practice in place, success, progress, and even failure along the entire life cycle (Roskos 2012, p. 41). It is relevant to understand what works and what doesn't. It allows the top management to make adjustments on the fly. Furthermore it enables organizations to justify investments (especially those for social media activities) over time as they are able to effectively measure the investments value to the organization (Brito 2011, p. 194).

There are several units how to measure. One possibility is a *metric* (Sterne 2010, p. 39). Following Zarella (2012, p. 207), there are two metrics for social media marketing: on-site and off-site.
On-site metrics are measuring activities which take place directly on the website / homepage. The most common and important thing to measure is the return on investment (ROI). This means the marketer gets an impression how much money the efforts are contributing to the business (Kremer 2012, p. 75). Zarella states that all analytics packages allow tracking certain actions on a side, no matter if they are purchases or the completion of lead form.

Lead-based companies are asked to estimate how much a lead is worth by calculating what percentage of leads turn into business, and finally what an average customer is worth to the company. There are several softwares, which allows companies to configure their tracking mechanism to include the actual price of sale or the value per lead. This enables the organization to assign a monetary figure to each source of social media traffic (Heymann-Reder 2011, p. 94). Besides, there are some analytic systems allowing the integration of the internal sales system to implement a so-called *closed loop marketing* concept. The closed loop marketing concepts allow attributing closed business to specific leads, traffic sources and campaigns.

In order to calculate the actual ROI, the costs of social media work (includes also time and monetary investments) needs to be deducted from the generated income. The result should be a positive number in order to have a profitable investment. If the numbers are negative, the campaigns have to be re-visit (Heymann-Reder 2011, p. 93). While analyzing the figures, it is important to pay attention which sites and tactics are generating the most value. According to Zarella (2012, p. 209), a company should focus on the types that work for a company. Due to the fact that not all visitors from a social media outlet are turning into customers or leads directly, a company should also indeed measure metrics that indicate how *engaged* people are. Two easy engagement metrics are time on-site and page views per visit. Another important metric is the *bounce rate*. Bounce rates allow companies to identify which pages or sources or traffic are inefficient. According to Zarella (2012, p. 211) a bounce is defined if a visitor visits a page and does not go to any additional page afterwards – the customer bounced right on the side. If there are high numbers of bounces on a site, it is required to check which part of the site the people are landing to strengthen the relevance of the site.

Off-site metrics are measuring activities that happen on other sites where companies, customers and consumers interact. This off-site metrics occur in other places than the own site. One of the most common one is Twitter and its obvious metric is the number of people following. This represents the potential reaches and shows the possible followers but it is highly recommended not to stay only with this metric. As described in chapter microblogging, it is possible to get followers by simply following a ton of people and wait for them to follow back. But this measure is too little to state how engaged followers are with the tweets (Zarella 2012, p. 213).

Basically, social media cannot be seen as a stand-alone approach which easily enables companies to identify the exact (social media) measurements. Usually there are certain online and offline marketing activities which influence the entire actions. As a result, all activities require each other.

3 Summary

Social Media is a very complex topic. With regards to the changing environments and fast moving online Web 2.0 conditions, companies need to face social media activities increasingly.
Within this research paper only some of the basic tools were introduced. It needs to be taken into account that there a much more tools.

It is highly recommended to face all corresponding influence factors in order to avoid a poor performance and implementation. Basically social media and its implementation has to be treated carefully since not all tools and approaches are feasible for all small and medium sized companies.

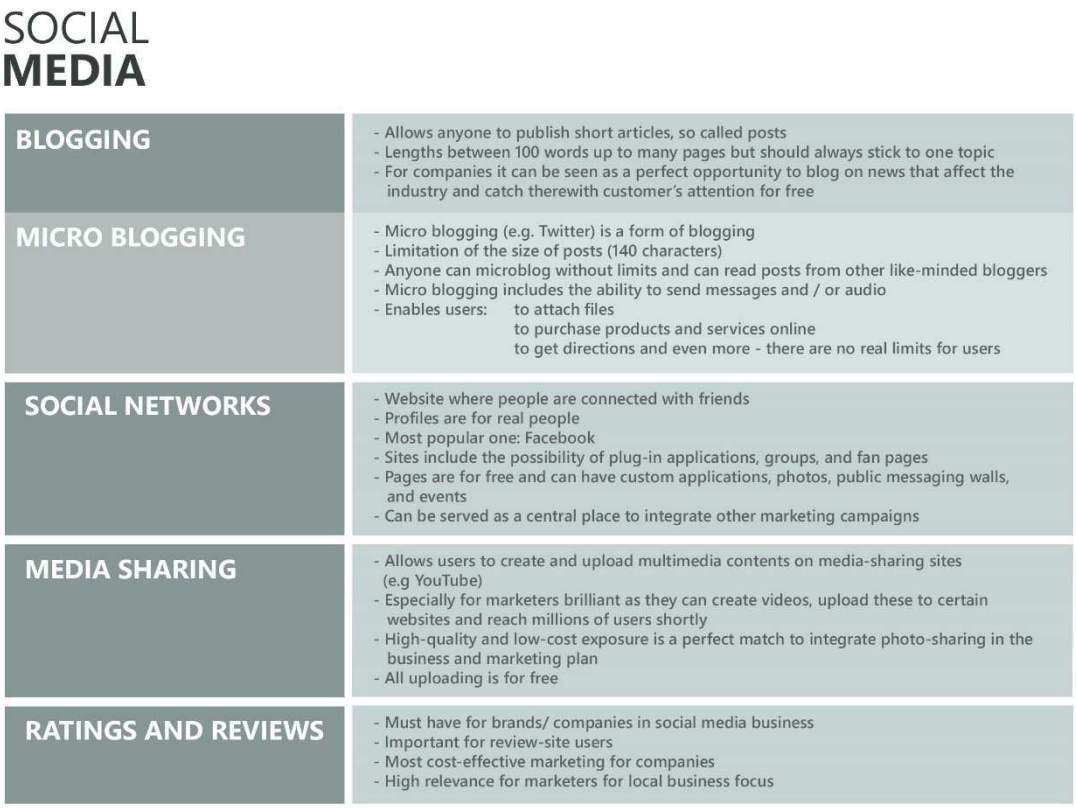

Figure 2: Comparison of social media tools

Source: Own illustration

Figure 2 illustrates the overview of all tools discussed and describes the possible uses and applications.

Concluding, it needs to be mentioned, due to the given frame and the focus set within the paper, the man power aspect was not considered. In order to implement social media into companies, the entire man power caused by social media needs to be discussed and re-thought. Social media requires expert knowledge and a strong personnel structure within the marketing department.

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A Theoretical Framework on Factors Affecting Entry Mode Choices of MNCs

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Abstract

All the multinationals have to confront a critical situation of choosing from the various modes of entering a foreign country. Deciding the right entry mode is the first step of the success ladder of the MNCs. A wrong entry mode choice can cannibalize the entire business operation. The purpose of this paper is to explore the factors that influence the firm's choice of entry mode strategy. The study relies on secondary data, the data for which was obtained from numerous journals (both online and print). Nuances of significant determinants that were likely to influence the entry mode choice of the MNCs were studied.

Keywords: Entry Mode Choice, MNC, FDI, Globalization

1. Introduction

All the multinationals have to confront a critical situation of choosing from the various modes of entering a foreign country. There has been an extensive amount of research around the area of entry modes and what affects the MNC's entry mode choice. Kumar and Subramaniam (1997), Chung and Enderwick (2001), as well as Nakos and Brouthers (2002) emphasized that the choice of market entry mode is a critical strategic decision for firms intending to conduct business overseas. "The mode of entry is the fundamental decision a firm makes when it enters a new market because the choice of entry automatically constrains the marketing and production strategy of the firm." (Johnson & Tellis, 2008). One way of viewing the entry mode alternatives is to view them as either equity modes or non-equity modes. Equity based modes include wholly owned operations and equity joint ventures; while non-equity based modes include contractual agreements and export (Ozlati & Abrami, 2008). "Equity modes differ dramatically from non-equity modes in resource commitment, risk, return, control, and other characteristics"(Pan & Tse, 2000). There are number of factors that influence the firm's choice of entry mode strategy and its functioning in the host country. Some are related to the general business environment of the host country, the nature of product/service, company related factors, competitiveness of the indigenous firm's, host country production factors and so on.

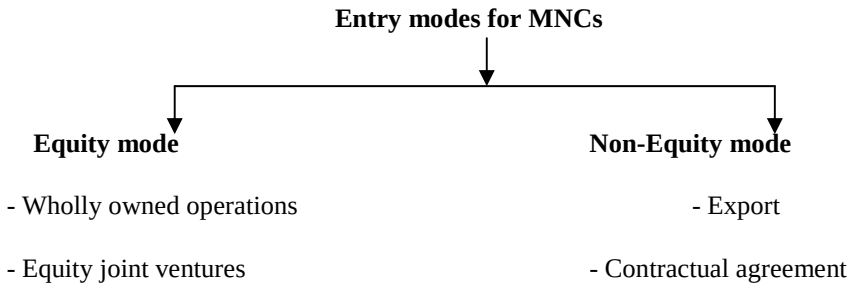

Fig 1. Equity & Non- Equity Entry Modes

2. Research Methodology

The purpose of this paper is to explore the determinants that influence the firm's choice of entry mode strategy. The study relies on secondary research, the data for which was obtained from numerous

journals (both online and print). Nuances of significant determinants that were likely to influence the entry mode choice of the MNCs were studied.

3. Factors Affecting Entry Mode Choices of MNC

The various factors and their influence on the foreign market entry mode decision are studied separately to explore their impact on the entry mode choices on MNCs.

3.1. Cultural Distance

Cultural distance refers to the difference between the cultural parameters of two nations. The literature review revealed a dichotomous opinion about the culture distance and firm's choice of entry mode. As per one view higher is the cultural distance, higher is the control required to mitigate the transaction costs and as a result the firm has to choose a high equity mode to enter the foreign country (Hennart & Reddy, 1997; and Li & Guisinger, 1992). Brouthers and Brouthers (2003) have stated that the firms may select wholly owned entry modes in countries that depict a larger cultural distance. Barkema et al (1997), and Anderson and Gatignon (1986) on contrary are of the view that higher cultural distance is associated with higher risk; hence, equity modes with lesser degree of control should be preferred. Hsieh and Shen (2003) explored that in Asia, with a greater cultural distance, banks tend to establish low control entry modes to avoid uncertainty in the region. However, Ozalti and Abrami (2008) in their study have found that cultural distance doesn't seem to affect the entry mode decision of Swedish companies in United Arab Emirates (U.A.E) to great extent.

3.2 Political Risk

Hill (2007) defines political risk as a change in the political regime that result in enactment of laws that are less favorable to international business. Political risks are critical determinant of FDI (Chan and Gemayel, 2004). Dow and Karunaratna (2006) argued that, the dissimilarities in the political systems increase the cost and uncertainty of business – government communication channels. Loree and Guisinger (1995) in their study on the influence of political institutions on US FDI have explored a positive relation between equity FDI and political stability. Kinoshita and Campos (2002) have also empirically supported that countries with political stability attract more FDI. Moreover a similarity in the political system of two nations also favors higher equity modes Flores and Aguilera (2007).

3.3. Economic Risk

International Business is susceptible to both the external and internal economic condition of the country. "A host government's political situation or desires may lead it to impose economic regulations." Czinkota, Ronkainen and Moffett (2003). Chan and Gemayel (2004) considered economic risk to be an important determinant of FDI. If MNC poses an economic risk in a nation, it avoids opting for high equity modes of entry to mitigate such risks. Dealing with country that is not close in economic distance could prove to be risky. According to empirical finding of a study conducted by Johnson and Tellis (2008) on success for market entry into china and India, the success is attributed to economic similarity.

3.4. Legal risk

The firms have to take the legal stability of the host country into account while choosing foreign entry mode. The empirical findings of the study conducted by Ozlati and Abrami (2008) indicated that the Swedish firms that consider legal risk important in UAE prefer joint venture (LLC) mode of entry. Globerman and Shapiro (2003) stated that, "countries whose legal systems are rooted in English common laws are more likely to be recipient of US FDI flows."

3.5. Currency risk

Currency risk is a risk that stems from the change in the price of one currency against the other. This leads to both transaction risk (a risk of unfavorable fluctuation of exchange rates) and translation risk (accounting risk). The fluctuation in the currency impacts the international business dramatically. Notwithstanding the importance of assessing currency risk, Zhao and Decker (2004) found that currency risk doesn't seem to be affecting the choice of entry mode of Swedish companies in UAE.

3.6 Natural resources

Chen (1996) argued that natural resources of the host country play in important role in magnetizing FDI in that region. In other words, while making a choice of foreign entry modes, a firm opts for equity modes in a country blessed with adequate natural resources in order to benefit from it. Bhaumik and Gelb (2003) have found that in South Africa the entry mode choice significantly depends on the fact whether or not the country is resource seeking. Notwithstanding these studies, Lu, Brennam, Chang and Luo (2008) explores that presence of natural resources is not sufficient to attract FDI in Inland areas of China.

3.7 Labor cost and Quality

It is believed that lower labor cost in the host country is likely to attract more FDI as MNCs gain from the reduced labor cost abroad (Kinoshita & Campos, 2004). "Labor are effective in the choice of Istanbul over the other cities within Turkey" (Berkoz and Turk, 2005). Opposing these studies are the studies conducted by Wei el al (1999); Fu (2000); and Lu, Brenan and Luo (2008) that indicated a negative correlation between effective wage and FDI. Advocating the importance of labor quality, Lu, et al. (2008) state that " MNCs choose location that are capable of supporting high-valued activities rather than production sites that have abundant low –cost laborers".

3.8. Industrial agglomeration

Empirical study by Kinoshita and Campos (2002) revealed that industrial agglomeration in a region is the main determinant of attracting FDI. Consistent with their study was empirical finding of Lu, Brennan and Luo (2008) that indicated industrial agglomeration to be an important factor for FDI invested in China's inland area as MNCs largely benefit from it. In metropolitan areas in Turkey, industrial agglomeration was not considered to be an important determinant of FDI (Berkoz & Turk, 2005).

3.9 Market attractiveness

Market attractiveness is size, present wealth, future wealth and other such attributes of a market. An increase in the market size will lead to an increase in the demand that will drive more direct investment in the country (Chakrabarti, 2003). Moreover, empirical study on FDI location choice in China's Inland area depicted a 'market- seeking nature' (Lu, Brennan and Luo , 2008). Kwon and Konopa (1992) also have significantly found that size of the market is one of the significant factors that determine the firm's likelihood to choose higher equity mode entries.

3. 10. Infrastructure

Certain studies indicate that physical infrastructure influences the MNCs' decision to enter the region due to expected cost of operation in a particular host country (Root and Ahmed, 1978; Loree and Guisinger ,1995 ;and Berkoz and Turk,2005) . A positive relationship between infrastructure and inward FDI was observed in various studies conducted by Wei and et al. (1999) , Mariotti and Pischitello (1995). If better and quality infrastructure will be present in the host country, the firm will prefer choosing higher equity modes like FDI over exports in those region .

3.11. Host Government ownership restriction

Bhaumik and Gelb (2003) have explored that in Egypt, the entry mode choice significantly depends on the government attitude towards foreign investor and extent of liberalization of FDI regulation. Agarwal and Ramaswami (1992) suggested that if host government ownership restrictions are found in a country, a firm prefers non- equity mode. Kinoshita and Campos (2002) also stated that more liberalized is the country towards external trade, more FDI it will attract. Ozlati and Abrami (2008) in their study found that government ownership do influence the choice of entry mode, their study indicated that owing to the government ownership restriction, Swedish firms in UAE opt for wholly owned firms (free zones) as opposed to joint ventures which were indicated in the previous researches.

3.12. Control

Control refers to the firm's ability to influence system, take decisions and monitor the method to operate that collectively impacts the future growth and prospects of the firm. A firm while making a choice of entry mode considers the degree of control it can receive by resorting to that particular mode of foreign entry. Johnson and Tellis (2008) have advocated the choice of an entry mode that renders the firm highest degree of control. Empirical study conducted by Ozlati and Abrami (2008) also provided enough evidence that Swedish firms in UAE used higher equity modes like free zones (wholly owned firm) to establish high control.

3.13. Competitiveness of indigenous firms

Competitiveness of indigenous firm is attributed to the product differentiation, product quality, brand name, control of distribution channels, corporate size and many more factors. If the firm entering in a foreign market does not witness a competitive advantage over the local firm, it prefers either not entering the market or opts for lower equity modes Caves (1974). Contradicting to this, Kwon and Konopa (1992) empirically found that firms choose higher equity modes like FDIs that provide them with greater access to foreign market when local firms' competitiveness is high.

3.14. Nature of industry

Nature of industry also influences the entry mode decision of a firm. Ghahroudi (2009) has found that Japanese MNCs in India prefer to acquire high level of equity ownership especially when subsidiary is in the manufacturing industry.

Provided below is the table (refer table 1) that summarizes the different factors and their impact on the entry mode choice of the multinational companies.

4. Conclusion

One of the key decisions that a firm has to take when it decides to operate in a foreign land is choosing the ideal entry mode strategy. The mode of entry impacts the vital strategies of the firm in the nation that it decides to function. The business environment of the host country and the policy of the entering firm collectively affect the entry mode choice. The study revealed that nuances of factors like cultural distance between the region, political risk, economic risk, legal risk, currency risk involved, presence of natural resources, the cost and quality of labor in the foreign land, the industrial agglomeration, lucrativeness of the foreign market, the prevailing infrastructure, the host government ownership restriction, the company's need to control, the competitiveness of indigenous firms, and the nature of industry are likely to influence the entry mode decision. However, these factors impact different multinationals entering different foreign locations differently. An empirical study should be conducted to understand how strongly these factors would influence various MNCs while entering a particular foreign region.

Table 1: Summarized Findings on the Factors Influencing Foreign Entry Mode Decision

S.No.	Factors Studied	Finding	Authors
1	Cultural Distance	Higher cultural distance results in higher equity modes	Hennart and Reddy(1997)
			Brouthers and Brouthers (2003)
			Li and Guisinger (1992)
		Higher cultural distance results in lower equity mode	Barkema et al(1997)
			Barkema and Verneulen (1998)
			Hsieh and Shen (2003)
			Flores and Aguilera (2007)
			Tihanji, Griffith and Russell (2005)
			Esperanca and Gulamhussen (2001)
			Quer, Claver and Rienda (2007)
		Higher cultural distance reduce the success rate of MNC in host country	Johnson and Tellis (2008)
		Cultural distance does not affect the entry mode choice	Ozalti and Abrami (2008
2	Political Risk	Critical determinant of FDI	Chan and Gemayel (2008)
			Sundaram and Black (1999)
		Political risk increases the uncertainty of business	Dow and Karunaratna (2006)
		Political closeness increases the likelihood o higher mode of entry	Loree and Guisinger (1995)
			Kinoshita and Campos (2002)
			Flores and Aguilera (2007)
3	Economic Risk	Important determinant of FDI	Chan and Gemayel (2008)
		Economic similarity results in success	Johnson and Tellis (2008)
4	Legal risk	Firm prefer joint venture in case of high lega risk	Ozlati and Abrami (2008
		Legal similarity attracts more FDI	Globerman and Shapiro (2003)
5	Currency risk	Currency risk has the lowest effect on the choice of entry mode.	Ozlati and Abrami (2008
6	Natural resources	Presence of natural resources attract FDI	Chen (1996)
		Entry mode decision in South Africa is resource-seeking	Bhaumik and Gelb (2003)
		Natural resource is not sufficient to attract FDI	Lu,Brennam, Chang and Luo (2008)
7	Labor cost	Effective labor wage attract higher mode like FDI	Kumar (1994)
			Berkoz and Turk (2005)
			Cheng (2006)

			Kinoshita and Campos(2004)
		Negative correlation between effective wage and FDI	Wei el al (1999)
			Fu (2000)
			Lu,Brennam, Chang and Luo (2008)
		US MNCs choose foreign location with higher wages	Flores and Aguilera (2007)
		Effective wage don't effect the choice	Ondrich and Wasylenko (1993)
		MNCs value high-quality activities rather lower wages	Lu, Brenan , Chang and Luo (2008)
8	Industrial Agglomeration	Main determinant of FDI	Kinoshita and Campos (2002)
			Lu,Brennam, Chang and Luo (2008)
			He (2003)
			Berkoz, L., and Turk, S.S.(2005)
9	Market Attractiveness	Positive relationship between market size and FDI	Chakrabarti (2003)
			Contractor (1991)
			Loree and Guisinger (1995)
			Wenget (1995)
			Lu,Brennam, Chang and Luo (2008)
			Kwon and Konopa (1992)
			Flores and Aguilera (2007)
		Market size in no longer a determinant of FD	Kinoshita and Campos (2002)
10	Infrastructure	Better infrastructure attract higher equity modes	Wei and et al. (1999)
			Mariotti and Pischitello (1995)
		Infrastructure influences entry decision of firm	Root and Ahmed (1978)
			Loree and Guisinger (1995)
			Berkoz and Turk (2005
11	Host Government ownership restriction	Presence of host Government ownership restriction results in choice of low equity mode	Agarwal and Ramaswam (1992)
			Kwon and Kanopa (1993
			Kinoshita and Campos (2002)
			Yin and Makino (2002)
		Entry mode choice in Egypt depends on liberalization of FDI	Bhaumik and Gelb (2003)
		`Firm choose high equity mode in the presence government ownership restrictions	Ozlati and Abrami (2008
12	Control	Firms should choose the modes that render them higher degree of control	Johnson and Tellis (2008)
		Control is an important determinant of entry	Ozlati and Abrami (2008

		choice in UAE	
13	Competitiveness of Indigenous firm	When competitiveness of local firms is high, lower equity modes should be preferred.	Caves (1974)
		Higher equity modes should be preferred when competitiveness of local firm is high.	Kwon and Konopa (1992)
14	Nature of Industry	Japanese manufacturing industry prefer high equity mode in India	Ghahroudi (2009)
		The extent to which it sources tangible resources from the local partner is an important determinant for service sector in Egypt and the extent of liberalization of loca industry is important entry mode determinan for manufacturing firms	Bhaumik and Gelb (2003)

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Standardization or Adaptation of Marketing-Mix? Evidence Drawn From FMCG MNCs in UAE

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Abstract

Standardization verses adaptation of marketing strategies has always been in question and is considered to be one of the most sensitive and ambiguous issues for many MNCs. The standardization school of thought believes that the world market is becoming a homogeneous place and standardized approach can generate numerous advantages. Contradicting the standardization school of thought, the believers of adaptation approach argue that the differences across boundaries stimulate the MNCs to customize their business strategies to meet successfully the requirements of the host country. It may become imperative for the MNCs to respond to the national differences. What is equally debatable is the degree of adaptation or standardization of each element of marketing- mix (product, price, place and promotion). The purpose of this study is to gauge the level of standardization or customization practiced by the Fast Moving Consumer Goods (FMCG) MNCs while marketing their products in the UAE. The results of the study revealed that the FMCG MNCs in UAE neither pursued a pure standardization nor a pure customization as a single approach to market their product in the UAE instead they prefer to implement a mixed strategy.

Keywords: Standardization, Adaptation, Marketing-mix, Globalization, International Marketing, Fast Moving Consumer Goods (FMCG)

1. Introduction

International marketing has always depicted a dichotomized approach. One approach argues that owing to the technology, modern communication, travel and transport world is becoming more homogeneous which demands company to market the same product in the same fashion across the globe (standardization) (Levitt, 1983). The other approach focuses on customizing the product and the related strategies to meet heterogeneous market requirement (Adaptation). Standardization (globalization) verses adaptation (customization) of business practices has always been in question and is the most sensitive, debatable and ambiguous issue for many MNCs. International marketers have a more challenging and complex strategic decision-making related to the marketing – mix than their domestic counterparts (Wall & Rees, 2004). Moreover, to what degree should these marketing-mix elements (product, price, place and promotion) be adapted or standardized is a debatable topic.

Standardization involves offering the identical product lines at identical prices through identical distribution channel, supported by identical promotional programs in several countries (Deirdre, 1999). The standardization school of thought believes that the world market is becoming a homogeneous place and standardized approach can generate advantages through economies of scale and greater efficiencies (Kogut, 1985 and Levitt, 1983). Supporting the standardization approach, Levitt (1983) argued, "World's needs and desires have been irrevocably homogenized and that this makes the multinational corporation obsolete and the global corporation absolute." Czinkota , Ronkainen and Michael (2003) mentioned that economies in product R&D, marketing, economies of scale, control of marketing programs and "shrinking" of world market place are the factors encouraging standardization. Ball and McCulloch (1999) stated that the standardization of the

marketing- mix benefits the management from the lower costs, easier control and coordination from head quarter and reduction of the time consumed in preparing the marketing plan.

Contradicting the standardization school of thought, the believers of adaptation approach argue that the differences across boundaries in terms of social, cultural, economical, political, technological, legal and other environmental factors stimulates the MNCs to customize their business strategies to meet successfully the requirements of the host country (Bartlett & Ghoshal, 1987; Boddewyn et al,1986). The empirical findings, of the study conducted by Samiee and Roth (1992) on influence of global marketing standardization on performance, did not support superior performance resulting from global standardization. They further stated that the fact that Coca – Cola and Colgate-Palmolive sell some of their products in more than 160 countries does not signifies that they have adopted a high degree of standardization for all their products globally. Ball and McCulloch (2004) argued that notwithstanding the advantages of standardization, many firms depending upon the product type, the environmental forces, and the degree of market penetration find it necessary to either modify the present mix or develop a new one while going international. Czinkota, Ronkainen and Moffet (2003) were also of the opinion that differing use conditions, government and regulatory influences, differing in buyer patterns, local initiative and motivation in implementation, adherence to the marketing concept; together encourage the MNC to embrace the adaptation approach.

Besides the issue to standardize or adapt, the degree to which international strategies should be standardized is the concern of recent times (Samiee & Roth, 1992). According to Hodgetts and Luthans (2003) while going global, the MNCs should respond to the national differences. Czinkota, Ronkainen and Michael (2003) advocated that ideally the international marketers should neither pursue an extreme standardization nor extreme customization instead they should think globally and act locally. Global thinking calls for flexibility in exploiting good ideas and products on worldwide basis regardless of their origin.

2. Literature review

In order to satisfy the customers, marketers have to devise integrated marketing program to create, communicate and deliver value to the customers (Kotler & Keller , 2006). McCarthy (1996) classified the various tools required to meet the marketing objectives into the four Ps i.e. product, price, place and promotion that are considered to be critical tool of every domestic and international marketer. While going international numerous factors like the market position, market condition, market environment, product characteristics and organizational factors collectively tend to influence the standardization and adaptation of marketing-mix Hou (2001). The implication of each of the elements of marketing-mix in international marketing is discussed below with special focus on the degree to which it should be adapted or standardized.

2.1. Standardization or Adaptation of Product Strategy

It is advantageous for MNC to standardize the brand name of the product as it allows the firms to reduce the production, packaging, design and advertising costs (Peerally,2008). Richer (1999) empirically found that the German companies tend to standardize their product element of the marketing mix to the highest degree. Despite the success of the product in the home country, certain environmental differences in the host country such as level of literacy, income, technical skills of potential customers, climatic conditions, power level , availability and quality of maintenance support , and many such factors can often force the company to make unexpected or costly changes (Jeannet & Hennessey, 2004). Packaging is one of the elements of marketing-mix that is generally modified by the company.

Peerally (2008) stated that the legal rules and regulations of the host countries influence the labeling and health requirement, and the cultural forces impact the language used on the labels or ingredients and consciousness of consumers. Keegan (2002) advocated that the compliance of product labeling and instruction with the national laws and regulation, and the language of that country. Delaney (2001) stated that in United States a slick black package with imprinted gold and silver is considered

to be elegant but the same package in Africa suggest death. Huo (2001) found that in due to legal and political factors in China, it is imperative for the foreign products to translate the instructions in Chinese; hence Shiseido products had to translate the instructions into Chinese to market them in China.

2.2. Standardization or Adaptation of Pricing Strategy

Standardization of the pricing strategy has the lowest potential as compared to the other elements of the marketing-mix (Shoham, 1995). Birnik and Bowman (2007) while referring to the various studies conducted by Boddewyn and Grosse (1995); Chhabra (1996); Grosse and Zinn (1990); Mitchell at al.(1998); Ozsomer et al. (1991); Sorenson and Wiechmann (1975); Vrontis and Papapsolomou (2005); Zou at al(1997) bolstered the fact that pricing strategy happens to the least or one of the least standardized elements of the marketing mix . Shaw and Ritcher (1999) empirically found that German companies tend to adapt the pricing strategies in the foreign company but the British companies, on the contrary, tend to standardize their pricing strategy the most in the international market. Huo (2001) found that Shiseido had to adapt the price of the products in China and U.K. due to the difference in the tax and tariff system.

2.3. Standardization or Adaptation of Distribution (Place) Strategy

Rodrigues (2001) stated that distribution methods generally require variations from country to country as well as within each country as the methods are shaped by the size of the market, the scope and quality of the competition, by the available distribution channels, and by the firm's resources. Distribution strategy of the MNCs usually embraces the adaptation approach in the host country.

Birnik and Bowman (2007) in their study collected enough evidence from the prior researches conducted by Boddewyn and Grosse, 1995; Chabbra, 1996; Michell et al., 1998; Ozsomer et al. 1991; Sorenson and Wiechmann 1975; Vrontis and papsolomou, 2005; Yip, 1997; and Zou et al. 1997 that sales and distribution strategy of the MNCs tend to show fairly low level of standardization but typically not as low as pricing. Huo (2001) also found a moderate adaptation rate of distribution strategy of Shiseido product in both China and U.K.

2.4. Standardization or Adaptation of Promotion Strategy

There is an ongoing debate on whether the MNCs should standardize or adapt their promotion / advertising strategy. Dichotomous approaches have been found from the past studies that indicate that British companies tend to adapt their promotional activities (Shaw & Ritcher ,1999) whereas Huo (2001) found that Shiseido Company while marketing its product to China and UK tend to keep the promotion strategy standardize in both the countries. The question arises- which approach is more effective and should be embraced by the marketer, and what are the factors that lead to the adaptation and standardization of the promotion strategy? In general problems related to international promotion strategy include the legal aspects of the country, tax considerations, language complexities, cultural diversity, media limitations, credibility of advertising, and degree of illiteracy (Rodrigues,2001). The standardized advertising is recommended when the economic, technological, legal, social, and cultural environment of the host country is found to be at par with the home country; if these environmental factors depict heterogeneity instead of homogeneity then an adapted advertising strategy should be embraced. Bolstering the adaptation strategy, Luqmani et al. (1987) suggested that advertisement in Saudi Arabia should be designed in such a fashion that it is compatible with the religious norms, socio- economic environment and the government priorities. Chandra, Griffith and Ryan (2002) argued that in order to meet the needs of international target market it become essential for the marketer to adapt the advertisement theme, slogan, idiomatic expressions, symbols and colors.

Gaurav (2008) like Melewar and Vermmervik (2004) advocated that the contingency approach towards advertising is the most acceptable approach, rather than pure standardization or adaptation, as it not only identifies the local preferences but also facilitates some degree of standardization.

3. The Research Methodology and Objectives.

This study was primarily conducted to study the degree of standardization and customization pursued by each element of the marketing –mix (product, price, place and promotion) to deal with the varying demand of the consumers and the overall business environment.

For the purpose of this study a blend of both the qualitative and the quantitative approach has been used. To carry out this study literature was reviewed, objectives were set, and questionnaire was designed to gather data to meet the objective of the study. The questionnaire was sent out to hundred different Fast Moving Consumer Goods (FMCG) MNCs in the UAE. However, only fifty-three companies responded and participated in the survey. Hence, the response rate was merely fifty three per cent.

The data gathered through the questionnaire was systematically analyzed and interpreted to achieve the desired objectives of the research. Descriptive analysis was carried out using the mean, frequency, standard deviation, variance and the coefficient of variation. The findings were presented in the form of table. SPSS 16.00 was used for a smooth and accurate analysis. Inferences were drawn by overall analysis of the various responses and the results of the analysis were then methodically juxtaposed to draw an effective conclusion about the objectives of the research study.

4. Results and Analysis

To meet the objective of the study, the respondents (FMCG MNCs) were asked to rate the key elements of the marketing-mix strategy (product, price, place and promotion) pursued in UAE on the basis of the level of standardization practiced in the region as compared to the marketing practices in their respective home country. This was done to gauge the level of standardization or customization followed by the foreign MNCs while marketing their products in the UAE. The findings are presented in the form of the table provided below (refer table 1).

It can be inferred from the table that of all the various elements of the marketing mix (four Ps), the brand name (*M*= 4.7, *SD*=0.54) is standardized the most followed by the standardization of the product quality (*M*=4.11, *SD*= 0.58) and the advertising message (*M*= 3.77, *SD*= 0.51). This can be associated with the fact that keeping pace with the globalization, the MNCs tend to establish a consistency of these strategies to build a uniform brand image in the minds of the consumers across the globe. However, due to the socio- economic, cultural and legal difference, also and owing to the varying customer's taste and preferences the foreign firms have to customize the other element. The analysis revealed that the foreign company standardizes few elements while the others are customized to align to the differences that prevail between two regions. Amongst the ones that are highly customized include the price of the product (*M*= 2.02, *SD*= 0.69), personal selling techniques (*M*=1.96, *SD*=0.65) and the discount structure (*M*=1.94, *SD*=0.63).

The findings indicate that of all the elements of the marketing mix, the FMCG MNCs customize their pricing strategy the most (average of mean being 2.36 and average of sum being 125.33). The customization of the pricing strategy is consistent with the studies of Czinkota et al. (2003), Shoham (1995), Boddewyn and Grosse (1995),Chhabra (1996),Grosse and Zinn (1990), Mitchell at al.(1998),Ozsomer et al. (1991), Sorenson and Wiechmann (1975),Vrontis and Papapsolomou (2005), Zou at al. (1997),Shaw and Ritcher (1999), and Huo (2001).

At the second place, FMCG MNCs customize the promotion strategy (average of mean being 2.69 and average of sum being 139.57). The MNCs need to adapt to the differing business environment of the region and have to address the legal, social, economic, demographic and cultural differences that prevail in the region while formulating the advertising and promotional strategies. This supports the studies conducted by Chandra, Griffith and Ryan (2002), Shaw & Ritcher (1999),Luqmani and Yavas (1987) that insisted on the adaptation of the promotional strategies by the MNCs.

Following promotion strategy, the distribution strategy (*M*= 2.79 , *SD*= 0.66) is pursued in the region is adapted the next. It can be inferred that owing to the fact that the market size, prevailing competition, infrastructure and the available distribution channel across countries varies, this results in the adaptation of the distribution strategy in the foreign land. The finding of the study is consistent with the previous findings of Birnik and Bowman (2007), Rodrigues (2001), Boddewyn and Grosse, 1995; Chabbra, 1996; Michell et al., 1998; Ozsomer et al. 1991; Sorenson and Wiechmann 1975; Vrontis and papsolomou, 2005; Yip, 1997; Zinn and Grosse, 1990 ; and Zou et al. 1997, and Huo (2001).

The element of marketing- mix that is attributed to the lesser degree of adaptation as compared to price, promotion and distribution strategy is the product strategy (average of mean is 3.50 and the average of the sum is 185.5). While some elements of the product strategy like the brand name and the quality are kept standardized, the other elements like packaging and labeling calls for customization. Hence, the MNCs are required to follow a blend of both standardization and customization while formulating the pricing strategy. Cherunilam, (2007), Jeannet & Hennessey (2004), Czinkota, Ronkainen & Moffett (2003), Hou (2001), and Shaw and Ritcher (1999) were of the opinion that the product strategies could be slightly customized due to the changes in the market conditions.

As evident from the table 1 the FMCG MNCs neither follow pure standardization nor pure customization as a single approach to market their product in the UAE. It needs to embrace a mixed strategy of pursuing both the standardization and customization to bridge the gap in the region.

Table 1: Standardization of the Various Elements of the Marketing Mix Strategy

Marketing Mix	Elements of Marketing Mix	Mean	Std. Deviation	Variance	Coefficient of Variation	Range	Minimum	Maximum	Sum	Ranking
Product Strategy	Brand name	4.7	0.54	0.29	11.49	2	3	5	249	1
	Product Design & Features	3.47	0.82	0.68	23.72	3	2	5	184	4
	Product Quality	4.11	0.58	0.33	14.04	3	2	5	218	2
	Product Ingredients	3.3	0.99	0.98	30.06	3	2	5	175	5
	Packaging	3.09	0.6	0.36	19.32	3	2	5	164	8
	Language on the label	2.32	0.61	0.38	26.42	2	2	4	123	11
Pricing Strategy	Pricing Approach & Strategy	3.13	0.74	0.54	23.48	3	2	5	166	7
	Price of the Product	2.02	0.69	0.48	34.31	2	1	3	107	15
	Discount Structure	1.94	0.63	0.4	32.63	2	1	3	103	17
Distribution Strategy	Distribution Channel Followed	2.79	0.66	0.44	23.69	3	2	5	148	10
Promotion Strategy	Advertising Message	3.77	0.51	0.26	13.4	3	2	5	200	3
	Advertisement Appeal	2.94	0.57	0.324	19.35	3	2	5	156	9
	Media Used	3.28	0.6	0.36	18.32	3	2	5	174	6
	Sales Promotion Techniques	2.19	0.65	0.42	29.77	3	1	4	116	12
	Direct Marketing	2.13	0.81	0.66	38.03	3	1	4	113	14
	Public Relation Strategy	2.15	0.72	0.52	33.4	3	1	4	114	13
	Personal Selling	1.96	0.65	0.422	33.11	3	1	4	104	16

5. Conclusion

The study revealed that the FMCG MNCs in UAE adopted a combination strategy that incorporated both the attributes of standardization and adaptation. Some strategies where standardized while others were customized. The pricing strategy is customized the most followed by the adaptation of the promotion and the distribution strategy. The product strategy showcased the least degree of adaptation. Among all the elements of the product strategy the brand name is standardized the most to ensure easy acceptance of the product in UAE and to ensure a consistency of brand image. The language on the label is customized the most due to UAE rule of practicing bilingualism; both Arabic and English language is used on the label. Of all the elements of the pricing discount structure is customized the most strategy due to the differences in the competition and the market structure.

The research has focused on two important approaches: degree of standardization and customization of marketing strategies. The study was conducted only on the FMCG MNCs in the UAE. The marketing strategies of the MNCs that belong to the FMCG sector might vary from the other sectors. The study can be conducted on the MNCs of other industries to assess the commonly used international business strategies. The study focused on comparing the marketing strategies of the FMCG MNCs practiced in the UAE with that of the home country. It does not highlight how the strategies of the FMCG MNCs practiced in UAE are different from the other countries. In order to make the study more viable, further research is recommended.

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Development of Value Productivity in Czech Chemistry Industry

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Abstract

This paper focuses on the level and development of productivity in chemistry industry in the Czech Republic. The paper discusses the total productivity as well as partial productivities. The used data sample covers the time period 2009-2014 which contains the development during and especially after the last global economic crisis. The development is compared during and after the crisis, respectively the reaction of businesses to the crisis. This contribution identifies and analyzes the value productivity which reflects the level and changes in the technical and economic efficiency of production factors. The value productivity is an important factor in achieving the corporate performance. The value productivity is used in the contemporary concept which works not only with the efficiency of inputs consumption but also with the efficiency of employed capital. The approach used in the paper enables to describe analysed indicators statically as well as dynamic the analysis.

Keywords: value productivity, total and partial productivities, chemistry industry, Czech Republic

Introduction

The value productivity is a key factor in achieving the corporate performance and competitiveness. The position of the Czech Republic in competitiveness rankings is not optimal but the weaknesses are more connected with inputs than outputs (Nečadová and Scholleová, 2011). The topic of productivity is very often discussed by researchers as well as in practice because increasing productivity leads to higher level of corporate performance and it is also a part of national or regional positive development. The productivity of production factors presents a concept which measures the effect of technical changes in the productivity and it represents driving motor of growth (Praag and Versloot, 2008). The concept can be measured on the level of individual enterprises as Hayes (1988) or on the level of one industry branch as Machek and Špička (2014), Novotná, Volek and Fučíková (2014) or Klečka and Čámská (2013). Differences among authors can be connected for example with the focus of productivity indicators. The most traditional indicator covers the area of labour productivity as in Novotná, Volek and Fučíková (2014). Employees can be very important source of competition advantage nowadays. Research of Čámská (2012) proves that employees were a hidden source for managing the last global economic crisis in the Czech Republic. The old fashioned concept of productivity does not take into account capital as one production factor and it abstracts from the costs of capital employed. Nowadays authors work more with the modern approach – value productivity respecting costs of capital employed – as Machek and Špička (2013) or Klečka (2013).

This paper covers the value productivity on the level of one specific industry branch. The paper's aim is to analyse the level and development of value productivity in the chemistry industry. The main motivation is external shock caused by the last global economic crisis. The authors usually differ how they compute the productivity indicators and how they work with price changes and therefore the following chapter introduces the used methods.

Productivity

Productivity can be generally defined as the efficiency of using production factors in manufacturing process, or widely in a production process, whose results are tangible as well as intangible outputs (Klečka, 2011). The productivity can be discussed on the level of the country (macroeconomic level) or on the level of enterprises, detail in Hayes (1988). This paper aggregates enterprises' productivities on the level of the specific industry branch, namely chemistry industry, in the Czech Republic. That could be called as mezzo economic productivity.

Two basic types of productivities can be distinguish (Craig and Harris, 1973) – total productivity (equation 1) and partial productivity (equation 2).

$$\text{total productivity} = \frac{\text{total output}}{\text{total input}} \quad (1)$$

$$\text{partial productivity} = \frac{\text{total output}}{\text{partial input}} \quad (2)$$

Used ratios

The equations 1 and 2 are too general and they cannot be used for fulfilling the paper's aim. This chapter shows how the productivity ratios are modified for the further use. The choice for the indicators used in the analysis has been a compromise between the paper's aim to reflect the value productivity in the contemporary sense and limited data availability which will be specified later. This approach has been used repeatedly by authors (recent works: Klečka and Čámská (2013) and Klečka (2013).

The total productivity ratio

The total productivity takes into account all types of outputs as well as inputs. The contemporary concept of productivity expresses the value of inputs as the costs of consumption (and depreciation plus amortization) and costs of capital employed (components of assets, converted to flow-related capital costs).

$$\text{Total productivity} = \frac{\text{Total revenues}}{\text{Costs of consumption and binding of inputs}} \quad (3)$$

$$\text{Costs of consumption and binding of inputs} = \text{Total costs (accounting)} - \text{interests} + \frac{WACC}{1 - t} \times \text{Total assets} \quad (4)$$

Production and production factors are reflected in the broadest sense – not only for operational part, but also financial and extraordinary activities in enterprises. The total productivity ratio in the contemporary concept is an alternative to the economic profit or the indicator EVA.

This contribution uses the constant price of capital employed (rate of the inputs binding costs) for all reporting period and for all analysed enterprises. This constant rate is equal to WACC for the year 2014 for the chemistry industry in the Czech Republic. The constant value of WACC is 9.56% (Ministry of Industry and Trade, 2015) and the level of taxation is equal to 19%.

The partial productivity ratios of inputs consumption

The partial productivity ratios are focused only on the selected production inputs and the experimental part is based on following ratios.

$$\text{Productivity of consumption (depreciation) of an input} = \frac{\text{Total revenues}}{\text{Costs of consumption of an input}} \quad (5)$$

The costs of consumption are expressed as the difference between total costs and interests of debts.

$$\text{Productivity of consumption of material and energy} = \frac{\text{Operating revenues}}{\text{Costs of material and energy}} \quad (6)$$

The equation 6 uses narrower revenues because using only the main part of revenues increases the explanatory power. Operating revenues are used also in other indicators (7, 8 or 13). In the case of labour productivity we even use only the value added because this numerator is used in the theory and practise for decades. Due to the fact that authors did not have available the information about number of employees in the analysed enterprises personal expenses have been used as the input for computation of labour productivity.

$$\text{Productivity of consumption (depreciation) of fixed tangible and intangible assets} = \\ = \frac{\text{Operating revenues}}{\text{Depreciation of fixed tangible and intangible assets}} \quad (7)$$

$$\text{Productivity of consumption and binding of fixed tangible and intangible assets} = \\ = \frac{\text{Operating revenues}}{\text{Depreciation} + \text{Costs of fixed tangible and intangible assets binding}} \quad (8)$$

The above mentioned costs of binding are expressed as $WACC*(1-t)^{-1}$ multiplied by the value of fixed tangible and intangible assets.

$$\text{Labour productivity} = \frac{\text{Value Added}}{\text{Number of employees}} \quad (9)$$

The partial productivity ratios of inputs binding

The binding productivity ratios follow the contemporary concept of the value productivity. The costs of binding used in the denominator of formulas are expressed together at the end of the sub-chapter.

$$\text{Productivity of inputs binding} = \frac{\text{Total revenues}}{\text{Costs of inputs binding}} \quad (10)$$

$$\text{Productivity of fixed tangible and intangible assets binding} = \\ = \frac{\text{Total revenues}}{\text{Costs of fixed tangible and intangible assets binding}} \quad (11)$$

$$\text{Productivity of current assets binding} = \frac{\text{Total revenues}}{\text{Costs of current assets binding}} \quad (12)$$

$$\text{Productivity of inventories binding} = \frac{\text{Operating revenues}}{\text{Costs of inventories binding}} \quad (13)$$

The cost of binding are expressed as $WACC*(1-t)^{-1}$ multiplied by the value of examined assets (equation 10 – total assets etc.)

Time indices of productivity

The static ratios of value productivity have usually equivalent explanatory power or even just same as some ratios of financial analysis. Financial analysis is even more used in practice. In contrast, the dynamic indicators of value productivity have the potential to capture the size and impact of changes in productivity. There is a need of data about inputs and outputs in prices and physical volumes. The apparatus for the value productivity in the contemporary sense on the micro economical level is in detail described by Klečka (2008).

Such specified data for an analysis of the value productivity in the chemistry industry were not available. At least effect of price changes and the impact of changes in physical volumes were removed partly by using only the ratios of productivity and index comparison. The changes of prices are compensated because of the similar trend of price development of outputs and inputs. On the other hand significant price changes between inputs and outputs would have caused that values of productivity indicators show changes in productivity although the cause of their change is caused only by the price differences. We have to take seriously into account this possible limitation of explanatory power caused by incomplete data specifications. Furthermore, the effect of price changes is reduced by the fixation of costs of capital employed. The development of productivity is expressed as standard time base indices whose content is obvious from further presented figures.

Development of productivity of selected companies operating in the chemistry industry in the Czech Republic

The chemistry industry is an important (third largest) industry branch in the Czech Republic (Ministry of Foreign Affairs, 2011). It proves the level of country development because this kind of industry is intensive to labour force, sufficient amount of raw materials, water and electricity. Products of the chemistry industry are important for other industry branches. The Czech chemistry sector can be divided into several areas. These areas are basic chemicals, refined petroleum products, pharmaceutical products, rubber and plastic products and also paper products. The main share creates basic chemicals (64% of total revenues) and pharmaceutical products (17% of total revenues). Shares of other 5 product areas are significantly lower: production of chemical specialties and fibres (9%), manufacture of cleaning and cosmetic preparations (5%), manufacture of paints (4%), manufacture of pesticides and other agrochemical products (1%).

This paper with its analysis builds on previous works of authors. These works contain the analysis of total productivity in the case of metallurgical industry and automotive industry in the Czech Republic (Klečka and Čámská (2013) and Klečka (2013)). As it has been already mentioned this paper uses analogical methodology.

Data sample

The analysis is based on the data of 500 enterprises belonging to the chemistry industry in the Czech Republic. According to CZ-NACE following sectors are involved – CZ-NACE 20 Manufacture of chemicals and chemical products, CZ-NACE 21 Manufacture of basic pharmaceutical products and pharmaceutical preparations and CZ-NACE 22 Manufacture of rubber and plastic products. Selection criteria were data availability in needed structure and the amount of employees exceeding 10.

The 500 analyzed chemistry enterprises had the aggregate value of assets 279 421 084 000 CZK and aggregate value of revenues was equal to 410 145 448 000 CZK in 2014. It should be noted here that the numbers and proportion of enterprises have been affected by the data availability in the corporate database and therefore the data do not indicate the actual numbers of companies in the chemical industry branches. On the other hand the analysis is not distort because of observed productivity characteristics which are expressed in relative terms and not absolute terms.

Results

This part is dedicated to results which will be displayed in several figures and commented as well. The figures generally show differences between partial productivity and declines and subsequent different fast “recoveries” of several partial productivities in the context of the time period after 2009. This period is connected with crisis recovering. The total productivity of chemistry enterprises was 1.0056 in 2009, after they year 2010 it slightly increased (1.0276 in 2011), around the year 2012 it was followed by a slight decrease (at 1.0044) and for the end of analysed period the slight grow was again observed (1.02446 in the year 2014). The development of value productivity is displayed in figure 1. The value of total productivity can be interpreted as the value of output in CZK for 1 CZK of value of consumption and costs of capital employed.

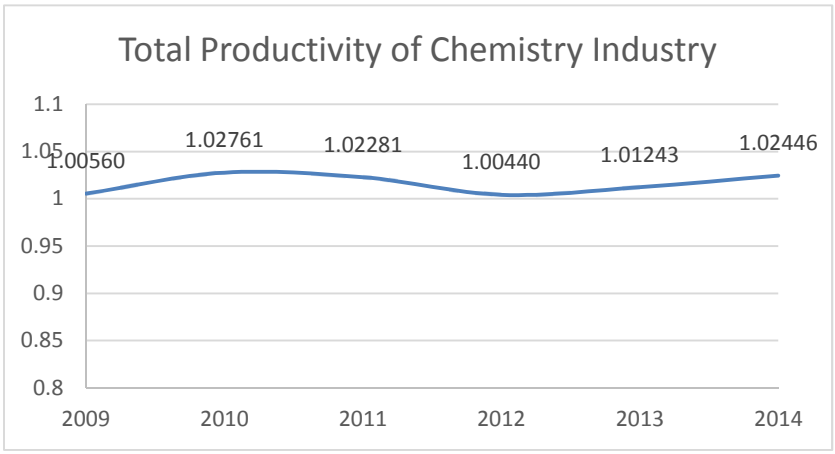

Fig 1. Total productivity (The value of output in CZK / the value of consumption and binding of inputs in CZK), Source: authors

Previously analysed industry branches as metallurgical industry (Klečka and Čámská (2013)) or automotive sector (Klečka (2013) had another development of productivity. Logically these industry sectors are more cyclical than the chemistry industry. In the year 2009 the total productivity was under one (0.958 for automotive industry without car manufactures and 0.857 for metallurgy). After the crisis a systematic slight increase occurred but till 2011 the value of total productivity remained under one. On the other hand in the case of the chemistry industry the total productivity was above one even in the year 2009. It means that this industry was able to retain a positive economic profit.

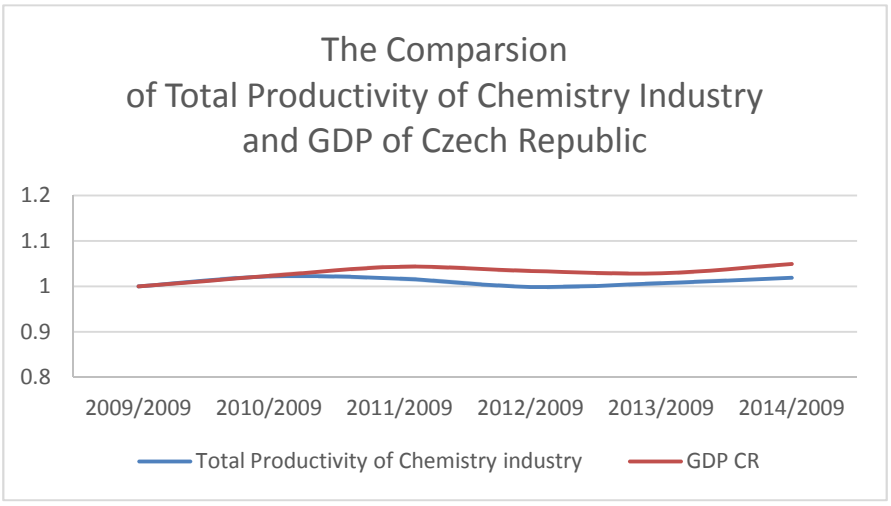

Fig 2. The comparison changes of Total productivity and GDP Czech Republic (base indices, the year 2009 = 100, GDP in constant prices), Source: authors

The figure 2 illustrates the comparison between the development of the value productivity of the chemistry enterprises and gross domestic product of the Czech Republic. It is necessary to take into account that milder growth of chemistry industry's productivity started from the higher level. As it was already discussed this level had not decreased under one which represents the ability to generate economic profit. This is displayed by figure 3.

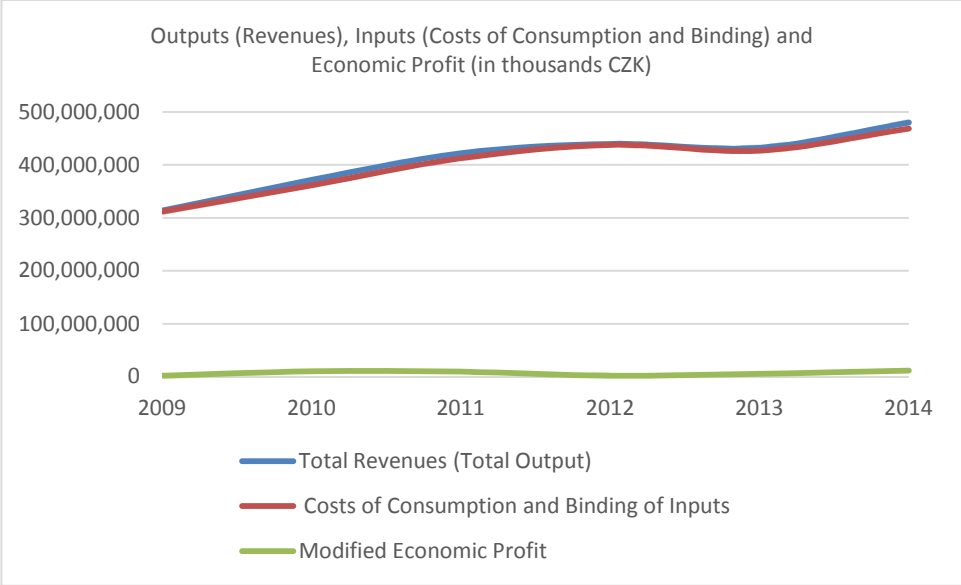

Fig. 3: Revenues, costs of consumption and binding of inputs and modified economic profit (in thousands CZK), Source: authors

Figures 4-6 show significant differences in the development of particular partial productivities. Smaller (bigger) change of value of particular productivity depending on the production volume changes (especially on the decrease) are a consequence of bigger (smaller) enterprise adaptability during usage of particular production factor. It is valid only in the case of assumption that productivity change is not distorted by high price differences of inputs compared with price differences of outputs. This has been already discussed before.

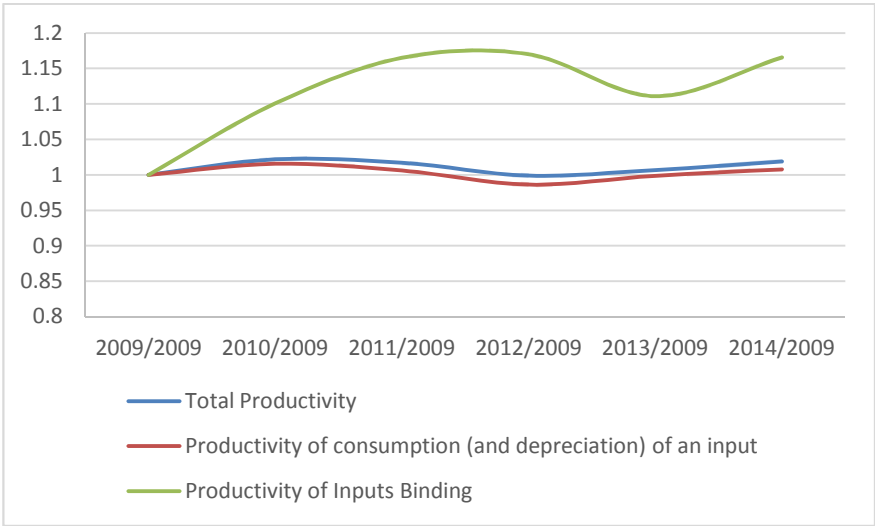

Fig 4. Two main partial productivities (base indices, the year 2009 = 100), Source: authors

Figure 4 displays the development of total productivity and two main partial productivities. It means productivity of consumption inputs and productivity of capital employed (of inputs binding). Figure 5 is focused on the partial productivities from the group of productivities of consumption inputs. Figure 6 is focused on the partial productivities from the group of productivities of capital employed.

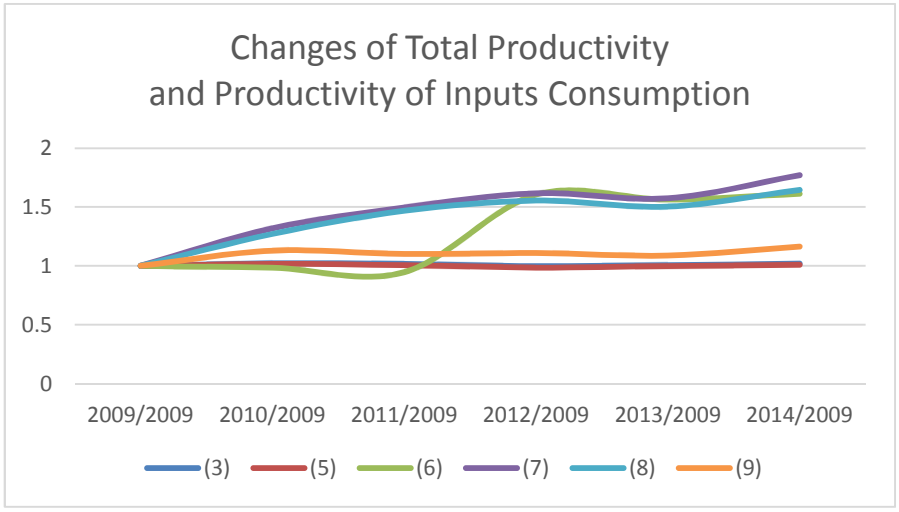

Fig 5. Changes of total productivity and partial consumption productivities (the year 2009 = 100), Source: authors

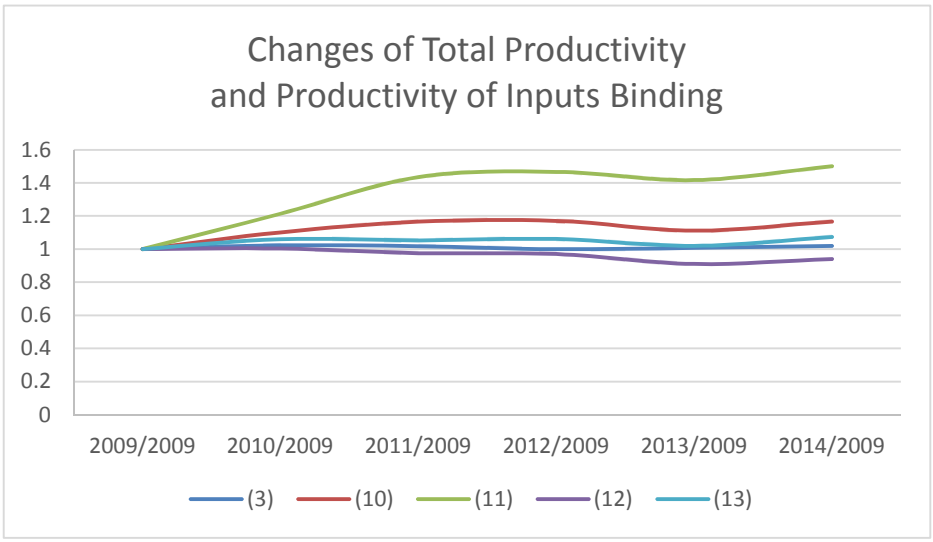

Fig. 6: Changes of total productivity and productivities of capital employed (the year 2009 = 100), Source: authors

Discussion

Shapes of curves enable to distinguish for which production factors the enterprise (th industry) is more or less adaptable. In the case of some production factors it can be more flexible, for others less flexible, more fixed. The curves with big (deep and long) decline are characteristic for lower flexibility.

Measured characteristics are relative. The influence of each production factor does not depend only on the shape of its curve mentioned above but also on the consumed amount which can be expressed by its costs or proportion on costs structure. The share of costs of inputs consumption was 92.75% and the share of costs of capital employed was 7.25% in the whole sample for the whole analysed period. It significantly influences the changes for our analysed data sample. The share of costs significantly influences how the partial productivities have effect on the total productivity.

Conclusion

This paper was focused on the level and development of value productivity. Total value productivity as well as particular partial productivities were covered. The computations analyses were done on enterprises belonging to the chemistry industry. The data sample contained 500 business entities and the analyzed time period covered the years 2009-2014. The changes of productivity in the case of the chemical industry were very slight although the production volume changes were huge. The production volume has increased since 2009 when it reached its bottom because of the global economic crisis. Small changes in productivity as well as retaining the ability to create economic profit (or positive economic value added) prove that the chemistry industry has big adaptability. The motivation for further research work is a comparison of adaptability among industry branches as well as analyzing cyclical character of industry due to economic cycle.

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Consumer Attitudes towards Brands in Relation to Price

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Abstract

The objective of this paper is to evaluate buying behavior and consumer preferences of consumers in the Czech Republic according to the attributes of price and brands. The evaluation is based on data obtained from primary research focused on the behavior and preferences of consumers to brands. In addition, these results are compared with the outcomes of the same oriented research conducted in the Slovak Republic. In the Czech Republic, research was carried out through a questionnaire survey and structured interviews during October and November of 2014. This article provides a more detailed view with respect to specific structures of the Czech consumers.

Keywords: attitude – brand –price – respondents – statement

Introduction

Data analyzed and presented in this article look at attitudes of Czech and partially also Slovak consumers towards foreign and domestic brands from the perspective of price. Consumer analysis is based on the following socio-demographic factors: gender, age, net income, educational attainment, and the size of municipality. Findings provide a unique insight into consumer behavior (Stopka et. al, 2015; Mooij, 2011; Schiffman et.al, 2004) and attitudinal information on how consumers perceive foreign and domestic brands in relation to price (Starchon, 2014). Furthermore, companies are often exposed to compromising between low price and high quality, however, in many product classes there is a well-defined breakdown between those customers concerned first about price and others who are willing to pay extra for high quality and features (Aaker & Mcloughlin, 2010, p28-29). So the results this research survey may help marketers understand why consumers behave in a certain way in the fast changing environment and what their preferences are.

Materials and Methods

The main objective of this article is to evaluate buying behavior and consumer preferences in the Czech Republic according to the attributes of price and brands. These findings are compared with data available from a similar research study carried out in the Slovak Republic (Smolkova, 2013). The outcomes presented in the article are based on primary research conducted in the Czech Republic in the period of October and November of 2014 by the Department of Marketing Communications, Faculty of Multimedia Communications, Tomas Bata University in Zlin. The research study was focused on brand perception among Czech consumers and was based on selection of specific criteria (Mason, R et. al, 1998; Krizanova et. al, 2013). The sample of respondents consisted of residents of the Czech Republic older than 18 years. The sample was determined on the basis of quota sampling based on the principle of division of the same proportion of selected properties of the elements according to population (Kotler and Keller, 2006; Aaker et. al, 2007). Quotas based on age, gender, income, size of municipality and districts in the Czech Republics were determined for the purpose of this research. Quota distribution of these socio-demographic data is based on parameters obtained from the Czech Statistical Office (2014).

The sample included 1028 respondents and all the chi-square tests were calculated with a confidence level of 0.05 and the accepted tolerance of 3% accuracy. Respondents were approached via an electronic questionnaire and personal interviews. Within this research, respondents were asked a total of 38 questions, of which the first three were open and investigated the spontaneous brand awareness and associations with the Czech brands. Then a series of 28 Likert scales followed – these were

designed to detect consumer preferences and their attitudes towards domestic and foreign brands. Scales had a form of statements and respondents had the opportunity to express themselves in the range of five points: I fully agree – I partly agree – I do not know – I partly disagree – I fully disagree. The last part of the questionnaire consisted of seven questions and dealt with basic socio-demographic characteristics of respondents. In this article, partial outcomes of this research are presented; they deal with the attitudes of respondents towards the importance and effect of prices on brand perception. Data were processed with the help of the SPSS (IBM Corporation, 2015).

Furthermore, in this article, research results are compared to the results of primary research carried out by Smolkova et al (2013) at the Faculty of management, Comenius University in Bratislava in 2013. Data were gathered in the period of January to April 2013 by means of personal interviews and an online questionnaire available on the Internet. The group of respondents was based on the same method of quota selection and consisted of Slovak citizens aged 16+. Altogether, 1067 respondents were questioned – this is a comparable sample with the research study conducted in the Czech Republic.

Table 1 Structure of the Czech and Slovak respondents according to the selected criteria

Criteria	**Czech Republic**	**Slovakia**
Gender	Number	Number
Male	505	504
Female	523	518
Age		
18-29 years old	208	278
30 - 39 years old	273	228
40 - 49 years old	185	189
50- 59 years old	160	245
60+	130	87
Education		
Primary education	113	75
Secondary school without graduation exam (A-levels)	284	61
Secondary school with graduation exam (A-levels)	423	497
University graduates	208	371
Size of municipality		
to 2 thousand inhabitants	160	169
2 - 5 thousand inhabitants	103	138
5 - 10 thousand inhabitants	71	73
10 - 20 thousand inhabitants	95	119
20 - 50 thousand inhabitants	169	152
50 -100 thousand inhabitants	142	191
over 100 thousand inhabitants	286	187

Czech Republic		**Slovakia**	
Net household income	**Number**	**Net household income**	**Number**
less than CZK 9,000	18	less than EUR330	70
CZK 9,001 – 15,000	90	EUR 331 - 500	118
CZK 15,001 – 21,000	120	EUR 501 - 660	125
CZK 21,001 – 27,000	153	EUR 661 - 900	174
CZK 27,001 – 33,000	146	EUR 901 – 1,330	206
CZK 33,001 – 39,000	132	EUR 1,331 – 1,660	128
CZK 39,001 – 45,000	99	EUR 1,661 – 1,990	52
CZK 45,001 – 51,000	86	EUR 1,991 – 2,320	43
CZK 51,001 – 57,000	43	EUR 2,321 – 2,660	16
CZK 57,001 – 63,000	40	more than EUR 2,661	54
CZK 63,001 – 69,000	25		
over CZK 69,001	74		

Note: Slovakia adopted the common European currency (EUR) in 2009. The Czech Republic has not adopted it yet. 1 Euro is approximately 27 CZK – Czech koruna, i. e. "crown".

The questionnaire in Slovakia had a similar form as in the Czech Republic but there was a different number of scale questions focused on consumer preferences – 27 questions and only five questions concerning basic socio-demographic characteristics of respondents were asked. Data from research conducted in the Slovak Republic were processed in the Statgraphic Program (Statpoint Technologies, 2015) and in the R statistical software (The R Core Team, 2015). Table 1 shows basic data about the structure of respondents in both the Czech and Slovak respondents. In the Czech Republic, additional facts were investigated such as the number of employed household members and regional belonging.

Results and discussion

The results of the research focused on the importance of price based on respondents' attitudes towards brands and branded products are presented through their reactions to the following statements:

- „I prefer to buy cheap products."
- „I am willing to pay more for my favorite brand."
- „I am willing to pay more for the Czech/Slovak brand."
- „Foreign brands are cheaper."
- „Foreign brands are easier available than the Czech/Slovak ones."

In order to provide a clear overview the results of respondents' attitudes are grouped according to the selected criteria of the respondents' structure (gender, age, education, net income, and size of municipality). Figure 1 shows results in the form of a weighted arithmetic mean of respondents' answers in the scale: *I fully disagree* (-2), *I partly disagree* (-1), *I do not know* (0), *I partly agree* (1), and *I fully agree* (2). The attitudes of men and women to the statements are similar and there is only one maximum deviation of 0.2 referring to the statement that "foreign brands are easier available than the Czech ones" – in this case both men and women partly agree with the statement (23.25% of men and 28.8% of women partly or fully agree with it). The option of partial agreement is the most frequent answer of both men and women. Respondents' attitudes towards popular brands are very positive, both men and women are willing to pay more for their favorite brand.

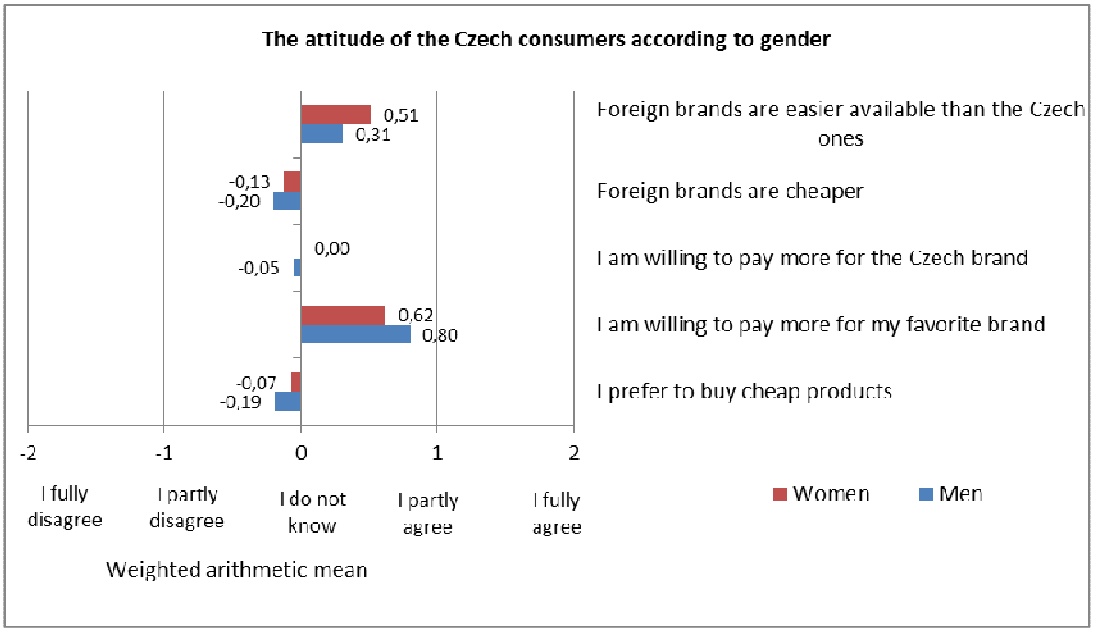

Fig 1. The attitude of the Czech consumers towards brands in relation to price based on gender
Source: Own (based on research)

According to the research results, a popular brand is far more important for men than for women (the difference makes 7.66%). The attitude of respondents to pay more for the Czech brand is rather indecisive – this indicates that experience and satisfaction with a particular brand regardless of its origin is more important for respondents than the fact that it is a domestic (Czech) brand. The question of buying cheap brands is not really important for respondents, what is taken into account is, as it has already been mentioned, experience and satisfaction and these are appreciated by more men than women who seem to be more price conscious when making their buying decision. Respondents disagree with the statement that foreign brands would be cheaper, so their price is no reason why consumers should buy them. The problem is that Czech brands are often less available to them than foreign brands.

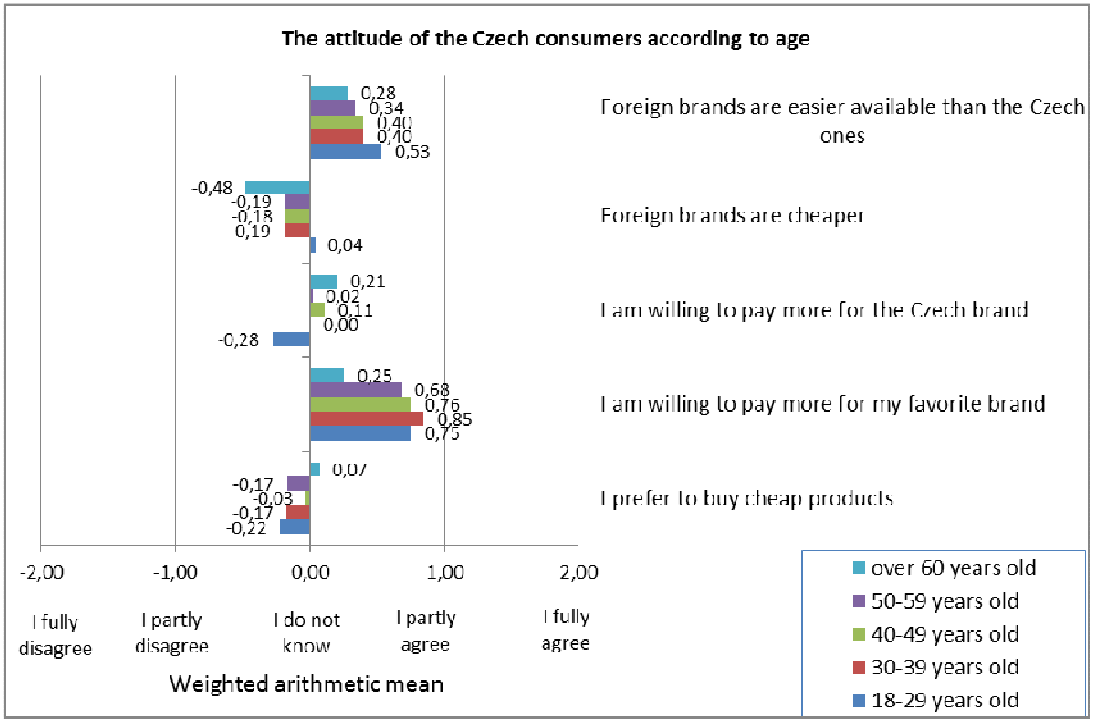

Fig 2. The attitude of the Czech consumers towards brands in relation to price based on age
Source: Own (based on research)

Based on the respondents' age structure (Figure 2), their attitude towards brands in relation to price reveals some significant differences in orientation. A different approach is seen by consumers over 60 years old who tend to prefer cheaper products (50% of them buy cheaper products and 33% disagree with the statement). In addition, they are more loyal to the Czech brands (51.5%) than other age categories. And unlike other age categories, respondents in this category are less willing to pay more for their favorite brand (51.5% of them is ready to pay more for their favorite brand – this is less by 19.7% than in other categories. From their point of view, foreign brands are not cheaper (48.5%), however, these brands are often easier available than domestic ones (claimed by 46.9%, and 39% remained indecisive). The smallest inclination to Czech brands is shown by the youngest age category (18 to 29 years old) – respondents in this category are not willing to pay more for domestic brands (this was claimed by 45.7% while 23.5% were indecisive). Respondents in this category appreciate easier availability of foreign brands in comparison to domestic ones (53.6%); however, they are indecisive in their attitude to a lower price of foreign brands. What is important for this category is the question of the popularity of the brand itself (71.1%) and the fact whether this brand is cheaper or more expensive does not play an important role.

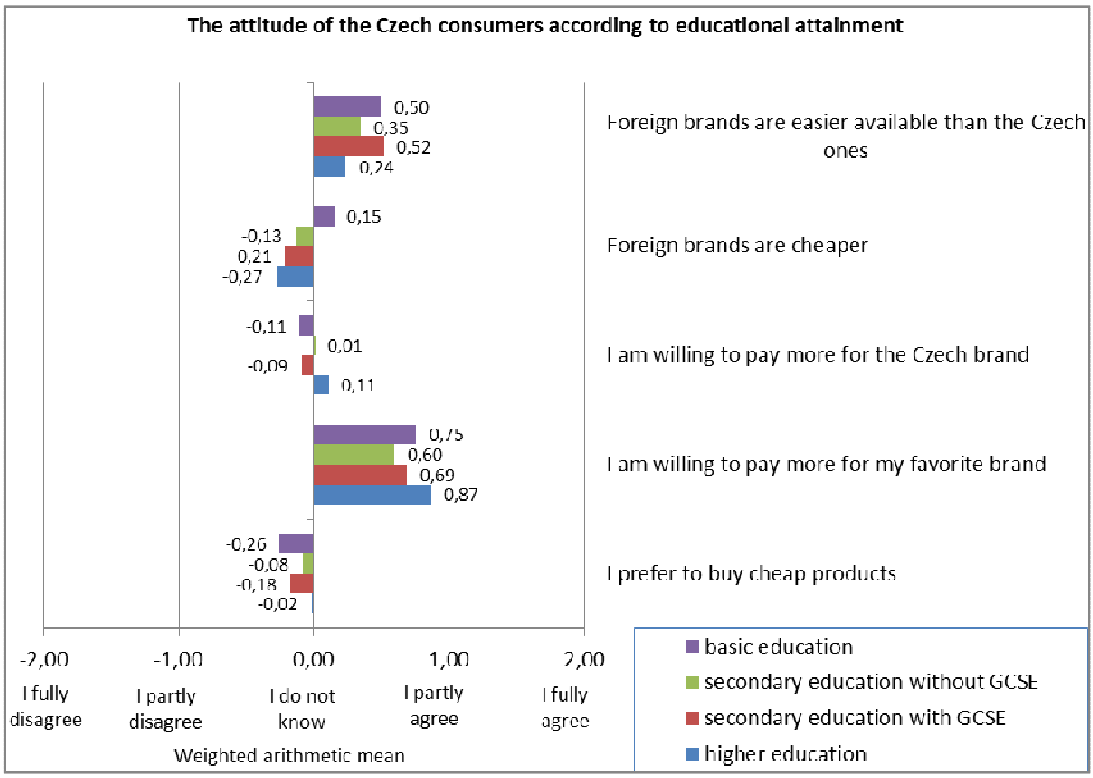

Fig 3. The attitude of the Czech consumers towards brands in relation to price based on education

Source: Own (based on research)

The results compared according to the level of educational attainment of respondents (see Figure 3) reveal the difference in attitudes between the consumers with basic and higher education. Respondents with basic education tend to disagree with orientation to cheap products (55.8% respondents disagree and 42.5% of them agree with the statement), they hold a neutral to negative attitude toward the willingness to pay more for Czech brands. Instead, they are willing to invest more in their favorite brands (71.7%) and as the only group they tend to claim that foreign brands are cheaper (38.05% respondents agree and 34.5% are indecisive). They also agree with the statement that foreign brands are easier available than the Czech ones (55.75% of respondents agree, 26.55% do not know and 17.7% disagree). Respondents with higher level of education take a more neutral attitude to cheaper products and they are most willing to pay more for their favorite brand (76.92%) and, compared to other groups, also for Czech brands (47.12%). At the same time, they rather disagree with the fact that foreign brands are cheaper (42.3% disagree and 30.8% of respondents do not know) but they consider them for easier available (40.87%). Groups of respondents with secondary education tend to focus on cheap products; the popularity of the brand plays an important role in their choice (69% of respondents with GCSE (General Certificate of Secondary Education) and 61.27% of respondents with completed secondary vocational school). The fact whether it is a Czech brand plays no significant role to them. Like consumers with higher level of education they do not think that foreign brands are cheaper but they consider them for easier available (54.74%).

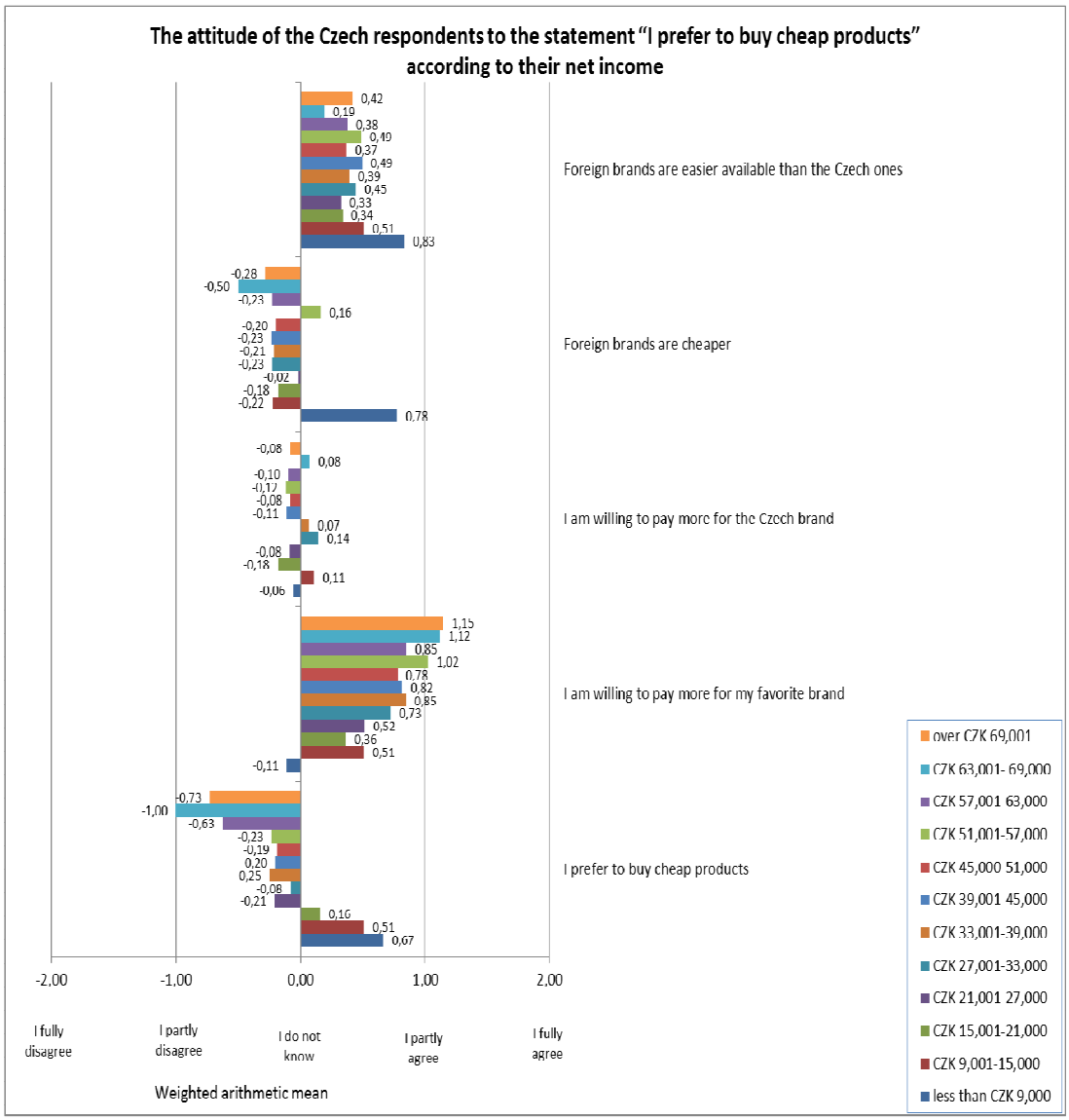

Fig 4. The attitude of the Czech consumers towards brands in relation to price based on net household income

Source: Own (based on research)

In this research survey, respondents are divided into 12 categories taking into consideration their net household income (see Figure 4). Results show that respondents with income up to CZK 15,000 prefer to buy cheaper products (62.04%), while fewer respondents with net household income up to CZK 21,000 tend to do the same (the difference is 7.9%). The attitude toward buying cheap products tends to be more negative at other groups of respondents whose income exceeds CZK 21,000 and the question of price plays in buying decisions a far less significant role at the group with a net income over CZK 57,000. The category of respondents with the lowest net household income (up to CZK 9,000) shows compared to other income categories, significantly different behavior. The most decisive factor for this group is the price of the product and it is irrelevant whether it is their favorite or domestic brand. They also state that foreign products are cheaper (55.55%) and very easy to obtain (83.33%). Other categories also tend to agree with the statement that foreign brands are easier available for consumers but they tend to disagree that these brands would be cheaper (this is stated by 40.8% of respondents and 31% of them do not know). They do not focus on cheap products and they are willing to pay more for their favorite brands (69.1%) but their willingness to pay more for Czech

brands is rather ambiguous (41.39% of respondents are willing to pay more and 40.89% of them is not willing to do so while 17.72% of them do not know).

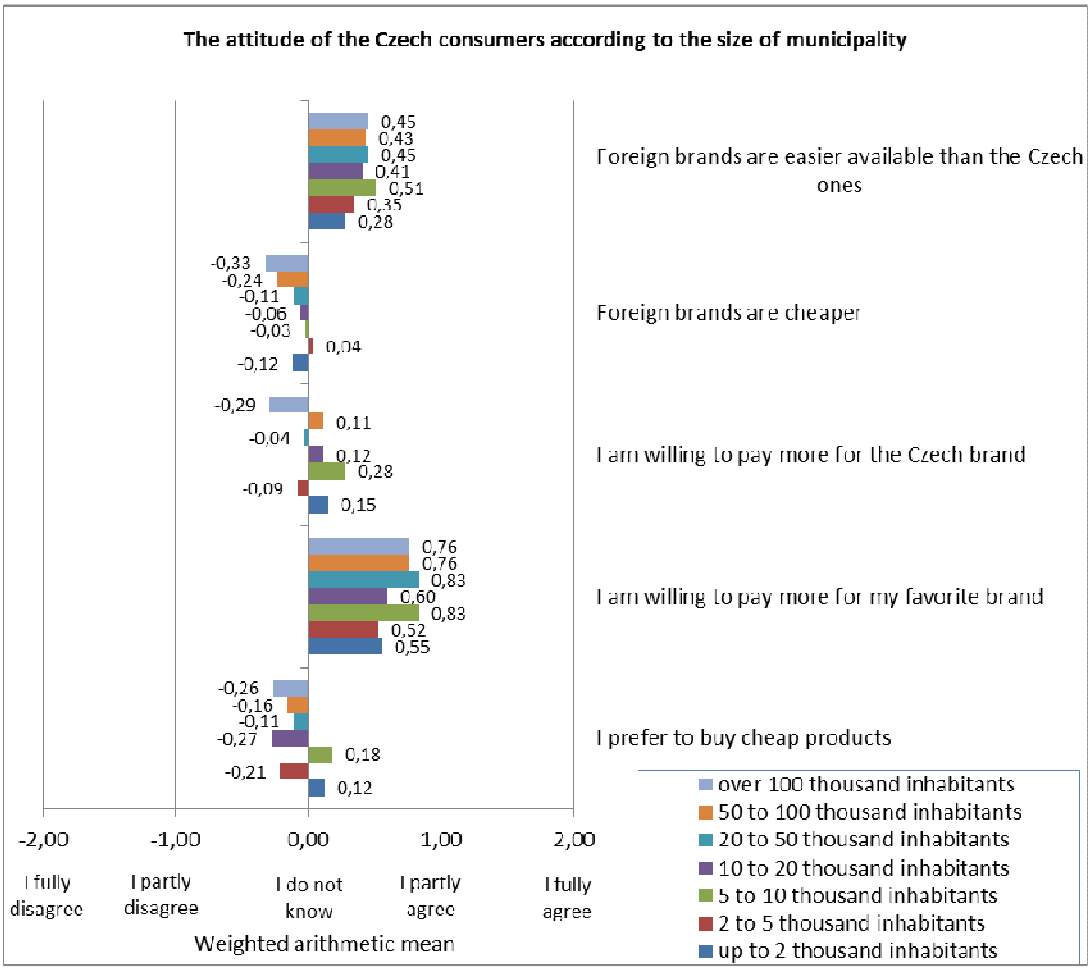

Fig 5. The attitude of the Czech consumers towards brands in relation to price based on the size of municipality

Source: Own (based on research)

Looking at the attitudes according to the size of respondents' municipality (see Figure 5), it can be stated that the bigger the size of municipality the more space is available for purchasing of more expensive products (40.37% of respondents living in a municipality up to two thousand inhabitants disagree with the statement and this tendency is gradually rising up to 52.8%). This fact is also apparent when looking at cheap foreign brands where respondents living in bigger municipalities tend to the statement that foreign brands are not cheaper (44.06% respondents living in municipalities with over 100 thousand inhabitants) and at the same time the inclination to prefer Czech brands in case these are more expensive is on the decrease (this is preferred by 32.17% and not preferred by 48.95% of respondents living in municipalities with over 100 thousand inhabitants). With the increase of population in the municipalities respondents indicate an easier availability of foreign brands over domestic ones. It is apparent that all categories prefer favorite brands even at the cost of additional payment and this preference is increasing with the size of the municipality.

Comparison with Slovakia

Five questions (see Figure 6) were used to investigate respondents' attitudes in relation to the importance and influence of price on brand perception. Comparison of the weighted arithmetic mean values of responses in the rating scale makes it possible to get a brief overview of the results achieved in the Czech Republic and Slovakia (Smolkova et al, 2013; Smolkova. 2013). So how important is

price in relation to brands? In both countries, consumers are primarily focused on their favorite brands (0.81/Slovakia and 0.71/Czech Republic), they are willing to pay more for these brands (in Slovakia focus on favorite brands is higher by 0.1 than in the Czech Republic).

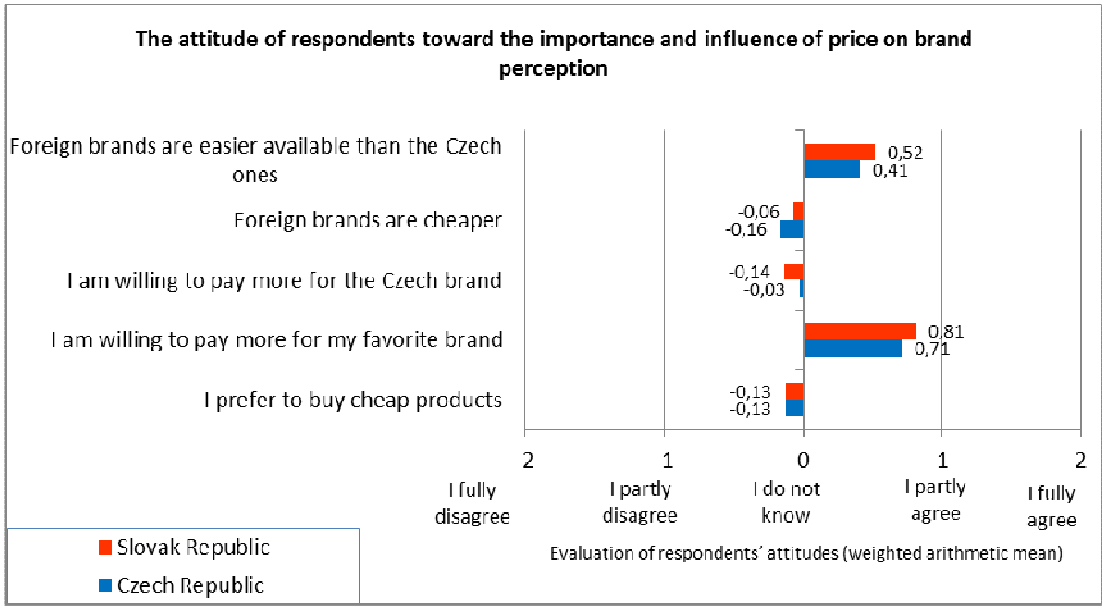

Fig 6. The attitude of respondents toward the importance and influence of price on brand perception

Source: Own (based on research)

The fact that respondents are willing to pay more for their favorite brand is not entirely clear at domestic brands (the willingness of Slovak respondents to pay more for the domestic brand is lower by 0.11 than the willingness of Czech respondents). Price does not play such a substantial role in the majority of respondents, compared to the question of popularity of the product brand. This focus on brand is more evident at Slovak respondents, and this fact enables companies to introduce more expensive products on the Slovak market.

Conclusion

Results obtained from the research survey provide a valuable insight in consumer behavior in the Czech Republic. By analyzing consumer attitudes according to their gender, it can be seen that in comparison to female customers, male consumers tend to be less price conscious because they are willing to pay more for their favorite brands. Therefore emotional aspects are in consumer behavior of great importance (Tislerova, 2015; Potkany et. al, 2015). If brands are able to offer emotional benefits to consumers, a vast majority of them is willing to pay more for the brands they like and love. Moreover, these consumers tend to be very loyal, thus the ability to create emotional benefits associated with a particular brand should be part of a company's marketing strategy (Lorincova et. al, 2014). Concerning the age of respondents, consumers older than 60 years have not only the strongest tendency to buy cheap products but also the highest level of loyalty. Considering the level of educational attainment, diverse attitudes toward brand perception and price can be observed. Data obtained from investigating respondents' attitudes according to their net household income bring less surprising results. Price is, of course, a key factor for people with a low net income while it plays no significant role for people with a high income. As can be seen above, consumers are, in general, less willing to pay more for domestic brands. Good quality of branded products (Aaker et al, 2010), systematic emphasis (Solarová, 2015; Rebetak et. al, 2013; Kampf et. al, 2012) on the country-of-origin and competitive pricing policy (Gazquez-Abad et. al, 2016) can contribute to raising consumer awareness so that customers when making their buying decisions pay more attention to the origin of branded products.

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La Marque Territoriale Comme Levier D'attractivite Des Territoires Touristiques : Reflexion Autour De La Marque Maroc

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Resume

Face à la crise actuelle et aux mutations de la demande touristique, les territoires et les destinations sont tenues de remettre en cause leurs stratégies touristiques. Ainsi, et pour améliorer leur attractivité, les territoires touristiques doivent faire un effort en terme de visibilité et de lisibilité sur le marché national et international.
L'exacerbation de la concurrence entre les destinations conduit de plus en plus de destinations à rechercher un positionnement qualitatif en valorisant les actifs du territoire. Cette logique de différenciation qualitative des territoires a conduit ces dernières années, au développent du marketing territorial et en particulier à l'apparition de multiples labels et marques territoriaux.
Ce papier vise à analyser la pertinence de la mise en place d'une stratégie de marque pour un territoire donné et essayer de montrer comment la marque territoriale, peut être un support pertinent pour asseoir l'attractivité et la différenciation d'une destination touristique en général et la destination «MAROC» en particulier.
Mots clés : attractivité territoriale, destination touristique, marque territoriale, qualité

Abstract

Faced with the current crisis and to the changes in tourism demand, territories and destinations are bound to question their tourism strategies. Thus, and to improve their attractiveness, tourist territories must make an effort to end visibility and legibility on the national and international market.
The increased competition between destinations led more and more destinations to seek a premium positioning by valuing the assets of the territory. This logic of qualitative differentiation of territories has led in recent years to develop territorial marketing and in particular the appearance of multiple labels and territorial brands.
This paper aims to analyze the relevance of the establishment of a brand strategy for a given territory and try to show how territorial mark, may be a relevant support for sit attractiveness and differentiation of a tourist destination General and destination "Morocco" in particular.

Keywords: territorial attraction, tourist destination, territorial brand, quality

Introduction

Face à un environnement instable, un contexte d'hyper-concurrence entre les territoires et des clientèles touristiques à la recherche du sens, d'excellence et du bien être, seuls les territoires porteurs d'une identité forte et des valeurs uniques pourront être compétitifs et attractifs. La marque territoriale peut représenter un cadre d'analyse prometteur dans une logique de développement des positions concurrentielles des entreprises du tourisme et de l'attractivité des territoires.

La marque territoriale est un phénomène en croissance qui offre la possibilité à chaque destination de montrer sa présence, ses attributs, mais aussi d'accroitre sa notoriété, son attractivité et de se différencier

des concurrents. Notre recherche sur la marque de territoire - destination se place d'emblée dans cette perspective.

Notre objectif à travers ce papier est d'analyser la pertinence de la mise en place d'une stratégie de marque pour un territoire touristique et d'essayer de montrer comment la marque territoriale, peut être un support pertinent pour asseoir l'attractivité et la différenciation d'une destination touristique en général et la destination « MAROC » en particulier.

Le tourisme au Maroc est un secteur important dans l'économie nationale, il se base sur les potentialités et les richesses des différentes villes et régions du territoire - pays. L'attractivité de la destination Maroc est fondée sur des données géographiques et culturelles mais également sur les milieux naturels… Ce qui rend leur préservation comme un véritable enjeu pour la compétitivité et la durabilité du territoire. Cependant l'image de la destination Maroc est devenue, ces dernières décennies, floue et moins attractive pour les touristes. C'est une destination qui souffre d'un problème de positionnement claire sur le marché touristique national et international.

Dans ce contexte, pour se repositionner et répondre aux attentes des touristes, le Maroc doit s'appuyer sur ses atouts traditionnels : sa forte identité culturelle, la richesse de son patrimoine naturel et sur la qualité de ses produits. Mais une telle évolution, déjà entamée, exige non seulement le renforcement de la qualité des prestations touristiques mais encore la mise en place d'un système de communication au profit du client potentiel (touriste). Dans ce cadre et selon les recommandations de la cour des comptes à l'office national marocain du tourisme (ONMT), un système de marquage cohérent et crédible peut s'avérer une source d'attractivité pour la destination « Maroc ».

Toutefois, cette réflexion autour de la marque de la destination Maroc ne peut être dissociée de la réflexion globale sur la construction et le développement de la marque Maroc. Cette marque, selon l'institut royal des études stratégiques « IRES », même si elle bénéficie déjà d'un univers culturel attractif à l'étranger, jusqu'à présent elle n'est pas pensée ni promue en tant que telle.

Le présent article développe les leviers de la construction de la marque territoriale en creusant cette liaison entre marque territoriale et destination touristique. Pour traiter cette question, nous allons consacrer la première partie de ce travail au concept d'attractivité touristique , la deuxième partie vise à présenter quelques repères sur les fondements théoriques de toute politique de marquage territoriale et enfin dans la troisième partie nous allons essayer d'appliquer ces raisonnements au territoire touristique «Maroc ».

I. Attractivite Des Territoires Touristiques

Depuis plusieurs années, une grande importance est accordée à la notion d'attractivité, désormais omniprésente dans les discours des politiques, les travaux des consultants et les publications des académiques. Cependant, et selon Hubert Gérardin et Jacques Poirot (2010), il s'agit d'un terme d'utilisation relativement récente, à la signification assez floue et donnant de ce fait lieu à une grande diversité d'interprétations.

L'attractivité est un élément important dans le développement d'un territoire du fait qu'elle contribue à le mettre au devant sur la scène concurrentielle des territoires et elle le rend comme un produit qui doit se vendre pour se développer, elle se voit, en effet, comme impérative pour tous les territoires. Ceci est facilité notamment par l'adoption d'une stratégie de marketing territorial qui permet de mettre en valeur les atouts du territoire et qui favorise le développement, par l'apport des actions marketing qui peuvent être mises en place et qui se traduisent, dans notre cas, par la marque territoriale.

Le marketing territorial détenait et détient encore une place importante notamment concernant l'attractivité et la compétitivité territoriale. Ce marketing pourrait alors être désigné comme étant « l'effort de valorisation des territoires à des marchés concurrentiels pour influencer, en leur faveur, le comportement de leurs publics par une offre dont la valeur perçue est durablement supérieure à celle des concurrents ». (Gollain, 2008).

L'enjeu de l'attractivité consiste à articuler les actions d'acteurs hétérogènes, à favoriser leurs complémentarités et à dégager des synergies sans perdre de vue l'objectif d'un projet de développement pérenne. C'est dans cet ordre d'idée, que les chercheurs dans ce domaine ont envisagé d'étudier l'attractivité d'une destination touristique.

Une destination touristique attractive attire des touristes mais aussi attire et retient les acteurs du tourisme sur son territoire. Une telle destination sera ainsi en mesure de capitaliser sur un portefeuille de ressources naturelles et/ou créées, de se reposer sur une « industrie » touristique structurée, concurrentielle et innovante et de bénéficier de supports institutionnels.
De ceci, nous pouvons avancer que la destination est considérée comme un « territoire-support d'activités » et un « territoire-support de population » pour reprendre les termes de Davezies (2008).
Ainsi, plusieurs conditions sont nécessaires pour développer l'attractivité d'une destination touristique :

- La stratégie adoptée par une destination doit être en mesure de contribuer à la création de valeur ajoutée.
- L'attractivité touristique dépend nécessairement d'un portefeuille de ressources naturelles et/ou créées assimilable à un avantage comparatif.
- Une destination attractive est celle dont l'offre correspond à une demande touristique forte et ciblée ayant une dimension nationale et internationale.
- Enfin, le succès de toute stratégie adoptée par une destination touristique est conditionné par l'existence des supports, tant sur le plan institutionnel que sur le plan gouvernemental, capable de renforcer l'image touristique de la destination, d'encadrer juridiquement la profession, de fixer les normes qualitatives…etc.

De ce qui précède, il convient de signaler que le statut de destination attractive découle de la combinaison de plusieurs éléments d'identification à la fois du côté de l'offre que celui de la demande (Crouch et Ritchie, 1999, 2000; Dwyer et Kim, 2003, Enright et Newton, 2004).

II. Role De La Marque Dans L'attractivite Des Territoires

Sous l'effet de la mondialisation et des crises économiques, de nombreux territoires se sont appropriés la démarche du marketing territorial, ceci est vrai pour le Maroc. Suite à la politique de régionalisation avancée, donnant naissance à une nouvelle répartition et aménagement territorial et à des prérogatives nouvelles aux territoires, et face au phénomène de métropolisation, le Maroc s'est approprié la démarche du marketing territorial en général et la marque territoriale en particulier.

Ce phénomène de constitution de la marque territoriale confirme l'aspiration déjà ancienne des organisations publiques à davantage de légitimité (Laufer, 1980), il illustre la volonté de donner (ou redonner) une lisibilité au territoire et au-delà vise à renforcer l'avantage compétitif de la ville, de la Région ou du pays.
Pour d'autres chercheures et professionnels, le concept de marque pour un territoire est « indissociable de celui de la qualité ». Cette qualité territoriale légitime l'identité du territoire vers l'extérieur et renforce le sentiment d'appartenance pour la population locale. Mais le concept est avant tout un outil marketing et de communication, censé contribuer à la visibilité et à la lisibilité du territoire et donc à sa mise en marché à travers ses caractéristiques fondamentales et représentatives. La marque du territoire est donc, à la fois une fonction défensive de différenciation d'un produit de celui de la concurrence mais aussi une fonction symbolique, identitaire, d'incarnation d'une promesse (Kapferer, 2011)

La construction d'une telle marque doit se baser sur une vision stratégique et un projet de développement pour le territoire (Anholt, 2007 ; Moilanen et Rainisto, 2009). Pour ces auteurs, elle est nécessairement « co-construite » car véhiculée autant par les institutions que par la société civile et le monde économique qui, bien que s'affranchissant de plus en plus des frontières géographiques, font par ailleurs valoir de plus en plus leur ancrage territorial. De ceci, il apparait que la construction d'une marque territoriale se base sur deux piliers fondamentaux, il s'agit de ***l'identité territoriale*** et de ***la mobilisation des acteurs « marque partagée »***.

- ***l'identité territoriale***

La marque territoriale est censée contribuer à la création d'une valeur supplémentaire en débanalisant l'offre, et ce à travers l'identité de territoire. Dans ce sens et selon Rebillard, (2012) « Pour éviter que le territoire ne devienne une entité schizophrène et que les habitants ne rejettent la destination (et les touristes qui la fréquentent) et inversement, pour que les touristes reconnaissent dans le territoire la destination qu'ils ont rêvée, marque de destination et identité territoriale doivent être corrélées»

Dans ce sens, Cerveaux C. (2012) nous rappelle que la première étape dans le processus de création de marque territoriale réside dans l'élaboration du profil identitaire (socle commun imaginaire et des valeurs du territoire) et la délimitation des atouts à mettre en avant.
Il s'agit alors de valoriser ses qualités à des fins de notoriété et d'image, dans ce cadre l'analyse identitaire va permettre d'isoler les qualités intrinsèques du territoire, souvent en lien avec le patrimoine naturel, culturel ou historique. « Un élément de patrimoine possède généralement un sens, pour son détenteur comme pour la communauté . Il est porteur de traditions, d'affectivité, il a été transmis et mérite d'être transmis à nouveau » (de Varine, 2004). L'enjeu donc, même si une marque doit faire rêver, est d'aboutir à une image réelle du territoire.

- ***la mobilisation des acteurs***

Pour réussir, le développement des territoires passe par la mobilisation et la mise en réseau de l'ensemble des acteurs dans une logique pluraliste. Il en est de même pour le projet de marque territoriale, fondé sur une réflexion prospective, collective et partagée par tous (Marie-Eve Férérol 2012). Ce projet est tenu de mobiliser les acteurs et les parties prenantes dans un territoire, on parle alors d'une marque fédératrice. Dans ce cadre, les acteurs du territoire se réapproprient une histoire et une culture, des valeurs communes… Ils se fédèrent autour d'un « socle de valeurs partagées » et sont plus motivés à représenter et à contribuer au succès de la marque territoriale.

Cette idée est vraie aussi pour les destinations touristiques, puisque Rebillard, (2012) considère que « pour qu'une marque de territoire-destination soit à la fois pertinente, pérenne et efficace, pour qu'elle parvienne à structurer le territoire et à fédérer les acteurs économiques, institutionnels, politiques et de la société civile, elle doit être partagée et appuyée par tous ».

III. Marque Territoriale Au Service De L'attractivite De La Destination Touristique « Maroc »

Dans un contexte mondial concurrentiel et instable et pour pouvoir se démarquer**,** la destination « Maroc » est appelée à développer sa « marque pays», et ce afin de mobiliser efficacement et en permanence les potentialités dont elle dispose et de défendre, in fine, ses intérêts stratégiques prioritaires au niveau national et international.

Pour l'heure, et selon une étude stratégique réalisée par l'office national marocain du tourisme « ONMT », le territoire touristique « Maroc » est identifié par les touristes potentiels comme une destination de «la diversité», «des monuments» et «de l'histoire». Cette étude montre également que cette destination souffre selon ces touristes de manque de sécurité, de difficulté de déplacement et d'un manque de confiance dans l'autorité locale.
De même, le tourisme au Maroc est largement concentré sur deux destinations touristiques : Marrakech et Agadir, qui totalisent plus de la moitié des nuitées internationales. Cette concentration géographique ne permet pas de mettre en avant toutes les potentialités du territoire touristique marocain.
Pour pallier cette situation, le Maroc doit développer une visibilité internationale et doit accéder au statut de destination à part entière. Tout en offrant la possibilité à chaque sous destination pour offrir une expérience unique en complémentarité et en cohérence avec les autres sous destinations et avec la destination MAROC.

Comme toute décision marketing, le processus de construction d'une marque territoriale est identifié à celui d'une démarche marketing, avec une phase analytique, une phase stratégique et une phase

opérationnelle (C.-E. Houllier-Guibert, 2012). Cette démarche doit être soutenue par l'articulation entre la dimension intérieure et extérieure de l'image du pays et par l'importance de la veille stratégique pour anticiper les mutations du contexte international, régional et national, mais aussi pour identifier exactement les éléments identitaires distinctifs sur lesquels le pays serait en mesure de construire sa marque.

Dans ce sens, la destination Maroc est tenue de mettre en place une stratégie globale et intégrée de marque « Maroc», de mobiliser les synergies des différents acteurs du tourisme pour la mener à bien et de faire converger ces acteurs dans une même vision pour la promotion de l'image du Maroc. Cette stratégie doit être accompagnée par une communication stratégique ciblée et cohérente, une action indispensable, compte tenu de la multiplicité des intervenants et de la diversité des audiences ciblées.

Ces différents leviers constituent la base indispensable pour créer, mettre en place et développer une marque territoriale aussi stratégique que celle de la marque Maroc en général et la marque territoire - destination « Maroc » en particulier. Toutefois, et dans le souci d'une bonne gouvernance de cette marque, il est recommandé de créer une organisation transversale, il s'agit donc de mettre en place un comité de pilotage qui sera chargé d'élaborer une stratégie marketing sur le long terme, de veiller à sa mise en œuvre et à la mise en place un système d'évaluation pertinent.

De ce qui précède, nous pouvons avancer que le succès de la marque de territoire-destination « MAROC » dépend des conditions majeures suivante, elle doit mettre en valeur l'identité et les valeurs du territoire « Maroc », mettre en place des projets de qualité, être collective, transversale, et porteuse d'une éthique.

Conclusion

Travailler sur la marque territoire – touristique « MAROC » est une nécessité pour pouvoir se démarquer de la concurrence mis aussi pour fédérer tous les acteurs du secteur touristique autour des objectifs communs. Cependant, la construction et la gestion de cette marque est une tâche complexe qui nécessite, pour le territoire en question, d'entamer une réflexion sur ses marqueurs identitaires, ses atouts, son image et ses valeurs à transmettre.

Dans ce sens, plusieurs chercheurs et acteurs du secteur ont exprimé leurs inquiétudes, si la mise en marché d'un territoire aux couleurs d'une marque le réduise à un produit, qu'elle accentue encore le positionnement individualiste du citoyen en consommateur » (Van Santen, 2011).

La création de la marque pour une destination touristique s'avère d'une grande utilité pour améliorer l'attractivité du territoire, cependant le développement de cette marque doit être manié avec précaution, en évitant la multiplication exponentielle des marques (éviter la banalisation), mais aussi en faisant preuve de beaucoup de pédagogie pour faire accepter une marque territoriale à la population et aux acteurs économiques.

Dans ce sens, la destination Maroc est tenue de mettre en place une stratégie globale et intégrée de «marque-Maroc» et de mobiliser les synergies des différents acteurs dans une même vision pour la promotion de l'image du Maroc, cette stratégie devrait être axée sur une approche inclusive pour éviter la fragmentation des efforts et leur essoufflement.

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Development of Hydrogen Fuel Production as a Prospect for Establishing Technological Competitive Advantages of Russia

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Abstract

Hydrogen fuel production is a high-tech industry, a domain of technology entrepreneurship. One of the world priority areas is an automobile manufacturing, including production of hydrogen vehicles. Development of technology entrepreneurship in the field of hydrogen fuel production is a promising direction aimed at establishing a competitive advantage for Russian economy. The major results obtained as part of studies are as follows: 1) barriers hampering the development of technology entrepreneurship in the field of hydrogen fuel production for automotive transport were determined; 2) the most promising directions of hydrogen fuel production aimed at facilitating progress of technology entrepreneurship in this field were determined and described using the basic components of the theoretical model of technology entrepreneurship developed by I. Prodan.

Keywords: technology entrepreneurship, hydrogen fuel, green cars, a competitive technological advantage.

Introduction

In the face of natural resource deficiency every country feels a need to hasten the solutions for clean energy generation with alternative sources of energy.

At present in some countries alternative sources of energy already contribute to a quarter of all generated power. For instance, according to International Energy Agency (IEA, 2015) the leading positions in developing the domestic market of alternative sources of energy are taken by Island (IEA share – 25%), Denmark (20,6%), Portugal (18%), Spain (17,7%) and New Zeland (15,1%).

The most promising alternative fuel source is hydrogen. Its main advantage is eco-friendliness (water is the product of hydrogen combustion). In Russia hydrogen is applied in various industries (ERI RAS and ACRF, 2013), such as chemical and petrochemical industries, metallurgy, organic synthesis, food processing, aerospace industry, and glass industry. Potential applications of hydrogen are transport (internal combustion engine), power engineering (gas turbines), electro-chemical industry (fuel cells). The overall world production of hydrogen in 2013 was estimated to be 55-58 million tons, including 8% or 4.5 million tons of Russian share (Ogrel, 2014, p. 20-21). In the last years hydrogen production in Russia has undergone significant changes (Ogrel, 2014). Hydrogen production for chemical industry tends to decline gradually (from 80% to 70%), while its production in petrochemical industry increases significantly. Alongside with it, a triple increase in hydrogen demand is registered in glass industry in 2004-2013. According to Creon Energy (2015), in 2013 the major consumers of hydrogen were chemical industry (hydrogen consumption share – 68%), petrochemical industry (22%), while other industries using hydrogen in their production processes

accounted for only 10%. By 2020 a double increase in hydrogen consumption is projected in all aforementioned areas, though the use of hydrogen as a fuel in transport is projected to be low.

Use of hydrogen as primary or backup fuel in automobile industry opens prospects for its use as a major energy source. Nevertheless, currently, on the Russian market there are no companies, providing mass supply of hydrogen as a car fuel, though aerospace industry has experience in developing infrastructure for production, storage and transportation of liquid hydrogen (Malyshenko, 2010). Moreover, development of advanced Russian technologies in the automotive field (e.g. hydrogen motor fuel and fuel cells) is not encouraged.

On the other hand, hydrogen transport energetics is a constantly developing sector of international automobile concerns. For instance, Mercedes-Benz, Honda, DaimlerChrysler, General Motors, Ford, Toyota use 50 kW Ballard fuel cells to energize power units in civil transport (Ballard Power Systems Inc., 2015).

Therefore, by contrast with other developed countries Russia has not developed yet a concept for production and use of alternative motor fuels, which complicates development of home car manufacturing and motor building, as well as greening motor vehicles. Though playing an important role in the economic life, motor vehicles are some of the major factors responsible for air pollution due to the fact that currently transport fuels contain 95% of petrol and diesel fuel, made of oil products. Combustion products of oil fuels are harmful substances and greenhouse gases.

According to the Ministry of natural resources of Russian Federation (State Report, 2015), vehicle emissions slightly reduced from 2007 to 2014 (by 7, 1%) and amounted to 13621, 6 thousand tpa in 2014, or 43,8% of overall emissions by Russian fuel consumers. About 75% of emissions are carbon oxide (CO), about 11-12% is volatile organic compounds (VOC) and nitrogen oxides (NOx). Carbon dioxide emissions amounted to over 10554,6 thousand tpa by 2014, which is 30% of overall emissions in Russia. The total number of registered buses, cars and trucks increased by 24, 2% from 2010 to 2014 and amounted to 50500 thousand in 2014. On average, the car park annually increases by 5%. According to «Avtostat Info» LLC (Avtostat-info, 2015) the car park in Russia, as of 01.01.2016, increased significantly (by 6,3%), i.e. by 1 million 279,9 thousand, having reached 40 million 629,2 thousand.

The growth of vehicles will cause annual increase of vehicle emissions by 3-5% provided that the existing structure of the vehicle fleet does not change.

Assessment of environmental damages sheds a new light on the use of various fuels especially in metropolises, where emission reduction is an urgent problem. Adverse environment resulting from harmful activity of transport, rapid development of transport system and growth of vehicles, make it necessary to consider environmental issues when justifying the need for taking innovative decisions and choosing new technologies. In the context of environmental degradation in densely-populated areas and global warming, clean technologies become a top priority in developed countries, which have adopted state-run programs aimed at developing alternative sources of energy (e.g., EU countries, the USA, Japan, Great Britain). Alternative fuels have a range of advantages: complete combustion with a maximum heat release; minimum formation of toxic and corroding agents; convenient transporting and storage; applicability in different climate zones; relatively low cost of production. Thus, a radical way to reduce vehicle emissions is switching to hydrogen. Prospects of hydrogen energetics in transport depend, primarily, on successful development and production of fuel cells. Therefore, an urgent task is to determine the most promising directions for hydrogen fuel development which could compete with conventional motor fuels. Fuel cells allow converting the chemical energy of hydrogen into electricity with 60-70% efficiency output and its subsequent conversion into mechanical energy with over 85-90% efficiency output. As a result, the efficiency of the wheel can be about 50-65%. By contrast, efficiency output of the most powerful diesel car with a blown engine and intervening cooling does not exceed 50%, and efficiency output of a car running on

petroleum is 30% and less. In fuel cell cars hydrogen can be in two states: pressurized at 200-800 atm. or liquefied (at -253°C) (Bolonkin, 2013).

Obviously, development of hydrogen fuel production is viewed as one of the most promising technological advantage of the Russian Federation. In this regard, an urgent and important task of the state is to create an environment for technology entrepreneurship in the field of hydrogen fuel production for automotive transport. On the one hand, it will modify or radically change the process of hydrogen fuel production using unrealized technological capabilities of a new product or will allow manufacturing old products with a new source of materials supply or finding a new sales market for products due to reorganization of industry. On the other hand, development of the field under consideration depends on successful and up to date encouragement of technology entrepreneurship as a factor for increasing technological competitive advantages of Russian on the world market.

Thus, our research is aimed at determining pathways for developing components of the technology entrepreneurship model for successful hydrogen fuel production as a way to establish a competitive technological advantage of Russia. Next tasks must be completed: identify barriers, hampering development of technology entrepreneurship, assessing the basic elements of its model; determine the prospects for establishing technological competitive advantages of Russia in the field of hydrogen fuel production. In the course of study both a structural and functional method and a method of expert assessment were used.

The theoretical basis the research is concepts of Russian and international scientists on technology entrepreneurship, its structural modelling, and infrastructure development for hydrogen production. These conceptual approaches defined the research paradigm, reflected in the structure of the given article. Behavior of structural elements of technology entrepreneurship in the field of hydrogen fuel production was assessed with a model of technology entrepreneurship. The model allowed determining directions contributing to elimination of barriers which hamper development of technology entrepreneurship in the area of production under consideration.

Practical relevance of the research results lies in the fact that the specified directions for developing hydrogen fuel production will increase the number of consumers of green fuels and enhance the role of environmental factor when choosing systems of hydrogen fuel supply. The research results can be used by government agencies to work out measures for development and promotion of hydrogen industrial infrastructure for the transport system in the framework of the national program “Hydrogen energetics”.

Literature Review

An important contribution to the theory of technology entrepreneurship was made by researchers studying entrepreneurship as innovation (Schumpeter 1976). Some aspects of technology entrepreneurship are described by authors developing theories «based on new technologies of firms» (Shane and Venkataraman, 2003). Development models of technology entrepreneurship were studied by Brem (2011), Brazeal and Herbert (1999), Prodan (2007). The issues on developing hydrogen production infrastructure are discussed in scientific works of Lipman (2004), Levene, Mann, Margolis and Milbrandt (2005), Simbeck and Chang (2002), Amos (1998).

Despite a considerable body of works on certain sides of entrepreneurship, hydrogen production technologies, and their uses in manufacturing process, it must be noted that the issues of developing technology entrepreneurship in the field of hydrogen production infrastructure for transport and the role of government regulation of this production field are understudied.

Our research is driven by a necessity to identify barriers, hampering development of technology entrepreneurship in terms of developing hydrogen fuel market, as a promising competitive technological advantage of Russia and to determine strategic pathways for developing this field.

Results and discussion

Let us assess barriers and prospects for developing technology entrepreneurship in the field of hydrogen production.

It must be noted that technology entrepreneurship is defined as (The Canadian Academy of Engineering, 1998) innovative application of scientific and technical knowledge by one or several persons who start and operate a business and assume financial risks to achieve their vision and goals. Nowadays, some countries (Korea, Japan, the USA) consider investments in prospective research (i.e., in technologies of the future) and development of human assets to be their top-priority. Consequently, these countries invest more in R&D than other countries (2–3% of GDP). According to Global R&D Funding Forecast (R&D Magazine, 2010, p. 5) the USA spends 2,7%, Korea – 2,6%, Germany – 2,3%, Great Britain and Canada – 1,9%, Japan, Sweden and Israel 3,5–4,5% of GDP. Therefore, these countries have technological competitive advantages in future growth areas, e.g., green technologies, health, climate protection, power, mobility of human capital assets. In Russia, however, R&D expenses amount to only 1,3%. Thus, development of technology entrepreneurship requires substantial fund-raising into R&D from business. The main provision for increasing investment is de-risking. Analysis shows that there exist the following barriers for developing technology entrepreneurship in the field of hydrogen fuel production in Russia:

1. Absence of normative-technical and administrative legal base, specifying requirements for car manufacturers and fuel corporations.

2. Absence of infrastructure enabling car manufacturers to improve technology and launch on the market eco-friendlier cars.

3. Unstable economic health of the Russian car industry, experiencing financial losses in a down economy.

4. Unwillingness of native consumers to buy Russian cars.

5. Unwillingness of investors to deal with start-ups.

Apart from the above specified barriers, influencing manufacturers' and investors' performance, it is necessary to know end-consumers' opinion. In this regard, potential end-consumers of hydrogen cars in Russia were questioned. The next results were obtained: about 70% of respondents acknowledge the advantage of using hydrogen cars as compared to cars running on petroleum and diesel fuel. More than 50 % of respondents expressed their willingness to buy a hydrogen car, if it is to be sold at a reasonable price. The respondents also pointed absence of infrastructure as a factor hampering a large-scale use of hydrogen fuel.

To identify prospects for developing technology entrepreneurship in the field of hydrogen fuel production in Russia, let us present it as a logic chain considering basic components of the theoretical model developed by Prodan (2007).

Let us consider the entrepreneur, involved in hydrogen fuel production. Firstly, he/she must have a degree in both Engineering and the Humanities. Currently, most Russians have an opportunity to simultaneously enroll for two degrees, as well as to self-study. Equally important for a first-time entrepreneur is his/her background, because living environment and family traditions markedly affect he/she way of thinking and action when doing business. Entrepreneurial activity also requires skills to identify other people's necessities, quickly establish contacts and promptly respond to ongoing changes. Another valuable characteristic of an entrepreneur is team-building skills.

The next component of the technology entrepreneurship model is a university. Universities are basic producers of young and ambitious innovators. Besides, universities, generally, become the first and

sole base for most start-ups. Today, the largest Russian universities provide an opportunity for first-time entrepreneurs to manifest him / herself, creating business incubators, holding contests of innovative and business projects.

Although business incubators can be set up by different establishers and guided by different principles, including a commercial base, generally, the next scheme is used: the key founder of a business incubator is a university; a business incubator is set up to facilitate establishing spin-off companies, commoditizing the results of intellectual activity of the university teaching staff and students (Lendner and Dowling, 2007); the legal status of a business incubator is a non-profit partnership. This scheme is usually employed to set up business incubators in Russia within the framework of competitions held in accordance with the government initiatives, particularly, Decree of the Russian Government № 219 of April, 9th, 2010. Let us consider the research made by Rogova (2014), assessing the efficiency of technological transfer via business incubators. The study considers only business incubators set up by universities. Let us describe the author's methodology. Forty one questionnaires were distributed; twenty seven were answered, although in most questionnaires the managers did not answer all questions. The data were obtained in business incubators located in eight Russian cities. Most respondents were from Moscow and St. Petersburg, while some respondents were polled in Nizhniy Novgorod, Saratov, Krasnodar, Chelyabinsk, Tomsk and Novosibirsk. The results obtained are as follows. Firstly, assessment of efficiency (survival criterion) showed that six business incubators are efficient. Secondly, all business incubators present themselves as non-profit organizations, which is conditioned by particularities of Russian legislation. It also explains venture capitalists reluctance to invest in business incubators. Thirdly, most business incubators are not specialized, which allows mitigating commercial risks. On the other hand, it does not provide sustainable transfer of knowledge and technology, which are considered to be the key strength of engineering universities. Moreover, irrespective of the university specialization, most residents of their business incubators develop IT-projects. It is reasonable because such projects do not require substantial investment and special equipment. However, innovativeness of these projects can be low. Business-incubators in Russia (over 300) are relatively young. Business-incubators in Russia learnt to support start-ups, but are not yet efficient instruments of technology transfer.

High-technology production can be financed in different ways. Firstly, a grant can be obtained from different state and non-state funds. It is considered to be the most flexible method for project development. Secondly, a loan can be borrowed from a bank. Despite high risks, there are now various programs supporting small and medium businesses. In Russia there is also an efficient instrument for financial backing of technological entrepreneurship. Finances can be obtained both at the initial stages, when entrepreneurs have only a though-out plan, and later, when they have developed a project.

Prior to dealing with investors it is necessary to study the market and companies specializing in the same field. It must be noted that the major players on the hydrogen fuel market in Russia are enterprises which produce and consume hydrogen for their process requirements. There are also companies producing hydrogen for selling it on the target market (mostly as hydrogen peroxide, used in medicine). However, on the Russian market there are no companies producing hydrogen fuel, as well as there are no pre-conditions for setting up any companies of the kind in the nearest future. If any companies producing hydrogen fuel were set up, hydrogen could be supplied by Russian large chemical enterprises. These enterprises have a proven technology of producing clean and cheap hydrogen.

Another important component of the model is a state, initiating hydrogen fuel production. To support start-ups a large-scale project «Special economic zones (SEZ)» was launched in Russia in 2006. There are 18 zones on the territory of the Russian Federation so far. The administration company of each zone provides help to its residents at every stage of a project implementation. There are three types of special economic zones: industrial, innovative and tourist. Let us consider assistance lent by industrial and innovative zones to their residents. Industrial zones provide residents with necessary technologies and equipment, allot production areas, and provide telecommunication services and energy supply. Whereas, for innovative zones IT-services are provided in addition to the above

mentioned services. To become a resident of a special economic zone it is necessary to undergo a selection procedure. Firstly, you must apply on-line to acquire residency status, and submit a business plan and all necessary papers. After the application processing and its approval a project is to be defended before the Supervisory Board, and before the Expert Board. In case of its approval a trilateral agreement is made between a start-up, Ministry for Economic Development and a special economic zone.

Another way to obtain support is to collaborate with state-run corporations. Particularly, to produce hydrogen fuel it is necessary to cooperate with such organizations as Rosnanotech, Rostech and Rosatom. These corporations actively cooperate with small innovative businesses.

Assessment of elements of the technology entrepreneurship model in Russia designed for hydrogen fuel production showed that, in general, conditions for development have been created. Currently, some technologies for producing hydrogen fuels in Russia are being tested in laboratories, and some have already been mastered (e.g., electrochemical, chemical and physical). Moreover, conditions for developing R&D have been set, which enable catching up with rapidly developing world innovative technologies. Consequently, it is necessary to determine basic directions for developing a model of technology entrepreneurship in Russia in the field of hydrogen fuel production, namely, developing state policy in terms of hydrogen technologies. The policy will be intended to integrate national institutes and enterprises into the world market of hydrogen technologies. Thus, a national program on developing hydrogen energetics is required concerned with infrastructure development of hydrogen production for transport. The implementation of the program will include the following: creating manufacturing and storage infrastructure ensuring switching to liquefied hydrogen to power cars; developing new methods for producing hydrogen used as a fuel for large-scale consumption; promoting Russian technologies in the field of hydrogen fuel production for hydrogen cars; large-scale production of cars powered by hydrogen; developing a network of fuel filling stations; successful competition of hydrogen cars, i.e. production of cheap, high-temperature fuel cells; developing facilities for long-storage of hydrogen; production of different kinds of hydrogen vehicles. The program must also include a state target financing of fundamental and applied research and developments in the field of hydrogen production. Obviously, the program aimed at encouraging non-state companies invest in developing Russian hydrogen industry must be supplemented with a range of regulations, able to protect property rights and coordinate relationships of the agents of the hydrogen fuel market and quality of fuel.

Conclusion

A competitive technological advantage of Russia stems from mastering technologies for creating energy-efficient engines, engines for transport systems and other hydrogen technologies essential for Russian economy. It requires the establishment and implementation of a mechanism for developing hydrogen energetics including enterprises for producing hydrogen fuel, fuel cells and vehicles powered by hydrogen fuel.

Therefore, the mechanism for developing hydrogen energetics must be presented in the national program “Hydrogen energetics”. Let us consider its basic characteristics. Firstly, we need a national program, developed and implemented at the initiative and under the supervision of the President of the Russian Federation, approved by the Federal law, with guaranteed allocation of resources, and state control over efficient use of the resources. Secondly, the program must be complex. It must involve fundamental research on key problems; applied research, design and development activities on production, storage, transportation, and use of hydrogen and fuel cells in different fields, and their safety; a total of innovative projects aimed at mastering hydrogen production, production and maintenance of fuel cells; a total of support subsystems, mostly, a subsystem for managing implementation of the program and coordination of its participants’ activities, i.e., customers, research supervisors and realizers; regional and municipal bodies, interested in the implementation of the program and its large projects (including facilities for pilot testing of the program); customers, scientific and Executive Heads (international level – joint programs of interested CIS member states,

as well as bilateral or multilateral programs and projects with the countries outside CIS – the EU, China, India, the USA, Japan, etc.). Implementation of the program requires establishing a management company, and, in the long term, establishing an international strategic technological alliance or an international consortium. Thirdly, development and implementation of the program must be based on innovative partnership of government, science and business. The state must be responsible for developing a long-term strategy and a program, upfront investments in large research and innovative projects, providing fiscal and customs incentives for participants of the program, organizing international cooperation, protecting intellectual property, stimulating inventors, and patenting. The academic community — Russian Academy of Science, university scientists, civic academies, research and design organizations must build creative teams, including scientists and students from universities, able to develop competitive, advanced technological processes and facilities necessary for projects implementation. Large and small companies must monitor and develop new promising markets, actively participate in commercialization of new ideas, their innovative development, finance development and application of hydrogen technologies. Fourthly, the programs must be financed from different sources, meeting the requirements of modern pioneering market economy. A national innovative-investment fund might be established, accumulating budgetary resources allocated to the program and non-budgetary foundations, private companies, as well as funds raised through the stock-exchange market issuing and allotting shares of the fund or management companies. We also need venture funds supporting small and medium enterprises developing hydrogen energetics in regions. Fifthly, we need legal and regulatory bodies for development and implementation of the program, passage of federal law and other regulations; development and passage of the federal law on the national program "Hydrogen energetics", regulating the order of development and implementation of the national program, as well as the mechanism of its financing, government support and implementation; Decrees of the President of Russia and RF Government Decrees, regulating the order of development, implementation and government support of the program and projects; interstate agreements on developing and implementation of international programs and projects. Development and implementation of the national innovative hydrogen program will ensure practicing the mechanism of state influence on key directions of innovative breakthrough.

A large-scale application of hydrogen as an alternative energy resource is possible only under developing technology entrepreneurship in the field of hydrogen fuel production, able to provide Russia and other countries with cheap and clean energy. Development and implementation of the national program "Hydrogen energetics" will, on the one hand, allow utilizing hydrogen use in various industries. On the other hand, it will attract foreign investments able to change the structure of hydrogen production in Russia, namely, to build enterprises for producing hydrogen fuel, industrial installations and vehicles.

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Romania: did it integrate or not?

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Abstract

Through economic integration we are referring to a complex process, characteristic to the contemporary step of society development which consists in essence in intensifying the interdependence among different states, process which is conditioned by an assemble of factors of which an important part is the technical-scientific revolution.
This concept is best seen in the European Union out of which Romania is a member of since January the 1st 2007. In this article I want to analyze if Romania since entering the European Union did integrate on an economical level or not by comparing a series of the country's indicators to the ones in some developed member states. If not I will identify the problems Romania has and propose several solutions in order to achieve this faster.

Keywords: economic integration, European Union

Introduction

Extending the European integration means geographical extension (or vertical integration) and consists in new members adhering to the European Economic Community (EEC). Under this aspect the integration process took place in five successive waves of adherence, the geographical integration steps being indicated below:

- The founding members: 1957 – Belgium, France, Germany, Italy, Luxembourg and Netherlands;
- The first extension: 1973 – Denmark, Ireland, Great Britain;
- The second extension: 1981 – Greece;
- The third extension: 1986 – Portugal, Spain;
- The fourth extension: 1995 – Finland, Sweden, Austria;
- The fifth extension: 2004 – Cyprus, Czech, Estonia, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Hungary;
- The sixth extension: 2007 – Bulgaria, Romania;
- The seventh extension: 2013 – Croatia.

According to the report made by the National Prognosis Commission (2003) the process of in depth European integration (or vertical integration) began in 1950s and considers the following aspects:

- The progressive increase of the common objectives on which the Member States decide to realize together by extending the common policies areas;
- Enforcing the supranational character of the Community through the extensive use of the majority vote system (instead of the one existing on the

Council level based on unanimity), through which there are represented the national interests of each Member State, also by enforcing the role of the European Parliament (where are directly represented the European citizens)

- Through economic integration we can refer to a complex process which is characteristic to the contemporary step of society development which consists of in the intensification of the interdependencies amongst different states, process which is conditioned by an ensemble of economic factors.

B. Balassa (1961) considers the economic integration as process and a situation, as a set of measures to made in order to abolish discrimination between economic units belonging to different participating countries, assuming the absence of any form of discrimination between the respective national economies. By the same author, the total economic integration, requires monetary, fiscal, social unification of the countercyclical policy and requires the establishment of a supranational authority, whose decisions must be binding for the Member States.

J. Csillaghy (1965) deems the economic integration as the entry of an additional entity into an economic grouping, in a particular economic system and highlights the fact that it is quite difficult to achieve the integration of two different economic systems and maintaining the contradictory characteristics of each of them.

The economic integration is a high level of economic exchanges. The social integration represents the unification process from the masses, to specific groups of elites. The political integration has a variety of phenomena, including international decisions, similar attitudes among Member States.

The economic integration involves removing economic banks of two or more countries, barriers which in turn can be defined as representing any obstacles that distorts the mobility of the production factors. The European experience shows that the efforts made in order to eliminate all economic barriers eliminate the distortion that occurs at the level of single markets. These distortions are caused by differences in quality of infrastructure, the development level or the existence of industrial settlements that continue to manifest after removing economic barriers.

The stages of economic integration

1. Free Trade Zone

This is an area within which customs duties and quantitative restrictions to trade (quotas) were suppressed. The products can move freely and without quantitative restrictions inside the zone without paying customs duties when crossing internal borders of the area. The downside is that in such an area there exists the phenomenon of diversion of traffic goods for certain products originating in third countries merely to transit through the countries of the area who practice poor customs duties, to take advantage of the taxation regime on the border most favorable. To avoid these hijackings there was necessary a transition to the next stage of integration: Customs Union.

2. Customs Union

It talks about the customs union because when states have abolished customs duties and contingencies not only among themselves, but they also created a tariff (or external tariff) and a common commercial policy. The customs tariff is calculated by establishing the average of the tariffs applied in the custom territories that are covered by the Community. The first common customs tariff was established in 1968 and is reviewed periodically. To guarantee the free movement of goods and factors of production (capital, workers) only the passage to the third stage in terms of suppressing trade barriers is allowed.

3. Common Market

It speaks of the common market where goods, people, capital, services (transport, banking, insurance, stock exchanges) free movement in the market concerned - it evokes the 4 fundamental rights in the common market. Common market involves the application of rules and common legislation, in fiscal matters or in competition for example. It also assumes the existence of common sectoral policies, for example in agriculture or in transport.

A short description of the EU – Romania relationship

According to Daianu and Vranceanu (2002) the efforts made by the Romanian authorities for adhering at the European Union took place in an institutionalized framework since February 1993, the date of signing the Accession Agreement. In June 1995, Romania has officially submitted its application for membership. A first evaluation of the fulfillment of criteria was made by the EU in Agenda 2000, adopted in July 1997. In December 1999 the European Council decided to open the accession negotiations with the so-called "Helsinki group" consisting of 6 countries, amongst which was also Romania.

Regarding the adhering strategy, the most important event was adopting the Economic Strategy on the Medium term; in what concerns the compatibility with the EU regulations, the most important event was the beginning of negotiations regarding several chapters. Amongst a number of 31 negotiation chapters, Romania has finished the negotiations at 5 of them: small and medium companies, education and youth, knowledge and research, competition. it follows that in the beginning chapters to be negotiated relatively mild, leaving the thorny issues - such as agriculture - by a further approach.

The report of the European Commission from 2000 on Romania is critical on some aspects. Corruption is considered as being widespread, the pace of work of the legislature is low and the decisions made by the government lack coherence. Regarding the economic criteria, there were observed some positive results (a slight economic growth, an export growth, a fiscal deficit reduction); however, delaying the structural forms makes Romania not be seen as a functioning market economy. Regarding the adoption of the acquis communautaire, the report considers that Romania made some improvements to the legislation on competition, protection of

goods and copyright and transport. The limited progress – according to the report - was registered at the freedom of movement of goods, persons and capital, and social protection policies to fight unemployment; at the same time, more progress is needed in environment, agriculture, telecommunications, information technology and consumer protection.

The Romanian economy before integrating in the EU

According to the report made by the National Prognosis Commission from Romania (2006) the GDP per capita through the fact that it sums the result of the value added in all sectors – including the balance relations with foreign countries - reported to the number of population, represent without a doubt the most aggregate indicator for the economic development level of a country. This is often used in international comparisons, sometimes even to the point when they overlap.

Disregarding its valences that are in discussion for revealing the economic performance it should be noted, however, that this indicator suffers from some shortcomings. These are not related in such a great measure to the so its own attempt to evaluate from a single point of view a complex phenomenon, such as the economic development, but especially on account of its expression as a single currency when using official exchange rates, which doesn't consider the purchasing power of national currencies in the different states. As such, in order to mitigate the impact of these deficiencies, the gross domestic product was analyzed in US dollars purchasing power parity (PPP), which, with all the imperfections coming from the adjustment of exchange rates, helps to the sensitive increase of the inter-country comparability, and measuring its relevance, partially reflecting the standard image of life population.

Examining the hierarchy of states by the level of this indicator this reveals that the first place is owned by far the Luxembourg, with around 66 000 $ / person. Ireland occupies a surprising second place with about 40 000 $ / person (With over 40% of the EU25 average), in case of this state the speed through which the recovery of the gaps that existed two decades ago is remarkable (when it was listed, for example, below Italy in this regard). This fact could be explained by the high rate of economic growth (between 5 and 10% annually in the 1990-2005 period of time, rate of about 5 times higher than the EU 15 average). This is mainly supported by the main fiscal framework facilities and the massive influx for foreign investment. The big EU countries (UK, France, Germany, Italy, Spain) are focused on a range of indicator between 26-30 thousand $ /person., being noticed an approach of their level of development in the recent decades, with a special remark for Spain's rapid rise, due to Structural funds it drew from the EU.

Regarding Romania, the level of 8200 $ of GDP (in PPC) / person in 2005 represents less than one third of the EU 25average of $ 26.900. As seen from the data presented in Table 1, the Romanian development gaps revealed by this indicator remain significant both in relation to the developed countries of the EU (of 1/8 towards Luxembourg, 1/5 towards Ireland, 1/4 towards Austria, Denmark and the Netherlands, 1 / 3.5 compared to France and Germany, etc.) and in relation to

some Member States in Central and Eastern Europe (1 / 2.5 towards Slovenia and the Czech Republic, 1/2 towards Hungary and 1 / 1.5 towards Poland Baltic countries).

Table 1. The gap between the GDP of the EU Member States in 2005

Country	Gap	Country	Gap	Country	Gap
Luxembourg	8.1	France	3.5	Czech Republic	2.4
Ireland	4.9	Germany	3.5	Malta	2.3
Austria	3.9	Italy	3.4	Hungary	2.1
Denmark	3.9	Average EU25	3.3	Slovakia	1.8
Netherlands	3.9	Spain	3.2	Estonia	1.7
Belgium	3.8	Greece	2.8	Poland	1.6
United Kingdom	3.7	Cyprus	2.8	Lithuania	1.5
Finland	3.6	Slovenia	2.5	Latvia	3.6
Sweden	3.6	Portugal	2.4	ROMANIA	1.0

Source: Evaluarea Stadiului de Dezvoltare Economico-Sociala a Romaniei comparativ cu alte tari - studiu elaborat de CEROPE in cadrul Programului Phare Ro 2003/005-551.02.03

Reducing the gaps and the regional disparities of Romania in this regard depend, on the acceleration of the rate of the economic growth, accompanied by a balancing of growth factors, including in territorial profile, primarily by increasing the contribution of gross capital formation, supported by the domestic saving and the EU transfers. By achieving an average yearly rates of 6-7%, sustainable on the long-term, the calculations indicate that Romania could equal the European average GDP / capita in a time frame between two and three decades (assuming that the average rate of the annual growth for the whole EU25 not exceed 2 to 3%).

The Romanian economy after integration

According to Angelescu at all (2004) the perspectives of the Romanian economy after integration are based on the assumption that the government will continue its stabilization program and will increase the pace of the reform.

Operating as a single market with 28 countries, the EU is a major trading power in the world.
The EU economic policy aims at maintaining sustainable growth with the help of the investments made in transport, energy and research. Also, it tries to reduce the impact that future economic development might have on the environment.

Currently, the EU economy - taking into account the goods they produce and the services they provide (GDP) - is larger than the US economy: the EU's GDP in 2014 was 13,920,541 million dollars.

The dispersion of GDP per capita between the EU Member States remains quite surprising as we can see in Table 2.

Table 2. The GDP per capita for Europe

	Gross Domestic Product		
	2008	2009	2010
Luxembourg	279	266	271
Netherlands	134	132	133
Ireland	133	128	128
Denmark	125	123	127
Austria	124	125	126
Sweden	124	119	123
Belgium	116	118	119
Germany	116	116	118
Finland	119	115	115
United Kingdom	112	111	112
EU – 17	109	109	108
France	107	108	108
Italy	104	104	101
Spain	104	103	100
Cyprus	99	100	99
Greece	92	94	90
Slovenia	91	87	85
Malta	79	82	83
Portugal	78	80	80
Czech Republic	81	82	80
Slovakia	73	73	74
Hungary	64	65	65
Estonia	69	64	64
Poland	56	61	63
Lithonia	61	55	57
Latvia	56	51	51
Romania	47	47	46
Bulgaria	44	44	44
Norway	192	176	181
Switzerland	143	144	147
Island	124	118	111
Croatia	64	64	64
Turkey	47	46	49

Source: Data gathered from Eurostat, 2010

As in previous years, Luxembourg has the highest GDP per capita of the 32 countries, holding the detached leadership, with a GDP of two and a half times higher than the EU27 average and 6 times higher than the one of Bulgaria, which is

the poorest EU Member State in relation to this indicator. A special feature of the Luxembourg economy that explains, to some extent, the GDP per capita being high for this country, is that a large number of foreign residents are employed in Luxembourg and therefore they contribute to the country's GDP, while at the same time, they are not included in the resident population.

Netherlands ranks on the second place among the EU Member States, having a GDP with 33% higher than the EU-27 but it is overtaken by Norway and Switzerland, the European Free Trade Association States. Ireland maintains its position among the richest EU member states, but there is a clear downward trend between 2008 and 2010. This can be explained primarily by its nominal GDP growth, which fell by over 13% in that period.

Other EU Member States which in 2010 had a GDP per capita of at least 20% above the EU level were Denmark, Austria and Sweden. Belgium and Germany were about the same level, followed by Finland and the UK, while France is way ahead of Italy and Spain, the latter two having similar levels for several years.

Cyprus, which in 2010 had a GDP per capita slightly below the EU-27 average remained ahead of Greece, which has suffered from the economic crisis in 2010. Slovenia, Malta, Portugal and the Czech Republic are grouped around the level situated approximately of 20% below the EU27 average, well above the levels recorded by Slovakia, Hungary, Estonia, Poland and Croatia (one of the candidate countries for accession to the EU) which are situated at a level of about 40% below EU-27 average. Poland recorded a clear improvement in its relative position, while Lithuania and Latvia, on the other hand, report a decrease respective GDPs per capita between 2008 and 2010.

Romania and Bulgaria have GDPs per capita is slightly below 50% of the EU27 average.

Conclusion

This article tries to see if Romania did integrate in the European Union on an economical view. For this in my analysis I used as an indicator the GDP per capita for Romania which I compared to the same indicator in other countries from the European Union in the period before Romania's integration and after.

In conclusion I can state that this mechanism of economic integration included: creating a common economic space; free movement of factors of production when there is a common market; resource consumption along with maximum economic and social efficiency; achieving a customs union; implementation of common policies on economic, monetary, financial and social.

The expression "economic integration" can take different meanings according to the context wherein there is used. It may and express varying degrees of economic cooperation in a number of areas such as trade, labor mobility and capital payments, fiscal and monetary policy, social security and coordinate investment planning.

For Romania, joining the EU represented a strategic option having the acceptance of the political forces and the consent of the population's majority being considered the only way of medium and long-term development, in accordance with the national interests and objectives of the trends of globalization of the world's economy, carrying a multitude of costs that are not always accompanied by benefits. Even though at a macroeconomic level the evaluations regarding the financial implications of U.E. accession, theoretically, are strongly positive, however, judging at a microeconomic level this "gains" might, especially immediately after accession, be low, show loss or the impact could be almost zero or insignificant. Romania, through its economic complementarities, history, tradition and spirituality, through its geographical position belongs to the European area. Hence its firm option to join in 2007 at the economic and social structures of the European Union.

From what I observed Romania is still in process of integrating. Although now it is a member of the European Union, this country still has to adhere to the Shengen space and to adopt the euro as its national currency and work on absorbing more structural funds. Now the funding opportunities from both sources: national and international are insufficient used. These funds can be used to further develop the industry, the research domain, the transportation and the agriculture.

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Social Services, Social Impact and Accountability: Fostering Private-Public Partnerships

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Abstract

In addressing social and economic demands more efficiently in the current economic environment, many governments are currently promoting a collaborative effort between the government, social organisations and the private sector in providing social services. In fostering the public-private partnerships, there is a need for an assesment tool for the private sector as well as the goverment to assess the social impact delivered by the social organisations. The social impact assessment tool can be used by the private sector in making their funding decisions, such as the amount of funds, selecting social organisation or portfolio of social organsiations and monitoring the social impact delivered. This study proposes a mixed method approach by integrating financial and non-financial measures in assessing the social initiatives performance assessment of the social organizations. The assessment approach contributes; (1) provide opportunities for the social organisations to demonstrate their accountability in delivering their social services and (2) provide performance management tool to the management of the entity in identifying the component to be strengthened in improving the delivery of their social impact and (3) used by the private sector and government in making their funding decisions, such as the amount of funds, selecting social organisation or portfolio of social organisations and monitoring the social impact delivered. Overall, the social initiatives performance assessment can potentially be a very useful tool to heighten social progress by creating a space for innovation in terms of positioning public services that meets the needs of the local society, as opposed to centralised governmental public policies.

Keywords: Social Impact, Social Services, Accountability, Public-private Partnerships

1. Introduction

The provision of various types of social services such as healthcare, social care, transport and waste collection are crucial for effective functioning of any communities. In many countries, social services have traditionally been provided by the government. However, the current challenging economic environment reduces the availability of funds and sustainability of organisations involved in the provision of social services. In response to this, many governments are finding new and more efficient means of providing these services. In this context, the Malaysian government has recently launched a pilot project, the *Berbudi Berganda Social Impact Innovation Challenge,* where social organisations were invited to propose fresh solutions for social issues in three areas: Youth Unemployment, Homelessness and Elderly Care (www.kualalumpurpost.net). The focus on social organisations is also in line with the growing interest globally (Chew & Lyon, 2012) in turning to these organisations or also known as non-profit organisations (NPO) as these organisations are already providing a variety of public services. An added advantage of these organisations is their

greater proximity to the issues on ground, making them a valuable repository of information and solutions, as opposed to centralised governmental public policies.

NPOs are formed not for making profits but rather to create social impact. Social impact can generally be defined as specific outcomes that are focused on reducing or eliminating unfavourable conditions in order to improve beneficiaries' economic standards of living (Kroeger & Weber, 2015; Martin & Osberg, 2007; Westall, 2009). These definitions highlight two important points. First, the current challenging economic environment has increased the issue on sustainability among the NPOs due to diminishing funding from traditional sources and increased competition for these scarce resources (e.g. Chew & Lyon, 2012 and Jiao, 2011). While these organisations can provide a new paradigm in delivering public services on behalf of the government, they need to be facilitated in terms of funding. In raising the source for social financing, the Malaysian government is promoting a collaborative efforts between the government, social organisations and the private sector. The second important point is the need for an assesment tool for the private sector as well as the goverment to assess the social impact delivered by the social organisations. The social impact assessment tool can be used by the private sector in making their funding decisions, such as the amount of funds, selecting social organisation or portfolio of social organsiations and monitoring the social impact delivered.

Currently, there is an array of approaches being adopted by social organisations in measuring their social impact (Arvidson & Lyon, 2014), ranging from pure quantitative measures such as Social Return on Investment and Balanced Scorecards to pure qualitative measures through narratives reporting on how the NPOs have delivered their purpose or mission and the benefits provided to the beneficiaries. While quantitative measures provide very objective measures, the need to monetise organisational outputs and outcomes may pose some challenges as some outputs and outcomes of social organisations may not be traded in a marketplace. In addition, the efforts and costs spend on data collection for these measures may outweigh the expected benefits. On the other hand, pure qualitative measures may lead to opportunistic reporting by the organisations where good outputs and outcomes are exaggerated to influence the relevant stakeholders with consequent negative effects on the reliability and relevance of the information reported. Based on these argument, this paper propose a mix approach for measuring social impact by social organisations that can facilitate them to discharge their accountability as well as meets the decision needs of the private sectors and other stakeholders.

2. Overview of Non-profit Organisations in Malaysia

In Malaysia, NPOs comprised of organisations that are either charitable organisations or societies. There are two main regulatory bodies governing the NPOs, the Companies Commission of Malaysia (CCM) and the Registry of Societies (ROS). NPOs with revenue of more than RM1 million can be registered as companies limited by guarantee and must be registered with the CCM and is held accountable by the *Companies Act* of 1965. For NPOs with revenue less than RM1 million, they must be registered with the ROS, within the Ministry of Home Affairs, and are held accountable by the Societies Act of 1966. NPOs in Malaysia have been classified into 14 broad categories, reflecting the type of social services provided: (1) religious, (2) welfare, (3) social and recreation, (4) women, (5) culture, (6) mutual benefit societies, (7) trade associations, (8) youth, (9) disable (10) education, (11) political, (12) employment associations, (13) general, and (14) others. The Malaysian government is promoting a collaborative effort between the government, social organisations and the private sector. The proposed collaboration can be summarised in Figure 1 below.

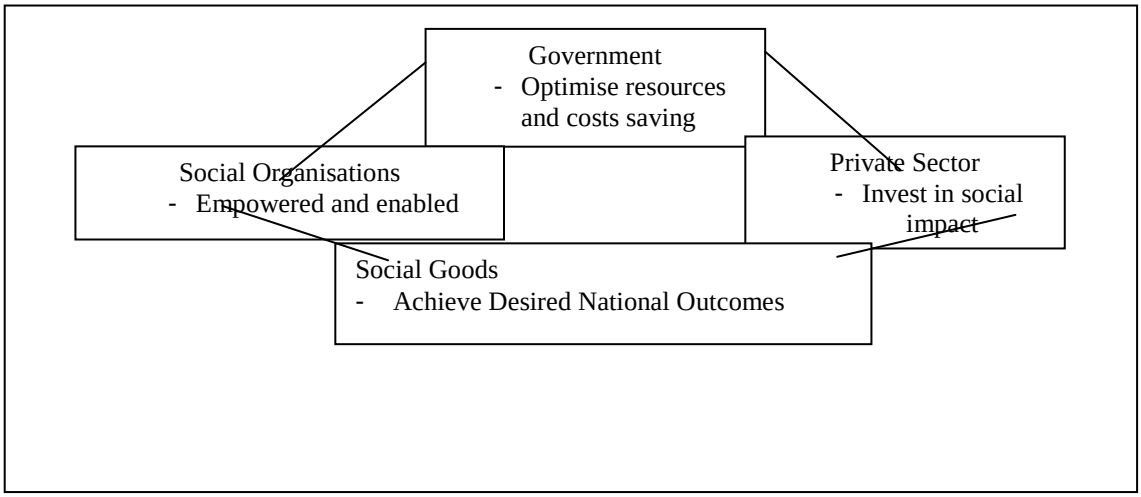

Figure 1: Public-private Partership (adapted: Agensi Inovasi Malaysia, 2014)

3. Social Impact

Resource providers for NPOs are more concerned with the NPOs demonstrating their effectiveness in fulfilling their social objectives. This indicates that resource providers place higher trusts on effective NPOs because these NPOs are expected to have higher accountability and deliver higher quality social services (Ebrahim, 2003; O Berg and Månsson, 2011). A large body of literature on NPOs posits that organisational effectiveness in NPOs is associated with goal attainment, i.e. the ability of the organisation to fulfil its mission (Helmig et al., 2014; Herman & Renz, 1998; Herman & Renz, 2008; Lecy et al., 2012). Epstein and McFarlan (2011) expand the definition of non-profit effectiveness to integrate the delivery of social mission and obtained maximum social impact from expenditures incurred. This definition highlights two important elements. First, social impact refers to "the future consequences of current or proposed actions, which are related to individuals, organisations and social macro-systems". The "future consequences of the actions" refers to the benefits given to the organisation's targeted beneficiaries as a result of the NPO outcomes (Epstein and McFarlan, 2011). For example, in the case of Tsunami aid (2006) – "*RM9.84 million was disbursed for boat repair and purchase of fishing nets, outboard motors and boats but this equipment were not used by the fishermen because they need to have certain skills to operate the equipment"*. In this case, the mission of the NPO is accomplished when the NPO provides fishing equipments to the fishermen (outcome), however, there is no impact from the outcome because the fishing equipments cannot be used. Second, "*obtaining maximum social impact from the expenditures*" refers to the NPOs ability to manage their resources efficiently. This in turn suggests that efficiency is a subset of effectiveness (Epstein & McFarlan, 2011, Helmig et al., 2014 and Lecy et al., 2012). Consistent with this argument, Parsons (2003) defines efficiency as the extent to which NPO devotes its resources in achieving the organisation's mission. Accordingly, Epstein & McFarlan (2011) argue that efficiency is about maximising the returns from the resources, in particular, donations that should be spent specifically for the cause it is intended. Overall, the literature suggests that efficiency refers to how well organisational resources such as donations and grants received are spent towards making an impact on the beneficiaries.

4. Methodology

4.1 Sample and Data Collection

Data for this study was collected from 12 entities that won the capacity building incubation awards of the *Berbudi Berganda Social Impact Innovation Challenge* organised by the Agensi Inovasi Malaysia. The challenge was launched on 1 October 2014. The incubation period was from

January 2015 to May 2015. The main aim of this challenge is to set the foundation for the creation of social groups that produce greater social impact through the delivery of their social mission. Data were collected mainly through partially structured interviews with the key decision-makers of the 12 entities. In some instances and where available, data were also collected based on the review of their annual reports, business proposals and other relevant documents.

4.2 Social Impact Measurement

This study proposes a mixed method approach by integrating financial and non-financial measures. Following Tuckman & Chang (1991), this study considers financial measures as an objective performance measure and it also captures the implicit intent of survival by the NPOs. Tuckman & Chang (1991) further argue that most NPOs attempt to continue meeting its objectives when a financial shock, such as an economic downturn or the loss of a major donor occurs. They identify these organisations as financially healthy while those not able to avoid curtailing their programs and/or services during a financial shock as financially vulnerable. However, due to the limited period of the research and the initial stages of most of the projects engaged by the entities, this study does not include these measures.

The integrated measure in this study is referred to as organisational effectiveness. In general, effectiveness refers to how an organisation successfully achieves its social mission (Herman and Renz, 2008; Spar and Dail, 2002; Sowa et. al, 2004). Effectiveness also incorporates the notion of efficiency, which means spending money wisely and producing measurable results (Andrews & Entwistle, 2013; Helmig et al., 2014). As such, efficiency can be argued to be a subset of effectiveness and in turn infers that organisational effectiveness is an important element in achieving social missions economically (Helmig et al., 2014; Lecy et al., 2012).

The non-financial measures incorporate five main components: input, activities, output, outcomes and impact. These components are summarised in Table 1 below:-

Table 1: Organisational Effectiveness Based on Non-Financial Measures

Inputs	Inputs are all key tangibles and intangibles that are brought into the organization to enable it to perform its tasks. Tangibles: example - cash, personnel, equipment etc. Intangibles: example-mission statement and strategy.	***Outcomes***	The specific change in behaviours and individuals affected by the delivery of these services and products. Example - for a secondary school, outcomes would be such items as alumni outperforming in college beyond what would be indicated by their initial test scores and achievements.
Activities	All specific programmes and tasks that the organization undertakes. Example - fundraising events, social entrepreneur activities such as selling cookies, set up stalls, etc.	***Impact***	Are there benefits to the communities and society as a whole as a result of these outcomes? Example - do our alumni take on important community leadership roles?
Output	Outputs are tangible and intangible products and services delivered as a result of the organization's activities. Example - for a school, it might be the number of graduates (tangible) and type and quality of college placements (intangible).		

4.3 Scoring Organisational Effectiveness

The main purpose of the scoring is to facilitate identification of emerging themes from the organisational effectiveness assessment. First, input is defined as how well the social organisations acquire their resources in order to generate social values for a particular social objective (Lee & Nowell, 2015). Therefore, it focusses on the acquisition of resources both in terms of monetary and non-monetary values. As highlighted by past studies (Berman, 2006; Median-Borja & Triantis, 2007), the input for this study can be summarised into five components:- (1) monetary resources such as grants and donations; (2) staffing and volunteers; (3) mission statements, (4) facilities such as space and trainers and (5) equipment such as ovens and computers. Thus, if the social organisation met all of the five components, this means that the input is sufficient.

Next, the activities under the social programmes are grouped and properly planned so that they are aligned with the social mission of the organisation (Epstein et. al, 2011). The activities of the social organisation consists of three main items:- (1) a list of activities that have intended impacts; (2) marketing strategies to promote the activities (3) a list of targeted participants. If the social organisations have all the items listsed in their activies, it shows that their activities are sufficient, i.e. the success of their activities is portrayed in the output.

The output measures whether the activities of the social organisations achieved the intended targets. The measurement is based on quantitative measures and addresses the number of people that has been served and the number of services that has been offered (Moxham, 2009; Epstein et. al, 2011). For instance, the number of homelessness participating in the programs offered.

The direct results from the output are referred to as outcome. It is a behavioural and environmental change of the target participants caused by the delivery of the social services (Epstein et. al, 2011; Rossi, Lipsey & Freemen, 2004). It measures the success of the activities or programmes in terms of any changes or improvements in the participants' lives. This included securing new jobs and set up new homes. Similarly, outcome is also measured by quantitative in terms of percentage (%), for example, the number of homelessness who have secured jobs.

Finally, results from the outcomes that benefits the society as a whole for a long term effect is called social impact. In other words, it measures the quality of the services given by the social organisations and therefore, it relates to customers' satisfaction (Lee and Nowell, 2015). Additionally, impact in this aspect concerns positive changes in the status of the participants. Thus, this study focusses on the quantitative measurement such as the reduction in the number of homelessness.

Scoring Organisational Effectiveness

Non-financial Measures	Descriptions	Score
Input	**Not available** **met only two components and below*	0
	Available but not sufficient **met three to four components*	1
	Sufficient **met all the five components*	2
Activities	**Not available** **none of the items*	0
	Available but not sufficient **has one to two items*	1
	Sufficient **has all the three items*	2
Output	**Below average delivery** * delivered between 0% to 40%	0

	Average delivery **delivered between 41% to 70%*	1
	Optimum delivery *******delivered between 71% to 100%*	2
Outcome	**Not fulfilled** **fulfilled between 0% to 40%*	0
	To be fulfilled *******fulfilled between 41% to 70%*	1
	Fulfilled **fulfilled between 71% to 100%*	2
Impact	**Below average impact** ** impacted between 0% to 40%*	0
	Average impact ** impacted between 41% to 70%*	1
	Optimum impact ** impacted between 71% to 100%*	2

Based on the above scores, the average total score will be computed. The average total score is ranked as below:

Average Total Score	Rank
1.6 to 2.0	High
1.1 to 1.5	Medium
0 to 1.0	Low

4.4 Findings: Organisational Effectiveness of the 12 Entities

The findings on the organisational effectiveness for the 12 entities are presented in Tabel 2 below**.** The names of the entities are not revealed due to the proprietary nature of the information.

Table 2: Organisational Effectiveness of the 12 Entities

Entity	Inputs	Activities	Outputs	Outcomes	Potential Impacts	Average Total Score
1	2	1	2	1	2	1.6
2	2	2	2	2	2	2
3	2	1	1	0	2	1.2
4	2	2	2	2	1	1.8
5	2	1	1	0	1	1
6	2	2	1	1	1	1.4
7	2	1	1	1	2	1.4
8	2	2	1	0	2	1.4
9	2	2	1	1	1	1.4
10	2	2	1	0	1	1.2
11	2	2	1	1	1	1.4
12	2	2	2	1	1	1.6

Entity 1

The strength of this project is the collaborative efforts with other NPOs that contribute to the inputs of various resources currently available. However, some critical resources such as human capital and structural capital, i.e, all structures and processes needed by members of the projects in order to be productive and innovative to deliver their social mission. In addition, this project has insufficient marketing strategies – not publicised in the media, project not well known by public, probably due to the current capability of the project in order to increase the cash flow of the entity. Overall, the entity's project average total score is 1.6 and ranked high potential impacts even though it is still at an early stage.

Entity 2

This entity has strong network with other NPOs and private corporations in securing various resources. In addition, the entity has also embarked on several business activities to achieve its outcomes and enhance the potential social impact delivered. The average total score if this entity is 2.0 and ranked high with high potential impacts.

Entity 3

The main issue with this entity is capability in terms of human capital, social capital and structural capital. The current strength of this entity is the availability of a relatively high number of volunteers to facilitate the project to ensure that it remains viable. The entity's average total score is 1.2 and ranked medium even though the potential impacts are quite high.

Entity 4

The entity's strong network with various corporations has led them to be a credible social service provider. With this good reputation, the entity is able to attract volunteers and beneficiaries in facilitating the delivery of its social services. However, the potential social impact of this entity is low as it is highly dependent on public & corporate contributions. Except for this aspect, the entity's average total score is 1.8 and ranked high.

Entity 5

The main issue with this entity is capability in terms of structural capital, in particular the financial capital involved in attracting the beneficiaries is quite substantial relative to the potential impact. However, the establishment of a good networking with influential and knowledgeable volunteers is an added advantage for this entity. The entity's average total score is 1.0 and ranked low with low potential impacts.

Entity 6

The main challenge of this entity seems to be associated with the potential beneficiaries/youths with some social issues. This in turn reduces the potential outcomes and impacts of this project. In addition, the project is also very dependent on government fundings. However, the establishment of a good network with various government agencies is an added advantage. The entity's average total score is 1.4 and ranked medium with low potential impacts.

Entity 7

The main issue faced by this entity is that it is yet to fully embark on providing the social services to the beneficiaries. This is mainly due to its inability to source out for interested beneficiaries. In essence, the entity has the main issue with capability in terms of human, social and structural capitals. However, the entity has the potential impact of benefiting the local community as well as the relevant industry in Malaysia if it can be carried out successfully. Hence, the entity scores 2 for potential social impact but the entity's average total score is only 1.4 and ranked medium.

Entity 8

The entity faces substantial challenges in providing its' social impact – such as procurement for relevant resources, retention of beneficiaries and income generation through its business activities. The entity is currently single-handedly managed and operated. A strong leadership together with a highly committed staff is imperative in order for the entity to provide sustainable social

services. Overall, the entity has various capability issues. However, the social impact of this project will enable the beneficiaries to financially support their families, thereby reducing and eradicating unemployment and enhancing their current living standards. Hence, the social impact of this project is high even though the average total score is 1.4 and consequently ranked medium.

Entity 9

The entity is run by committed and paid members of the organisations. While the entity has the potential to grow, the social impact measurement with regards to reducing youth unemployment may take a longer period to measure. Hence, the entity scores only 1 for social impact but the average total score is 1.4 and ranked medium.

Entity 10

The entity faces issues of commitment by beneficiaries, specifically the selected homeless persons and the inability to provide data of outcomes achieved. The lack of various types of capabilities needed to ensure optimum delivery of services may contribute to the challenges faced by the entity. To date, the entity scores only 1 for social impact even though the average total score is 1.2 and consequently ranked medium.

Entity 11

The entity currently focuses on two beneficiaries. As such, it reduces the potential social impact the project can deliver given the availability of financial capital. Hence, the entity only scores 1 for social impact. However, the entity has the potential social impact of protecting the environment if it can be carried out successfully. The project average total score is 1.4 and ranked medium.

Entity 12

The entity is a well establish NPO and does not face any issues on sustainability as it has a strategic and proper planning to make sure it meets its mission and social impact. With the advantage of having a strong network, highly committed staff, participation of volunteers, skilled trainers, quality training modules and a large network of trainers, the entity possesses many strengths. As such, social services provided through training conducted for the unemployed, underprivileged youths could be carried out smoothly. However, the main challenge is to ensure the youths continue to participate in all the cycles. This reduces the potential impact of the service provided by this project. Hence, the entity only scores 1 for potential social impacts but the average total score is 1.6 and ranked high.

Findings: Emerging Themes

The above review provides evidence on the performance of the entities in achieving their social mission. However, the above findings are based on non-financial measures only due to inapplicability of the financial measures for this study.

Of the 12 entities, 4 entities score high for the average total score even though 2 of these entities only score 1 for the social impact measure. The 7 remaining entities score an average total score between 1.1 to 1.5 and ranked medium while 1 entity has an average total score of 1 and ranked low. Overall, the non-financial measures used in this study allow stakeholders to assess the various components that are interrelated with the delivery of social impacts to the society.

The measurement approach used and findings based on this approach have two main contributions:

- provide opportunities for the entities to demonstrate their accountability in delivering their social objectives, and
- provide performance management tool to the management of the entity in identifying the component to be strengthened in improving the delivery of their social impact,

While the above measurement approach has potential applicability in measuring the performance of non-profit organisations, there are some limitations. The qualitative nature of the non-financial measures provides opportunistic/creative reporting practices that can increase the ambiguity

and reduce the reliability of the information reported. Nevertheless, the measurement method adopted provides some information to relevant stakeholders in making their decisions.

5. Conclusions and Future Research Agenda

The main objective of this study is to examine the social impact measurement for NPOs that can provide relevant information needs to the various stakeholders. There are two main findings based on this study: (1) there are unique challenges with regards to the capability of entities in ensuring sustainability of their social impacts and (2) the social services delivered can potentially add value to the society as reflected in the social impact measurement results. This in turn has several implications: (1) indicates the need for policy makers to strategically support the capability building of this new innovative paradigm in delivering social services if the current status of public service delivery is to be alleviated and (2) increased understanding is required on social impact measurement and management for organisations providing social service directed toward social impact on society. One important justification for such understanding is how social impact measurement and management can be used to balance the demand of accountability by the resource providers and internal performance evaluation and strategy. Even though a mixed-method approach has been justified in this research, there is a need to examine further the various quantitative and qualitative measures as literature on the performance measurement of non-profit organisations highlighted the demand for these measures in providing meaningful information.

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Review of Intangible Valuation Assets Methods in Knowledge Intensive Business Services: The Case of Commercial Archaeology in Spain.

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Abstract

As a Knowledge Intensive Business Services, companies engaged in Commercial Archaeology in Spain, a business sector, little known and little studied, emerged around the boom in civil engineering and the building sector and, like them, has been affected by the economic crisis. The aim of this work is, through a systematic review of the literature, analyze different methods of recognition and measurement of intangible assets applicable to archeology companies, that could contribute to raising the value of this kind of companies, as a tool to achieve sustainable management of these companies.

Keywords: knowledge Intensive Business Services; Intangible Asset Valuation, Sustainable Management.

1. Introduction, objectives and methodology.

Defined as certain highly innovative industrial services with high technological content, Knowledge Intensive Business Services (KIBS) are characterized by a heavy reliance on professional knowledge. They may also be primary sources of information and knowledge (reports, consulting, etc.), or use their skills to produce brokerage services for production processes of customers. They have become very important in terms of competitiveness by providing knowledge to businesses and a differential in its sector (Miles et al., 1995). The KIBS are companies that depend on knowledge or expertise of a specific (technical) discipline and provide intermediate products and services often based on knowledge (Escauriza et al., 2001).

As mentioned above, the main feature of KIBS is highly dependent on knowledge, therefore, much of the value of these companies will be their Intellectual Capital. For this work we rely on the definition by Steward on Intellectual Capital like intellectual material, knowledge, information, intellectual property and experience that can be used to create value (Steward, 1997).

Wealth and growth in the economy today are mainly attributable to Intellectual Capital as the resulting value of all intangible assets (Edvinsson and Malone, 1997) . There is an appreciation that knowledge, common constituent of most intangibles, is an important resource and a powerful factor of production. Intangible assets are non-monetary and without physical substance and have to be used in the production or supply of goods and services assets (García- Merino et al., 2010).

From among the Knowledge Intensive Business Services, companies engaged in the commercial management of Archeology can be considered. This is a business sector, little known and little studied, which emerged around the increase of civil engineering and the building sector in Spain. It has- just like the building sector- been affected by the economic crisis in Spain. At present, this sector is threatened by the lack of public investment and budgetary devaluation which have affected these services. The deadlock that the business model of commercial archeology is suffering due to the economic crisis, has caused its collapse. The decrease in volume of construction in both the public and private spheres involves reducing the number of archaeological interventions. Therefore, there is a need to pivot the view we have on the problem to solve, and how it should be done. In the current model of Spanish Archaeological Heritage management, archeology companies are one of the major players. The crisis in this sector endangers the preservation of our Archaeological Heritage, a nonrenewable good of high social value.

The research being carried out on this topic, is based on the premise that in order to reach a sustainable model of commercial archeology, one of the steps is to determine the value of output produced by archeology companies. To do this, the valuation of intangible assets (which are necessary for the execution of the activity and which generates the activity itself) present in this economic activity arises. The aim of this study is to do a preliminary analysis of a future deep work about different methods of recognition and measurement of intangible assets that could be applied to archeology companies as a contribution to raising the value of the companies engaged in this commercial sector as KIBS, for the sustainable management of this types of businesses.

2. Commercial archaeology in Spain.

Starting in the 1980s, a phenomenon of urban sprawl took place in Spain and saw with it the destruction of a large amount of Archaeological Heritage in cities. In order to protect, preserve and manage the assets of the country, the Spanish Historical Heritage Act was drawn up in 1985. This Act follows the European guidelines set by the European Convention for the Protection of Archaeological Heritage, signed in 1969 and ratified by Spain in 1975 (Querol, Martinez, 1996).

A decentralization process took place with the establishment of the democratic model in Spain which resulted in a State of Autonomies. Through this model, the responsibility for the Heritage management is delegated to the autonomous communities. Under a common legal framework, the Constitution of 1978, the Spanish Historical Heritage Act of 1985 and the relevant Statute of Autonomy, each region produces different heritage management models and publishes regulations that make for a diverse the legislative treatment of archaeological heritage in each Autonomous Community.

As a result of this regulatory change, a new demand around the sectors of civil engineering and construction is created associated with changes in land use promoted by different sectors: public, private or mixed. The enforcement of the laws of environmental and Historical / Cultural Heritage impact, which requires carrying out archaeological work, generates new economic activity.

The government is unable to fund this new demand for liberalization of its archaeological load floor, thus the archaeological activity moves to the business. As a result of this new landscape a number of liberal professionals and companies conducting archaeological emergency interventions have emerged; Conducting surveys, probing, overseeing extensive excavations and monitoring work which has transformed archeology - an activity that had strictly been within the scope of academic and public institutions (universities, museums, archaeological services councils and municipalities and other) - into a commercial activity.

Therefore, the rise of commercial archeology does not respond to institutional planning, but to an impromptu response to the ideological adoption of an Anglo-Saxon neo-liberal model which was a priority in the privatization of services by policy makers following the current vogue in Europe in the late 90s.

During the years of urban growth in Spain and above all with the real estate boom which took place in the country between 1998 and 2007 there was a significant increase in the number of self-employed professionals and companies dedicated to the management of Archaeological Heritage and to the direct implementation of archaeological rescue excavations, also known as “preventive archeology”. The transformation of a discipline such as archeology - which had emerged within the academy – into a business activity was made without planning and with little or no preparation of the new professional archaeologists nor the National and Local Administration technicians in business management.

The rise in entrepreneurship archeology took place in major Spanish cities and spanned 2000 to 2005. The first database of a nationwide survey on business Archaeology in Spanish territory (Parga-Dans, 2010) in 2008 it accounted for 273 companies.

At present the economic crisis has brought about the devaluation of archaeological work; primarily by reducing archaeological emergency measures and secondly by devaluating the budgets allocated to them. Generating this activity is ceasing to be profitable. The number of archeology companies has shrunk by 42% - according to preliminary results of the second national survey of archeology

companies presented by Parga-Dans PhD at the 19th Annual Congress of the European Association of Archaeologists held Year 2013 (Parga-Dans, 2013).

Thus, an emerging knowledge-generating business - such as commercial archeology - whose greatest differential is in the generating of knowledge and in the creation of highly qualified employment has been devastated by the economic crisis.

3. Generating knowledge: by-product or joint product archeology?

In commercial archeology, the product the customer wants is the favorable binding report of the authority responsible for culture in the Spanish management model of the archaeological heritage; so that the customer may start his work. This report is obtained after completion of the relevant archaeological interventions authorized by the local Administration, and the evaluation of the Scientific Report drafted by the technical managers responsible for different tasks performed by the archeology company. The product: the favorable binding report, and the by-product: the scientific report in which the knowledge generated is captured, are themselves intangibles. This is finally a product undervalued by the prospect of commercial archeology, however, it is an essential part of the activity. Knowledge generation, as part of the production process of commercial archeology, is a return to society as a whole, which partly offset the "loss" of a portion of its common Cultural Heritage for the benefit of a single promoter.

The term by-product has different meanings, in varying degrees, it often has negative connotations associated with the waste concept, or in the best case, it has a lesser value than the main product.

In this study, we prefer the definition of by-product or as in the Spanish Law 22/2011 of 28 July on waste and contaminated soils, "a substance or object resulting from a production process whose primary purpose is not the production of that substance or object can be considered as a waste by-product and not [...] if it fulfills the following conditions: (i) the safety of the substance or object will be will be later use, (ii) the substance or object can be used directly without having to undergo further processing other than normal industrial practice, (iii) the substance or object is produced as an integral part of a production process, and (iv) the subsequent use meets all relevant requirements relating to the products and the protection of human health and the environment, without producing general adverse impacts to human health or the environment. " State Official Newsletter in Spain (BOE) of July 29, 2011 (number 181).

The new data from surveys and archaeological excavations as traces of work are recorded after processing in a Scientific Report. This is the document where the knowledge generated is captured, thus it could be considered a by-product in the production process of commercial archeology. The customer of commercial archeology does not usually give importance, with few exceptions, to the generation of knowledge emerged as a by-product of this economic activity, considering that it does not generate value for the company. However, knowledge created following an archaeological excavation was established as the generating of an intangible value whose beneficiary is the whole of society; If these issue were valued by customers of commercial archeology it could improve their visibility.

Furthermore, we also consider the concept joint products referred to individual products, each with significant sales values, which are generated simultaneously from the same raw and / or manufacturing process whose basic characteristics are:

1. They have a physical relationship that requires a common simultaneous processing. The process of these products results in the processing of all other products simultaneously.

2. The manufacturing always has a point of separation arising separate products to be sold as such or be subjected to further processing.

3. None of the joint products is significantly greater in value than the other joint products.

In the case of commercial archeology, and taking into account the characteristics described above, it might be considered perhaps the generation of knowledge as a whole product, not as a by-product of the production process.

4. Intangible assets in commercial archeology: a review of valuation methods.

Currently, the economic value of the product generated by archeology companies does not follow criteria generated after a rigorous analysis of production costs but rather estimates up to each professional guidance based on prices set by different professional associations in the different Communities autonomous, when there.

Being the Commercial Archaeology a Knowledge Intensive Business Service, whose activity is based on professional knowledge, it is vital to add to the valuation of tangible costs the assessment of existing intangible assets in these businesses to determine the value of knowledge generation, joint product in the production process of commercial archaeological activity. To quantify economically the benefit of the knowledge generated to a company from archaeological interventions should be a priority to give new impetus to this type of asset management companies and contribute to its sustainable management.

Intellectual capital is becoming the resource of choice for creating wealth and its management has become a key task for business management and facilitating organizational learning and knowledge creation (Martin de Castro, Delgado-Verde, 2012). Knowledge assets and information are key to creating and maintaining a competitive advantage and a superior performance of an enterprise (Edvinsson and Malone, 1997).

In recent years, there have been numerous proposals for measuring the intellectual capital of a company, although it is a complex task.

There are two ways by which the valuation of intangible assets is performed:

1- Those whose objectives are based on management assessment which includes two activities: identifying intangibles and place them in a structured system and look for indicators that allow the proper development of such intangibles (ratios and non-monetary measures) and

2- Those intended to determine the financial valuation that aims to find the monetary value of such intangibles.

On the other hand, the methods of valuing intangible can be classified as being based on:

- Its costs: intangible is assessed in terms of the cost of acquisition, creation or maintenance. -The Market value: examines transactions (sales, acquisitions, licenses ...) that have been involved similar intangible assets for which prices are available for the operation.

-The Income: assessment of the ability to generate profits or income of an intangible asset. Another classification of methods is based on the tools in which it is based. So the methods are classified as:

- Direct: estimate the monetary value of intangible assets by identifying its components and once identified they are measured directly.

- Based on capitalization: Calculate the difference between the capitalized value of the company and the value in a stock market. This difference would be the total value of any intangible Company

- Based on the return of intangible assets: involves dividing the average pre-tax profits of a company over a given period by the average of intangible assets held. The result is the ROA of the company that can be compared to the average values of the sector.

- Based on the scorecard: the various components that make up the intangible assets of the company and indicators and indices which in turn report to a dashboard are generated are identified. Not seeking the monetary value of the assets but to assess its evolution in order to properly manage them.

5. Conclusions

After performing the different classifications of the valuation methods of intangible assets through the literature, we conclude that, for the assessment of intangible assets for KIBS such as Commercial Archaeology, may be more effective direct methods (DIC) those based on the Return (ROA) and methods based Dashboards (SC).

Direct methods (DIC) and those based on the Return (ROA) can be useful to make comparisons between companies in the sector and show the financial value of intangible assets, thus drawing the attention of the directors of companies archeology of these assets and their customers on the value of the service. In addition, models of financial valuation of intangibles facilitate their transfer to the accounting methods and thus help determine the actual cost of providing the service offered, which can contribute to the sustainability of these businesses.

Methods based on Dashboards (SC) may show a more complete and comprehensive situation of intangible assets in a company dedicated to Commercial Archaeology image. This can be especially useful to propose new management models for Commercial Archeology as a way to give new impetus to these businesses also contributing to the sustainability of the sector.

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Development of Academic Staff´ Competencies

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Abstract

The paper is focused on the development of academic staff' competencies, with emphasis on pedagogical and language skills. It is based on the outcomes of the project, "Innovation of the Master's Degree Program of the Faculty of Military Leadership". Different strategies were used to determine the academic staff´ needs, wants, strengths, and weaknesses in their teaching practice, with the emphasis on the teaching of foreign students.

Through the method of a questionnaire survey and subsequent data analysis, the authors suggest some recommendations and advice for academic staff in order to enhance their teaching skills in English. Thereafter, attention is focused on teaching experience in courses for academic staff, their evaluation, and future strategies.

Keywords: academic staff, professional education, pedagogical competencies, language competencies.

1 Introduction

Development of workers' skills and competencies is currently a very topical issue for experts and workers in all fields. The types of basic skills and competencies required in working life are changing all the time, which calls for further development of existing competencies.

The terms "skills" and "competencies" are used interchangeably. A competency can be understood as "the capability of applying or using knowledge, skills, abilities, behaviours, and personal characteristics to perform successfully critical work tasks, specific functions, or operate in a given role or position" (Dubois, 1993, Lucia & Lepsinger, 1999). Competencies or individual characteristics were recognized as "significant predictors of employee performance and success" (Lucia & Lepsinger, 1999, McClelland, 1973).

According to McClelland, competencies can be perceived as significant predictors of employee performance and success, and are equally as important as an individual's academic aptitude and knowledge content as indicated by tests scores or results (McClelland, 1973; Lucia & Lepsinger, 1999). A competency can be defined as the "capability of applying or using knowledge, skills, abilities, behaviours, and personal characteristics to successfully perform critical work tasks, specific functions, or operate in a given role or position" (Dubois, 1993; and Lucia & Lepsinger, 1999). Competencies are comprehended as "specific personal qualities related to effective and/or superior performance" (Boyatzis, 1982). They are common across many settings and situations, and "endure for some time" (Delamare Le Deist & Winterton, 2005).

Palan combines competence development with lifelong learning and argues that "lifelong learning is the only interconnected unit which enables diverse and numerous transitions between education and employment, and which provides the same qualifications and competence in various ways and at any time during the life" (Palan 2006).

Competence in communication, especially communication in foreign languages, belongs among the key competencies of the 21 century. Veteska claims that "Meaning of competence in the context of linguistics, can go even further, whether it is used in relation to the ability to work or perform part of the work competently, or in relation to behaviour (how one should behave in order to fulfil competently the tasks or perform the function") (Veteska, 2010).

Academic staff´ competencies include not only teamwork, career motivation, problem solving, trustworthiness and ethics, decision making, commitment to career, and communication, but also some specific skills oriented to this very specific profession. Education and training of academic staff form a part of everyday life in their workplace, college or university, and mainly take the form of non-formal and informal education. By the term 'education of academic staff', we understand that enhancing the level of their knowledge, expertise, skills, and competences is closely linked to the development plans of each university.

Eraut, Koklarova and Cech have conducted some studies vindicating the notion that education of academic staff primarily takes place at the workplace in the form of informal education (Eraut et al, 2000 Koklarova 2013 Cech 2014). This is due to the specificity of professional training of academic staff, which mainly includes direct contact with labour issues and processes. In the case of academic staff, the professional training includes all everyday activities, including collaboration and discussion with colleagues, preparation of individual lectures and lessons, scientific and expert activities, and teaching itself. A university teacher can be characterized by: high level of scholarly erudition, creation of scientific knowledge (ie. scientific research and research activities) and the passing on of this knowledge to the younger generation.

In today's competitive environment the only institutions, universities, and colleges which have a chance to stand and be attractive for prospective students, are those whose academic staff can prove the high quality of their teaching practice and are better prepared for performance of their profession. Holcner emphasizes the role of education not only of students, but academic staff as well (Holcner, 2010).

2 Professional education of academic staff

Cech and Koklarova have conducted research dealing with the acquisition of professional skills in different sectors; academic staff in tertiary education create one of the studied groups. The research proves the important role of the workplace in the development of professional competencies and skills of academic staff. The research outcomes prove that for academic staff of all age groups it is important to enhance their professional skills and competencies. Among the most significant methods mentioned are: working alongside more experienced colleagues; working with students; thinking about work and lessons from errors; working as part of a team; learning and teaching younger colleagues; and experience from previous work (Cech, Koklarova 2014, Cech, Chromy 2015).

The development of competencies of academic staff involved in teaching in an innovative study program of the Faculty of Military Leadership occurs in a project called "Innovation of the Master's Degree Program of the Faculty of Military Leadership". One of the project's objectives was focused on development of academic staff involved in teaching in this subject program. The main attention was focused not on the development of professional competencies in their respective disciplines but on the development of their teaching skills. The teacher/university professor is perceived in this project as the only person accountable for the relevance and quality of the teaching process which reflects the latest scientific findings, and for the development of the student's personality and fulfilment of the declared student learning outcomes (Holcner, 2015).

For every university, the development of the skills to teach special subjects in English represents a prerequisite of internationalization as one of the attributes of quality in higher education within the

European educational space. On the other hand, university graduates are expected to be fluent in at least one foreign language. The emphasis is on English language skills: listening, speaking, reading and writing. The university graduates must be able to present their ideas as well as the research outcomes in English, to participate in briefings, to take part in discussions, and to master terminology of their specialisations.

3 Pedagogical competencies

One of the most significant features of teaching at universities is the contradiction between professionalism and scientific erudition of most academic staff, and sometimes their "amateurism" in carrying out their main mission - the education of students of accredited study programs and participants in lifelong learning courses. During their career only some of them marginally studied or met the following subjects: psychology, andragogy, social education, philosophy of education, communications, and legal aspects of universities or their history. Lack of knowledge and skills in these fields is usually replaced by critical reflection of their own study experience, and the effectiveness of the university teachers they were taught by. Academic staff should be able to develop and hone their teaching skills. Generally, the competence comprises a set of knowledge, skills, abilities and attitudes, enabling the professional and personal development of an individual. The competence of academic staff can be understood as a precondition to perform a specific set of actions, in this case comprehensive educational activities, scientific research, and management duties at the university.

Academic staff of Faculty of Military Leadership, University of Defence strive to apply in their teaching practice not only deep knowledge of their specialisations but also pedagogical and didactic principles. For that reason, a course to enhance pedagogical competencies of academic staff was created, lasting two semesters, and whose participants were taught andragogy philosophy, psychology, sociology, law, history, education, military and social communication, and rhetoric. All participants were asked to fill in a short questionnaire during, and again at the end of the course, not only to assess the course but to give some advice, recommendation, or further information for the course teachers and managers. Among some of the questions were:

- Recommendations dealing with the study support in Moodle (scope, content, clarity).
- Recommendations on teaching (teaching itself, level of interactive teaching space for the exchange of experience).
- Did the course arouse your interest in the pedagogical issues? Specify.
- Usefulness of the course, topics for your teaching.

3.1 Questionnaire Outcomes

The course participants during the course answered a set of questions and assessed the course organization, study supports and materials, and particular topics. The participants of this course generally agreed that the course was well-managed, had sufficient space for mutual exchange of experience, ideas and knowledge from their own teaching practice.

Study supports and materials as well as presentations in Moodle were positively assessed by the course participants as understandable, clear and logically structured, interesting, useful, and enabling basic orientation in the issue. The theme of philosophy of education was judged by some participants as very complicated, with relatively large study text and a high amount of study supports. Only philosophy was assessed as quite complex and demanding.

The majority of presented topics aroused the interest of the course participants, who especially appreciated the suggestive content, appropriate form of management, and practical examples. A lot of the course participants perceived the teaching of teachers as inspiring them to improve their own educational work.

Usefulness of the course and topics was assessed by participants positively and they evaluated individual topics as useful for their own teaching practice. They stated that their existing knowledge and competencies were tested, some information broadened their horizons, and they appreciated that some information was presented in an interesting and useful context. Some of the participants were not able to assess the practical applicability of particular topics in their work and teaching practice.

During the course, participants performed some processing tasks. Teachers used interactive methods in their lessons, while students had opportunities to express actively their opinions, suggestions and experiences of educational practice, and discuss problems from their teaching practice.

4 English language competencies

Academic English can be defined as: "…English of intellectuals, scientists, experts, researchers and other members of academia used for communication and work. It is understood as an elegant, polished and complex language style in which accuracy, objectivity and non-emotional comments are emphasized" (Stepanek, de Haaff et al., 2011).

Academic English can be used for lectures, presentations, seminars, discussions, consultations, practical exercises, individual studies, literature studies, project work, seminar papers, and during study periods or work abroad. It can be stated that the above-mentioned activities require language skills which are mastered by all academic staff in general. Academic English has an especially specific position in vocabulary. Academic language is interdisciplinary and includes general vocabulary, terminology of specialization, and specific terminology of academic English.

Teachers of English have prepared a course to enhance academic staff´ skills in teaching their subjects in English. The first step in the course preparation was to find out:

- if the academic staff are interested in a course of academic English;
- what is their level of English;
- what are their expectations from the course of English.

A questionnaire was sent to all academic staff of the Faculty of military leadership, and 79 sent back their answers and expressed their interest in a course. Based on the questionnaire survey, teachers of English prepared three courses at different levels: pre-intermediate (B1 according to the CEFR), intermediate (B2) and upper-intermediate (C1). All courses ran over two semesters and were divided into two parts: theoretical and practical. The theoretical part was focused on increasing academic skills for teaching technical subjects in English, for example a revision and consolidation of complex grammatical structures used in an academic environment, vocabulary associated with a wide range of academic subjects, a language for presenting information, and data conducive to effective oral and written communication. The second part of the course placed emphasis on presentations and mini-lessons of individual participants. The advantage of the course of English was a combination of full-time teaching and online study supports in LMS Moodle (interactive exercises, presentations, e-tests).

4.1 Questionnaire Outcomes

At the end of the first semester, the authors decided to find out whether the course participants were satisfied with the topics, the quantity and level of study materials, the number and difficulty of e-tests. 72% of participants said that the topics, quantity of study materials, and the number and difficulty of e-tests were adequate. Another objective of this survey was to discover whether, and which, suggestions,

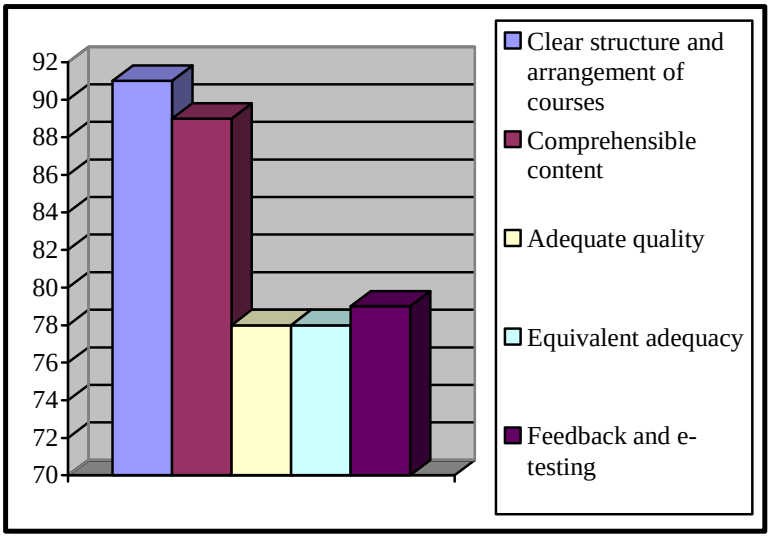
comments, advice and ideas they suggested. Among the most frequent comments were: more examples of discussed topics, more communication, more terminology, and more face-to-face revision during lessons. Among suggestions for the summer semester curriculum the most frequent recommendations were:

- a list of phrases for managing lessons in English; more grammar with detailed explanation, especially phenomena typical for professional English;
- conference English;
- translation: general rules and practice;
- differences between British and American English;
- conversation with a native speaker,
- more grammar and more detailed explanation of typical phenomena of professional English in the courses of lower level proficiency;
- correction of every mistake.

Most of the suggestions were incorporated into teaching in the summer semester, a list of phrases was saved in LMS Moodle, and more lessons with a native speaker were organized. However, some recommendations could not be included, e.g. correction of every mistake, however teachers instead wrote a summary of the most common mistakes made during lessons, presentations and written work.

At the end of the second semester another questionnaire was carried out. Its objective was the course assessment. The course participants highly assessed the course materials in particular, study materials, course content, and a practical element of a course, for example mini-lessons. All participants (100%) positively evaluated the combination of full-time teaching in combination with LMS Moodle. Among the most frequent answers were: clear structure and arrangement of courses; equivalent adequacy, adequate quality, comprehensible content, feedback and e-testing (Graph 1).

Graph 1: Assessment of study supports in LMS MOODLE

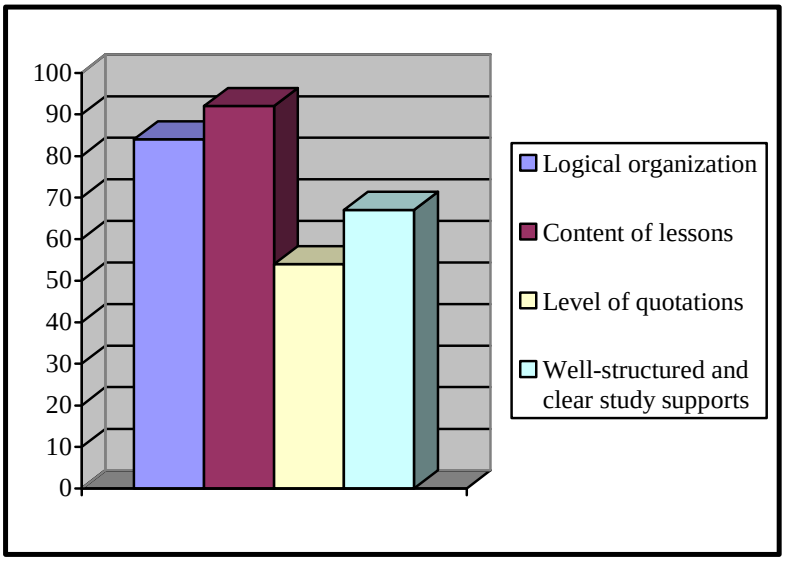


Resource: own

A further element of LMS MOODLE assessment was focused on the study supports. The next graph shows (Graph 2) that the majority of comments by the course participants were positive: logical organization, well-structured and clear study supports. Critical comments were aimed at the level of

quotations, which indicates the importance and sensitivity of this issue. All comments and suggestions were incorporated into the final version of study materials and the Academic English Handbook which will serve as a prerequisite for further independent study.

Graph 2: Study support assessment



Resource: own

It can be stated that the courses of language competencies of academic staff in English fulfil their objective, which was to provide teachers of special subjects with enough study materials and to practise their own teaching activities in English (presentations, mini-lessons)

5 Conclusion

Both courses are good examples of how you can positively influence the pedagogical and psychological competence of university-educated professionals. This approach also contributes to the fact that teachers perceive it as the management interest in their further development and they can feel more intense relationship with their faculty or university. It can have a positive effect on strengthening their stronger identification with the vision, goals and values of the institution in which they work. It can also contribute to forming a positive relation of students to education, to their teachers as personalities as well as to their faculty or university as an institution. Both courses are a good example of blended learning too as they combine face-to-face lessons with learners' independent work. The learners independent work was supported by study supports in LMS Moodle. ICT implementation successfully reflected the changes to the content (in terms of interactive) and software processing courses. Both courses were positively evaluated by the participants as they respond to the current need, emphasize and incorporate the views and recommendations of learners, academics, and thus respond to their current needs.

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Analysis of Correlation between Intellectual Capital and Traditional Key Performance Indicators within the Automotive Industry

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Abstract

Enterprises all over the world struggle to define and extend their very specific competitive advantage in order to gain market share and beat their competitors. A company's value and therefore status is often measured via its assets. For traditional branches such as machinery these assets are mostly tangible. But as technological progress and products themselves can be adapted by many companies much quicker than in the past, terms like culture, network and intellectual capital find their way into business strategies.

This research will analyze the correlation between Intellectual capital and the sales growth rate as well as the operating margin within the automotive industry in order to describe the priority and focus for this aspect within business strategies. Within scientific literature Knowledge Management measurement of automotive enterprises has not been in focus so far. This study will provide insights regarding the status of Knowledge Management within the automotive branch via analysis of VAIC values. Furthermore the correlations between various traditional key performance indicators have been analyzed in numerous scientific papers. This research in contrast combines knowledge management related indicators with traditional business performance factors. The analysis provides evidence that the Knowledge Management measure, VAIC, is dominated by the component of Human Capital Employed which is correlating with further researches. Additionally the quantitative results indicate that there is a strong correlation between VAIC and operating margin as well as the sales growth rate, which should emphasize the importance of knowledge (and Knowledge Management) as a crucial asset for (automotive) companies.

Keywords: Intellectual capital, performance, automotive, KPI, measurement

0. Introduction

This research paper is focusing on the correlation of the Value added intellectual capital coefficient and further key performance indicators with respect to the automotive industry. Based on an initial literature review regarding business performance and knowledge management, their correlation will be summed up according to scientific literature and set into the context of organizational learning. Within the quantitative analysis the VAIC value and its components will be calculated for selected companies as well as compared across branches. This is the basis for comparing these values with traditional business key performance indicators such as the sales increase and operating margin. The last chapter is focusing on further research and provides a summary to the content of this paper.

1 Literature review

1.1 Performance and knowledge management

Since the 1980s various concepts of organizations were suggested by scientists. In the resource-based view the competitive advantage was developed through tangible and intangible resources (Mwailu & Mercer, 1983; Wernerfelt, 1984; Rumelt, 1984; Penrose, 1959). In that view resources have to be valuable, rare, in-imitable, and non-substitutable in order to be the key resources necessary for a company to attain a competitive advantage. Terms as (company specific) *capabilities* (Amit & Schoemaker, 1993) became important and were defined as "a special type of resource, specifically an

organizationally embedded non-transferable firm-specific resource whose purpose is to improve the productivity of the other resources possessed by the firm" (Makadik, 2001). Resources must be bundled (Sirmon et al., 2003) to choose the strategy to attain the necessary competitive advantage. In the same context Michael Porter suggested two strategies of competitive advantage - lowering costs and differentiation. Both highly depends on the capabilities and resources of a firm including the skills of its employees. Prahalad et. al. (1990) writes about core competencies which also focussed resources and skills of a firm which needs to be harmonized in order to define the firm in the marketplace. Skills and knowledge are vital components. The core competencies have to fulfil three criteria:

1. Provides potential access to a wide variety of markets.
2. Should make a significant contribution to the perceived customer benefits of the end product.
3. Difficult to imitate by competitors.

In this concept it is suggested to develop ideas for future solutions especially by using intangible resources. Teece et. al. (1997) developed the concept of dynamic capabilities as "[…] firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments." It is not only important to have the right competencies as in the theories above but also to react appropriate in changing environment. There is a constant need for the organization to challenge the current knowledge and develop new ideas and solutions. "The concept of dynamic capabilities, especially in terms of organizational knowledge processes, has become the predominant paradigm for the explanation of competitive advantages. However, major unsolved—or at least insufficiently solved—problems are first their measurement and second their management…" (Cordes-Berszinn et al. 2013).

New Approaches and strategies needs to be developed especially considering the constantly developing effects of globalization, deregulation, and technology. A clear understanding of the business models is necessary to get a better understanding of new developments in that area. Developing new products and services through constant innovation is more important than ever before. "This new environment has also amplified the need to consider not only how to address customer needs more astutely, but also how to capture value from providing new products and services" (Teece, 2010). Teece also states that "a business model is more generic than a business strategy. Coupling strategy and business model analysis is needed to protect competitive advantage resulting from new business model design". In today's market it is important to have a hard-to-imitate, effective, and efficient business model in order to create value. Capturing the value from innovation is the key element of business model design (Teece, 2006). Makadoc (2001) sees one form of engagement capabilities in transferring knowledge within a firm. Organizations have to learn constantly and deal with knowledge and learning becomes vital in the future.

1.2 Knowledge management, organizational learning, and Intellectual Capital

The ability to manage knowledge is becoming increasingly more crucial in today's knowledge economy. The creation and diffusion of knowledge have become ever more important factors in the competitive landscape. More and more knowledge is being regarded as a valuable commodity that is embedded in products (especially high-technology products) and in the tacit knowledge of highly mobile employees (Dalkir, 2005), which is also reflected by the EUROPE 2020 initiative.

Knowledge management (KM) is defined differently depending on the field of science and the perspective. The definition of KM as "…the capability of a company as a whole to create new knowledge, disseminate it throughout the organization, and embody it in products, services and systems" (Nonaka and Takeuchi, 1995) makes clear that KM is an important value. Economists see KM as valuable asset or Intellectual Capital (IC) of a firm (Bontis et al, 2001). The origin of Intellectual Capital was set Karl-Erik in the mid-1980s and later further developed by Edvinsson and Malone (1997), Steward (1997), and Sullivan (1998). Steward (1997) defines it as "intellectual material […] to create wealth by producing a higher valued asset". It therefore needs to be reflected in the numbers in the capital market, for instance by using the difference between the book value and

the market value of an organization, which is the Intellectual Capital (see figure 1). Macro-economic research today is mainly based on definitions of categorization developed by Edvinsson and Malone.

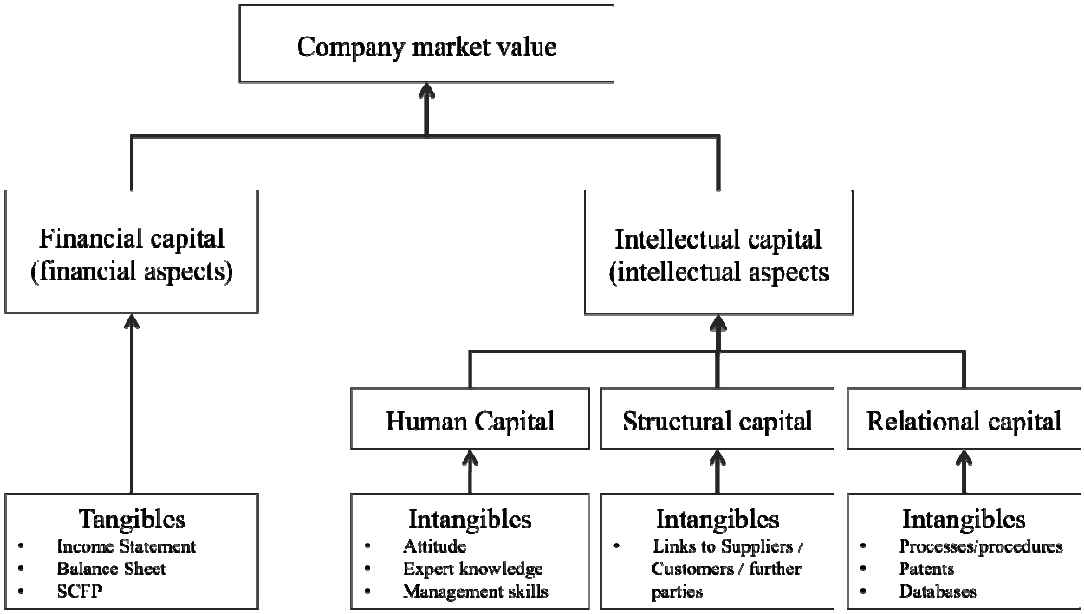

Figure 1: Intellectual Capital framework: its relationship to market value. (Source: Own elaboration based on Johnson, 1999)

Figure 1 visualizes that the market value of a firm is strongly influenced by many aspects of the Intellectual Capital in form of several intangible assets - most of them closely related to skills, knowledge and knowledge management. Papula et al. (2011) suggested to aspects of knowledge management and the evolution of it differentiating the object and aim of knowledge management (see figure 2).

But this value is only rarely used today (one famous example is Skandia, as the first company which reported intellectual property) even though intellectual assets are found in all levels of an organization – from the operational, over tactical to strategic level. There is also no common scientific understanding of how Intellectual Capital influences organizations and how to measure that.

Intellectual Capital is also known as knowledge capital, something which is also used by economists which also talk about the information and knowledge era, the hidden value, and the human capital. Sustainable competitive advantage as defined before is now tied to individual workers' and organizational knowledge (Bontis, 2001). Scientists as Bontis (1998), Wang und Change (2005) etc. have proven that there is a positive connection between Intellectual Capital and performance. The performance of a company is highly depended on the knowledge of the employees and on the collective or organizational knowledge (Sudarsanan et al., 2003). Dalkir (2005) defines KM as "the deliberate and systematic coordination of an organization's people, technology, processes, and organizational structure in order to add value through reuse and innovation. This coordination is achieved through creating, sharing, and applying knowledge as well as through feeding the valuable lessons learned and best practices into corporate memory in order to foster continued organizational learning. This is why organizational learning becomes an important topic even though the topic itself is already been studies since the 1970er.

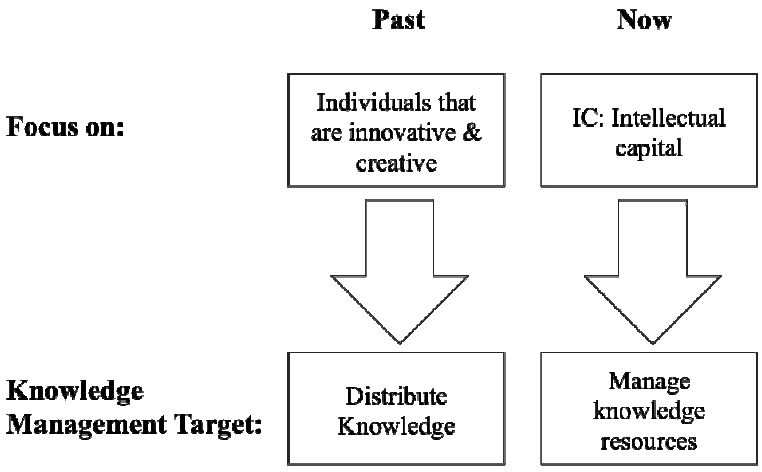

Figure 2: Evolution of knowledge management related to its object and aim (Source: Own elaboration based on Papula et al, 2011)

Organizational learning was popularized 1990 by Senge and used by other scientist as Crossan et. al (1998) with the following definition: "Organizational learning is the process of change in individual and shared thought and action, which is affected by and embedded in the institutions of the organization".

Saving, using and exchanging knowledge seems to be important factors within organizations. Learning and the learning process is another important aspect which is studied by scientists (e.g. Crossan et al., 1999, Argyris et al., 1976, 1996) including fundamental approaches such as "single loop learning", "double loop learning", and "triple loop learning" as well as aspects from different scientific areas. In order to be innovative, companies need to use and manage learning strategies (Hatchuel et al., 2005). Even though there is no clear consensus about the effect of training regarding job performance (A famous sentence was made by Georgesons (1982),' "I would estimate that only 10 percent of content which is presented in the classroom is reflected in behavioral change on the job"), the positive effects on human resource development in general was shown by different authors as well (Huselid, 1995, Jackson & Schuler, 1995, Zacharatos et al. 2005 etc.). All of them found empirical evidence of the benefits of high performance work systems (including management system standards as Total Quality Management etc.), HR-strategies, leadership on the performance of firms.

1.3 Correlation of Business performance and intellectual capital

Organizational Learning, Knowledge Management, and Intellectual Capital have similar aspectsAccording to Vera et. al. (2001) the "OL field has been the most explicit one in explaining the cognition and behavioural aspects of the learning phenomenon, the KM and IC fields do not only focus on cognition, but also on the action-orientation and utilization of the knowledge acquired and the IC accumulated". The authors argue that learning within an organization is the process in which knowledge and therefore Intellectual Capital is created.

But this knowledge also impacts the future learning. There are scientific authors who provided evidence that learning leads to better performance (Nahapiet & Ghoshal, 1998) but also that there is no clear link between it (for instance Huber, 1991). Research has shown that it is a critical capability for firms to apply organizational learning in order to generate ideas and in order to be innovative (Madhavan et al., 1998; Lynn at al, 1998). Vera et al. (2001) suggested that all the elements of human capital, structural capital, and relationship capital are grounded on different types of knowledge and therefore be linked together. The same is true for the learning and knowledge management process. When learning, the accumulation of knowledge and intellectual capital is aligned with the firm's strategy, then better performance is achieved. The result is the model presented in *figure 4*

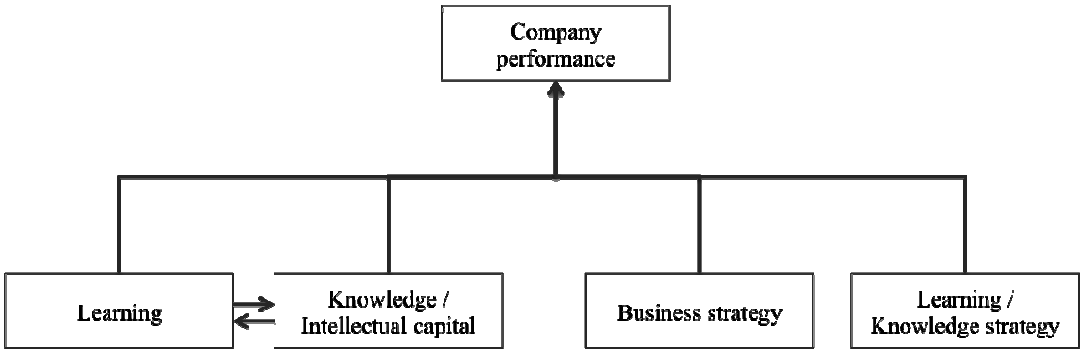

Figure 4: Integrative model of learning, knowledge, Intellectual Capital, and performance Source: Own elaboration based on Vera, 2001)

Scientists have been studying IC and each component of it (Structural Capital, Human Capital, and Relation Capital) for years already. Most studies conclude that IC has influence on the performance of firms (Bontis et al.(2000), Bollen et al. (2005), Cohen and Kaimenakis (2007), Mavridis (2004), Chan (2006), Appuhami (2007), Ting & Lean (2009), Al-Twaijry (2009), Kamel (2012)). Nevertheless this area of research is still scarce. Most of the studies are of qualitative nature. There is still a disagreement of the right method to measure IC and its impact on firms' performance.

1.4 Measurement of Knowledge and Intellectual Capital

As said earlier, measuring of Intellectual Capital or knowledge is a complex topic. Different KM-models have been developed over the years to get a better understanding of knowledge itself and knowledge transfer within a company. Also metrics have been developed to assess the knowledge management process for a better knowledge management strategy. The three most cited metrics in that area is benchmarking (Tiwana 2000), balanced scorecard, and the house of quality (Quality Function Deployment or QFD). New frameworks were developed with many similarities of these metrics including the European Framework of Quality Management (EFQM), Knowledge Scorecards, Intellectual Capital management, Economic Value Added (EVA) etc. The classic balanced scorecard (Kaplan and Norton 1992/1996) measures performance in four perspectives: financial, customers, internal processes, and learning and growth. This balanced view on financial and non-financial data represents the performance of the business. A newer adoption of balanced scorecards are Knowledge Scorecards with focusses knowledge organizations in particular (Deking 2002; Kaps 2001; Fairchild 2002). The balanced scorecard dimension learning and growth mainly involves the capabilities of employees, their skills, motivation, and awareness as well as the information system capabilities which represent the above mentioned topics. Other methods to measure more than just financial values were suggested by scientists for a longer time, including Publics (2000) Value Added Intellectual Coefficient (VAIC), Stewards (1997) Calculated Intangible Value (CIV), Levs (2001) Intangible Driven Earning (IDE), Skandias "Skandia Navigator", and IC Rating which included aspects of the Intangible Asset Monitor (Sveiby, 1996). According to Sveiby (2014) all measurement methods can be divided into the four groups: Direct Intellectual Capital Methods (DICM), Market Capitalization Methods (MCM), Return on Assets Methods (ROA), Scorecard Methods (SC).

Measuring Knowledge and IC is a difficult task and the suggested measurement methodologies and tools have not yet found a wide agreement, neither in scientific research nor in practise. In this paper the authors use the VAIC-calculation which part of Sveibys third group of measurement (ROA).

1.5 Importance and calculation of VAIC

This paper focuses on the VAIC (Value Added Intellectual Capital Coefficient) method developed by Pulic (2000, 2003 and 2005). VAIC measures the effectiveness of key resources in the enterprise by calculating the Value-added and the three types of intellectual capital: human capital, structural capital, and capital employed (see *figure 5*).

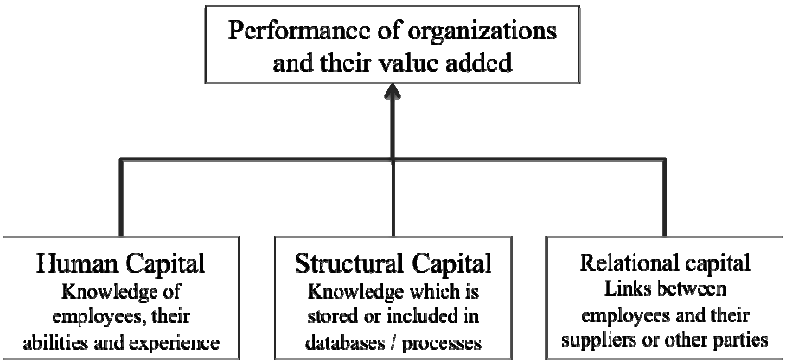

Figure3 : Link between IC and organizational performance (Source: Own elaboration basSumedrea, 2012)

The benefit of VAIC against other methods, which are often criticized of their underlying subjective indicators is that it is solely based on company's balanced figures which make it easy to calculate the value and to compare different organizations with each other. VAIC allows for a standardized and consistent basis of measurement, making it possible to conduct an international comparative analysis more effectively when using a large sample size and spanning across various industrial sectors. Third, VAIC is a straightforward equation, that meaning various internal and external stakeholders can easily calculate it. VAIC can be seen as innovative indicator of Intellectual Capital efficiency (Lazzolino and Laise, 2013). Similar conclusions are drawn by other scientists which researched on the relationship between IC and performance (Firer and Williams (2003), Chen et al. (2005), Ting and Lean (2009), Malloul (2010), Clarke et al. (2011), Guo et al. (2012)).

In this study the VAIC is calculated as follows

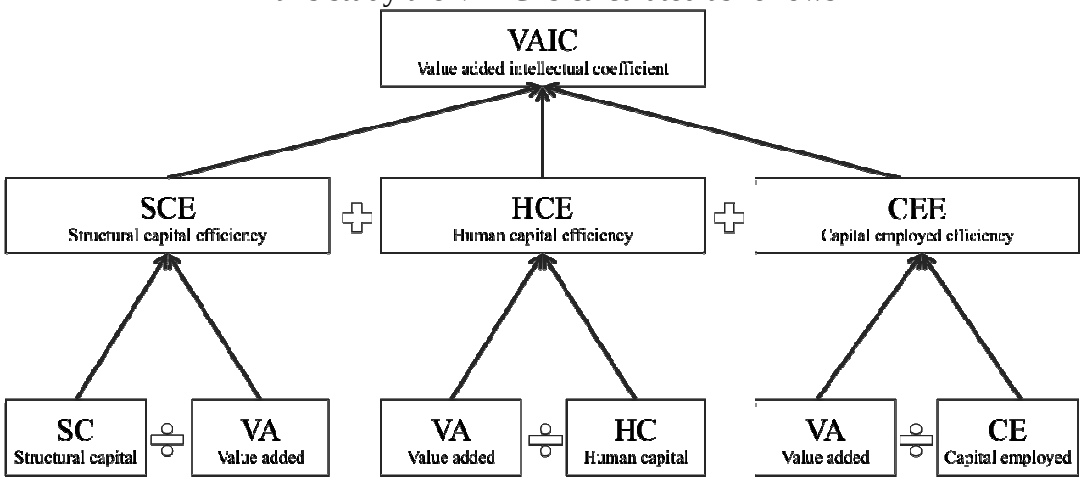

Figure 6: VAIC calculation (Source: Own elabo. based on Stahle, 2011)

VAIC = CEE + HCE+ SCE (1) (or: ICE + CEE)

CEE represents capital employed efficiency:

CEE = VA/CE (2)

HCE represents human capital efficiency:

HCE = VA/HC (3)

SCE represents structural capital efficiency:

SCE = SC/VA (4)

CE = Capital employed

HC = Total investment on employees (Human Capital)

SC = VA – HC (or: Total assets – Total current liabilities)

VA: Value add is seen as the sum of benefits obtained by all the stakeholders: net income + salaries and wages + interest (tax) + dividends + depreciation and amortization

2 Quantitative analysis

2.1 Method and database

The database for the analysis has been derived from relevant annual and financial reports of 6 globally operating automotive enterprises for the respective years of their business strategies ranging from 2008 to 2014 as well as from publications of their respective business targets. Via linear regression models and descriptive analytics the VAIC value itself and the correlation to other key performance indicators will be analyzed in chapter 2.3.

2.2 Hypotheses

The purpose of this study is to analyze the correlation between the Intellectual capital of a company and its financial performance in the automotive industry using the VAIC method. The calculated VAIC values will be analyzed regarding its components, compared with other branches and evaluated according to the correlation to operating margin as well as the annual sales growth rate. The following hypotheses will be evaluated:

1. VAIC values within the automotive industry are dominated by the component of Human Capital efficiency.
2. Average VAIC values within the automotive industry can be compared with other branches such as the banking sector. The average of automotive VAIC values is lower than in non-machinery based industries.
3. The operating margin and the VAIC-value do show a high degree of correlation.
4. The sales growth rate and the VAIC-value do show a high degree of correlation.

2.3 Quantitative Analysis of VAIC value components, comparison between branches and correlations to KPIs

Since scientific literature regarding the VAIC values for global automotive manufacturers is not extensive this chapter will compare the average VAIC value with other branches such as banking sector and regions (e.g. Poland and Romania). The research data is generated based on global automotive groups and single automotive OEMs with headquarters in Europe and Japan.

2.3.1 VAIC components

As described in chapter 1.5 the VAIC value is generate via the sum of HCE, SCE and CEE. *Figure 7*

describes the aggregation of each component to the final VAIC value based on the average of each company within the research database. The proportion of the VAIC value is defined by approximately 66 % of HCE, 18 % of SCE and 16% of CEE, which is in the same range as described by *Svanadze and Kowalewska (Svanadze et al., 2015)* regarding the WIG 20 companies in Poland. This means that, based on the available data, VAIC components within the automotive branch seem not to differ significantly from other branches.

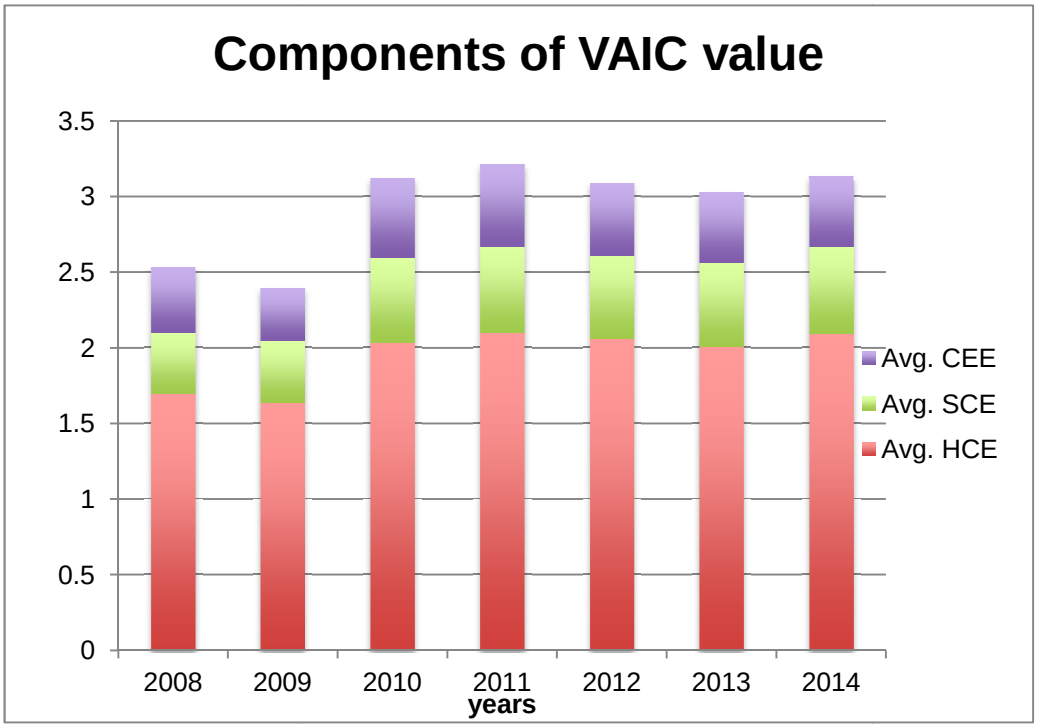

Figure 7: Components of VAIC value within research database according to financial year (Source: own elaboration)

The range of VAIC values is varying based on the financial year and the respective company. *Table 1* shows the values as well as the average per brand from 2008 to 2014. Except Nissan and Daimler the VAIC values vary in a range of 15 to 25 % within the defined timespan. Due to the financial crisis in 2008 and 2009 the lowest VIAC values have been derived for these two years.

Table 1: Average VAIC value within research database according to financial year (Source: Own elaboration)

VAIC values						
Year	**Volkswagen group**	**Skoda Group**	**Daimler Group**	**Audi Group**	**BMW AG**	**Nissan**
2008	2,96	3,73	2,32	3,33	3,74	0,74
2009	2,32	3,05	1,73	2,85	3,97	2,65
2010	2,72	3,70	2,96	3,37	4,55	3,45
2011	2,68	3,83	3,07	3,56	4,79	3,42
2012	2,50	3,62	2,93	3,53	4,60	3,41
2013	2,57	3,50	3,09	3,28	4,26	3,45
2014	2,63	4,08	3,12	3,24	4,21	3,62

Average per brand	2,63	3,64	2,75	3,31	4,30	2,96
Total average	**3,27**					

2.3.2 VAIC value comparison between branches

Table 2 shows that the average VAIC value within the research sample is 3,27. This value is higher than the average value calculated by *Nedelcu et. al. (2014)* regarding Romanian automotive enterprises. In contrast, compared to other branches such as banking sector or the WIG 20 companies this value is significantly lower. As these values are based on different timeframes it is not possible to directly compare them with each other. But the VAIC value differences are indicating that branches, which are focusing on there employed capital, such as the banking sector, do also have a higher VAIC value. The increase of the VAIC value within the Automotive branch could indicate that also in this branch knowledge management and the value of intellectual capital is increasing.

Table 2: Comparison of VAIC values between different branches and regions (Source: Own elabo-ration and C.f. Abdulsalam et. Al. (2011), Svanadze et. Al. (2015), Nedelcu et. Al. (2014))

Branch	Average VAIC value
Automotive branch (paper research database 2008 - 2014)	3,32
Banking sector Kuwait (1997 - 2006)	5,12
„WIG 20“ Poland (2010-2013)	4,27
Automotive branch Romania (2000-2013)	1,34

Based on the research database of 6 automotive OEMs and their annual reports there is no consistent central KPI, which is used for reporting. E.g. while BMW is focusing on Return on capital employed (ROCE as central KPI defined in annual report 2007), Daimler is concentrating on value added and Nissan is targeting the operating margin and market share (according to annual reports of BMW, Daimler and Nissan). The database has therefore been extended to the respective KPIs, which are commonly used: Sales growth rate and operating margin. The correlation will be analyzed in the following chapter.

2.3.3 Analysis of correlation between VAIC and KPIs

This chapter focuses on the correlation of knowledge management measurement KPIs which is the VAIC value, with other business performance indicators such as sales growth rate, operating profit, EBITDA, return on investment or return on capital employed.

Correlation between VAIC and Operating margin:

The coefficient of determination (R^2) shows the proportion in which the independent variable explains the dependent variable's variation. It will be used in order analyze the correlation of VAIC and the operating margin.

Table 3: Correlation of VAIC and operating margin

Correlation of VAIC and Operating margin	
Average R^2	55,57 %
Average R	74,55 %

Within the research sample the VAIC value explains 55,57 % of the operating margin's variance, which indicates a strong correlation of these two values (*see table 3*).

Within the research sample, the correlation of VAIC values to operating margin is varying. The highest correlation can be seen by the example of Nissan with R^2 of 0,96 (*see figure 8).*

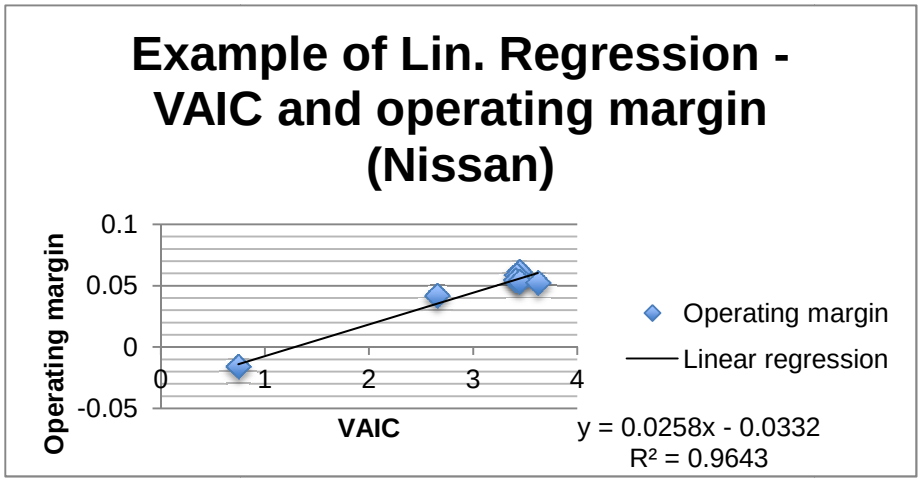

Figure 8: Correlation of VAIC and operating margin – example of Nissan (Source: Own evaluation based on annual reports)

Analysis of correlation between VAIC and sales growth rate:

Compared to the analysis of Romanian automotive enterprises by Nedelcu et. al. (2014) there is a significant difference of correlations between the VAIC value and Sales growth rate. While in the study of Nedelcu 12,71 % of the dependent variable is explained by VAIC, the research database of six global operating automotive enterprises shows a R^2 value of more than 50 % (see table 4).

Table 4: Correlation of VAIC and sales growth rate

Correlation of VAIC and sales growth rate	
Average R^2	**53,29%**
Average R	**73,00%**

Similar to the correlation of VAIC and operating margin, also the correlation of VAIC and sales growth rate is depending on the research sample. The highest correlation has been identified via the example of Daimler with R^2 of 0,92 (see figure 9*).*

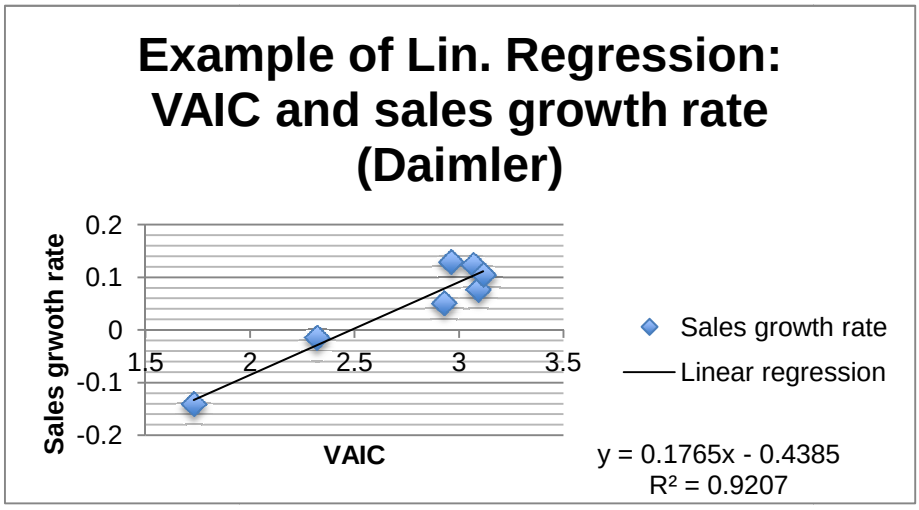

Figure 9: Correlation of VAIC and sales grwoth rate – example of Daimler (Source: Own evaluation based on annual reports)

3 Appraisals and Conclusion

The conclusions and outcomes of this study are based on the analysis of annual reports within the automotive industry. Although the VAIC value can be calculated on the information published in these reports, the interpretation of the input data can vary. It is crucial to separate between group, single enterprise or even division values such as sales or profit. Additionally, the research results would be more accurate if the database could be extended to more than 6 automotive enterprises also focusing on US car manufacturers such as General Motors or Ford. Due to missing input values, these companies have been excluded so far. Considering these facts following conclusions can be derived:

The VAIC value is dominated by the component of HCE (with roughly 66 % within the research database). Furthermore VAIC values are in general higher within branches, which are less dependent on machinery and tangible assets compared to traditional industry such as the automotive branch. However, the average VAIC values have been increasing from 2008 to 2014 by approx. 25 %, which shows that also these branches are transforming towards the megatrends of digitalization and service orientation. Based on the linear regression models, in general there is a high statistical correlation of the VAIC value and respective key performance indicators. Additionally the third hypothesis has been proven truth, as the VAIC value and the operating margin are correlating within the research database to a high degree. And also the second business performance indicator, the sales growth rate, is correlating to the VAIC value within the automotive industry.

In conclusion the research paper shows the importance of Pulic's VAIC value for knowledge management measurement and it's correlation to further business performance indicators within the automotive industry (indicating that the hypotheses stated in chapter 2 have been proven truth).

Future research on this topic will concentrate on multi-regression models in order to analyze the contribution of the VAIC components to each of the business key performance indicators and to analyze if there are further factors affecting traditional KPIs. Additionally the research database will be extended to a wider timeframe as well as multiple enterprises and more branches need to be analyzed in order to find similarities and differences regarding the VAIC values.

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Measuring innovation capabilities - the fourth generation indices

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Abstract

This article aims to show the issue of benchmarks for innovation and restrictions on use. There are many metrics available to use for measuring innovation. Some of the metrics are well-known and globally widespread (Innovation Union Scoreboard, 2015). Eurostat manages and unifies the methodology for measuring the intensity of innovations in enterprises in many regions, including the Czech Republic. This ensures consistency and commensurability methodology. The aforementioned rankings are objective for comparing the intensity of innovation among themselves, their inputs are complex and hard data from the past. However, these indices provide businesses with virtually no information about what they should do differently, or where the limitations are in terms of innovative potential. Metrics based on data of soft nature- subjective inputs are developed for this purpose. Their outcomes are not completely commensurable, but give companies enough feedback. This article analyzes the SAII index thus created in the Czech Republic.

Keywords: innovation, innovation metric, soft indicator

Introduction

There is a direct interest in supporting innovation, which leads to the need to assess the status and progress in this area and subsequently to the creation of measurement tools at all levels. The most widely used measure at transnational level is the Summary Innovation Index, further SII (Innovation Union Scoreboard, 2015), which is regularly evaluated and published. SII processing is fast and precise and is based on multi-criteria evaluation clearly defined and well measurable indicators. SII allows individual states to determine not only the current situation but also position in comparison with other countries and the shift of individual criteria with respect to the previous period. On a similar basis, the Global Innovation Index is created, further GII (The Global Innovation Index, 2014). The advantage of the GII is that in comparison enters 143 countries around the world, not just Europe and the developed regions. At the national level, innovative corporate behavior is tracked mainly by regular statistical survey. This statistical surveys are ordered by national statistical organizations in developed countries and within Europe there is the effort to unify the indicators monitored and evaluation methodology (Czech Statistical Organization, 2016). Results include: the detection of innovation barriers, the shift in the innovation behavior of companies and the ability to adjust the system of state support for the most effective impact. From the foregoing it is clear that the scale should be used not only passively but actively. Scales should be used to further decisions about the future path. The question is how to measure innovative behavior at the company level, so that the management has brought a similar decision support.

When looking at the global and national scale, it is possible to see the fundamental trend: the shift from objectivity to the necessary information capability with a focus on further decisions. Global scales include mainly indicators that are general assumptions or outcomes of innovative behavior, are current and well and objectively measurable. Measurements conducted by statistical authorities at the national level already measure how hard indicators (% of sales from innovative products etc.), but also soft indicators, which sometimes may be distorted by personality *(What is the biggest obstacle to innovation? Who is the most important element of co-innovation process?).*

The question is: What is the aim of monitoring the behavior of innovation for the company? For the company as an entity, it is not essential to objectively compare all the companies in the world, but to fulfill its objectives. These are mainly increases in value which nowadays must be based on the

creation and competitiveness that is directly influenced by the behavior of innovation within the company. For its evaluation, it is possible to use both hard and soft scales.

Innovation Measurement

Research BCG show (Andrew et al, 2009), that only 32 percent of executives are satisfied with their company's innovation-measurement practices. And that percentage has been falling. While most executives—73 percent of respondents—believe that innovation should be tracked as rigorously as other business operations, only 46 percent said that their company actually does so. The majority of companies continue to rely on a handful of metrics to measure the full scope of their innovation activities. Fifty-two percent of respondents said their company uses five or fewer metrics. But that number is starting to rise. A surprisingly small number of companies—27 percent of respondents—attempt to drive innovation by linking employee incentives to innovation metrics. But that number, too, is edging up. The most widely tracked components of innovation are overall company profitability (79 percent of respondents said their company measures it), overall customer satisfaction (75 percent), and incremental revenue from innovation (73 percent). Companies consider themselves most effective at measuring innovation outputs (such as revenue growth, shareholder returns, and brand impact). They consider themselves far less successful at tracking innovation inputs (for example, dedicated resources, such as people and funds invested) and the quality of their innovation processes.

The big problem is how to measure innovation in the company. There are hard metrics - for example, revenues from innovative products, the payback period for investment in innovation, etc. Metrics recommended (Bartoš, Žižlavský, 2013) are in Table 1. The other columns are added assessment with regard to the potential for the future.

Table 1: Hard metrics, Source: own processing by Bartoš, Žižlavský (2013)

Metric	Exactly measurable?	Impact on future?
Return on investment in innovation	yes	little
The volume of sales from innovative products	yes	middle
The share of revenues from innovative products to total revenues	yes	little
Percentage sales growth due to innovation	yes	middle
Lifetime of Innovation	Not exactly	little
The number of patents per employee and year	yes	middle
Profitability of product innovation	Not exactly	middle
The decrease in cost due to innovation	Not exactly	middle
Sales of innovations per employee	Not exactly	middle
The added value of successful patents	Not exactly	middle

Table 1 shows that most indicators are well measurable, but assess mainly the past. Those that relate to the future, at least partially, are harder to measure.

Most businesses measure results using financial indicators. Managers feel that they should be able to monitor innovative projects using mainly non-financial indicators. These indicators are more forward looking and also provide a better assessment of the progress in real time and the probability of success (Ryan, 2006).

Performance measurement is one of the most critical elements of successful innovation. When measurement systems are not aligned with strategy and adapted to the typical portfolio of business innovation, managers lose a key source of information. This is in turn reflected by lower performance and a decline in financial benchmarks.

The well-known adage says that only what is measured, is also governed. That is why even in the metric system innovation potential scale must be constructed carefully.

Moving away from measurements of hard data from the past does not mean that the results are not measurable.

Only systems are created that:

1) are seemingly biased, because they work with the scoring of activities that can´t be accurately converted into units (currency, etc.)
2) create a summary indices based on a comprehensive view of a company´s activity in terms of inputs, outputs and set procedures.

(Milbergs and Vonortas, 2004) describe four generations of innovation metrics:

1) Output Indicators first generation (1950-1970)
   - Expenditure on R&D, Scientific and technical staff, Capital, Intensity of technology
2) Output indicators second generation (1970-1990)
   - Patents, Publications, Products, Changes in quality
3) Innovation Indicators Third Generation (1990-2000)
   - Innovation surveys, Indexing, Benchmarking of innovation capability
4) Process indicators fourth generation (since 2000)
   - Knowledge, Intangible indicators, Network, Demands, Clusters, Management techniques, Risk/return

One such index (generation 3-4) is compiled by Vacek (2010) and focuses on six groups of soft factors:

1) Strategy and Planning
2) Marketing
3) Product, Technology
4) Quality, environment
5) Logistics
6) Organization and Human Resources

In each of these areas 6 questions were posed- together thus evaluated 36 aspects, and finally on a scale from 1 to 4. The evaluation did not add the results up, every area of the data was evaluated separately. There were also collected selected financial data for the last 6 years and it has been evaluated, too. The disadvantage of such evaluation is compiled, it serves only to a single firm for a possible shift in time when it may create a motivational factor.

A little later is compiled the so-called Self-Assessment Innovation Index - SAII (Špaček, 2015), which evaluates not only the groups but evaluates the company as a whole, ie. the percentage of sets in which the company uses its possible innovative potential. SAII methodology consists of 40 questions, classified into four thematic groups (conceptual activities, management infrastructure, resources, operational management of the innovation process), while the maximum number of points that can be obtained from one of the questions is five. It means, maximum number of points to be gained by answering all 40 questions is 200. The distribution in the abovementioned groups is not the same for all groups (see Tab. 2) In the context of self-evaluation, an expert corporate team will choose from each question the answer that is closest to the business reality.

Table 2: Comparison SAII with Index from Vacek, Source: own processing by Špaček (2015) and Vacek (2010)

Section	Question	Impact on the SAII	Index - Vacek	Question	Impact
Conceptual activities	5	12,5%	Strategy and Planning	6	16,7 %
Resources	7	17,5%	Marketing	6	16,7 %
Management infrastructure	9	22,5%	Product, Technology	6	16,7 %
Operational management of the innovation process	13	32,5%	Quality, environment	6	16,7 %
Financial indicators	4	10,0%	Logistics	6	16,7 %
Non-financial indicators	2	5,0%	Organization and human resources	6	16,7 %
Total	**40**	**100 %**		**36**	

Compared with the index from Vacek, the SAII shows the following main differences:

1) SAll has a resource section
2) SAll has earmarked extra financial indicators
3) SAll has questions more focused on process than on state
4) SAll has a different scoring system: scale 0-2-3-5 and 1-2-3-4 points compared to the scale.

The value of SAII:

SAII= obtained point/ the maximum possible points (1)

where the maximum is 200.

Each company is classified into one of the categories listed below according to the achieved scores (see tab. 3). Companies can also monitor their success in the sub-sections or individual key issues.

Table 3: Valuation Assessment based on value SAll, Source: modification by Špaček (2015)

SAII	Rating	Position
80 – 100%	A	An excellently innovative company
60 - 79	B	A well innovative company
40 - 59	C	An above-average innovative company
20 -39	D	A below-average innovative company
<20	E	Non- innovative company

The greatest benefit of the proposed methodology Self-Assessment Innovation Index (SAII) is based on the breadth and complexity of the applied indicators, and typically also on the ability to analyze and evaluate benefits of both break through and incremental innovations. Unlike existing methods, which focus on comparing countries or sectors (European Innovation Scoreboard, 2015), the SAII methodology focuses on evaluating of the innovation potential of individual companies. The SAII methodology does not serve for an external disqualifying evaluation, but it is a tool of self-reflection for companies and also their clue of how to evaluate their own performance using an innovative combination of hard (especially financial) and soft (behavioral) metrics.

Research and results - a pilot survey index SAII

In practice, the evaluation is conducted via software interfaces, which ensure an adequate user comfort. All calculations are run automatically. In January 2015, a pilot survey was held by a

software solution, which was attended by 45 companies, only 19 companies have submitted complete data. Respondents were allowed to anonymity, but we know that it was Czech business executives who manage medium-sized businesses, technical production, and they make innovations. In Fig. 1 we can see the distribution of the results evaluated companies.

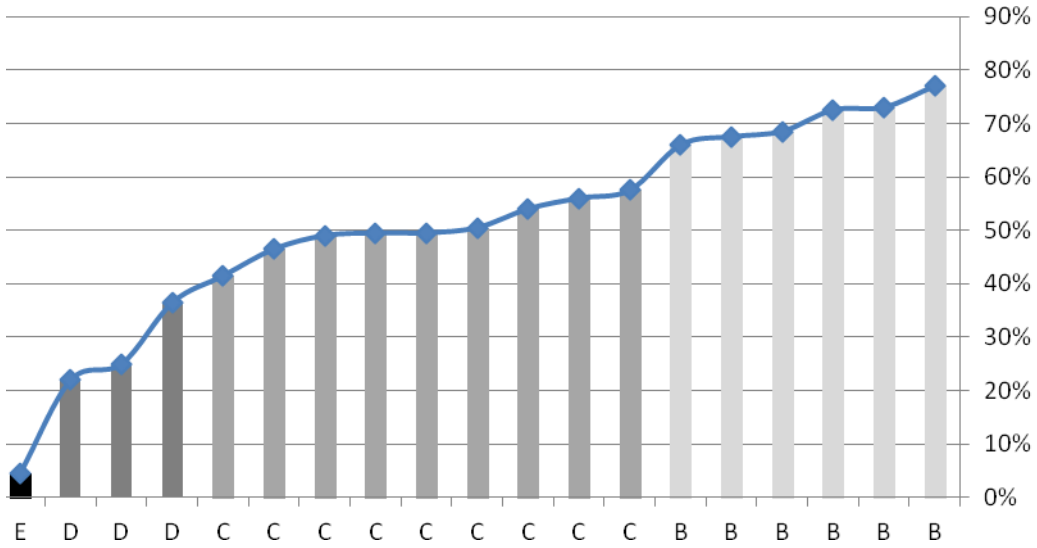

Fig 1. SAII of evaluated companies, Source: own processing

We are very interested in what space the company moved in outcomes between groups. In each section was chosen minimum and maximum result as a group. Opportunities for improvement for the company are illustrated in the so-called. River diagram in fig. 2.

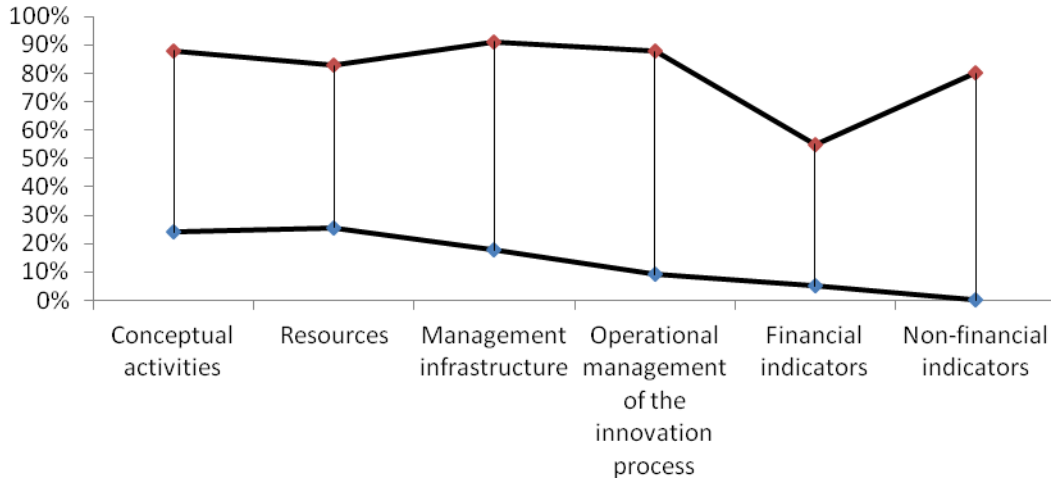

Fig 2. River diagram - real opportunities to improvement, Source: own processing

We can see that the most realistic opportunities for improvement have the most of companies in the field of management infrastructure, operational management and non-financial indicators.

The so-called staircase diagram in fig. 3 shows the status of companies in various areas and their potential for increased activity.

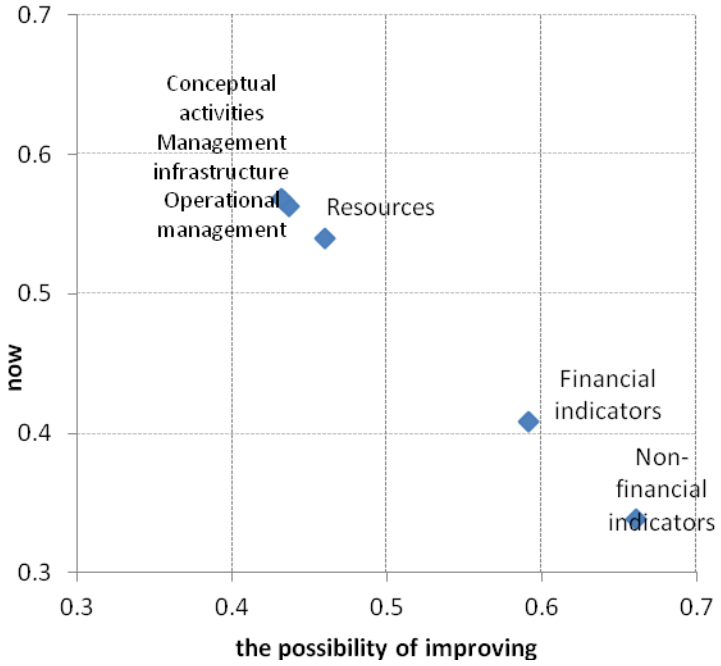

Fig 3. Staircase diagram - groups and its possibility to improve, Source: own processing

Furthermore, we analyzed how together results in the individual groups of questions related. The correlation coefficient was calculated for each group of indicators. Interlinks can be seen in Table 4. The greatest correlation coefficient of 0.89 between infrastructure management and operational management - which is logical and correct when management infrastructure and operational management are linked to one another.

Interesting is the low correlation of financial indicators with other groups. Here it confirms the view that the financial indicators are important for the evaluation of past and motivation, but not as a potential. In other words - they are one of many potentials of innovative behavior of companies in the future, but not an essential one.

Table 4: Correlation between groups of questions, Source: own processing

	Resources	Management infrastructure	Operational management of the innovation process	Financial indicators	Non-financial indicators
Conceptual activities	75%	70%	60%	1%	27%
Resources		76%	73%	28%	39%
Management infrastructure			89%	33%	52%
Operational management				14%	49%
Financial indicators					66%

SAII novelty lies on the idea that they are trying to capture:

- Comprehensive orientation of the company,
- Assumptions of complex construction, development and management of innovation potential,
- There is no comparison with other market players,
- For self-assessment of companies and the finding of reserves,
- Its focus on the future and assumptions,
- Qualitative characteristics that are converted by scaling quantitative.

Conclusion

Managerial practice shows how important is the measurement of innovation for organic development of the organization. Establishment of clear, understandable and transparent methodology is a pre-condition for effective measurement of innovation process effectiveness. The SAII methodology offers a comprehensive evaluation index of the degree of innovativeness of the tested businesses. Self-Assessment Innovation Index (SAII) expresses the innovative potential of a business with the objectivity, including with regard to its ability to reflect modern innovative trends.

It can be stated that it is a measure of the fourth generation.

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Informal Networks. Implications for Management of Business Organizations

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Abstract

The organizational structure of a company (comprising all networks / relationships, formal rules and regulations, and those informal ones) may be a contributing factor for the positive and innovative climate within it. This topic has become of great interest in the theory of business administration, especially over the past two decades, as the KM (Knowledge Management) was imposed to the attention of decision-makers in companies; obviously, to lead effectively certain "knowledge networks" requires a more complete vision of the informal relations / networks that occur in the life of a business organization.

Therefore, this paper aims to investigate the impact of informal networks on organizations; this is because he is strongly mediated by the relationship between its interest and the common goal shared by the network members. If they are consistent, informal networks have a positive impact on organizations.

Consequently, we conclude that the strategic directions covered / proposed by top management, together with its formal and informal structure is considered over time in a kind of framework or "matrix" that can facilitate more or less the performance of companies.

Keywords: networks, informal relations, knowledge networks

I. Introduction

In each organization and therefore, each of its components (service, office) employees form - consciously or not - informal groups and networks with similar customs, duties / tasks, rituals; these relationships can evolve beneficially over time from an "informational" type to a "special" type, as confidence and / or the mutual benefits between the members of such a structure strengthen.

Thus, on the one hand we deduce that top management can encourage more or less the consolidation of informal relations between employees and / or between departments; it can motivate a team / group and less motivate a person. Depending on the nature of a company, used technologies, the type of processed knowledge and other similar factors the superior management may use a participatory management or a predominant autocratic one; so, the type of leadership applied at the top of the organizational chart will help in some way to the climate that is established between employees and their native tendency to associate in informal networks.

On the other hand, it must be said that the hypothesis of "blocking" or restricting employees from a company to build and strengthen informal relations / networks is not an acceptable situation in the modern management; this is because the top management that aims such a course of action will inevitably come into contradiction with certain regulations / social norms on human rights, freedom of opinion, freedom of expression etc.. So, the following question arises: "What is the right direction of action of leadership to build informal networks of employees that will favor the exploitation of knowledge and annual performance?"

It is difficult to give a succinct and sufficiently argued answer for the previous question, since the concrete situation of a company, the type of organizational culture, the period of business and the vision of top management are just some of the conditions imposed on the strategies or directions of action leadership may take.

From a theoretical perspective, for a manager to become a real and efficient leader in leading a certain "sequence" of the organizational chart he needs vision, realism, ethics and courage in formulating challenging tasks for the subordinates and then suggesting ways to meet those tasks.

II. Sources of formation of informal networks of business organizations

Informal networks form and evolve naturally beyond the interests of the organization (they may coincide, however, with these interests, in which case we call them positive informal networks or can contravene with to the overall goal of the organization, in which case we call them negative informal networks); the individuals create such networks due to common interests and concerns, social needs or simply due to friendship. Depending on the purpose of their creation, networks are made up either of related persons who share a desire to spend time together (common concerns) or from people with other common interests, which usually dissolve when those interests change.

To identify the main sources of creating informal networks a first step was to identify the main differences between the formal and the informal networks of business organizations; Table no. 1 summarizes these differences.

Table no. 1 Formal networks vs. informal networks in organizations

Elements	Organisations	
	Formal	**Informal**
Objectives	Organisational	Individual
Structural components	Functions/offices	Individual roles
Information feeds/Level of communication	Function of formal position	Function of proximity/approach: physical, professional, social, formal
Level of authority/power	Legal authority	Capacity to satisfy the individual needs (usually through an expert)
Control mechanisms	Rules	Norms
Hierarchy	Vertical	Lateral
Individuals membership	Specific	Ambiguous
Communication	Structured	Unstructured
Origin	Plannned	Spontaneous
Group leadership	Explicit	Tacit

Source: adapted Han, P. E. (1983), The Informal Organization You've Got to Live With. Supervisory Management, 28 (10) 25-28 and Farris, G. F. (1979), The Informal Organization in Decision-Making Strategy. International Studies of Management & Organization, 9 (4), 37-62. in Waldstrom C., (2001), Informal Networks in Organizations - A literature review, DDL Working Papaer No. 2

The two forms of networks (formal and informal) are interrelated, each completes each other; both influence the behaviour of individuals and are strengthened through culture, history or other factors of influence.

Moreover, starting from this composition of networks a question arises: why do individuals form informal networks and relationships in an organization? An intuitive response is that people are social beings even when placed in a formal setting, i.e. at work (natively rational individuals tend to constitute in networks to protect themselves, to get more power, to solve common problems etc.). Almost invariably rational individuals will tend to organize themselves in various types of social networks (whether formal or informal). From the perspective of each individual, as a "social actor", the membership of a network and the position of network member mean meeting certain needs or obtaining some benefits.

To identify the sources of constitution of the informal networks within companies, it is appropriate to recall the six sources of creating the identity of the individual, according to Huntington (2004); this is

the macroeconomic view social regarding the social capital and the values in which a person really believes (Huntington discusses the following sources: ascriptive, cultural, as religion or language, territorial, political, economic as profession or company; and social, which include friendships). From a microeconomic perspective, we deduce that particularly, the economic and social sources underpinning the construction of individual identity will be included as sources of constitution from the basis of informal networks of various organizations (making this statement does not exclude the influences related to the origin of the person, culture, politics, etc.).

Two authors who have examined closely the sources of formation of informal networks in organizations, namely Baker (1981) and Han (1983) suggested the following classification of these sources:
1. The need for affiliation. To satisfy the need of belonging to a group, the individuals tend to join friendship and support networks; this makes the individual's freedom of action limited, subjected to constraints or norms / rules of behaviour.
2. Identity and self-esteem. Belonging to a group or an informal network can develop, strengthen and confirm individuals a sense of identity and esteem due to personal interactions.
3. Social reality. As formal networks provide a limited framework of expression of feelings, emotions and personal way of thinking, informal networks can serve as an "agent" of structuring and supporting a common social reality; thus, the individuals can reduce uncertainty and stress. Also, informal networks can compensate feelings of dissatisfaction regarding the formal leader, the organization or the organizational communication system.
4. Defense mechanism. Group cohesion can act as a mechanism to reduce uncertainty and as a force of each individual to respond to a threat.
5. Risk reduction. Unconscious efforts of individuals to control the conditions of their existence lead, most often, to the creation of informal groups. Thus, by aggregating benefits and reducing costs, individuals perceive less risk as a member of the group, than as an individual.
6. The need to know. One of the primary characteristics of informal structures in organizations is their communication network, often compared to a "vine" (grapevine). Studies have shown that this type of communication is surprisingly accurate and quick; in situations where information is critical for a person, the "grapevine" communication can become an effective tool for gathering information, thus avoiding the formal channels of communication.
7. Need of help, support and power. Satisfying common interests such as position in the organization, wages or other issues.

Given the issues invoked synthetically in table no. 2 we present the most important sources of formation of the informal networks in companies and / or between the company and other external entities.

Table no. 2 Sources of informal networks

Affinity Friendship, trust and interpersonal relationships	**Political** Influence, power, authority
Technical Consultancy, professional / technical information exchanges, knowledge and innovations	**Cultural** Values, information flow and communication

Source: adapted Waldstrom C., (2001), Informal Networks in Organizations - A literature review, DDL Working Paper No. 2

So, from our point of view, the informal networks are primarily based on trust between the actors, common interests and / or benefits expected by all members of a group of employees / individuals; such informal networks involve regular exchange of information periodical/ permanent and certain networks of communication between the group members. A first source for the formation of informal networks is that given by the bonds of friendship / affection / collegiality that typically occur between partners who have equivalent status (homophily).

Secondly, we can discuss a political approach regarding the establishment of informal networks which refer to individual and group goals; thirdly, a technical approach involving work-related relationships and form around people holding technical or professional power in an organization; and not least, a cultural approach, resulting in the way of transmission and sharing of tacit and implicit values of the organization.

In the management theory is an unequivocal distinction between a group of employees and a management team; switching from a group to a team takes time, a proper leadership and the gradual building of a climate based on the trust between the members composing such a structure. From the perspective of social studies and various angles on social capital, it is not very clear how certain informal relations differ from group to group within an organization (group cohesion, team spirit, the characteristics of an effective team, etc. are addressed relatively confusing in studies) (Avram, Shockley-Zalabak, 2008, p. 242-257). However, it is recalled that informal relationships between "n" employees (a service, office, etc.) can assist in building effective management teams to the extent that is based on friendship and fellowship at the workplace; such relationships can evolve beneficially from an "informational" guy to a "special" guy, as it strengthens trust between the members of such a structure. In table no. 3 we summarized the three types of relationships between members of a group of employees and the benefits that can be developed in time to support the organization's performance.

Table no. 3 Relations of friendship / fellowship between the members of a group of employees

Functions	Information relations	Collegial relations	Special relations
Primary functions	Share of information	Career strategies Professional relations Feedback Friendship	Confirmation Emotional support Personal feedback Friendship
The level of commitment	Asks little, but offers many benefits	Share of information while trust is growing	It's equal to “the best friend“
The intensity of the relation	Social, but limited in sharing personal experience	Allows an enlarged self expression	Powerful aim of relation
Work results	Increases the individual's attention regarding the activity/work of the organization	Limited support for the exploitation of the discussions about family and work	Large availability for support and for work results
Satisfied needs	Source of information regarding the career opportunities	Gives direct and honest feedback	Offers the chance of free expression of personal and professional dilemmas, of vulnerability and personality

Source: adapted Avram, E. Shockley-Zalabak, P. (2008). Organizational Trust, University Publishing House, Bucharest, p. 254

III. Informal networks between individuals and / or between organizational groups

Since a large part of the theory in business administration / management has not addressed solely the issue of informal networks / relations, we resort to a general analysis on these structures. In our opinion, we must underline in the beginning the idea that there is no preset pattern (and possibly known / reviewed in management theory) based on that describes how they arise, evolve and reinforce various informal relations and informal networks more or less stable between "n" members of an organization. Therefore, it must be concluded that certain methodological tools that sociology and organizational psychology (sociogram, communigram etc.) suggest and which are useful in the analysis of informal relationships need to be customized for a specific type of company / firm.

From the perspective of general approach in sociology, we will discuss about two known issues in this area (Hollander, 1978; Rabajante 2009 etc.):
a. The notion of sociogram constituting a sociometric instrument and shows us the graphic pattern at the time of forming a group and / or in the context of the development of a social group; simply put, the sociogram is the graphic representation of the relationships that may arise between "n" individuals when they inter-relate, voluntarily or not, as "actors" of a social group. The theory argues that sociogram plotting to capture informal relationships in a company constitutes in an extremely useful tool when there is a KM strategy and seeks to maximize the flows of knowledge / information for all departments that make up the organization chart. The classic version of the sociogram for "n" actors that make up a group of people locate in the center of the graphic structure a person or a sub-group that will play the role of "node" (later we will discuss the role of hub and others); other persons or sub-groups according to the intensity of the relationships or other characteristic regarding the "node" will be distributed concentric in a certain distance from the central area of the entire structure (each will be referred as isolated, rejected, etc.).

From a theoretical perspective, drawing a sociogram for a certain group of people requires an administrator and establishing some criteria that are presented to the participants in such proceedings; there are certain aspects regarding the drawing of a sociogram among which we mention:
The concept of reciprocity between two members of the group and that is the binder that gives cohesion to any social group (we are talking of confidence as a basic element of the social capital, but we also invoke the notion of reciprocity);

The concept of empathy between two or more members of the group that relates to the way a person perceives / understands the other and the expected behaviour of others;

Other notions or concepts that are used by sociologists to describe the relations between the "n" individuals forming an informal network (the distance between some members of the network to its center, the criteria by which we can associate members, the duration in time of some relationships that occur between various members etc.)

b. From the perspective of any social group, we mean that such groups are established and operate under norms / rules that are accepted by the members of that structure. After drawing the sociogram for any group, there is the problem of identifying communication channels between the members of groups and various types of network communication that can occur in this respect. Thus, the communigram is the graphic structure of communication relationships between the members of a group of "n" people; theoretically, the decentralization of communication networks is recommended to ensure all stakeholders an equal access to knowledge and a good position in the group structure. Among other issues, we observe that any informal group that represents a company and / or society is based on communication between the "n" members; the lack of communication channels and the process itself leads to the disintegration of the informal group (simply put, it is hard to imagine the existence of a social group of "n" members, for which there is or not a drawn sociogram, in the absence of some usual processes of informal communication among members; the pattern of these communication channels has also the shape of an ad hoc network, that can be associated largely with the pattern given by the sociogram). According to Johnson, the communigram would constitute for that matter a special kind of sociogram of an informal group and he shows us the pattern of the relationship of communication between the members that make up that group; in recent years there have been developed several software programs to design / simulate the communigram of some companies as a graphic network that takes into account the channels of informal communication between individuals and groups (Johnson, 2009, pp. 38-39).

Mintzberg (1999) suggested that since the 90s there is no specific way to identify and interpret these networks / informal relations which are established and evolve between "n" people; however, a number of common elements intervene (they are in direct contact with the instruments promoted by sociology to study / analyze the informal relationships) respectively the nodes (sometimes called

actors, sub-groups or individuals etc.) and relationships / links between nodes of a particular structure (sometimes relationships are called links).

IV. Knowledge and management of informal relations

When discussing about knowledge as a distinct resource of the organization and about building a formal / informal network to create and exploit knowledge the tasks of a company's leadership become more complex. This is because the strategy in KM (Knowledge Management) and that of HR (human resources) should take into account the employees' tendency to form in informal networks (ie hypothetical advantages and disadvantages for the organization).

In our view, the conversion of explicit knowledge into tacit and vice versa through mechanisms of socialization, externalization or other similar ones can be facilitated by various informal networks that constitute between employees when they have a common and positive purpose for the company. Consequently, the work of creativity and innovation of the company can be enhanced in turn, if it facilitates access to new information and their conversion between different classes.

In Table no. 4 we present the relationship proposed by Johnson between knowledge networks (KN), creation, transfer and implementation of knowledge in business organizations (Johnson, 2009, p. 173).

Table no. 4 KN and creation, transfer and implementation of knowledge

The content of the knowledge network	**Stage/point**		
	Creation	**Transfer**	**Implementation**
Explicit and tacit knowledge	Tacit	Mixed	Explicit
Key role	Novelty	Contagion	Influence
Equivalent status	Low	Broker involvement	High
Differentiation	High	Moderated	Low
Integration	Low	Slow link	High

Source: adapted from Johnson, Managging Knowledge Networks, Cambridge, Uk, 2009, p. 173

In Johnson's view, certain aspects are specific to informal networks that arise in organizations and join closely with KM strategies for the acquisition and conversion of knowledge; in the view of this author we must distinguish between certain elements of a knowledge network (KN), understanding that this network is associated largely with the informal network of "n" employees; the considered elements are (Johnson, 2009, pp. 150-173):

- The KN content: is given by explicit and / or tacit knowledge which is distributed in the structure of the informal network (part of it may also have official character);
- The key role that a KN actor plays: is given by what we called "node" and / or "hub" of an informal network (most often in this form we will meet an expert on a particular field, but it can also be in knowledge manager, knowledge engineer, etc.);
- "The status equivalence" (Homophily) represents the native trend of individuals to interact with others who are similar as status, religion, education and other social issues (in some cases proximity between two different social groups as status can occur through a knowledge "broker"; we previously discussed about the gatekeepers and pulse takers that occur in the operation of a normal informal network, any of this category of employees can take over the duties of a broker);
- Differentiation within the KN shows the different role that falls to some groups of employees or structures set up to exploit knowledge on a competitive basis (same competition may be based, however, on cooperation between members and it is especially necessary for sharing tacit knowledge; cooperation can be formal or informal according to the organization's KM strategy);
- Integration in KN: is the opposite vision of what can be achieved through differentiation in the acquisition and sharing of knowledge (primarily through the informal networks but also with the involvement of some formal / official structures; the realities in a company do not allow

"breaking" the informal networks from the formal ones, this can take place only in abstract level, i.e. methodological).

Finally, the issue of the report between a company's leadership and the exploitation of informal networks in the direction desired by the organization remains, we believe, a complex subject and insufficiently clear in the management theory. It is pretty argued that the effective leadership in a company requires interpersonal influence, vision and a model of positive behaviour for others; various categories of executives have a certain power and role in learning and sharing information / knowledge (Mintzberg, 1984).

In this view, leadership is visible in positive and innovative behaviours' of employees such as: new ideas and processes; the participative management style, we say, is crucial in these processes. Moreover, in terms of change, leadership is the force that spreads the "seeds" of a motivating environment for the other employees; it becomes a mediator, an "actor" that promotes and transmits new convictions, ideas, vision and objectives etc .; above all, the leader gives collective confidence / faith for all or most of the subordinates who direct their effort consistently. Another issue that arises related to the position held by a manager and as far as he gradually becomes in time a genuine leader is the one that refers to the process of delegating some responsibilities / tasks to lower levels of the hierarchy; is unclear, we believe, how should the process of delegation be carried out so as to valorize the informal relationships that already exist between the subordinates. In our opinion, it is ideal when executives of a company support the strengthening of some positive informal relations between subordinates and moreover, take into account such relationships in the process of delegation, creation of task force teams or other similar directions of action. According to the opinions of Thorlakson and Murray (1996) the simple empowerment of the employee is not the guarantor of knowledge transfer and the generation of innovative processes; a good communication, team cohesion, a flexible management style are the decisive factors.

In summary, the main contributing factors, we believe, to the formation of optimal informal relations and with implications on the organizational performance are:

- The quality and the type of leadership applied at top and middle management;
- The commitment and dedication from the management (demonstrating a responsible, credible, competent and fair behaviour);
- The coaching from the management (directing employees to socialization processes and other mechanisms for knowledge sharing through formal / informal networks);
- The participatory management and positive behaviour patterns applied by various executives (gradually, through persuasion, perseverance and patience);
- Building confidence over time (management of change).

V. Conclusions

From the perspective of managing informal networks, we believe that this raises a number of implications for the management; first of all, the mere fact that managers are themselves involved in a variety of informal networks (in and outside the organization); secondly, the informal management structures are intrinsically alternative / temporary - since different people with different skills are required by a number of individuals at certain times, the informal leaders tend to be "temporary" and always changing to meet the various needs of the group. Thirdly, the informal background of manifestation of the influence and the power can prove to be a real "laboratory" to test the skills of future managers to maintain a balance between formal and informal requests. Moreover, Johanson (2000) and Simon (1969) pointed out that informal networks tend to develop hierarchical structures, thus creating the need for informal leaders; also, unlike the formal structures, in the informal ones, the most important people or subgroups of people are not from the top, but those at the center of clusters / groups of interaction.

Therefore, given the issues, there can be suggested certain strategies for leadership, to build and strengthen informal relations with positive impact to the overall strategy of the organization:

- The gradual establishment of a climate of trust by the decentralization of communication networks and free access to knowledge / information and by the tools to motivate groups and management teams (jointly motivation will generate jointly interests and benefits);
- Periodic analysis of informal relations that constitute in time between employees and / or departments from the organizational chart by conducting studies on sociogram, communigram and other patterns of informal / formal relationship; first, the type and nature of informal relations must be known (whether there are excessive conflicts between the groups; what is the level of organizational stress, which persons are compatible with each other via status, social position and owned expertise, etc.), because only later on these relationships to be enhanced by the superior decision maker;
- It is relevant what Fukuyama (1997) states: in organizational context, social capital and social networks should be associated not with the ability of individuals to work under the authority of a person or a group, but rather to their ability to form new relationships and to cooperate in new terms of reference.

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Transfer of Integrating Space Capabilities within a Generic Model of Resilience Governance

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Abstract

The development ofthe importance of space systems and capabilities in the functioning of critical infrastructures has led to the point where some space systems themselves can be considered critical infrastructure or critical components of the system-of-systems. One of the most important set of applications is related to resilience governance, where space systems might eventually play an outsized role. This is leading to a critical dependency issue which will generate new risks and vulnerabilities, in addition to the expected benefits. The present paper proposes a generic model of crisis oriented resilience governance with full spectrum use of space capabilities as an illustration of what can be achieved, exemplifying each step with real world inspirations and underlining other interesting dynamics, such as the security risk borne of the growing dependency on space systems themselves.

Keywords: space systems, resilience governance, critical infrastructure protection

Introduction

Since the launch of Sputnik, the first manmade satellite, numerous systems have been placed in orbit to provide specialized services to a growing body of users and, ultimately, an even wider array of beneficiaries. Space capabilities range from communications, positioning, navigation and synchronization to Earth Observation and are key enablers of a wide range of applications, such as precision farming, the management of global supply chains, the management of global financial markets and data flows... Critical Infrastructures (CIs) are socio-technical assets, systems and organization, both small and large scale, whose disruption or destruction would cause material and human losses to society and might even lead to reverberations throughout other interconnected systems,as stated byMoteff et al (2003). The European Union's Program for Critical Infrastructure Protection acknowledges such critical infrastructures as transport, energy, food supply, health, education and others. More and more all these infrastructures are integrating space capabilities into their functioning. They, themselves, constitute a system-of-systems. Muresan and Georgescu (2015) explain that in the meantime, space systems have reached a level of importance in the functioning of critical infrastructure system-of-systems that they can be described as having achieved criticality, and become critical infrastructures in their own right. One of the main applications of a wide array of space capabilities is in crisis and emergency management, in a narrow sense, and resilience governance at the level of societies and groups of societies in the wider sense. Resilience is the ability of a complex system, such as a human society of varying sizes, to withstand the harmful impact of unexpected negative events while mitigating the damage caused and enabling the rapid resumption of a normal state of functioning,as per Vugrin et al (2010).

Critical space infrastructures vs terrestrial infrastructures

Critical space infrastructures differ from terrestrial infrastructures in a number of ways:

- There is a significant economic barrier of entry to developing infrastructure in space, relating to the cost of the system and of its launch;
- The marginal productivity of a new space system unit must be very high to justify the cost, meaning that the number of satellite units in space is often the minimum required to meet demand, reducing redundancy;
- Thus, their criticality is increased, because every satellite is used to its very limit for maximum efficiency and gain. There is little extra or reserve capacity for the provision of critical space services. Easton (2015) is stating that even the American military, which does not have the constraints of private actors, must route 90% of its communications through vulnerable civilian systems because of insufficient military satellite capacity. Efficiency itself is, to some extent, and anti-resilience concept, since it often means setting up a system with the illusion of the permanence of ideal circumstances (just-in-time inventory provisioning etc.).
- Replacing space systems is also costly and time consuming;
- A lack of standardization and interoperability because of limited weight capacity for missions, leading to specialized units whose functions are neither easily replaced nor easily supplemented. Another consequence is the current lack of refueling capability, which limits the useful lifetime of satellites even when the components themselves are still operational.
- Space systems are expected to be continuously active in one of the most hostile environments known to man, replete with kinetic and electromagnetic threats which occur on a daily basis, leading spontaneous malfunctions being a common occurrence;
- While space is a vast area, the dynamics of orbital movement and the global distribution of demand for space services mean that most space systems are clustered in orbital bands catering to the most important space faring countries and consumer markets. This means that collisions with debris are a real possibility, and even collisions with other satellites, active or inactive. This uncertainty adds to the cost of developing and operating space systems;
- A majority of space systems are dual use, meaning that they have also military applicability, which complicates the issue of access to technology, regulated usage and other forms of restrictions. For instance, the American GPS system is a military project and, while civilian use has been encouraged and greatly expanded in the last few decades, the military reserves the right to regulate or terminate service to civilian users, even in nations allied to the US, should the strategic situation warrant it. The European Galileo system was developed with the express goal of excluding any provision that may limit normal and legitimate use.

There are also concrete and specific threats to critical space infrastructures:

- Space debris – the accumulation in orbit, due to natural processes or human activity unregulated to minimize debris production, of objects ranging from a few millimeters in size to whole satellites which constitute a collision hazard. While there is a natural process of atmospheric re-entry, it is viable only in low orbits, and, for all intents and purposes, space is one of the least regenerative environments known to man. The most active and crowded orbits are also some of the most dangerous and come to resemble minefield, where even whole satellites may collide with each other at hypervelocity;
- Space weather – a term describing the charged particles, radiation and other phenomena which result from solar activity or are present in the ambient space environment. According to Baker they represent major threats to satellites and other space assets, which are routinely damaged or destroyed by highpoints in the solar cycle of activity. Even terrestrial infrastructures are affected by space weather, damaging power grids, interrupting communications even through land-based systems and being able to damage systems which depend on electricity and circuitry – meaning all systems, especially through the potential for cascading disruptions. As per Royal Academy of Engineering, efforts at hardening both space and terrestrial systems are necessary to prevent the

grave losses that can be incurred by space weather phenomena at levels previously recorded in history, before mankind was so vulnerable;

- Manmade threats, as described by Grego in "A History of Anti-Satellite Programs",as deliberate human threats to space critical infrastructures are many, varied and highly efficient. Their development dates back to the beginning of the American and Russian space programs, which had an important military component and a "dual-use" philosophy regarding the development of new technologies. Gheorghe andVamanu(2007) stated that many actors in the field of space develop anti-satellite systems of legitimate technologies for protection that can be modified to become efficient anti-satellite weapons. They range from the easiest and most cost accessible means of inflicting damage (cyber attacks, jamming of ground station) to highly sophisticated missiles or laser attacks which blind sensors or destroy satellites entirely. Some of the anti-satellites capabilities are predicated on replicating the effects of the specific threats above, like electromagnetic pulse (EMP) strikes replicating space weather phenomena, and kinetic attacks both destroying space assets and creating new debris that act as a minefield.

The generic model of resilience governance

Resilience governance complies a complex set of tasks, such as the gathering of data, site selection, risk assessments under an all-hazards approach etc. Space systems are an increasingly utilized tool in all of these instances, with Earth Observation capabilities becoming not only more advanced, but also more accessible as pricing and business model.

In the past, integrating space capabilities towards a generic model of resilience governance has been constructed piecemeal, through incremental addition of new applications and new service capacity. Based on this experience, it might be possible, in the future, for a country or a security actor to develop its resilience governance system, from the ground up, within a space paradigm.

The major components of this system follow the natural course of a crisis and emergency situation, which has a before, during (in progress) and after phase where specific processes must be attempted that involve space capabilities.

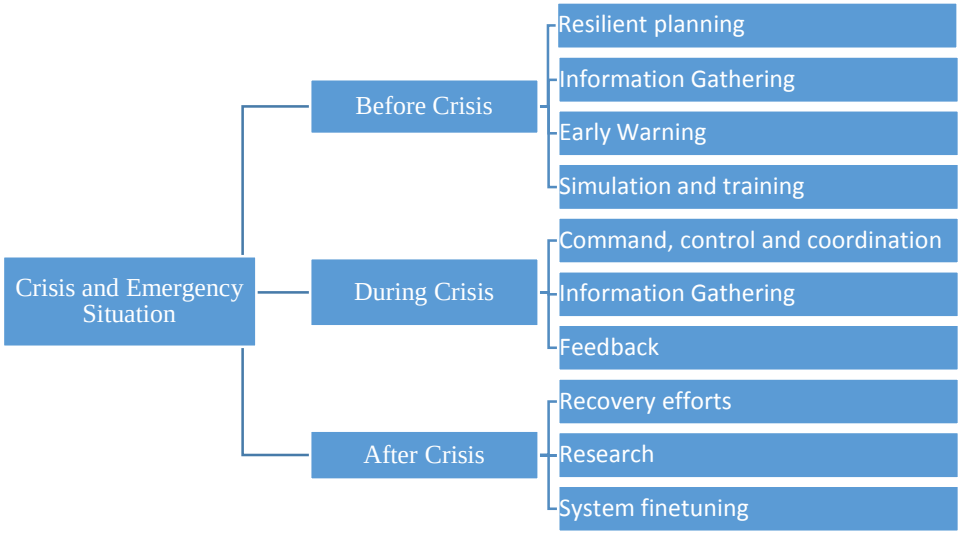

Fig.1 Space capability implementation within crisis management

Fig.1 is especially useful as a guideline for space capability implementation in sectorial threats, and the actual examples given will be selected with a bias to particular sectors that underline the seriousness of resilience governance.

The before phase – while it may only be a rhetorical flourish to claim this as the most critical phase of a developing crisis and emergency situation, it is evident that, for a generic threat, the proper implementation of resilience governance components during a before phase can either prevent the materialization of a negative event or minimize the level of damage and disruption to normal activity that it would generate. Space systems are a critical addition to these processes and can be reliably integrated into them.

Resilient planning component– before the generation of risks, vulnerabilities and threats, there is a development process for the critical infrastructure whose resilience will need to be assured. Critical infrastructures form the bedrock of societal development at economic, social and political levels, and their planning, development and implementation increasingly reflects precepts developed under Critical Infrastructure Protection (CIP) research, with the goal of minimizing threats and maximizing desirable traits that have been defined so far – resilience, robustness, flexibility, interoperability, graceful decline etc., as stated by Hokstad (2012). This line of thought is applicable not just to technical assets, like power plants, factories and ports, but also to organizational infrastructures, like national defense and public administration, which both the American and European frameworks for CIP recognize as critical infrastructures.

Information gathering – during the functioning of critical infrastructures, space systems can be employed for continuous and low cost monitoring of the site and assessing the potential for changes in the underlying environmental conditions of the site's area, in the larger definition of environment, which includes various elements and phenomena. The space systems also enable a wider net for information gathering, with their capacity for observing larger areas and for enabling integration of numerous data points from other users, adding a new dimension to the more parochial paradigm of in-situ monitoring. According to Hame (2013), nuclear waste repositories can be continuously monitored for natural events or for attempts at terrorist or criminal subversion.

Early Warning – the frequency with which space systems enable monitoring, in addition to their capacity for sustained research, also enable the identification of threats or trends that can lead to the threats. Ultimately, this leads to early warning capacities which are vital for the minimization of damage and rapid resumption of normal functioning. Weather satellites may spot the formation of a hurricane or other extreme natural phenomena. On the human side, satellites are used by the Comprehensive Test Ban Treaty's International Monitoring System to detect preparations for nuclear tests, activities related to nuclear proliferation which are considered unlawful and to verify breaches and produce incontrovertible evidence in a passive way which is politically acceptable, as stated by Jasani (2014).

Simulation and training – the requirements for the build-up and maintenance of the active component of a resilience governance system also include the training of personnel and the running of simulations and scenarios for the refinement of protocols and procedures and the sharpening of reaction times. Space systems will naturally be a component of these processes, since their success depends on simulating the existing environment, in which both the infrastructure system-of-systems and the resilience governance apparatus itself utilize space capabilities.

The phase during the materialization of a negative event – space systems are an increasingly important tool in the actual management of a crisis event, providing information gathering and communication capabilities. With regards to our model for crisis and emergency situation, the authors identify three key components to which space systems are contributors or even main elements.

Command, control and coordination – certain events, such as disasters and terrorist attacks, may undermine ground based communication systems. Coupled with the necessity of coordinating field assets, there is a resulting need for reliable communication that is far removed from the crisis event in question. Space systems provide the adequate vector for asserting the role of the chain of organization and maintaining the upper view over the crisis and the decision makers' response to it. For instance, during the Fukushima nuclear crisis precipitated by an earthquake and tsunami event, satellites such as Kiku-8 and Kizuna provided crucial connections to response teams and to municipal and national authorities.

Information gathering – real-time reconnaissance by satellites is crucial for the modern approach to crisis and emergency situation management process, though it should still be supplemented, to the extent possible, by "boots on the ground". During the Fukushima crisis, Earth Observation satellites provided key readings of flooding and radiation levels, GPS signals and ground stations were used in conjunction to measure tectonic activity – crustal deformation and ground subsidence. The use of space system capabilities can be tailored to the individual requirements of each negative event.

Two key issues stand out during the Fukushima crisis and the employment of space systems by the competent authorities, as said Iwasa within "Disaster monitoring activities in Japan". The first is that it provided a vivid example of the reliance on space systems and how this growing dependency creates new risks, vulnerabilities and threats, which will be described in a later section. The main Japanese Earth Observation satellite with instruments adequate to this particular event, ALOS, spontaneously malfunctioned just after the disaster, depriving the decision makers of the provision of its critical services. The second is that this loss was made up for by the use of other Japanese satellites, but primarily by international partners allowing information sharing from their satellites.These types of cooperation are increasingly necessary and common throughout the entirety of the space services industry, because of the basic characteristics of space systems as an infrastructure – their cost, their versatility, their vulnerability and their difficulty of replacement, as well as the rapid advance in demand for their services.

Feedback – as a composite process, it includes elements of the previous entries in this subheading, but the authors chose to illustrate it separately because of its conceptual importance during a crisis or emergency situation. Space systems are becoming an important backbone of the feedback loop that keeps decision makers up-to-date not only with the crisis environment, but also with the results of prior decision and actions, enabling them, almost in real time, to shift resources allocation, change tactics, correct errors and respond to both foreseeable and unforeseen challenges.

The post-crisis phase – involves not only efforts to reestablish business continuity and quality of life, and recover from damages, but also the important processes through which future negative events may be avoided or their impact lessened. Often, these final processes are neglected in favor of the often arduous recovery, but they are vital for long-term improvement in the resilience of the system-of-system. Space capabilities play an increasingly important role here as well.

Recovery efforts – even after the urgency of the crisis situation has passed, space systems use is warranted to speed up the recovery process by providing information, assisting communication and coordination and providing replacement capacity for damaged terrestrial systems, such as landlines for communication or ground station instruments for monitoring. Should military assets be deployed to assist in early phases of the recovery, such as clearing debris, providing aid and logistics or preventing a breakdown of public order, then space systems assume a greater role in the short-term maintenance of national security, by enabling maritime border surveillance, monitoring activities of other military forces or other applications.

Research – space systems permit cost effective forms of monitoring which can provide researchers with a better understanding of the consequences of the negative event, or allow them to prepare for a negative event by ease of access in studying sites for other, similar events. For instance, after the Fukushima

Crisis, Japanese researchers began collaboration with Ukrainian counterparts for the study of the Chernobyl Nuclear Power Plant area to understand the long-term implications of the release of radioactive materials in air, soil and water, as stated by Yoshimoto (2013). This research will be important for the recovery of the Fukushima area and the refinement of security and civil protection procedures, as well as mitigating as much of the long-term damage as possible.

System fine-tuning – as a direct result of the research stated above and the impetus given by the recovery efforts and the determination to increase societal resilience, the resilience governance system may receive a fine-tuning to which space systems shall contribute and of which space systems shall also constitute a greater part as the next frontier in resilience assets. This also fits in with the trend to take advantage of the technological and price availability of nanosatellites system capability to launch more systems and create economies of scale, redundancy, substitutability, more rapid replacements and so on. Four of those systems are of the Hodoyoshi line. It is very likely that Japanese development of space systems in support of resilience governance will not end here, and further development will lead to a more intricate interplay between ground assets of the national disaster response system and other resilience mechanisms and space systems. The resulting state-of-the-art and best practices will then be a model to other actors.

The authors notice that the model proposed above is not a straight line just because it is set in chronological order. It is actually circular, and the final processes of the last phase of the resilience paradigm will blend seamlessly with the first processes of the pre-crisis phase for the next societal upheaval.

Model's limitations

The paradigm must be completed conceptually through the acknowledgement of a significant aspect of Critical Infrastructure Protection theory, whose study and mapping is being formalized as the development of the discipline-of-disciplines Infranomics – the interdependency between critical infrastructure systems which leads to the risk of cascading disruption of their functioning. Moreover, this interdependency is not linear, but node based, resulting in every infrastructure being influenced, to varying degrees (both in a conceptual and circumstantial manner), by many other infrastructures. The cascading disruption, failure, or decline feeds on itself through this web of relations, leading to a vicious cycle where one infrastructure's decline rebounds back to it to amplify its dysfunction and the subsequent contagion, as states Katina and Hester (2013).

Due to interdependencies between countries with regards to their provisioning of space services and the factors described above which limit the number of space systems, there is an important deterrent against formal militarization of space and the use of space as a vector for conflict. Long (2008) mentioned that The Rand Corporation has described a logic of "mutually assured destruction" that prevents countries with ASAT capabilities from making more than token shows of force, especially if the particular ASAT technology is the kind that would affect the global commons, such as EMP weapons or debris generators. Rogue states and non-state actors are left in this situation with both the inclination to use ASAT weapons and a lack of responsiveness to the normal logic of deterrence. While not all ASAT means are at their disposal (with the exception of North Korea's space program), there are options, such as cyber-attacks, that present a very good cost and risk ratio to gains.

Conclusion

Space systems are an important tool for resilience governance because of unique capabilities. They provide significant services in all stages and processes of response to a crisis and support decision makers in long-term efforts to increase the resilience and robustness of society, enhancing quality of life and

business continuity. The authors have sketched a paradigm of resilience governance with full utilization of existing space capabilities, whereas, currently, there is a haphazard approach towards integrating space capabilities in the decision maker's toolbox. Over time, the lowering of the cost of space systems, the cost of access to space services and the increase in the quality of rendered services will lead to a more widespread use of space systems in resilience governance with all-hazards approach. Meanwhile, we must be mindful of the characteristics of space systems, which have their own risks, vulnerabilities and threats whose materialization may impact resilience governance processes because of established dependencies. Various means can be used to increase the resilience of the space systems and the resilience of the systems integrating space capabilities, both technological and organizational. The trade-off seems worth it, given the variety of threats which are more easily managed through the use of space capabilities. In developing this paradigm of resilience governance based on space capabilities, a concomitant dependency on the proper functioning and availability of these space systems is also being nurtured. The concept of *criticality* which has been developed for infrastructure systems is also applicable to space systems, to the extent where they themselves can be considered critical infrastructures. The criticality of space systems is evident across multiple fields, through the growing use of rapidly developing space capabilities, and is apt to be described through the existing means for assessing the criticality of terrestrial infrastructures. However, for the purposes of this paper, their role in crisis and emergency situation management and the larger process of resilience governance has been highlighted.

The more we move towards a realized version of the generic space-reliant resilience governance paradigm, the greater the benefits will be in terms of costs, efficiency and operational capacity. However, security decision makers must be aware that, while a net positive gain should be pursued, there are also security trade-offs, resulting from the exposure to generic or specific risks, vulnerabilities and threats of space systems. Rather than resilience being a destination for an evolving governance system, it ends up being a tightrope balancing act where security gains made through the judicious use of space capabilities are offset partially by the insecurity generated by the dependency on these systems.

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Analysis of Start-Up Investments in European Region

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Abstract

An article deals with the issue of start-up financing. The aim of article is to analyse sources of start-up funding in European region according to available data and relevant statistics. The publication focus on several types of venture capital and investors associated with start-up financing. A contribution is an overview of important funding sources in Europe and their characteristics such as a type of invested capital, a purpose of investment, a stage of start-up life cycle, a share in company and a risk rate.

Keywords: start-up, investor, business angel, fund, venture capital, early stage

Introduction

European business environment has been changing in recent decade of years. Start-ups are a new phenomenon, which was firstly established in US. An article is focused on the financial forms of support, which are known and typically used in European region. Venture capital is the influential factor in European economy and we can recognise the contribution of start-up investments in GDP in particular European countries in the last decade of years. The research is based on a real case study and statistics collected by several associations of investors formed in European region. The article compares venture capital investments according to the source of investments, industry of investee and the form of venture capital.

Research objective

The main issue of this article is the start-up financing, especially the analysis of different sources of start-up funding in European region. The general subject is start-up; the problem is its funding from various sources. Currently, the issue of start-up devoted considerable attention in the academic circles, but mainly is based on the practice. Innovation, new ideas, technology development represent major challenges of contemporary society. But the question remains: "Where and from whom raise capital and investments for start-up?" There are many possibilities, so the article elaborates on the:

- The investors of start-up;
- The types of capital;
- The origin of capital.

Support and funding of start-up includes several important steps, and even the investors themselves must address certain important issues. Examples include the industry of investment or sector of investment. In Europe, the problem of startup is developing very quickly, so article solves current issues.

Objectives, methods and methodology

The research is processed by using a wide scale of the scientific methods and procedures. The specific range of methods was based on the research needs of the individual parts. The intention is to follow the logical continuity of the articles 'parts, the correctness and the adequacy of information and data. First part is focused on the definition of startup and on the determination of the cycle of start-up financing. This section is prepared by using the analytical methods – the analysis, the casual analysis, the synthesis, the induction and the deduction. The first part is based on literature review; it is based on available literature and studies.

Empirical research was carried out and is based on a case study which deals with investment in start-ups in the European region. This case study is based on statistics and surveys which were aimed at business angels and venture capital or other funds set aside for start-up. The second part is prepared by using scientific methods – the analysis (the secondary analysis, the causal analysis),
the comparison and the statistical methods.(Mitkova)

Article represents the basis of the planned long-term research which expected the use of more scientific methods such as the benchmarking and the SWOT analysis. It is expected to focus on the selected States and prepare more case studies of specific countries.

1 Literature review

Start-up *is an innovative organization formed to search for a repeatable and scalable business model.* The business model is the main factor of difference between the start-up and other new enterprises. (Blank)

Professor Steve Blank briefly describes features of start-up business model. *A company with a scalable business model is able to rapidly increase its sales and number of customers.(Blank)* Scalability is a condition that the volume of sales did not increase in proportion to the cost of the project. Otherwise, the company would not be interesting for investors. A repeatable business model is related to an income generated by the company. The business model is repeatable when the company is able to achieve revenue through its activities more than once.

From the point of accounting *start-up firms have usually a low total assets turnover till their incomes increase to the covering assets level from first round of investments (Komornik).* Turnover is directly proportional sales and start-up in first stages of their lifecycles don´t have any sales or incomes. Assets are restricted, but the first amount of assets is a key source.
The difference between a start-up and a small company is visible in the character of companies 'goals. Small companies focus on a profitability and a stable long-term value. Start-ups are based on a growth potential and incomes. Both of them wants to be profitable in the end, but start-ups need to attract investors. The profitable company doesn´t need any investor when we don´t think about the stage of expansion.
The cycle of start-up financing is connected with the start-up life cycle or the start-up development cycle. The amount and the risk of investment are based on the particular stage of start-up development. A capital is collected in several rounds according to: (Komornik)

- The likelihood of success
- The credibility of concept
- The growth of customers´ base

Venture capital is defined as a source of financing for new businesses. Venture capital funds pool investors' cash and loan it to start-up firms and small businesses with perceived, long-term growth potential. *Venture capital is the most important way of funding start-ups that do not have access to their*

own capital. Described capital entails high risk and potentially high returns for the investor. There are several types of venture capital and they differ in start-up's stage and amount of investment. Individual investors usually invest mainly one type of capital. (Slovak business Agency)

Pre- seed capital is used for financing of ideas and research project with the goal of building a successful company around it in later stages. Pre- seed start-up are working on the business model and description of value creation for future customers.

Seed capital represents sources used for a market research and all activities before company´s establishment. *Investor finances the testing of investee´s entrepreneurship with seed capital. Seed financings may be directed toward product development, market research, building a management team and developing a business plan* (Investopedia). A genuine seed-stage company has usually not yet established commercial operations - a cash infusion to fund continued research and product development is essential. These early companies are typically quite difficult business opportunities to finance.

"A round *is the first round of institutional funding and is made up by one or more venture capital investors. Assessment and size of capital in this round depends on the progress made, the quality of team and a qualitative estimation."(Slávik).* After the business has shown some of a track record, round A funding is useful in optimizing product and user base. Opportunities may be taken to scale the product across different markets. In A round start-up needs to plan a business model that will generate long-term profit.´

In **B round** the business continues to the next level after successfully finished development stage.
Investors help start-ups get ahead by expanding a market reach. In Series B, venture capitalists have more of vision around what the structure of shares will look like and they concentrate on obtaining strictly set percentage of shares. (Frenakova)

C round investors inject capital into the meat of successful businesses, in efforts to receive more a high return of investment. Round C is about perfecting, and continuing to scale fast and wide. Companies in round C focus on raising a single digit to hundreds of millions.(Frenakova)

Start- up capital is applied to overlap initial costs including purchase of new machinery and equipment, purchasing of technologies, development of technologies, initial costs for marketing etc. Start- up capital is used for financing of start-up for first two years of operation.

Growth capital represents a funding to the initial growth of company. The phase of financing starts when the final product is created and a testing stage is finished and validated by customers in comparison to start-up capital. Money from growth capital cover marketing costs and expansion. (Blank)

There are manifold classifications of venture capital, which vary by author. Some US authors and researchers in start-up field use the term early stage capital. Mentioned term is connected with the capital which has been used for first three years of company´s operation. Early stage capital divides into start-up capital and growth capital. We consider start-up capital and growth capital as two separated form of capital in this article.

Expansion capital represents the amount of money intended for expansion. It is difficult to support expansion just by using own resources. The term expansion is linked to opening new foreign markets with selling the same product or a new product development. Expansion capital is used for mentioned purposes.

Mezzanine (bridge) capital is a special form of capital. Bridge capital finances the step of going public and represents the bridge between expanding the company and the Initial Public Offering (IPO). IPO is

the first sale of stocks by a private company to the public. Mezzanine capital does not strictly belong to venture capital.

Three F: **Family, Friends and Fools** are important people who support the biggest risk, because they invest to a new business concept. They do not belong to typical investors because they offer a financial support for the realisation of start-up concept and start-upper's life being without expecting any return of their investment. The start-upper uses his own savings and 3F donations to create a minimum viable product in **pre-seed (idea stage).**

The European Trade Association of Business Angels, Seed funds and other Early Stage Market Players (EBAN) describe the **business angel investor** as *a high net worth individual who provide smaller amounts of finance from £25 000 to £250 000 at an earlier stage* in comparison to venture capital funds, accelerators etc. Angel investors usually put their resources into the innovative, scalable and repeatable business model to first versions of product, which are suitable for betatesting and market validation.

A venture capital fund is a *pooled investment that uses the money from third-party investors, such as investment banks or wealthy investors, to invest in business projects. (Papík)* Businesses that seek venture capital often carry more risk. They are either unwilling to pay the interest on bank or market loans or are unable to obtain them.

Venture capital can be provided in two basic forms. First of all, it's called seed capital funds that provide young promising projects without sufficient funds. The second option is itself risky investments. Search for businesses around that with the realization of his own project already started but need additional capital for expansion. *Venture capital funds are not the only providers of funds. Most of them have their own experts who advise prospective firms. An initial seed investment round made by a professional VC firm typically ranges from $250,000 to $1 million. (Blank)*

The European Research and Development fund supports innovations and start-ups in European region. *Small Start-up Grant Scheme supports the growth of new enterprises having less than 50 employees. The scheme will reimburse 25% of the wage costs, utilities and rent/leasing of equipment and production facilities for start-ups that have been operating for less than 3 years. The ERDF Small Start-up Grant Scheme Incentive Guideline is the official document governing this incentive and includes details relating to eligible costs, applicable aid intensity and State Aid regulations.(SBA)*

Crowdfunding *is a new way of investing to new ideas and start-ups. It is based on funding by a big number of people or simply a crowd. People often invest their money in small amounts via crowdfunding platform in website.*(Slavik) Many start-ups invest their limited own sources to create a crowdfunding campaign and gain money for next stages of their entrepreneurship.

Research questions

Which is the actual status of start-up investments 'flow in European region? Can we analyse the start-up investments in European region only by focusing on business angels and venture capital funds in form of venture capital? Is it important to focus the investment analysis also on the nature of industry?

2 Result

According to market statistical data from the period 2010- 2014 the number of European companies as equity investees has been increasing for recent four years. 5519 companies received the equity investment in 2014. More than 80% of mentioned firms belong to small and medium enterprises. The total sum of

private equity investments in Europe represents €41,5bn. Invested capital increased in comparison to recent years by 14%. Private equity investments divide into three forms:

- Venture capital
- Buyout investment
- Growth investment

The total European early stage investment market is estimated to be worth **7, 5 billion Euros**. **Business angels** represent the biggest share of the investment market with **5, 5 billion Euros** of investment, followed by the venture capital industry investing 2 billion Euros in early stages (pre- seed, seed, start-up capital and growth capital).

The importance of business angels to the equity capital industry has grown significantly in recent years. Equity from business angels and their associations is increasing and becoming more important than venture funds'equity in Europe. Raising money via crowdfunding platforms is popular with the public, but a crowdfunding investments 'rate is still very low. Experts in start-up field expect a significant growth in the next decade of years. Crowdfunding represented just 1% of early stage investment in European region in 2013.

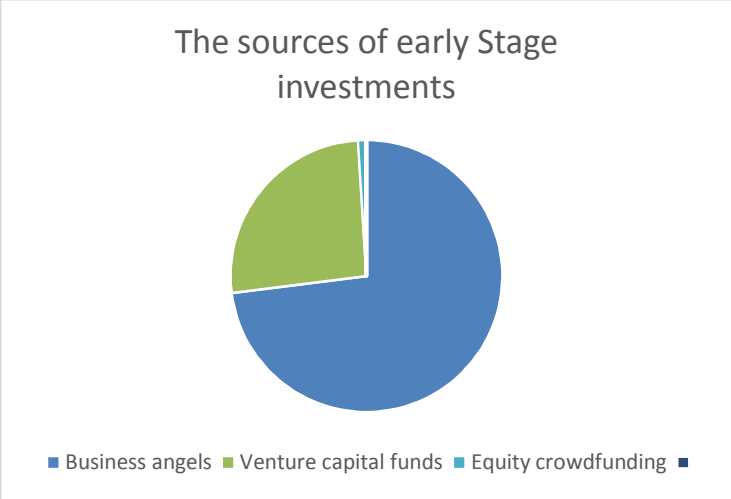

Figure 1: Sources of investments to start-ups in Europe 2013

Business angels are mostly successful entrepreneurs and managers. Some of them do their own PR activities and personally looking for start-ups. Others cooperate with investment clubs and networks. Business angels 'networks are often multinational.

On the other hand according to European statistics angel investors belong to global associations and networks, but they invest to companies in their home countries. Start-ups have a big chance to find investor in their home country.

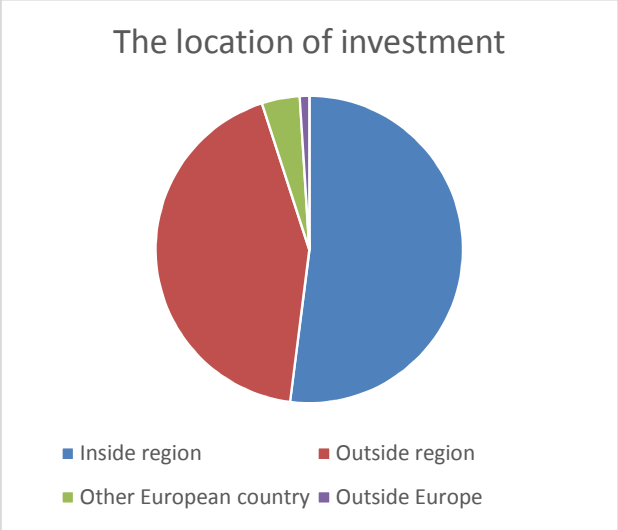

Figure 2: Location of angel investments in 2013 (made by data from EBAN)

Cross-border investment remains marginal as investments in the same country of the investor accounted for 96% of the deals made in 2013. Deals inside and outside the investors' region are 52% and 44% respectively. Investment in other European countries accounted for 4% of the deals while investment outside Europe represented only 1% of investments. (EBAN)

2.1 The character of particular venture capital types

The investment types of capital are illustrated on table 1, where they are connected to the stage and the purpose of investment. A rescue capital and an acquisition capital do not expressly belong to the venture capital. We implicated mentioned capital forms to the table just to illustrate the main differences among particular types of capital.

Table 1: ***Development stages of companies and the character of investment (made by data from Frenakova)***

Purpose of investment	Starting operation	Starting operation	Spreading Expansion	Spreading Expansion	Survival	Changes in ownership
Stage of lifecycle	Pre-seed Seed stage	Early stage	Early stage	Expansion	Maturity	Maturity
Type of capital invested	Pre-seed Seed	Start- up	Growth	Expansion capital	Rescue capital	Acquisition capital Mezzamine
Duration in years	7-12	5-10	4-7	2-5	N/A	2-4
Return of investment	80- 100%	35- 70%	30-40%	25-30%	N/A	100% N/A
Share in enterprises offering investment	1-2 %	5%	10%	50%	N/A	100%
Risk rate	Very high	high	medium	limited	N/A	Very limited

Pre- seed capital and **seed capital** are added in the same category. Pre-seed capital is more risky and it is connected with bigger shares in investee´s company than seed capital. The table comparison was created according input data, where this two sources of capital could not be divided. The table illustrates the average results from pre-seed capital and seed capital both used for starting the operation of start-up. The duration is very long, because the investment is realised in the beginning of business formation and support the transforming process from the original idea to the real business model. In next start-up life stages, there are other forms of capital needed, but seed capitalists usually make several rounds of investments. The return of investment can raise to 100 % because of the long duration and a very high risk rate. Average shares in this stage are very small, because they mainly belong to individuals, who invest a very small sum of money. A few venture capital firms and accelerators investing in pre-seed and seed stage can achieve shares up to 30 %.

Early stage start-up are looking for **start-up capital** to overlap initial costs during first two years of operation**.** Venture capital funds, business angel syndicates and individual angels usually invest start-up capital. The average percentage of investor´s share is 5 %. The duration is from 5 up to 10 years, because start-up capitalists are connected to investee from the beginning of selling minimum viable products to first early adopters. The return of investment has a wide range from 35% till 70% caused by different amounts of invested capital. ROI can reach a very high level, because early stage has a high risk rate and the likelihood of failure is still high.

The average share 10 % in investee´s equity accompanied by a medium risk occurs in the **growth capital** investment. Money are used to cover marketing costs and to finance the first expansion of final product. The sum of investment is bigger than in previous forms of capital. Return of investment is calculated to 30-40% and the growth funding has been used for 4-7 years.

Expansion capital is characterised by a limited risk rate and a high share in equity represented by 50%. The expansion of product or market is very demanding of resources. Return of investment is due to mentioned reason the lowest in comparison to other forms of venture capital and it is represented by 25 – 30%. The expansion stage is the last one before considering IPO. The duration of investment is from 2 to 5 years.

2.2 The funded venture capital forms in Europe

Start-up capital is the most popular form of capital with European investors including both business angels and venture capital funds. The figure 2 illustrates shares of particular types of venture capital invested in Europe.

Start-up capital represents **54 percent of a whole sum of funded venture capital** in European region. The second position belongs to seed capital, which is the most common type of venture capital for 22 % of European investors. Pre- seed stage has a higher risk rate and unpredictable return on equity in most of cases. Only business angels who have a tendency to put their money into higher risk invest the pre-seed capital and they finance 11% of the whole European venture capital.

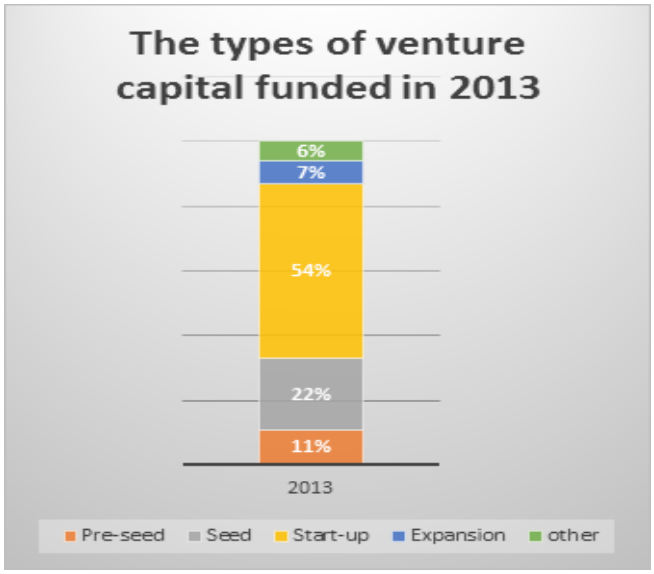

Figure 2: The types of venture capital in Europe

2.3 The industries of investments

Venture capital investors make the decision about their investees according to another important criterium – the sector or industry of investee. Mentioned factor is considered by business angels and venture capitalists both. The preferencies of particular investor´s types differ a little bit. Every investor decides according to his experience in industry, the economic situations of sector and different synergic effects.

Venture capital funds invest to companies mainly dealing with **life sciences**. Information technologies and Communications are almost equal in the second place. Other popular sectors are: energy and environmnent, Consumers goods and retail, Consumers services. Live sciences have a major s hare in venture capital funds´investments during the whole period between the year 2010 and 2014. The investment rate to ICT is stable, but trends in Communications are still slightly changing. Communication sector received more venture capital in 2014 than in 2013. That is a reason of the same possition of ICT and Comunication in 2014.

We prooved, that **angel investors** create the major share in European venture capital. Their preferences in the sector of investment are different. **Information technologies** represent by 33% of invested venture capital via business angels. Manifacturing reaches 11% percent of share. ICT forestall other industries very brightly and we can observe a huge difference between ICT and Life sciences and Communication represented by 10% both. Other popular sectors are: Health care, Energy, Creative industry, Retail and distribution.

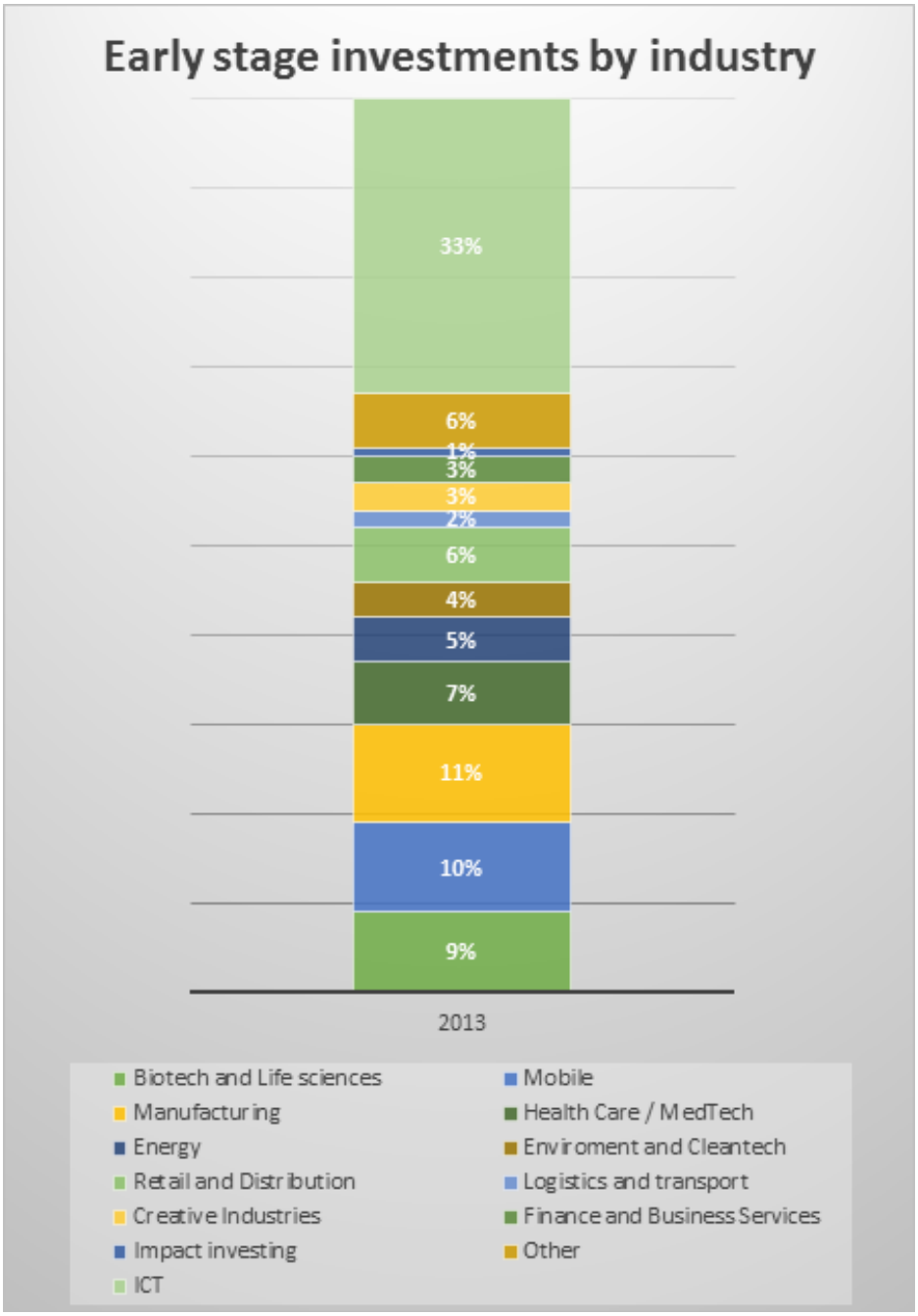

Figure 3: Fields of start-up investments in Europe according to data of Invest Europe Association

Conclusion

The publication analysed venture capital, start-up investors and the actual status of start-up investments 'flow in European region. We specified venture capital types, such as pre-seed capital, seed capital, start-

up capital, growth capital and expansion capital. We characterised typical start-up investors including 3F (friends, family and fools), business angels, venture capital funds and the users of equity crowdfunding platforms.

We focused on start-up investments in European region mainly made by business angels and VC funds in form of venture capital. The research data were based on two main statistics: The statistic compendium by EBAN and several statistical materials by Invest Europe Association. 75 billions of Euros were invested to early stage companies in 2013. 73% of European venture capital were offered by business angels. Venture capital funds invested less than 2 billions of Euros represented by 26%. The third position belongs to equity crowdfunding represented by 1 % of invested money of simply 80 millions of Euros. Business angels are the most influential European VC investors and 96 % of their finances flow to their home-country.

We compared particular venture capital types according to the value of invested money. Start-up capital is the favourite capital form, most popular with business angels and VC funds both. More than 50 percent of invested capital belongs to start-up stage. The rest of shares belong to seed capital (22%), pre-seed capital (11%), expansion capital (7%) and other forms.

The last part of results analysed industries, which had received venture capital investments. Venture capital funds invest to life sciences. Information technologies and Communications are in the second place. Other popular sectors: energy and environmnent, Consumers goods and retail, Consumers services. Information technologies represented by 33% of invested venture capital via business angels. Life sciences and Communication represented by 10% both. Manifacturing reaches 9 percent of share. Other sectors are: Health care, Energy, Creative industry, Retail and distribution.

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Regulation Et Justice Organisationnelle Dans Les Etablissements D'enseignent Superieur Au Maroc

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Resume

Un des derniers rapports officiels d'évaluation du « système d'enseignement supérieur» explique sa défaillance par « la faible participation des acteurs » et le «climat à l'université ». Dans cet article, nous proposons une analyse théorique pour éclairer le débat sur la performance du« système d'enseignement supérieur». Nous proposons une analyse du « climat organisationnel » en mobilisant des travaux sur la théorie de la régulation sociale (TRS) de Jean-Daniel Reynaud, l'analyse sociologique de la notion de « silence organisationnel » avec les contributions de Morrison et Milliken, (2000).

Mots clés : performance, établissements d'enseignement supérieur, participation des acteurs, climat organisationnel, silence organisationnel, théorie de la régulation sociale

Abstract

One of the last official assessment reports of "higher education system," explains its failure by "the low participation of actors" and "climate at the university." In this paper, we propose a theoretical analysis to inform the debate on the performance of "higher education system." Thus we propose an analysis of the "organizational climate" mobilizing work on the theory of social regulation (TRS) Jean-Daniel Reynaud, sociological analysis of the concept of "organizational silence" with contributions from Morrison and Milliken, (2000).

Keywords: performance, higher education institutions, stakeholder participation, organizational climate, organizational silence, social regulation theory

Introduction

Depuis le début du XXI^{ème} siècle, l'enseignement supérieur au Marc a fait l'objet de réformes continues qui ont impactées son « mode de gouvernance », « le statut du personnel », « l'architecture des formations » et « les contenus des enseignements », ces réformes sont régies par les textes de la Loi 01 - 00 portants sur l'organisation du secteur de l'enseignement supérieur et par les orientations de la Charte Nationale d'Education et de Formation. Si l'objectif déclaré de ces réformes est l'amélioration de la qualité de l'enseignement et de la recherche, la performance des établissements universitaires marocains a encore fait depuis, l'objet de multiples rapports alarmants et des prises de positions critiques, voir négatives de la part d'instances nationales et internationales[1].

[1] On peut citer comme rapport d'instances internationales:

Dans cette perspective, publié en décembre 2014, le rapport du Conseil Supérieur de l'Education, de la Formation et de la Recherche Scientifique[2] sur la mise en œuvre de la charte nationale d'éducation et de formation pour la période 2000-2013, a évoqué entre autres, en quelques lignes, deux facteurs explicatifs de la défaillance du système d'enseignement supérieur « la faible participation des acteurs » et le «climat des études à l'école et à l'université ». Ce rapport succède déjà à un autre rapport publié en 2008 [3]et qui a souligné la défaillance de la gouvernance, et l'utilisation déficiente des ressources avec une faible implication des enseignants.

A partir de ces constats, le but premier de cet article est celui de clarifier le débat sur «la participation des acteurs », qui se situent à différents niveaux, internes ou externes aux établissements universitaires et qui interagissent loin de la logique de la bureaucratie Wébérienne. Cette dernière postule que l'efficacité repose essentiellement sur l'effort de rationalisation réalisé par le seul encadrement. Ainsi nous posons la question de recherche suivante : quelles sont les origines de la «la faible participation des acteurs », en postulant que « le silence organisationnel » constitue une manifestation de « la faible participation des acteurs » dans les universités. A ce titre, dans notre analyse on tiendra pour essentielle l'affirmation suivante : l'évolution du système universitaire est un processus complexe mue par des interactions entre l'organisation et son environnement, qui se définit comme une co-évolution (Lewin et Volderba, 1999, McKelvey, 2002) et que le processus interne d'adaptation est un processus social dialectique, qui captive tous les niveaux de l'organisation, définie « la participation des acteurs » et forme le« climat organisationnel ». Aussi nous proposons une analyse du « climat organisationnel » en mobilisant des travaux sur la théorie de la régulation sociale (TRS) de Jean-Daniel Reynaud, et l'analyse sociologique de la notion de « silence organisationnel » avec les contributions de Morrison et Milliken, (2000).

Cet article est agencé en trois temps. Après avoir présenté le contexte des réformes du système d'enseignement supérieur au Maroc[4] et la nature complexe des établissements universitaires (partie 1), nous allons mettre l'accent sur la notion de **Régulation** et celle de **silence organisationnel** (partie 2). La troisième et dernière partie de cet article discute une série de questionnements concernant le climat organisationnel et la justice organisationnelle dans les établissements de l'enseignement supérieur.

1. Réforme de l'université au Maroc

1.1. Contexte général

Les dernières décennies sont marquées par des mutations importantes dans l'environnement des universités, cet environnement est de plus en plus complexe, hétérogène, hostile et surtout moins généreux et incertain. Ce nouvel environnement remet partiellement en cause le devenir des missions traditionnelles d'enseignement, de recherche et de services à la collectivité. Cette évolution a favorisé des débats qui ont gravité autour de trois thèmes : la gouvernance, l'éthique et la performance.

-Banque Mondiale (2008). – Un parcours non encore achevé : la réforme de l'éducation au Moyen-Orient et en Afrique du Nord, Rapport sur le développement de la région MENA, Résumé analytique.
- UNESCO (2006). - « Les enseignants et la qualité de l'éducation : suivi des besoins mondiaux d'ici 2015», Institut de statistique de l'UNESCO, Montréal, 2006. –
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[2] « Le Conseil Supérieur de l'Education, de la Formation et de la Recherche Scientifique est créé en application de l'article 168 de la Constitution et organisé par la **Loi 105.12** du 16 mai 2014. Il remplace le Conseil Supérieur de l'Enseignement [tel qu'il a été réorganisé en 2006 par le Dahir n°1-05-152]. Instance consultative indépendante de bonne gouvernance, de développement durable et de démocratie participative, le Conseil a pour vocation de servir de creuset à la réflexion stratégique sur les questions de l'éducation, de la formation et de la recherche scientifique et d'espace pluriel de débat et de coordination sur toutes les questions intéressant l'éducation, la formation et la recherche scientifique. ».

[3] Royaume du Maroc, Rapport du conseil d'enseignement supérieur (2008). – état et perspectives du système d'éducation et de formation, Rapport analytique, volumes 1, 2, 3 et 4.

[4] Nous proposons une lecture « «managerielle » loin des lectures factuelles axées sur l'exposé chronologique du processus des reformes.

Au Maroc, à partir de 1997, l'université a été dotée d'un dispositif juridique allant vers plus d'autonomie. A ce titre, nombreux sont les travaux de recherche qui ont exposé et analysé le dispositif de réformes, certaines recherches ont privilégié l'analyse chronologiques des processus long et imparfait des reformes [5] ; d'autres recherches ont exploré la mise en place des différents dispositifs de gestion[6] en arguant le plus souvent, de manière implicite et quelque fois explicite que le statut actuel de l'université marocaine, « Etablissement Public jouissant de la personnalité morale et de l'autonomie administrative, financière et pédagogique » pourrait suffire à régler la grande question de la performance du système d'enseignement supérieur.

A contre courant de ces dernières analyses, les premières évaluations des résultats de la réforme ont été alarmantes voir décevantes. Dans ce sens, un des derniers rapport sur l'enseignement supérieur au Maroc , publié en décembre 2014 par le Conseil Supérieur de l'Education, de la Formation et de la recherche Scientifique[7] sur la mise en œuvre de la charte nationale d'éducation et de formation pour la période 2000-2013, annonce page 144 :

1. *« Les enquêtes auprès des enseignants et des responsables de la gouvernance montrent qu'ils ne remettent pas en cause le bien-fondé de la réforme, ni la qualité des recommandations de la Charte. En revanche, ils stigmatisent les conditions dans lesquelles sa mise en œuvre a eu lieu et la manière par laquelle les acteurs ont structuré leur action, organisé le système et communiqué à propos des objectifs de la réforme ».*

2. *« L'insatisfaction est généralisée puisqu'elle ne se limite pas aux enseignants mais s'étend aux autres responsables. Pourquoi ? La raison est que les réformes sont vécues comme des directives subies et non comme des projets auxquels ils ont contribué. Il est évident que les acteurs ne se sont pas appropriés les réformes ».*

3. *« La compréhension de la mise en œuvre de la Charte est le produit d'une époque où des réformes par le haut faisaient partie du mode de gouvernance prédominant. Actuellement, après la Constitution de 2011 et l'évolution de la société, la gouvernance impose la participation des acteurs et des parties prenantes dans le processus de changement afin de permettre à l'université de réaliser un saut qualitatif ».*

Les termes de ce rapport constituent un progrès notable dans la littérature gouvernementale. Toutefois, le consensus sur le diagnostic et l'énoncé des rationalités ne font plus débat, la performance est le résultat des rationnements et des régulations dans des organisations complexes que sont les universités. Aujourd'hui, d'autres lectures sont possibles en postulant le paradigme de la complexité des organisations universitaires.

1.2. Complexité de l'Université.

Les organisations universitaires se caractérisent par leur extrême complexité qui se constate au niveau théorique, institutionnel et organisationnel.
Théoriquement, les universités sont considérées comme des bureaucraties professionnelles (Mintzberg, 1990), d'anarchies organisées (Cohen, March & Olsen, 1972) ou de couplage souple 3 (Weick, 1976). Les universités forment des organisations complexes dont les acteurs sont multiples, à différents rangs, avec des objectifs, des valeurs et des cadres de référence changeants et d'origines

[5] On peut citer Lahlou Loubna, « La réforme de l'Université marocaine entre idéal organisationnel et réalité pratiquée» ; Colloque international : Les universités au temps de la mondialisation/globalisation et de la compétition pour « l'excellence » ; Université Paris VIII (11-14 mai 2009)

[6] A titre d'exemple les dispositifs de : Comptabilité, de Contrôle de Gestion ou la Qualité.

[7] « Le Conseil Supérieur de l'Education, de la Formation et de la Recherche Scientifique est crée en application de l'article 168 de la Constitution et organisé par la **Loi 105.12** du 16 mai 2014. Il remplace le Conseil Supérieur de l'Enseignement [tel qu'il a été réorganisé en 2006 par le Dahir n°1-05-152]. Instance consultative indépendante de bonne gouvernance, de développement durable et de démocratie participative, le Conseil a pour vocation de servir de creuset à la réflexion stratégique sur les questions de l'éducation, de la formation et de la recherche scientifique et d'espace pluriel de débat et de coordination sur toutes les questions intéressant l'éducation, la formation et la recherche scientifique. »

endogène et exogène à l'institution. Ces acteurs sont censés combiner leurs actions, échanger l'information et interférer dans des logiques de coopération, de coordination qui n'écartent ni la concurrence ni l'antagonisme ni les contradictions. Les organisations universitaires sont aussi considérées comme des organisations paradoxales[8], l'approche paradoxale de l'organisation permet une lecture singulière de l'organisation et du changement organisationnel.

D'un point de vue institutionnel, l'université peut être représentée de manière physique ou administrative à partir de ces formations, de ces départements, de ces sites, de ces structures d'enseignement et de recherche ou encore des ces dispositifs de recherche. Les liens entre ces représentations de l'organisation universitaire sont eux aussi disparates, allant de relations contractualisées à des coopérations informelles. De plus les liens externes que les universités entretiennent avec son ministère de tutelle créent un niveau de complexité exogène à côté d'une complexité endogène et organisationnelle.

Au niveau organisationnel, l'hétérogénéité, voire l'ambiguïté, dans les finalités et objectifs se traduit par l'utilisation de moyens hétérogènes, qui nécessitent la mise en œuvre de dispositifs multiples, à la fois complexes et co-constructeurs de la performance. En plus, le long processus des réformes qui a débuté avec la promulgation de la loi 01 – 00 n'est pas encore achevé, ce qui met le système universitaire dans une instabilité qui n'a que trop durée.

En pratique le déficit de performance du système universitaire soulève au moins deux séries de questions ; des questions relatives à la performance et la stratégie (la nature de performance recherchée, la nature de la stratégie affichée, l'autonome et la tutelle) et des questions sur l'autonomie et de la responsabilité (la professionnalisation de la gestion, le Leadership et responsabilité des dirigeants, l'individualisation de la gestion des ressources humaines, les rémunérations liées aux performances).

De ce qui précède, une lecture appropriée de la situation de l'université marocaine est à l'ordre du jour, où il s'agit de traiter la question de la performance avec une lecture centrée sur l'hétérogénéité des activités et des intervenants qui caractérisent l'acte de la production universitaire. Des éléments d'analyse peuvent être retrouvés en référence à la théorie de la régulation sociale pour expliquer les comportements des individus et des groupes dans les organisations. En outre « la théorie du silence organisationnel » peut nous permettre de donner un sens au constat sur la faible participation des acteurs.

2. Régulation & silence organisationnel

2.1 . Régulation

La théorie de la régulation sociale considère la règle comme un fait social dans une sociologie de l'action et vise l'analyse des processus de production, d'interprétation et de modification des règles (Reynaud, 1994). Les règles sont le résultat incertain et fluctuant de la rencontre de plusieurs sources de régulation; c'est pourquoi les systèmes sociaux doivent être analysés comme des entités instables et aux frontières mouvantes, entités dont il est plus pertinent de faire l'histoire que la seule étude instantanée (Reynaud, 1995)

J. D. Reynaud (1988) considère la « Régulation » comme la capacité à produire des règles. Règles est employé au sens large et recouvre aussi bien le domaine de la règle juridique à ses différents niveaux (loi, règlement) que de la règle morale, (formelle ou informelle). Raynaud distingue aussi trois grands types de régulation, les « régulations autonomes », produites par les collectifs de base et les « régulations de contrôle », émises par les supérieurs hiérarchiques et/ou les responsables politiques, donc les tenants du pouvoir, et les « régulations conjointes » : systèmes institutionnalisés, coopératifs, et donc relativement stables, de combinaison des deux premiers types de régulation.

[8] D'après Talbot (2003), le paradoxe organisationnel est une contradiction durable, voire permanente, entre des éléments qui apparemment s'excluent l'un l'autre mais coexistent malgré tout.

Cette régulation conjointe est « le produit d'une négociation explicite ou implicite et s'inscrit dans un accord » (Reynaud, 1995, p.249). La régulation conjointe est la résultante d'un processus de négociation entre les tenants de la régulation autonome (subordonnés) et de contrôle (direction). Cependant, « la régulation conjointe est loin de constituer une simple rencontre mécanique entre une régulation de contrôle et une régulation autonome. La régulation conjointe conduit donc à «l'élaboration de super-règles, sans supprimer forcément les oppositions entre les sources de régulation, mais en tenant compte des préoccupations et des intérêts de chacun.» (Bréchet, 2008, p.20) » Clémence Joffre et Thomas Loilier (2012)[9].

Au terme de cette lecture il parait essentiel la nécessité pour les universités de définir par consensus et différemment les termes de leur performance par rapport aux activités de l'enseignement et de la recherche pour éviter le risque de la faible participation des acteurs .A ce titre, nous postulons que le « Silence Organisationnel » constitue une manifestation majeur la faible participation des acteurs.

2.1. Silence organisationnel

Le silence fait l'objet de plusieurs analyses. L'analyse sociologique du concept de silence est riche d'enseignements, elle retrouve amplement de l'importance dans le contexte des établissements d'enseignement supérieur, elle n'est pas unique.

En effet, en se plaçant dans une vision communicationnelle naïve on pourrait penser que le silence synonyme de l'arrêt de la transmission plus qu'un jaillissement intérieur(Le Breton, 1997). De manière plus subtile, les travaux de Jensen (1973), Hasegawa et Gudykunst (1998), Ephratt, (2008), en sociolinguistique on montre que le silence n'est pas simplement l'absence de sonorité ou de communication, néanmoins il forme un élément essentiel de la communication. Ainsi pour David Le Breton (1997) «il n'y a pas de parole sans silence ».

L'analyse sociologique consacre le concept du silence comme un vide communicationnel et interactionnel apparent. Comme objet de recherches, la nature particulière du concept « le silence dans les organisations » pose de difficultés aux chercheurs au niveau conceptuel et méthodologique (Van Dyne, Ang et Botero, 2003). Néanmoins, le recueil de publications de ce « programme de recherche » comprend certains classiques de la sociologie des organisations (Michel Crozier,1964) et surtout des publications (Morrison et Milliken (2000), Pinder et Harlos (2001), Milliken, Morrison et Hewlin (2003), Craig Pinder et Karen Harlos (2001),Van Dyne, Ang et Botero (2003), Morrison et Rothman (2009), Maria Vakola et Dimitris Bouradas (2005),Tangirala et Ramanujan (2008), qui ont depuis ouvert un champ de recherche sur le comportement organisationnel et qui ont aussi remis à jour les travaux de Albert Hirschman (1970), Hellriegel et Slocum (1974), James et Jones (1974), Woodman et King, (1978).

De ces travaux d'analyse sociologique, le silence est consacré comme un fait social. Cette analyse part du constat que quiconque a eu la possibilité de se trouver face à des conditions où il y ait un décalage entre ce qu'il admet dans son intimité et ce qu'il peut reconnaitre en présence d'autres personnes. Cette situation d'apparent paradoxe, est présentée en analyse sociologique comme un fait social à expliquer par rapport aux normes sociales qui régentent nos interactions quotidiennes (Durkheim (1963), Eviatar Zerubavel 2006). Ainsi arrêté, le silence est régulé par des contraintes sociales qui déterminent le comportement individuel. C'est aussi une démarche communicationnelle individuelle réfléchie qui permettrait à l'individu de réaliser des objectifs propres dans l'interaction sociale. Dans cette perspective, le silence peut avoir plusieurs significations tributaires du sens que d'autres donnent à cet acte.

[9] Clémence Joffre et Thomas Loilier, « L'adaptation vue comme un processus de régulation. Le rôle et la dynamique de la règle dans une organisation du secteur social et médico-social français », Management international / International Management / Gestión Internacional, vol. 16, n° 2, 2012, p. 39-5

Au rang individuel, Craig Pinder et Karen Harlos (2001) expliquent «le silence du subordonné, comme le choix intentionnel de ne pas communiquer des informations critiques sur l'organisation dont on fait partie à d'autres membres en mesure de changer ou redresser ces aspects». A ce niveau on peut distinguer trois motivations du silence individuel dans une organisation, le silence de la résignation, le silence défensif et le silence pro-actif.
Si le silence pro-actif est un choix affranchi de ne pas dévoiler des informations dans un but généreux et désintéressé, le fait de ne pas propager ou de cacher des informations sur l'organisation à l'extérieur de celle-ci sur la négligence ou la défaillance du collègue ou du supérieur permet de créer ou de renforcer l'attache sociale avec les autres. En général, le silence pro-actif peut avoir des effets positifs sur l'organisation, on ne peut pas dire autant pour les deux autres motivations du silence individuel.
Ainsi, en situation de silence de la résignation ou de silence acquiescent, le silence est le produit de la résignation, l'individu - acteur à travers l'expression de ses idées et de ses connaissances se perçoit de son incapacité d'influencer et d'agir dans l'organisation. Enfin, le silence défensif est motivé par la crainte d'un individu qui tente d'éviter de s'exposer aux vindictes des autres collègues ou des supérieurs hiérarchiques (Morrison et Milliken, 2000).

Au niveau collectif, « le silence organisationnel est un phénomène collectif dans lequel le choix dominant à l'intérieur de beaucoup d'organisations pour les employés, est celui de garder pour eux leurs opinions et préoccupations par rapport aux problèmes organisationnels » Morrison et Milliken (2000). Ce type de silence peut être soit la résultante des préjugés des cadres supérieurs soit la conséquence « d'un choix délibéré avec le but de défendre ses propres intérêts, des intérêts qui se trouvent diamétralement opposés à ceux de leurs subordonnés » Jimmy Donaghey, Niall Cullinane, Tony Dundon et Adrian Wilkinson (2011).
En résumé, le silence organisationnel est un acte social, manifeste du « climat organisationnel » qui interagit avec ce climat en fonction de la perception des individus et des groupes de « la justice organisationnelle ».

3. « Climat organisationnel » et « Justice organisationnelle »

3.1. *« Climat organisationnel »*

Il n'existe pas de définition univoque et consensuelle du concept de « climat organisationnel » dont le sens a évolué au cours des recherches. Globalement, la définition du climat change par rapport aux dimensions jugées importantes pour créer le climat (Anderson, 1982). Pour Cornell (1955: voir Thomas, 1976), le climat organisationnel renvoie « aux perceptions qu'ont les individus de leur emploi ou de leurs rôles en relation avec les autres et les rôles tenus par les autres dans l'organisation ». Selon Katz et Khan (1966: voir Thomas, 1976), le climat organisationnel découle de plusieurs facteurs (normes, valeurs, luttes internes et externes, communication, autorité) propres à l'environnement de l'organisation. Enfin, le climat organisationnel, est défini comme «un ensemble de perceptions partagées par les employés concernant les événements, les pratiques et les procédures qui se déroulent à l'intérieur de leur organisation » (Patterson et al., 2005).

En résumé, le climat organisationnel est « un concept global qui peut être considéré comme un déterminant du comportement puisqu'il agit sur les attitudes et les attentes qui ont une influence directe sur les comportements » (Brunet & Savoie (1999), Lewin (1951), Rousseau (1988), Schneider (1975), Taguiri & Litwin (1968)). Le climat, dans les organisations, renvoie à la perception que les individus ont de leur environnement de travail (Parker et al., 2003) et peut ainsi être saisi par une mesure perceptive d'attributs organisationnels que les individus d'un groupe partagent au travers de leurs interactions (Rousseau (1988), James & Jones (1974), Parker et al., (2003)).

3.2. « Justice organisationnelle »

Le concept de justice organisationnelle est crucial dans l'analyse du climat de silence d'une organisation. Cependant ce concept est une construction qui ne peut être défini de manière objective, « sa définition familière dépend fortement du système social ou philosophique dans lequel on se

situe » (Jason Colquitt, Donald Conlon, Michael Wesson, Christopher Porter et Yee Ng (2001)). Selon Soufyane Frimousse et al. (2008) « La justice représente un élément clé de la compréhension des comportements des individus dans l'organisation. Les individus réagissent à partir de leurs perceptions. Pour anticiper, comprendre et modifier leurs réactions, il convient donc de saisir les éléments contribuant à leurs perceptions de la justice».

Cropanzano et al. (2001) présentent une taxonomie des théories de la justice organisationnelle : « Les individus forment leur perception de la justice : soit en comparant leur contribution à leur rétribution (justice distributive : théorie de l'équité), soit en évaluant les procédures qui ont conduit à l'attribution des résultats (justice procédurale : théorie de connaissance du référent) ou encore en évaluant la qualité des traitements interpersonnels (justice interactionnelle) ».

A ce niveau, il convient de rapprocher la logique de cette taxonomie à la réalité perçue par les personnels des établissements de l'enseignement supérieur de différentes catégories et de différents niveaux, pour ceux, nous empruntons à Annabelle Hulin, Typhaine Lebègue & Stéphane Renaud (2015) [10] et à Soufyane Frimousse et al. (2008)[11] les définitions qui suivent, pour se poser une série de questions relative au climat de justice :

La justice distributive

« La dimension distributive repose sur une évaluation de l'équité perçue qui peut être décrite comme un jugement en deux étapes : dans la première étape l'individu compare ses contributions à ses avantages obtenus ce qui est désigné par équité; dans la deuxième étape l'individu compare le ratio d'équité interne au regard des expériences passées et/ou des solutions proposées par d'autres organisations (équité externe) »

Annabelle Hulin, Typhaine Lebègue & Stéphane Renaud (2015)

En terme générique, le principe de justice distributive impose deux grandes questions :

- ***Comment est perçue l'équité interne par le personnel, administratif, enseignant-chercheur ?***
- ***Comment est perçue l'équité interne par le personnel, administratif, enseignant-chercheur, en comparaison avec les autres corps de métiers dans l'administration publique?***

La justice procédurale

« Pour Folger (1996), elle correspond à l'aptitude présumée des procédures à transformer les contributions personnelles en rétributions. Selon Leventhal (1980), la justice procédurale renvoie à la perception par un individu de la justice des composants procéduraux du système social qui règle le processus d'allocation des ressources. Selon Leventhal (1980) « Chaque individu dispose d'un modèle cognitif sous forme de représentations internes de son environnement social qui comporte des composants procéduraux. Il évalue ces éléments structuraux à partir de règles procédurales justes en identifie six : (1) l'uniformité, (2) la suppression du parti pris, (3) la précision de l'information, (4) la possibilité de révision, (5) la représentativité, (6) les principes moraux et éthiques.»

Soufyane Frimousse et al. (2008)

[10] Annabelle Hulin, Typhaine Lebègue & Stéphane Renaud, « L'impact de la justice procédurale et de la justice distributive sur l'intention de rester : Étude différenciée selon le sexe chez les talents ». 33ème Université de Printemps Montréal (Québec) Canada 2015.

[11] Soufyane Frimousse et al., « La diversité des formes de performance au travail : le rôle de la justice organisationnelle », Management & Avenir2008/4 (n° 18), p. 117-132.DOI 10.3917/mav.018.0117

En terme générique, les six principes de la justice procédurale imposent au moins six grandes questions :

1. ***Existe- t- il une uniformité dans l'application des procédures d'allocation, à travers les personnes et dans le temps ?***
2. ***Quel rôle joue le parti pris dans les procédures d'allocation des ressources ?***
3. ***Quelle est la qualité du système d'information et de l'accès à l'information ?***
4. ***Quelle est la réalité de la possibilité de révision ?***
5. ***Quelle est la réalité de la représentativité ?***
6. ***Quels principes moraux et éthiques sont portés et défendus au sein des Etablissements d'Enseignement Supérieur?***

Au delà de toute subjectivité, la vérification de chacun de ces principes peut faire partie d'un programme de recherche empirique[12], néanmoins, les quelques analyses théoriques permettent de jeter un premier éclairage sur le caractère spécifique des établissements d'enseignement supérieur.

Conclusion

En conclusion, si pour J. D. Reynaud (1989) « le système que personne n'a construit est assez solide pour être difficile à réformer», seule une régulation conjointe efficace, est efficace pour gravir la performance toujours recherchée, là encore le jeu des acteurs à tous les niveaux est tenu à s'harmoniser. Ce n'est pas impossible si dans les établissements porteurs et créateurs du savoir, que sont les universités, désirent et œuvrent pour au moins mériter leur qualificatifs et devenir des organisations apprenantes. Il n'est plus tolérable d'accepter la succession des échecs porteur de vulnérabilité et de pléistocratie, où la préoccupation majeure des responsables à tous les niveaux se réduit à la gestion des contestations. La tâche est ardue mais le projet est réalisable.

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Applying UML Standard to Design an Application for a Cadastral System

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Abstract

In this paper we will present a complex information system designed for the cadastral database, which will be used by the Rent Department. The classes used in this system are: Property, Construction, Parts of the Building, Floor, Room, Rental Units and Rental Contract. The main objectives are the following: up-to-date record of the cadastral area of buildings on the city's territorial; renting of various units and their subunits and accounting; updating the condition of buildings. To achieve these objectives we defined the following diagrams: Class Diagrams; Object Diagrams; Use Case Diagrams; Interaction Diagrams; Activities Diagrams and State Diagrams.

Keywords: class diagrams, use case diagrams, detail design, sequence diagram

Introduction

The purpose of the diagrams is to present multiple views of a system; this set of multiple views is called a model. A Unified Modeling Language model of a system is something like a scale model of a building along with an artist's rendition of the building. It's important to note that a Unified Modeling Language model describes what a system is supposed to do [22]. It doesn't tell how to implement the system. Object-orientation is a mindset—a mindset that depends on a few fundamental principles. In this hour you'll learn those principles. You'll find out what makes objects tick and how to use them in analysis and design. In the next hour you'll begin to apply Unified Modeling Language to these principles [22].

Description of use cases for a cadastral system

Object-orientation goes beyond just modeling attributes and behavior because we have to consider other aspects of objects as well. These aspects are called abstraction, inheritance, polymorphism, and encapsulation [22]. Three other important parts of object-orientation are message sending, associations and aggregation. Let's examine each of these concepts. Figure 1 shows the classes identified in conjunction with specific attributes and operations.
In this system the cases used are:

- Registration of land or change the owner of a land (sale and purchase)
- Obtaining construction permits and other authorizations in order to build a building
- Registration of a building based on the related documentation
- The design of a floor/apartment
- Sharing spaces in rent

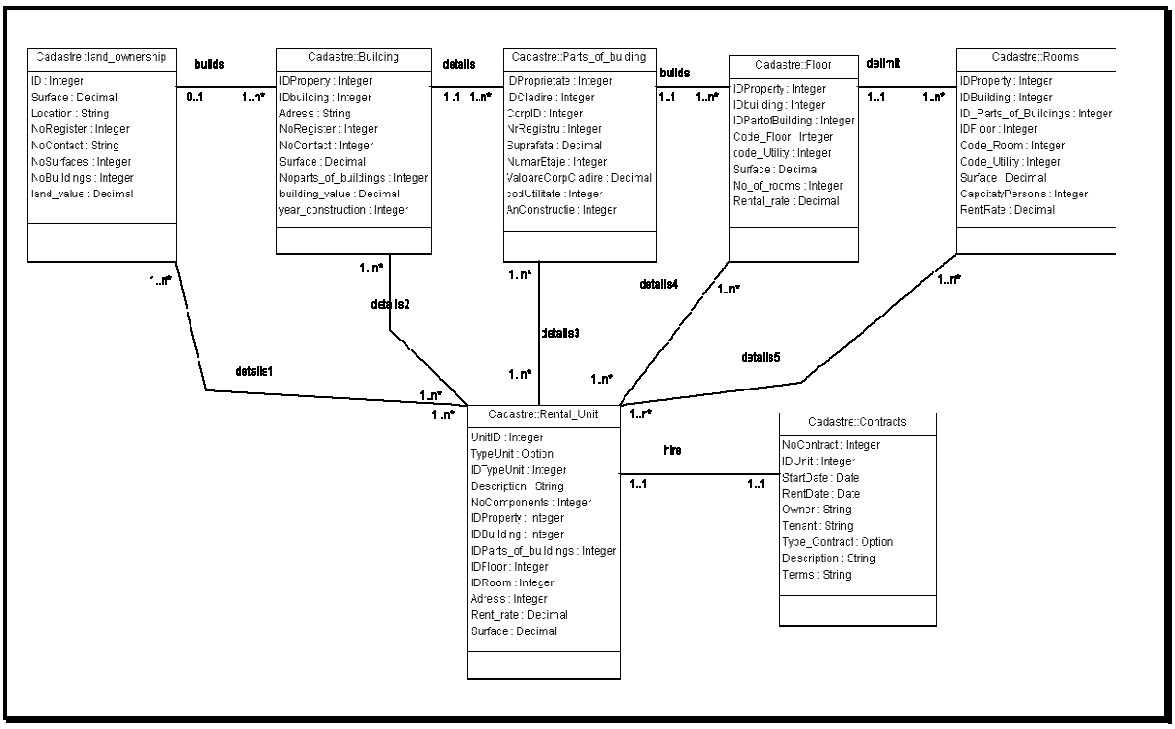

Fig 1. Class Diagram for a Cadastral Database

Drawing up the lease contract (In a rental unit will have a single rental contract). The main actors of the system are:

- The owner - He hires a licensee that lead to good accomplishment and legal boundaries of the owner's request.
- The Hall - Issuing permits and approvals necessary works
- The Cadastral Office - has carried out technical modifications on the building

Amendments (the contract extension or conclusion of the contract) are directly in the lease. Changes relating to the characteristics rent (additional cost, price / square meter ... etc.) are directly in the rental unit. Use cases in summarized form are described in Table 1.

Table 1: Use Cases for a Cadastral System

Use Case	Actor	Description of Use Case
Obtaining construction permits	The Hall	Building permit is obtained from the administrative-territorial unit which has highlighted territory. Data required are the owner, architect and plan situation.
Submitting a building	The Cadastral Office	After completion of work and conduct field verification by a competent authority, the construction can register on the basis of documents which were required to obtain a building permit. On perform verifications in land, building permit must be valid.
Repartitioning a floor / apartment	Licensee at the owner's request	If the owner wants to reconfigure space within a specific floor or an apartment it is necessary to obtain legal advice. After completion of work is required verification of compliance by an authority plan
Sharing space	The Owner	A lease may include several objects (several floors of the same building).

in units of rent		Within this actor are established technical dimensions of rent (price / square meter)
Drafting of the lease	The Owner	In practice a lease is a rental unit in one of subordination. The rental agreement contains data on the customer, the range of billing and other information relating to the payment.

Defining state diagrams

The state diagram refers to identify activities, messages start point and end point depending on the events occurring in that system. Generally a transition capture a state diagram of the event, and is performed on various components of the system. There are some aspects which will define the flexibility of the system hardware:

- The easiness with which the equipments can effect various operations of data input, output, processing and transmission;
- The facilities offered to end-users;
- Equipments performance, as to their utilization;
- Equipments power to integrate- that is their ability to interconnect and interface, thus allowing coordinating and synchronizing when effecting several heterogeneous applications.

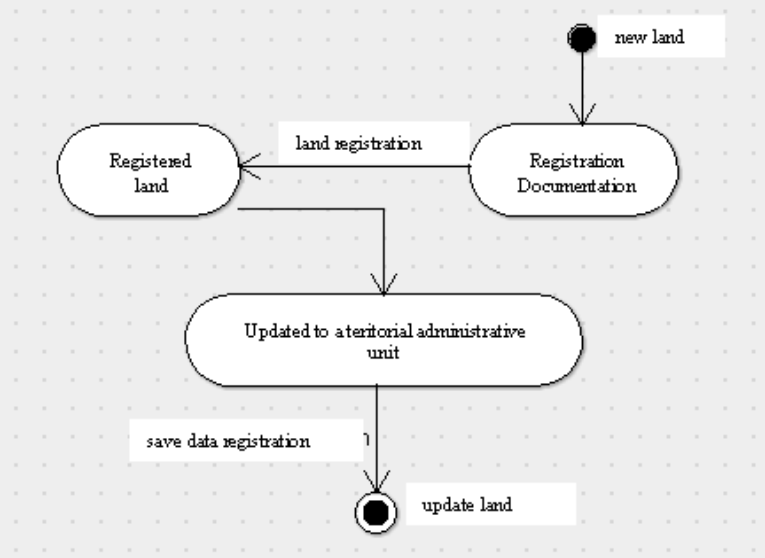

Fig 2. State diagram for the class property

Define interaction diagrams charts activities

Activities Diagrams are used in dynamic use of the system. Include items from left to right and the messages they exchange objects from a starting point that usually derives from use cases. The messages are followed progressively over time.

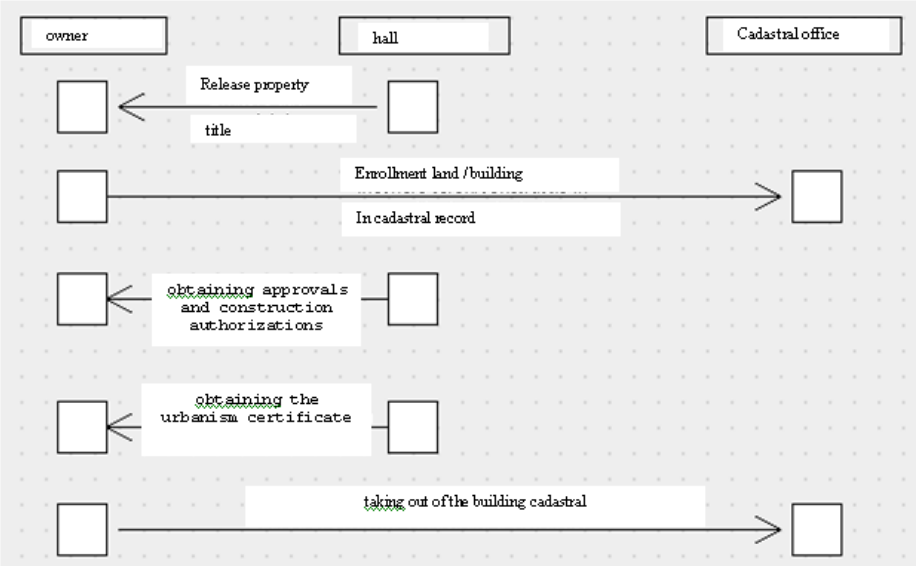

Fig 3. Collaboration Diagram for the registration of land / building

Sequence diagram can be presented and detailed the agenda mentioned messages in collaboration diagrams.

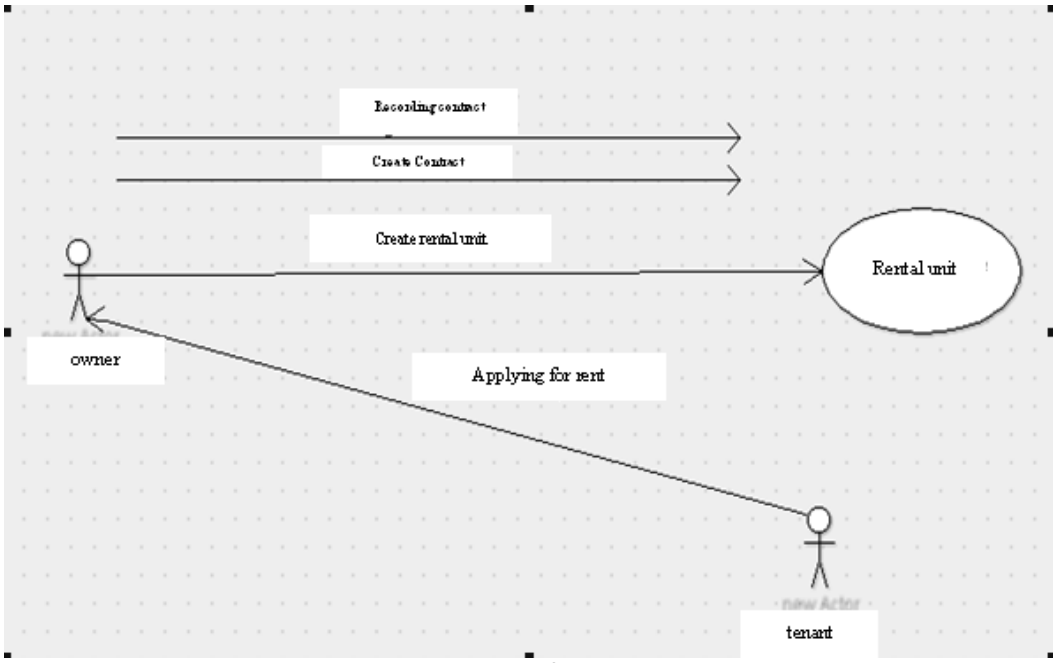

Fig 4. Sequence diagram for recording contract

Figure 5 shows the activity diagram to add contract. Identify actions, it represents the state, the start point and end point.

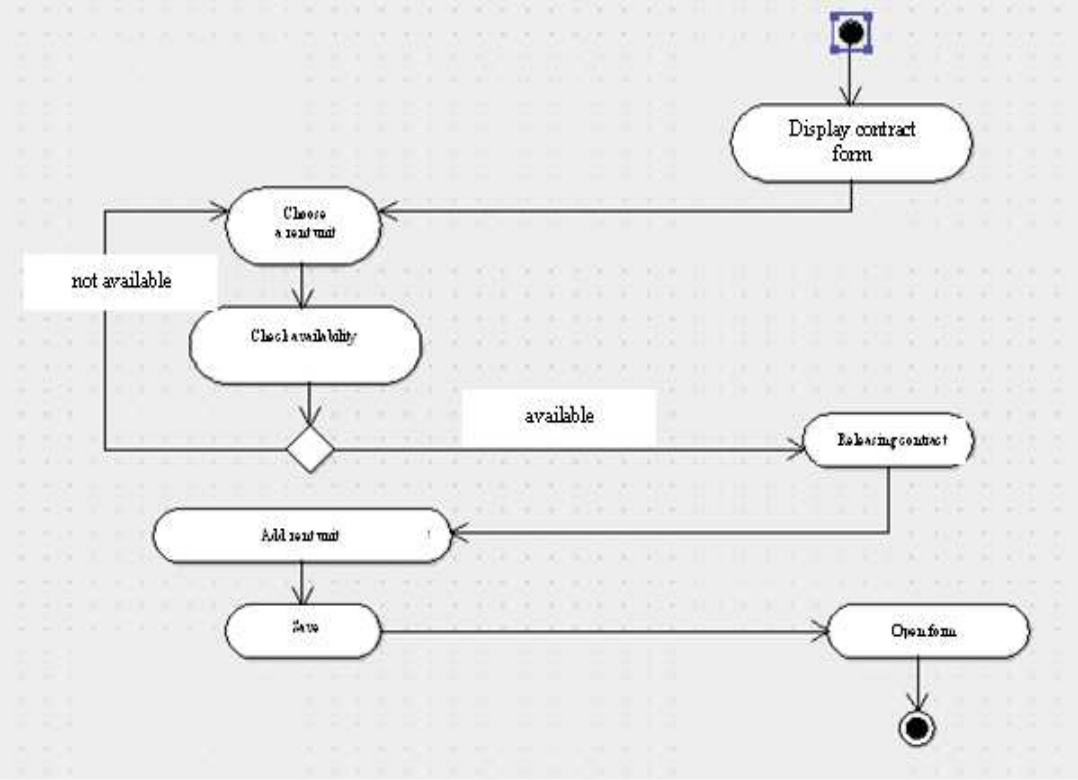

Fig 5. Diagram of activities to add agreement

It is well known that on the home and abroad market an impressive number of methodologies existed, exist and will exist, each of them having both advantages and disadvantages.

The Detail Design of the Information System Components is "real art". The adaptability of the system to the changes that intervene in it and to its maintenance and exploiting facilities depends to a great extent on the way in which each component is conceived and designed [17]. As the matter of designing of the system is a complex problem we will confine to making some suggestions [20]:

a. When designing primary documents as source of integrating data it is desirable that drafts and their video-formats be very close to the real image and at the same time they should be as suggestive and self explanatory regarding their utilization;

b. In the activity of designing outputs the form of presentation (list, table, graph) will be paid attention to as well as to their complexity (synthetic and analytical situations) depending on the category of end users. .

c. In the order to design the code systems of date it will be resorted to:

- Using sequential codes with groups formation, they are the most flexible for the maintenance of the code;
- Mnemonic codes or the descriptive ones are very suggestive in their use;
- The bar codes or RFID (Radio Frequency Identification) offer increased facilities regarding the integration of information systems.

d. When designing the applications programs several aspects will be considered [18]:

- Creating an integrated developing environment with a view to editing the source code, compiling, testing and generating the programming documentation. All these activities can be included in a complex software package which offers a graphic interface which is friendly to the users;
- Based on finite automatons, programs can be generated automatically for designing entities (data collections) and loading data;

- Building and implementing some general drivers of connecting clients to various databases and transforming the entities into Java classes. Such a solution offers the possibility to integrate data in various locations and sources which are managed by different database management systems. In this way data portability within systems is increased.

e. Designing data organization within systems. Any Information System or application operating with a great volume of data appeals to a certain way or another of organizing data. At present there is a multitude of models, methods and techniques of organizing data. There is a tendency to develop OOBD (Object Oriented Data Bases) but the greatest weight is held by applications that use RDB (Relational Data Bases): or non SQL Data Bases. Considering the limited space of this paper we will confine to pointing out some aspects regarding RDB (Relational Data Bases) flexibility.

In most information systems the management of databases is not considered to include neither explicit nor hidden inconsistencies [19]. In real life situation information often come from different contradicting sources.

Software development projects require a lot of "paperwork" in the form of requirements documents, design documents, test plans, schedules, checklists, release notes, etc. It seems that everyone creates the documents from a blank page, from the documents used on their last project, or from one of a handful of high-priced proprietary software engineering template libraries. For those of us who start from a blank page, it can be a lot of work and it is easy to forget important parts.

Bosses and organizations still tend to think that people whom are managed and employed and paid to do a job should do what they're told to do. We are conditioned from an early age to believe that the way to teach and train, and to motivate people towards changing what they do, is to tell them, or persuade them [11]. From our experiences at school we are conditioned to believe that skills, knowledge, and expectations are imposed on or 'put into' people by teachers, and later, by managers and bosses in the workplace.

For many organizations, information and the technology that supports it represent the organization’s most valuable assets. Truly, information and information systems are pervasive throughout organizations – from the user’s platform to local and wide area networks to client servers to mainframe computers. Many organizations recognize the potential benefits that technology can yield. Successful organizations, however, understand and manage the risks associated with implementing new technologies. Thus, management needs to have an appreciation for and a basic understanding of the risks and constraints of IT in order to provide effective direction and adequate controls.

Management has to decide what to invest for security and control in IT and how to balance risk and control investment in an often unpredictable IT environment. While information systems security and control helps manage risks, it does not eliminate them. In addition, the exact level of risk can never be known since there is always some degree of uncertainty. Ultimately, management must decide on the level of risk it is willing to accept. Judging what level can be tolerated when weighted against cost, can be a difficult management decision. Therefore, management clearly needs a framework of generally accepted IT security and control practices to benchmark their existing and planned IT environment:

- Increasing dependence on information and the systems that deliver this information
- Increasing vulnerabilities and a wide spectrum of threats, such as cyber threats and information warfare
- Scale and cost of the current and future investments in information and information systems
- Potential for technologies to dramatically change organizations and business practices, create new opportunities and reduce costs
- Free and open technologies in business;
- Legal aspects.

Conclusions

The control of the planning and organization activities for the I.S. systems means the use of the feedback in order to monitoring the project, including comparing the planned stage with the actual stage of evolution. In addition, the control means making the right decisions in order to accelerate or to reorganize

the activities to be able to finish them in time as well as to motivate the team to do the job right and to be able to remain in the fixed budget.
Once the time and financial resources are dealt with, we must take care of the human resources as well. Mainly this means to communicate with the team's members who have been selected for their competence and abilities. The aims for the project's productivity must be fixed and the members of the team must be motivated to reach the aims.
As an evaluation consequence, we can easily establish the risk exposure as far as the planning and organization activities of the complex I.S. projects are concerned.

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The Optimal Sum Insured in Life Insurance

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Abstract

An article deals with the issue of optimal sum insured in life insurance. The aim of article is to create formula and to analyze its use in case of calculating the optimum sum insured for protection of family property upon death. The publication focus on the ideal sum insured in case of life insurance. It focuses on describing and comparing elements, which are typical for insurance. Article deals with the actual issue because the life insurance market is still growing market. Reasons for the increase in the life insurance market are different. This may include: the pension reform, increasing people's awareness of the need for the individual security for retirement, increase the standard of living.

Keywords: the life insurance, the optimal sum insured, the ideal sum insured, the case study

Research objective

The main issue of this article is the life insurance, especially we observe the optimal sum insured in life insurance. The general object is life insurance; the problem is to define the optimal sum insured and the ideal sum insured in life insurance. Life insurance is a protection against the loss of income that would result if the insured passed away. The named beneficiary receives the proceeds and is thereby safeguarded from the financial impact of the death of the insured.

„With a 35% share of the global market, the European insurance industry is the largest in the world, followed by North America (29%) and Asia (28%). Insurance makes a major contribution to economic growth and development. It facilitates economic transactions, encourages risk management, promotes financial stability and encourage stable and sustainable savings and pension provision.“ (Insurance Europe)

Objectives, methods and methodology

The research is processed by using a wide scale of the scientific methods and procedures. The specific range of methods was based on the research needs of the individual parts. The intention is to follow the logical continuity of the articles ‘parts, the correctness and the adequacy of information and data. First part is focused on the definition of life insurance and on the determination of the optimal and ideal insured sum. This section is prepared by using the analytical methods – the analysis, the casual analysis, the synthesis, the induction and the deduction. We analyzed scientific publications and scientific articles, papers by various authors (e.g. Crews, T. B. (2009), Fowles, D. (2008), Garman, E. T. – Forgue, R. E. (2012)) and we could determine the calculus of optimal sum insured, by using this base information. The first part is based on preparation and explanation of formula for calculation the optimal sum insured. (Mitková, 2010)

Empirical research was carried out and is based on a case study which deals with using the prepared formulas. This case study is based on practical example. The case study analyzes the optimal sum insured

in the family. The family consists of four members - father (Simon Matlak – employed; he wants secure his family in case of death), mother, two sons - Richard - 5 years and Roman - 7 years. The second part is prepared by using scientific methods – the causal analysis, the mathematical and the statistical methods. The goal of life insurance is to provide a measure of financial security for the family after/if Mr. Simon Matlak die. So, before purchasing a life insurance policy, he should consider his financial situation and the standard of living he wants to maintain for his wife and 2 sons. He needs to pose questions: “who will pay for his funeral costs? Will there be adequate funds for future or ongoing expenses? The research question is: "How to solve the problem of Mr. Simon Matlaks´ family?"

Article represents the basis of the planned long-term research which expected the analysis of insurance market, more exactly we want to focus on the selected states (Slovakia, Serbia) and we want to analyze the life insurance market in these states. The goal is to prepare more case studies and to compare the different situations on those markets.

Introduction

Sellers of life insurance, financial consultants, insurance agents and everybody who is dealing with the life insurance through their work face the same problem: setting the sum insured under multi-risk coverage, especially in the definition of the sum insured, which is used to cover the risk of death. Everything what would be ideal or sufficient for the client, what will cover the loss of income to the family of the client, it is generally too expensive for the client from middle-class. Consultant has the task of finding the best possible combination of premiums and the sum insured. It is important that the client provide for himself and his family a sufficient financial coverage, but for minimum money.

The sum insured represents one the most essential parameter of life insurance for the customer. If the client has very cheap insurance, but the amount of coverage does not cover adequately the risks, it is useless for the client to pay insurance. Correct and optimal insurance coverage constitutes a key factor for quality assurance.

Each client's financial plan has to contain its purpose and has to predict the client's life situation that can change its own requirements. Establishment of the financial plan / financial portfolio consists of several important steps. The first step is to identify the client's objectives. After determining the financial objectives of the client, the second step is to determine the partial objectives. Each financial product (life insurance, too) has its own goal. The aim of life insurance is to ensure income of families and individuals in situations where income is at risk.

The most common cases when there is a risk that the client will lose a part or even the whole of his income are:

- permanent effect of injury;
- severe disease;
- disablement;
- loss of employment;
- death.

All of these risks must be minimized by products in the category securing income. In all of these situations, the stability of a client is imperiled and it is of greatest importance to counteract all risks and then do the next steps in building the client portfolio. It is most common to use insurance to cover these risks but there are other methods which are more effective in certain cases.

In Slovakia it is becoming more and more relevant to secure income through life insurance. (Pawera, 2007) Unlike Germany where the ratio of life versus non-life insurance (expressed by the sum of premiums) 46 to 54, in Slovakia the ratio is 37 to 63. That is why it is most probable that the insurance

sector will expand in the field of life insurance or in the boundaries of securing income. The key determinant of the growth of insurance demand is the growth of the average pension of the population, which is another proof of the rise of overall premiums in life insurance. (Komorník, Janać)

We completely agree that the permanent consequences of accident represents the greatest risk to family income but in this article we are dealing with the setting of the sum insured in case of death of one or both members of the family. The said insurance risk is most often negotiated risk of life insurance and consultants frequently incorrectly determine the amount of its financing that can considerably influences the quality and the amounts of family income and undermine the financial situation of the family.

Lost of income can be solved through the life insurance, even if the loss of income is the result of the loss of employment. Today's insurance policies are very flexible and they allow clients to, except the interruption of payment of insurance premiums, the partial purchase of saved up funds. The client can use it to overcome a certain period when he is unemployed. (Komorník, Janać)

An additional insurance for critical illness is standard risk which is covered through life insurance. The sum insured is arbitrary and the proceeds from the sum insured should be used to finance the treatment of critical illness on the basis of which the sum insured was paid.

1 Monthly rent as a form of ensuring income

There are several possibilities how to ensure family income through life insurance. Financial consultants and agents are governed during the determination of the sum insured mainly by client wishes.

However, the correct way is:
1. Firstly, to make a cash flow analysis of the client.
2. Based on this analysis to define the client's needs in case of loss of income of one or both holders of income to the family.
3. On the basis of identified needs to answer the question: "How much money the family will need in case of loss of income for covering their needs?"

In case that the family has debts, it is important that they should be immediately repaid, because we need to be protected our client (family) prior to payment of the interest to banks from the insured amount. The sum insured will be increased by that amount. (Joehnk – Billingsley – Gitman, 2011)

Monthly rent (R) is the amount that family will need in case that the family lost one or all income. If the client can determine at this risk also time during which he would like to secure a monthly rent for himself and family, then we know to optimize the sum insured. In case of death, it can, for example, be till the children are not adults and they will not be able to earn money. In case of permanent consequences of accident time of receiving annuity is vague and we do not know to optimize the amount of coverage over time limitation of receiving of rent. (Komorník – Majerčáková – Husovská, 2011)

2 The ideal sum insured – long term rent

The following situation has become in practice and serves as a practical example. We have a father who is called Simon Matlák. Father aims to leave rent to his family in case of his death. Amount of € 500 per month should cover the shortfall of income. Financial consultant suggested father to set the amount of coverage the risk of death by the formula:

$$VK = \frac{R}{(i \div 12)}$$

where is:

- VK = sum insured
- R = monthly rent (the amount by which the client will cover a lack of income)
- i = interest rate expressed as a percentage divided by 100

If we calculated that today it is possible to have a 3% annual rate, Simon should be insured for the sum of € 200,000, in the event his death, the family could get amount of EUR 500 as monthly rent. Such sum insured is indeed ideal, but for Simon's family is too expensive. The high sum insured means also high premiums. If Simon has taken out insurance for 30 years, the minimum monthly premiums would be 400 EUR, which the family cannot afford.

Therefore, the question arises: "How to solve this problem of Simons´ family?"

Simon had a goal to ensure his family financially so he decided to provide the sufficient funds while the children are young and until they will be able to earn money themselves. The family consists of two children, Richard - 5 years and Roman - 7 years. We (Simon and financial consultant) want to ensure family revenue in the amount of 500 EUR until the youngest son will be 23 years, so while he will finish his study at the university.

At this point, we have another variable: time of use of rent. Since we already know the time, we can try to calculate the optimal amount of insurance premiums for life insurance. It is important that principal sum and interest together have brought 500 EUR each month. In our case it is a time of 18 years. In other words, if something happened today, the family will receive an annuity of 500 EUR per month for a period of 18 years. This amount will be spending from interest and the principal sum. All resources will be exhausted from life insurance at the end of the period.

3 The optimal sum insured – time-limited rent

The importance of the calculation is to determine the amount of cover in case that money will be levied at the same time from principal investments and also from income arising from interest. We have obtained the formula for calculating the sum insured, wherein the proceeds are invested, as follow:

For the first year, we needed to deduct an annuity from the invested capital (CP) and received interest (i):

$$CP \times (1 + i) - R$$

In the second year we repeated that operation with the fact that interest is calculated only from the balances of last year:

$$(CP \times (1 + i) - R) \times (1 + i) - R$$

Then we adjust formula:

$$CP \times (1 + i)^2 - R \times (1 + i) - R$$

For the third year we have received:

$$CP \times (1 + i)^3 - R \times (1 + i)^2 - R \times (1 + i) - R$$
$$CP \times (1 + i)^3 - R \times ((1 + i)^2 + (1 + i) + 1)$$

If we adjust this formula to an indeterminate number of years, where "n" is the number of years:

$$CP \times \underbrace{(1+i)^n - R \times ((1+i)^{n-1} + (1+i)^{n-2} + \cdots + (1+i) + 1)}$$

We express geometric series as follows:

$$\frac{(1+i)^n - 1}{(1+i) - 1} = \frac{(1+i)^n - 1}{i}$$

We obtain the following formula, which we can customize:

$$CP \times (1+i)^n - R \times \frac{(1+i)^n - 1}{i}$$

We add to the formula residual value (hereinafter referred to as "ZS"). The residual value is the amount of financial funds that the client wants to have after the period of receiving rent. In practice, it is the amount that is most commonly expressed as zero, because the client receives funding as long as he has the sufficient funds on the account.

$$CP \times (1+i)^n - \frac{R}{i} \times (1+i)^n + \frac{R}{i} = ZS$$

$$CP \times (1+i)^n - \frac{R}{i} \times (1+i)^n = ZS - \frac{R}{i}$$

$$(1+i)^n \times (CP - \frac{R}{i}) = ZS - \frac{R}{i}$$

$$(1+i)^n = \frac{ZS - \frac{R}{i}}{CP - \frac{R}{i}}$$

$$(1+i)^n = \frac{ZS \times i - R}{CP \times i - R}$$

Finally, we get a formula that determines the number of years necessary for the client to benefit from its funds under specified interest and annuity needed, and we know the amount invested and the financial balance of the investment account after "n" years:

$$\boldsymbol{n = \frac{\log \frac{ZS \times i - R}{CP \times i - R}}{\log(1+i)}}$$

We can insert variables in the formula that we use to determine the sum insured. The formula will be as follows:

$$\boldsymbol{t = \frac{\log \frac{ZS \times i - R}{PS \times i - R}}{\log(1+i)}}$$

where is the:
PS = sum insured
R = annual rent (the amount by which the client will cover a lack of income)
i = interest rate expressed as a percentage divided by 100
t = time during which the client uses the required rent

ZS = residual value (financial resources remaining in the account at the end of a defined investment period). In practice, this amount often heading to 0.

We can derive also CP, by using the same procedure:

$$CP \times (1+i)^n - R \times \frac{(1+i)^n - 1}{i} = ZS$$

$$CP \times (1+i)^n = ZS + R \times \frac{(1+i)^n - 1}{i}$$

$$CP \times (1+i)^n = ZS + \frac{R}{i} \times (1+i)^n - \frac{R}{i}$$

$$CP = \frac{ZS + \frac{R}{i} \times (1+i)^n - \frac{R}{i}}{(1+i)^n}$$

$$CP = \frac{ZS \times i + R \times (1+i)^n - R}{i \times (1+i)^n}$$

Finally, we get the formula by which we can calculate the required amount of capital, by specified interest, rent and residual value.

$$\boldsymbol{CP = \frac{ZS}{(1+i)^n} + \frac{R}{i} - \frac{R}{i \times (1+i)^n}}$$

If we substitute the variables in the formula - time instead of "n" and the sum insured instead of capital, we get the following formula:

$$\boldsymbol{PS = \frac{ZS}{(1+i)^t} + \frac{R}{i} - \frac{R}{i \times (1+i)^t}}$$

where is the:
PS = sum insured
R = annual rent (the amount by which the client will cover a lack of income)
i = interest rate expressed as a percentage divided by 100
t = time during which the client uses the required rent
ZS = residual value (financial resources remaining in the account at the end of a defined investment period). In practice, this amount often heading to 0.

We can use the formula also the example of the Simon family, where we want to calculate the optimal sum insured in the event of the death of Mr Simon. If the parameters are defined as follows:
ZS = 0
t = 18
R = 500 EUR / m (6000 EUR / year)
i = 3% (interest, which can be obtained on the market)
We receive calculation, which significantly reduces the sum insured and also insurance.

$$PS = \frac{ZS}{(1+i)^t} + \frac{R}{i} - \frac{R}{i \times (1+i)^t}$$

$$PS = \frac{0}{(1+0{,}03)^{18}} + \frac{6000}{0{,}03} - \frac{6000}{0{,}03 \times (1+0{,}03)^{18}}$$

$$PS = 0 + 200.000 - 117.647$$

$$\boldsymbol{PS = 82.353\ EUR}$$

Using the formula, we get the sum insured which is the amount of € 82,353. That amount is less than half the ideal sum insured. In case of optimal sum insured, the family is covered by the amount of 500 EUR every month for 18 years. If the family had any debts and they would like to repay these debts as soon as possible, because their income is at risk, this amount must be added to an optimal level of cover. Also, if the family wants to leave certain amount of their descendants after the expiry of rent, ZS cannot be 0 in the formula but we need to replace 0 by using the desired financial value. (Janać, 2010)

If we deal with life insurance only as the cover for risk of death, without saving components, then it would be necessary to change the sum insured every year, according to the client's needs. For example, in our case of Simons´ family, it is important to reduced sum insured in the following year, because the time of for economized the rent is minus one year. The sum insured, in this case, would be € 80,000.

Conclusion

In practice, such changes of the financial portfolio and of insurance contracts are not frequent. The main reason is a combined life insurance, which involve also a saving component and they do not allow high frequency changes in sum insured. Even this is not efficient, because if we diminished the sum insured, the client should less saved up funds. In that case, we would endanger his retirement financial plan. The second reason is the client's age and the fact that the premium to cover the risk of death is each year more expensive and it is questionable whether we would save on premiums if we edited every year sum insured downwards.

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Organisational Culture and the Use of Knowledge-Based Engineering Systems in Saudi Industrial Firms

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Abstract

The main aim of this study to investigate what is required to achieve in the effective use of knowledge management system, such as: knowledge assets, knowledge sharing, learning, leadership, and the use of technologies. In order to benefit from these main pillars of knowledge management we need to identify each one and understand its main use in the evaluation of the knowledge based engineering system in Saudi context. In order to succeed it, the organisation and its key compensations are the most distinguished drivers of knowledge management. The main determination is to cultivate a conceptual model, which comprehends the influence of organisational culture on the main pillars of knowledge management towards the effective use of knowledge based engineering system in Saudi industrial firms.

1 Introduction

Today, economies are gradually created on knowledge, which is now known in Saudi firms, growing into a knowledge-based economy, which offers an emphasis on the role of information, technology and learning in economic performance. The Kingdom of Saudi Arabia is widely known with its unique culture and heritage, which has been preserved since the inception of the culture (Eid 2011). The cultural setting of Saudis is actually an Arab and Muslim culture. Today, Saudi Arabia visitors are subjected to the same rigorous Islamic law as Saudis. In this regard, different enterprises in Saudi Arabia are being subjected to a greater extent influenced by the cultural aspects of the Islamic community. Hiring employees in a local enterprise consider a clear stipulation that employees, whether of Saudi origin or otherwise, must be governed by similar policies and follow comparable requirements for their enterprises. That must be subjective by Saudis religion law, which is Islam. Where Islam plays a vital role in persuading the business community in Saudi Arabia.

The significance of the organisation culture is increasingly essential for managers to understand the Saudi context, which is often problematic (Al-Adaileh and Al-Atawi 2011, Eid and Nuhu 2011, Adlan and ten Have 2012). In addition, information systems are increasingly imperative for the organisation (MacDonald 1996, Liu 2003, Liu, Dai et al. 2007). Organisation's around the world have been able to gain a substantial amount of independence, due to the information systems that can transport a competitive advantage for the organisation. An organisation needs to be grounded in a way that can continually grow and increase their efficiency and effectiveness; they need to ensure the most robust system in place, which can ensure the long-term survival of the competitiveness of the organisation. Today,

information systems have become a fundamental enhancement for storing employee's information as well as other aspects of the company. The utilization of information systems has completely transformed the performance of responsibilities within the work environment into a digital manner (Alhaqbani 2013).

The purpose of this study is to examine the influence of organisational culture on the main pillars of knowledge management towards the effective use of knowledge-based engineering system in Saudi firms. In particular, the research question is:What are the main factors that influence the use of knowledge-based engineering systems in Saudi firms?

2 Literature Review and Theoretical Background

This section describes the related studies to provide a foundation for developing a conceptual model.

2.1 Organisational Culture

Culture is represented everywhere in the surrounding of an organisation, that is created by interactions with people and shaped by leadership behavior, and set of structures, practices, rules and norms that guide and constrain behavior to a certain direction. Culture exists in different levels, which is created and manipulated to form small level of teams or group members or to a big level such as nations. Culture is also a significant element that grows an energetic organisation (Schein, 2010).
A number of scholars have developed integrative frameworks of organisational culture; since culture is a complex phenomenon ranging from underlying beliefs and assumptions to visible structures and practices, dynamic doubt also exists as to whether organisational culture can actually be "measured" in a comparative sense (Denison, D., Haaland, S. & Goelzer, P., 2004,p.99). Thus "organisational cultures, like other cultures, develop as groups of people struggle to make sense of and cope with their worlds" (Trice and Beyer, 1993, p.4).

How then we should think about the "essence" of culture and how should we formally define it? The most useful way to arrive at a definition of something as abstract as culture is to think in dynamic evolutionary terms. If we can understand where culture comes from and how it evolves, then we can grasp something that is abstract; that exists in a group's unconscious, yet that has powerful influences on group's behavior.

However, culture is hard to define, it is an abstraction. Each person may have his or her own understanding of culture. There are hundreds origin of culture, each of them is point of view, an outlook. (Aliferuke and Bodewyn's, 1970:54) A study of hundreds definitions of culture by Kroeber, Kluckhohn, & Untereiner (1952) even shown that there are 164 meaning of culture and the definition of culture has changed over times. There is no fixed, universal definition or understanding for culture, and neither for organisational culture, there is no single definition for it. In

general, Culture has been defined in many ways, according to Kluckhohn (1951a: 86, 5) quotes as a consensus of anthropological definitions; "Culture covers patterned ways of thinking, feeling and responding, acquired and conveyed mainly by symbols, establishing the characteristic achievements of human groups, including their expressions in artifacts the critical core of culture consists of traditional (i.e. historically derived and selected) ideas and particularly their attached values". In the other hand, Kroeber and Parsons (1958;583) arrive at a cross-disciplinary definition of culture as "conveyed and created content and outlines of values, ideas, and other representative meaningful systems as features in determining of human behavior and the artifacts formed through behavior." Triandis (1972;4) differentiates "subjective" culture from its appearance in "objective: artifacts and defines the former as "a cultural groups features way of perceiving the man-made part of its environments." Culture, in this sense, includes organizations of values; and values are among the construction of culture.

Culture is to human collectivity what personality is to an individual. Personality has been defined by Guilford (1059) as "the collaborating cumulative of personal characteristics that affect the individual's response to the environment." Culture could be defined as the communicating combination of common characteristics that influence a human group's reaction to its environment. Culture determines the individuality of a human group in the same way as personality regulates the identity of an individual. Moreover, the two interact; "culture and personality" use a classic name for psychological anthropology (Bohannan, 1969: 3; Barniuw, 19973). Cultural traits sometimes can be measured by personality tests (Hofstede, G., 1980,p.25,26).

According to Hofstede definition of culture as a combined encoding of the human mind, the word is kept for relating entire societies; for groups within societies, "subculture" is also used. And how culture outlines are ingrained in value organizations of major groups of the population and how they are stabilized over long stages in history (Hofstede, G., 1980,p.13) (Hofstede 1980). Moreover, culture includes the acquaintance that people need to have in order to utilize effectively in a social setting. Much of culture is reproduced in the products of the mind, such as language, myth, art, kinship, norms, values, and shared meanings about social behavior (Keesing, 1981). Some fundamentals of culture are objective (e.g. tools) and some are subjective (e.g., beliefs, attitudes) according to (Gannon, M. & Newman, K., 2002) main definitions.

In the other hand, Schein has defined organisational culture as a characterized attitudes, beliefs, experiences, and values of people in a given organisation. Organisational culture has long been emphasized as vital for organisation performance, organisation development, and human resource development (Barney, 1986a; Egan et al.,2004). Schein (1985) also emphasized organisational culture as: the deepest level of basic assumptions and beliefs that are shared by members of an organisation, that operate unconsciously, and that define in a basic "taken-for-granted" fashion an organisation's view of it and its environment. These

assumptions are learned responses to a group's problems of survival in its external environment and its problems of internal integration [p.6] (Egan, 2008, p.301-302).

In result, Hofstede's main definition of culture is considered a high relevance for many researchers on the emphasis of culture and its effect of human mind programming towards groups within societies; where culture patterns are origin from value systems of groups within the population of similar societies. However, Schein has focused more on the definition of organisational culture in which it holds certain characteristics of attitudes, beliefs, experiences, and values of people in a given organisation.

Therefore, the role of both culture and organisational culture depends highly on the behavior background of people who are the main members of the society. Behavior influence and generates a competitive advantage for employee's performance within the organisation. First, a strong culture within any organisation helps group members to understand problems, evaluate the situation, share values and unite people to behave and in the correct and proper manner. Secondly, identifying the problem and evaluating a suitable solution will help narrow down the decision making process. Third, a strong culture will develop a decent relationship among members of the group; improve the working environment to be successful within the organisation.

2.2 Types of Culture

2.2.1 **Vertical & Horizontal Cultures**

According to Triandis, cultures are defined in both: vertical cultures which accept hierarchy as a given; people are different from each other. Hierarchy is a nature state were whoever is on the top "naturally" had further power and privilege than those of the bottom of the hierarchy. In the other hand, horizontal cultures accept equality as a given and people are essentially alike, and if one is to split any resource it should be done equally (Triandis, 1980, p.18-19).

One of the basic qualities of cultures differentiation is the way people sample information of a particular type, the behavior that is suitable for the information gets to be involuntary, so that people don't have to think how they are hypothetically to behave (Triandis, 1980, p.20). Perhaps the most motivating feature about culture is that basic expectations are not interrogated; they influence thinking, emotions, and actions deprived of people noticing that they do (Triandis, 1995).

Vertical relations are most shared in societies that are high in (Hofstede's,1980a) power distance, however horizontal relations are most common in societies that are low in power distance. The vital point is that vertical or horizontal, collectivist or individualist's cognitions become noticeable depending on the situation. Also, there is a tendency for the vertical collectivist and horizontal individualist cultures to be more abundant than the other two forms.

2.2.2 **Individualism & Collectivism**

The custom dominant in a given society as to the degree of individualism/collectivism expected from its members will strongly affect the nature of the relationship between a person and the organisation to which he or she belongs. More organisations; in a society in equilibrium, the organizations should in return assume a broad accountability for their members. Whenever organisations terminate to do that as in the emerging capitalism in nineteenth-century Europe, and today in many less-developed countries there is conflict between people's values and the social order, this will lead to either a change in values toward more individualism, or force toward a different, more collectivist social order (such as state socialism), or both (Hofstede, G., 1980,p.217).

The level of individualism/collectivism in a society will affect the organisation's members' motives for obeying with organisational requirements. Following the terminology presented by Etzioni (1975), we can undertake more "moral" involvement with the organisation where collectivist values overcome and more "calculative" involvement where individualist values succeed. Etzioni discriminates between "pure" and "social" more involvement' "Pure" more involvement tends to develop in vertical relationships, such as those between teachers and students, priests and parishioners, leads and followers. 'Social' participation tends to mature a horizontal relationship like those various types of primary groups. Both pure moral and social orientations might be found in the same relationships, but as a rule, one orientation predominates" (1975:11). We can release pure more involvement to the orientation predominates in a high power distance society and social involvements to values of the organisation member in a collectivist society.

The level of individualism/collectivism in society will also affect what type of persons will be admitted into positions of special influence in an organisation. A useful distinction in this case is Mertons's "locals" versus "cosmopolitans" (Merton, 1968:447), first published in 1949: the terms originate from a translation of Tonnies' work). The local type is largely preoccupied with problems inside the organisations; this type is likely to become influential in a more collectivist climate. The cosmopolitan type must maintain a minimum set of relations within the organisation; but he or she considers him or herself as integral part of the world outside it. We would rather find cosmopolitans in positions of influence in organisations where a more individualist norm prevails.

The degree of individualism is organisations obviously will depend on many other factors beside a societal norm: We can expect effects of employee educational level and of the organisation's own history and subculture. Also predictable is a relationship with organisation size (Hofstede, G., 1980,p.218).

2.3 Saudi Arabia Organizational Culture

The success of the business systems and the literature related to this identifies there is a need for organisations to continually improve their efficiency and effectiveness,

which can lead to the development and improvement of organisations. The culture of employees is one of the defining factors for organisations as the different factors can influence the uptake of the success of business organisations (Ryan, Chan et al. 1999, Raghuram, London et al. 2001, Crow and Hartman 2002). The cultural setting of Saudis is actually Arab and Muslim. It is widely known that the Saudi setting has a unique culture and heritage, which has been preserved since the inception of the culture (Eid 2011, p.45). Visitors to Saudi, including non-Saudis, are subjected to the same rigorous Islamic law as Saudis. In this regard, different enterprises in Saudi are to a greater extent influenced by the cultural aspects of the Saudi community. When it comes to hiring employees in the enterprises, there will be a clear stipulation that employees, whether of Saudi origin or otherwise, will be governed by similar policies and will follow similar requirements for their enterprises. This is influenced by the religion that is followed in Saudi, which is Islam (Al Mizjali 2001, p.6). The Muslim life thus plays a big role in influencing the business community in Saudi Arabia.

2.4 Success Factors of Knowledge Management Systems

2.4.1 **Knowledge Assets**

According to Green (2004), successful organisational performance measurement is in need of a methodology and system the enables managers to identify knowledge, document knowledge, and value knowledge. Knowledge assets are the major aspects of invention in the 21st century economy, whether their origin is in the services, manufacturing or agricultural sectors. Examples of knowledge assets are: ideas, processes, technologies, intellectual property, skills, competencies, education, customer relationships, professional networks, lessons learned, best practices, methodologies, and techniques (Beames 2003). Tangible assets of labour, physical capital, and raw materials are far less indicative of company's value. In this knowledge era, intangible assets like innovation, relationships, and expertise are far more indicative of a company's value. (Green 2004). The term 'intellectual capital' is analogous for knowledge assets (Castro et al. 2013), Intellectual capital is a two-level concept, such as human capital (knowledge created by and stored in a firm's employees-human resource) and structural capital (the embodiment, empowerment, and supportive infrastructure of human capital) (Castro et al. 2013).

2.4.2 **Knowledge Sharing**

Collaboration both within the organisation and with other organisations is often considered to represent a crucial aspect affecting the overall performance of a company (Boehm 2012). Such as knowledge sharing which remains an essential element in the establishment of knowledge-based working environments within a company. Knowledge sharing within a working environment remains essential as it enables employees to increase their working skills (Bock et al. 2005). Teamwork is also critical to knowledge sharing. The nature of problem solving today is structured in a way where teamwork will enable the organisation to gain the level of support and help as part of the organisational culture; therefore delivering the best possible services (Ke and Wei 2008). Knowledge sharing is further into explicit knowledge sharing and tacit knowledge sharing. According to (Shao et al. 2012), "explicit

knowledge is formal and systematic, and can be achieved through readings of project manuals and team discussions, while tacit knowledge is highly personal, context-specific, subjective, and can be represented in the form of metaphors, drawings, non-verbal communications and practical expertise. It is usually difficult to articulate tacit knowledge through a formal use of language since it is expressed in the form of human actions such as evaluations, attitudes, points of view, commitments and motivation".

2.4.3 **Learning**

In recent years, measurement tools have been validated and used for assessment of organisation-level learning and development (Holten et al., 2000; Kontoghiorghes, 2004; Yang, Watkins, & Marsick, 2004), all of which have direct to indirect connections to learning-related motivation and transfer. To the extent that a major success factor in organisational learning outcomes is employee utilization or transfer of learning to workplace applications, motivation to transfer is a central consideration for human resource development. However, the focus on learning and learning transfer has been either at organisation level or on training-specific transfer. Additionally, specific characteristics or dimensions of organisational culture (Schein, 1992) and subculture (Saffold, 1998) as potential catalyst for supporting employee motivation to transfer have been largely overlooked.

For some time, the strength of organizational culture has been associated with firm performance and success (Barney, 1986a; Shein, 1992). Similarly, learning aspects of organisational culture have been linked with corporate achievement (Cook & Yanow, 1993l Yuki, 2002) and firm financial performance (Ellinger, Yang, & Howton, 2002), (Egan, 2008,p.303-304).

2.4.4 **Leadership**

It has been discussed that quality, culture, productivity and good management are all linked (Shao, Feng et al. 2012). One of the arguments is that high productivity is a result of motivation among employees, which further results in a good climate for work (Stock, McFadden et al. 2007). If the management of an organisation is successful enough to provide the required good climate for the organisation, this will lead to a culture that leads to success (Luis Ballesteros-Rodriguez, De Saa-Perez et al. 2012). A good climate that is the result of good management will result in organisational clarity. It will produce a well-defined structure for decision-making, the integration of different organisational parts, and an amalgamation of different cultures into a unified culture, reflecting the leader's vision. According to Anantatmula (2010), making effective use of knowledge requires intervention of leadership and management because it is associated with incentivizing vision and planned change in direction. The roles of both the leader and the manager are vital at different stages of knowledge management life cycle. Therefore, leadership has a critical role in developing and managing knowledge managment systems.

2.4.5 **Technology**

According to Kemp (2010), the right information technology (IT) systems can be essential enablers of the critical insights necessary to keep enterprise viable and successful. These systems inform and remind decision makers of what the enterprise organisation is, where it is in the world, and how prepared it is to cope with expected and unexpected challenges. Company information systems have become fundamental in enhancing the storage of information regarding employees as well as other aspects of the companies. One of the factors, which need to be taken into account, is that organisational factors must ensure they have the best systems in place (Jun and Kim 2010). The arrival of the Internet and the World Wide Web has made unconstrained sources of knowledge accessible for people. Experts are indicating the rise of the Knowledge Age succeeding the industrial Era. Within organisations, different systems can be used to enable the sharing of knowledge through denoting or acquiring knowledge via knowledge bases, where employees share knowledge electronically and access to shared practices becomes available to other staff members (Khorsheed and Al-Fawzan, 2013).

3 Conceptual Model

Knowledge Management System (KM) is defined as “the process of applying a systematic approach to the capture, structure, management, and dissemination of knowledge throughout an organisation in order to work faster, reuse best practices, and reduce costly rework from project to project”. Knowledge is the foundation of a firm’s competitive advantage, and, ultimately, the primary driver of a firm’s value (Kraaijenbrink, 2010). Organisational culture is considered as a critical factor promoting collaboration, in particular knowledge sharing (Shao et al. 2012). (Škerlavaj, Song et al. 2010) described organisational learning culture is a complex process that refers to the development of new knowledge and has the potential to change individual and organisational behavior. According to (Škerlavaj, Song et al. 2010) Within the competing values framework (CVF) (McDermott & Stock, 1999), organisation learning culture has four different types of cultures: group, developmental, hierarchical, and rational. Based on the related theories and previous studies, a conceptual framework is developed, as outlined in Figure 1.

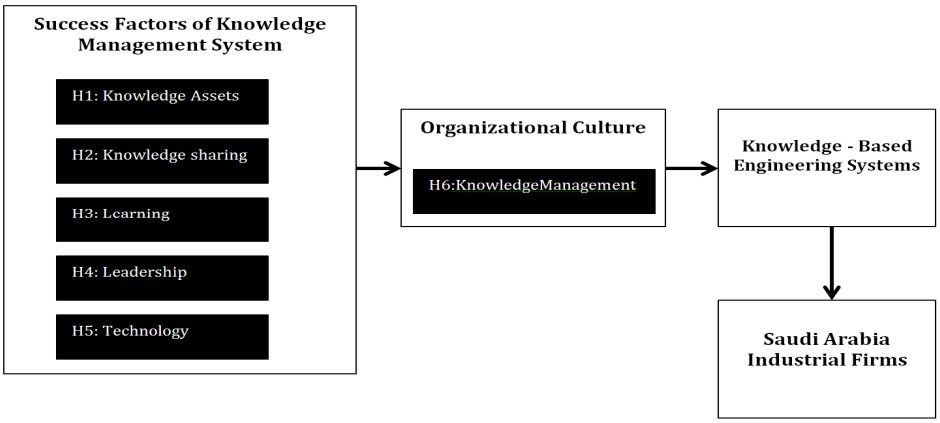

Figure 1: Conceptual model

The theoretical foundations for the research model needs to be evaluated on the basis of the relationship between the variables, which will help in explaining the ways of effective use of knowledge management system. To answer the research question the following hypotheses will be tested.

H1: Organisational culture positively influences the relationship between knowledge assets and knowledge management in a Saudi firm.
H2: Organisational culture positively influences the relationship between knowledge sharing and knowledge management in a Saudi firm.
H3: Organisational culture positively influences the relationship between learning and knowledge management in a Saudi firm.
H4: Organisational culture positively influences the relationship between leadership and knowledge management in a Saudi firm.
H5: Organisational culture positively influences the relationship between the use of technology and knowledge management in a Saudi firm.
H6: Organisational culture positively influences the relationship between knowledge management and knowledge management system use Saudi in a firm.

According to the conceptual model in Figure 1, the main objective of the thesis is to find the relationship between organizational culture and the success factors of knowledge management system such as: (knowledge assets, knowledge sharing, learning, leadership and technology) in Saudi industrial firms.

4 Research Methodology

It has been argued that qualitative research approaches clearly have their strengths in developing grounded theory in regard to the issues under investigation. Such an approach is valuable when looking at for example cultural complexity within an organisation, since little knowledge will exist about issues such as multiple cultural membership, cultural context at the organisational level and the impact on performance (Sackmann, 2001).

This research study intends to apply a mixed method that incorporated both

quantitative and qualitative approaches to validate the research model. Phase one of the research studies will employ a quantitative method, based on the collected data from a questionnaire targeting Saudi Arabian firms from different sectors and industries, a qualitative research method will be then carried out as a second phase of the analysis phase, which will supports the validity of the conceptual model.

4.1 Population and Sample

The population of this study is employees at selected firms in Saudi Arabia. The sample consists of employees who are the users of knowledge management systems.

4.2 Data Analysis Process

Closed-ended questionnaire will be used for survey and open-ended questionnaire will be used for interviews. Before collecting the data, ethics approval will be obtained from ethics committee. The quantitative data will be analyzed using SPSS software and qualitative data collected will be analyzed using Nvivo qualitative analysis tool.

As in any other qualitative study the data collection and analysis occur concurrently. The type of analysis engaged in will depend on the type of case study. Yin (2003) briefly describes five techniques for analysis: pattern matching, linking data to propositions, explanation building, time-series analysis, logic models, and cross-case synthesis. In contrast, Stake describes categorical aggregation and direct interpretation as types of analysis.

5 Conclusion and Significance

Literature search showed that, to date, no research has been conducted on the role of organisational culture on the main pillars of knowledge management towards the effective use of knowledge-based engineering system in the Saudi Arabian firms. Economies are progressively based on knowledge, which is now recognized in Saudi firms, growing into a knowledge-based economy, which delivers a focus on the role of information, technology and learning in economic performance. In order to accomplish it, the organisation and its key advantages ones must identify the main pillars of knowledge management. This research was explicitly looking at Saudi Arabia, a developing country that is embracing a knowledge-based economy.

The input of organisation culture and the knowledge management enablers (such as knowledge asset, knowledge-sharing, learning, leadership and the use of technology) in Saudi Arabia’s enterprise will be of great significance towards the effective use of knowledge management in Saudi context. This research will add a high value to existing knowledge and will be beneficial to firms in Saudi Arabia, who could use the insights analyzed in this study to generate better outcomes.

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Food Tourism as an Opportunity of Promoting Local Gastronomy

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Abstract

This paper deals with the topic of Food Tourism and its connection with the local gastronomic products. It compares the demand for the local food in retail stores and in catering establishments: a distinct disproportion between the customers' willingness to find out information about the food origin, while shopping in a store in comparison with buying the food in the catering establishments. The aim of the paper was to identify possible problems in the perception of local food by tourists and to recognize their role when assessing the offer in the catering establishments in the studied area. The conclusion indicates other possibilities for the offer of local food which can be usable for catering establishments. The findings are based on data obtained through questionnaires.

Keywords: Food Tourism, gastronomy, catering establishments, preferences, statement, regional food, local production.

1 Introduction

Catering services are defined by many authors (Beránek, 2004; Long and Chun, 2006), many of them explain the difference between catering service and catering establishments. Catering services are a meaningful business sector across Europe (Horner and Swarbrooke, 2003). The term 'catering service' is defined in the conditions of the Czech Republic in the Act No 258/2000 Coll. (§ 23) as production, preparation or distribution of food in order to serve it mainly in the hospitality trade, in the cases of serving refreshments and serving meals as a part of both accommodation and tourism services. From the marketing point of view, Middleton (2009) defines catering services as a combination of a product (food or drink) and a service (the culture of dining, atmosphere, overall impression). Quality of catering services is an important factor of the perception of quality of accommodation (Švec et al., 2012).

Catering services fulfil several functions. According to Indrová (2004), catering fulfils three functions (basic function = ensuring nourishment during the day; complementary function = snacks between meals; social-entertainment function = creating conditions to meet the needs of social communication, meetings, entertainment, distraction). On the contrary, Smetana and Krátká (2009) recognize only two functions – basic and supplementary; they do not mention the social-entertainment function. However, many other authors mention the social aspect of catering services (Beránek 2007; Poláček and Němčanský, 2011). The above mentioned businesses form a part of the so called hospitality industry, which is a notion mainly used in the out of European countries and overseas literature (e.g. Saleh, 1991; Collin, 1994; Parks & Haemoon (1997); Bolela, 2000; Erdly & Townes, 2010).

It is necessary to distinguish between the terms 'catering services' and 'gastronomy'. Kinton and Cesarini (1984) describe gastronomy as a discipline about gourmandise and culinary art. Patúš, Gúčik and Marušková (2011) agree with this statement. Another definition considers gastronomy as a structure of relationships between food and drink which contains the 'art of table' – this 'art of table'

is understood as the art of creating something (Holub, 2004). Gastronomy has undergone through the historical development, as well as using special terms. The terms 'gastronome', 'gourmand' (= gourmet), 'culina' (= cuisine), 'culinary' (= cookery) spread in Europe, especially in the 18th century when French gastronomy became a phenomenon thanks to the boom of France as the Europe's economic and political power.

Currently, many world gastronomies notice the trend, laying in clarifying national or regional dishes to the participants of tourism. Besides this, it is shown to the local inhabitants what is in fact their national gastronomy. Thanks to this trend, Culinary tourism has been developed (Smith, 2008), sometimes it is called Gastronomy tourism (Hjalager, Richards, 2003), or Gastronomic tourism (Jalis, Zahari, Zulkifly, Othman, 2009). The authors use different terms, but their understanding pervades mutually. This is one of the newest trends in tourism; some sources consider the year 2001 as the year of its birth (Karásková, 2013).

In the Czech terminology, e.g. Kotíková (2013) deals with this topic and speaks about gastronomy tourism. Orsáková and Obůrková (2004) define it as travel for unique and remarkable culinary experiences. Typical activities are visits of special restaurants, fishing boat tours, beer festivals, visits of food factories etc. (Orieška, 2010). In the year 2012, World Food Travel Association recommended to use the term 'Food travel' which is mentioned e.g. by Williams, Williams, Maktoba (2014) and Banerjee (2015). However, this term was used by some authors earlier (e.g. Hall, Sharples, Mitchell, Macionis and Cambourne (2004). Food travelling is explained as travelling focused on learning about gastronomy and tasting national and other culinary specialities. It can be also a visit of gastronomic events, companies or cooking classes organized by well-known experts and famous restaurants. This concept is summarized e.g. by Long and Chun, 2006) who states this kind of tourism is about food as a subject, means, objective and a tool of tourism. Food Tourism consists of many parts such as beer tourism, tourism for wine, chocolate etc. (WFTA, 2012). Mitchell and Hall (2003) present the participants' typology of this kind of tourism – these authors consider the participants' motivation as a factor for the division. Food Tourism has become also a part of the travel agencies' offerings. Hiking or biking in wine regions, visits of the European Christmas markets etc. have become a classic offer (Yeoman, 2008). Authors who focus on Food Tourism in the Czech Republic (e.g. Palatková, 2006) state the Czech product should be based on the following elements: brewing, folkloric celebrations related to the gastronomy, wine tradition and production of the traditional alcoholic drinks (Carlsbad Becher liqueur, slivoviz = plum brandy).

Fresh, local, organic, sustainable and seasonal products and preserving local culinary traditions are crucial for the Food Tourism concept (Ryšavý, 2010). Regional dishes and regional ingredients have been the most characteristic trends in the today's gastronomy for several years (Štensová, 2013) and restaurants offering this type of food have promoted themselves also in the Czech Republic. The growing interest of consumers as well as of producers and marketers in regional food not only in catering, but also in purchasing food is confirmed for instance by Chalupová, Prokop and Rojík (2012) and Ritz et al. (2011). Mcentee (2010) states, customers seeking for this type of food are trying to find an alternative to unified global brands. Producers could intend to use the concept of local food to sell their production for better price compared to ordinary national or even supranational selling channels (Doležalová et al., 2014). There are lots of definitions of a regional product in the literature. However, there is no consensus in their use. For instance, Ittersum, Candel and Meulenberg (2003) define the regional product as a product that is connected with the region where is considered as a traditional and it is made from local ingredients. Traditional procedures, handmade production and environmental friendliness are frequent requirements to the regional products (Thilmany, Bond and Bond, 2008). Some authors (e.g. Pícha, Skořepa and Navrátil, 2013) distinguish the concept of a local product which is associated with local production or directly with production from the particular catering establishment. Regional brand is often connected with the quality of products – this has been proved in the research by Lobb, Arnoult, Chambers and Tiffin (2006).

The quality in gastronomy is the ability of a product or a service to meet the needs, requirements and expectations of customers (Zimáková, 2010). Authors from the Management Consulting Group (2008) agree with this point of view which means that the quality of a service is the ability to meet

customer's expressed, tacit and unconscious requirements. Other authors state that a quality service does not only meet the expectations, but exceeds them (Indrová, Houška, Petrů, 2011). The quality in gastronomy is the satisfaction within the accepted price and customer's expectations which include basic qualitative factors such as safety, hygiene, availability of accommodation and catering services and harmony with human and natural wealth (Anholt, 2009) and also with staff (Jacob, Guéguen, Boulbry, 2014). Based on many findings, quality management seems to be the most important protective factor against losses of guests (Chen and Tsai, 2007) and the perception of quality is the basic predictor of satisfaction not only with a particular business organisation, but with the whole stay (e.g. Bigné et al., 2001; Jin, He and Song, 2012; Petrick 2004; Yuan and Jang, 2008).

Studied area

The studied area České Budějovice is the capital of the region, as well as the center of the South Bohemia tourist region (Cetkovský et al., 2007; Navrátil, Pícha and Martinát, 2012; Navrátil, Pícha and Navrátilová, 2012) and with approx. 94,000 inhabitants, it is ranked at the ninth place in the Czech Republic. The dimension of its cadastral area is approx. 5,560 ha, where the built-up area represents 601 ha. The lowest altitude is 379 m.a.s.l. and the highest altitude is 528 m.a.s.l. (ČSÚ, 2013). České Budějovice was founded in 1265 and became a commercial and handcra center of the entire region (c-budejovice.cz, 2014). The historical center of the town was declared a monument reservation in 1980 and includes nowadays approx. 250 cultural monuments. The contiguous zone of protection comprises more recent suburbs with an additional more 50 monuments. The existing building monuments cover all style periods (i-cestování.cz, 2012). The current offer of tourism in town could be based on five main pillars: historical monuments, culture, gastronomic tourism, exhibitions and interesting sites in the surrounding area (In Puncto, 2008). As for the tourism supply, the studied area disposed with the important historical objects, but in comparison with the monuments in proximity of the town, those in the town are not as well known. According to the statements of experts, the town has a lack of significant attractions that are important for tourism. On the contrary, there is a good structure of accommodation capacities. Thanks to the rich offer of cultural programs, the studied area has become a base for visitors' travel destinations not only in the area of České Budějovice, but also within the entire South Bohemian Region. Another important role is also played in České Budějovice in gastrotourism, particularly related to the Budvar Brewery, as well as the tradition of exhibitions (shortened according to In Puncto, 2008). The accommodation sector and the catering industry employs 2,424 people in the area (ČSÚ, 2013), which is cca 5.1 % of the total economically active population (47,185) in this area (ČSÚ, 2014).

2 Aim, research material and used methods

The aim of the research was to determine the preferences of tourists within the offers of regional foods in catering establishments, as one of the possible elements for their further development. The research was conducted through questionnaires, placed at the reception desks of the accommodation facilities in the studied area from November 2015 to January 2016 (in this way, it was guaranteed completion of questionnaires by tourists rather than residents). Questionnaire's availability at the reception desks implicated a random sampling of respondents.

In the questionnaire, there were 14 questions (from them there are 3 segmentation questions and the rest of questions focused on the evaluation of partial aspects that may influence the offer of local foods and dishes in the visited catering establishments). In total, 620 respondents were questioned in catering establishments (especially in hotels). 65 % of respondents were women and 35 % men. The questionnaire was completed by 15.8 % of respondents aged 18-26 years, 26.1 % of respondents aged 27-35 years, 34.8 % of respondents aged 36-45 years, 11.2 % of respondents aged 46-65 years 11.9 % of respondents aged 65 and more. Answers to questions were designed as a scale from 1 to 5 (1 = definitely agree, 2 = rather agree, 3 = I can't decide, 4 = rather disagree, = 5 definitely disagree).

Respondents' answers were processed and expressed in absolute and relative frequencies in the summary table. Answers were subsequently analysed and presented through graphs. Finally, the

synthesis of the obtained data was carried out and several opportunities for further development in the studied area were identified.

3 Results

The first statement in the questionnaire was 'I notice on the menu whether the dish is prepared from ingredients from local producers or growers' (see Fig. 1). Respondents disagreed with this statement (54 %); they do not search this information (independently on their age and gender). The answers can be influenced by the fact that Czech catering establishments are not accustomed to displaying this kind of information and customers do not seek for it.

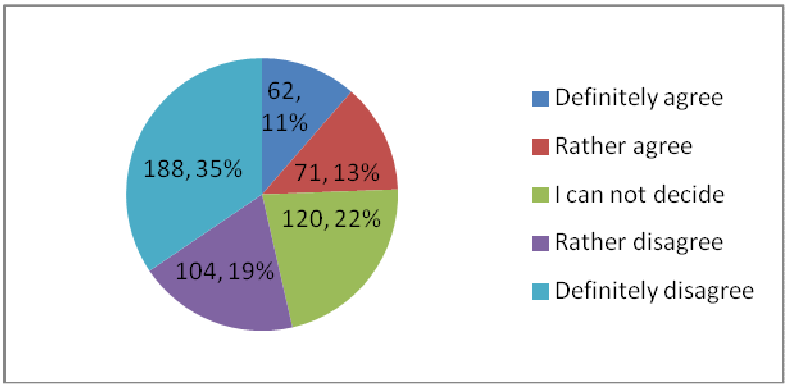

Fig. 1: Statement 'I notice on the menu whether the dish is prepared from ingredients from local producers or growers'
Source: Own processing.

The second statement was 'if I find on the menu that the dish is made from ingredients from local producers, I consider ordering it more than ordering other dishes' (see Fig. 2). Similar to the first statement, a large number of negative answers were identified. However, their sum of relative frequencies is lower (44 %) than in the first statement. The number of respondents who are not able to decide is roughly the same as in the first statement.

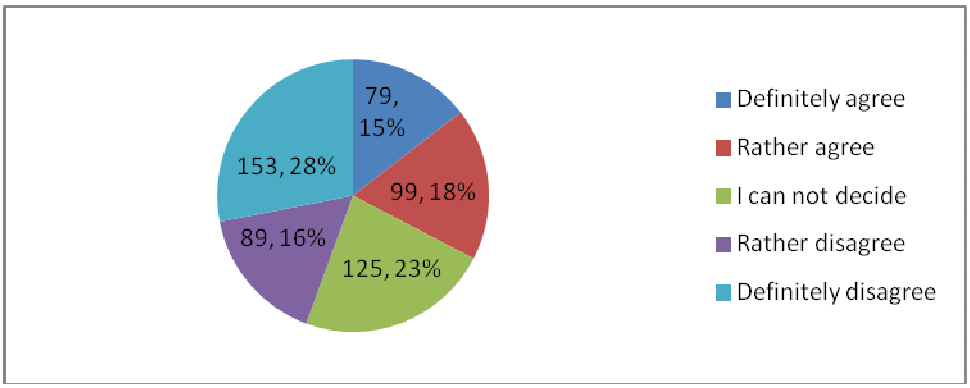

Fig. 2: Statement 'If I find on the menu that the dish is made from ingredients from local producers, I consider ordering it more than ordering other dishes'
Source: Own processing.

The third statement was if it is not stated on the menu, I ask proactively whether the dish is prepared from local ingredients' (see Fig. 3). This statement was the most rejected by respondents from the whole questionnaire. 80 % of respondents do not ask proactively and only 4 % of respondents do it proactively.

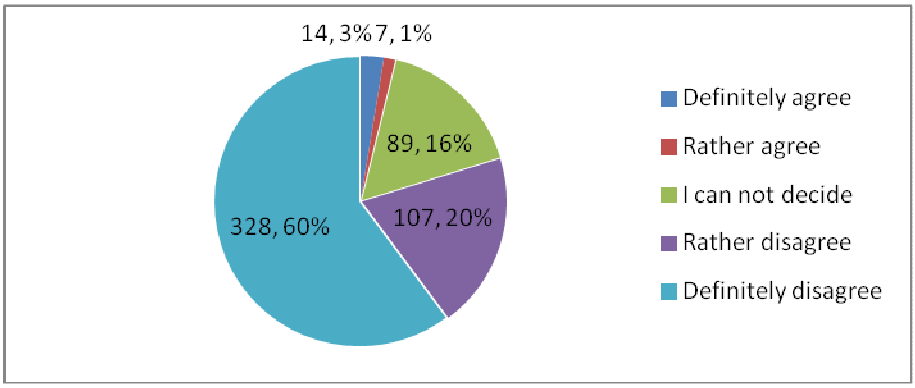

Fig. 3: Statement 'If it is not stated on the menu, I ask proactively whether the dish is prepared from local ingredients'
Source: Own processing.

The fourth statement was 'I look for such catering establishments which declare they prepare dishes from ingredients by local producers' (see Fig. 4). The purpose of this statement was to find out how much the catering establishments what declare preparation of dishes from ingredients from local producers are preferred. It is obvious the majority of negative answers (like in the previous statement dealing with the proactive approach to asking about the origin of ingredients). However, significant differences between the generations were revealed. In the age category 46-65 years, the total sum of answers 'definitely agree' and 'rather agree' was 75 %, which is considerably more than in the case of younger respondents where this sum was only 18 %.

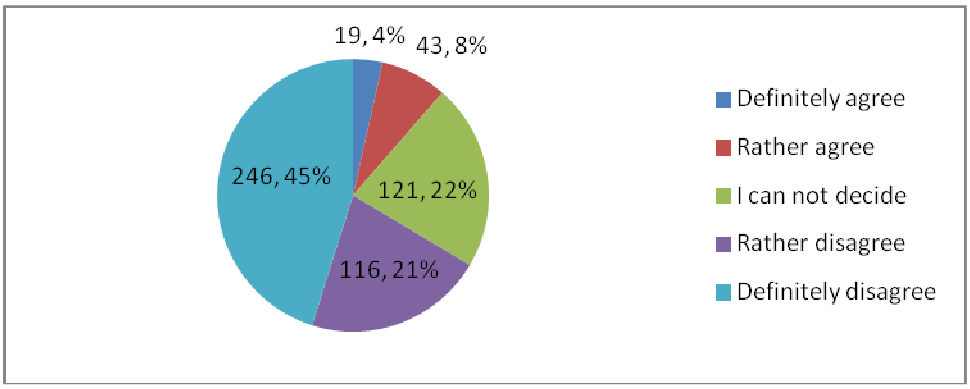

Fig. 4: Statement 'I look for such catering establishments which declare they prepare dishes from ingredients by local producers'
Source: Own processing.

The following statements focused on the fact whether the information about local suppliers and used ingredients from which the dishes are prepared appears to be attractive information for guests in catering establishments. The first statement was 'I would like to see a brief presentation of local suppliers on the menu' (see Fig. 5). Answers to these statements were more negative (51 %) – it was

similar to the previous statements. The presentation of local suppliers is not required by respondents regardless of their age or gender.

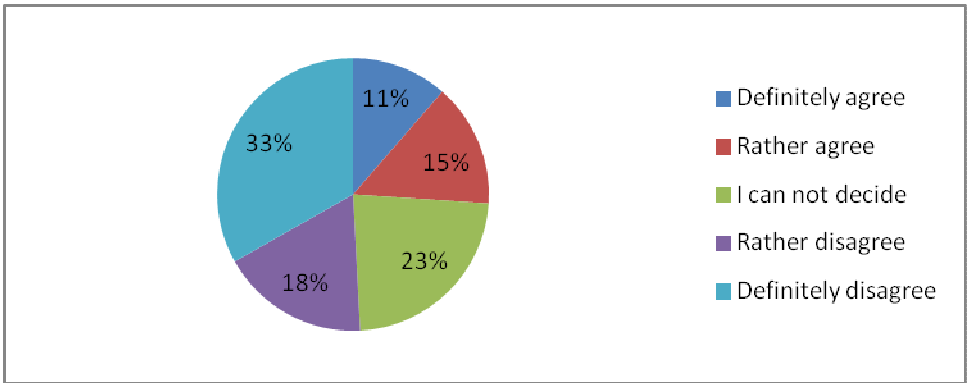

Fig. 5: Statement 'I would like to see a brief presentation of local suppliers on the menu'
Source: Own processing.

The next statement was 'I would like to see on the menu information on the origin of ingredients from which the dish is prepared' (see Fig. 6).

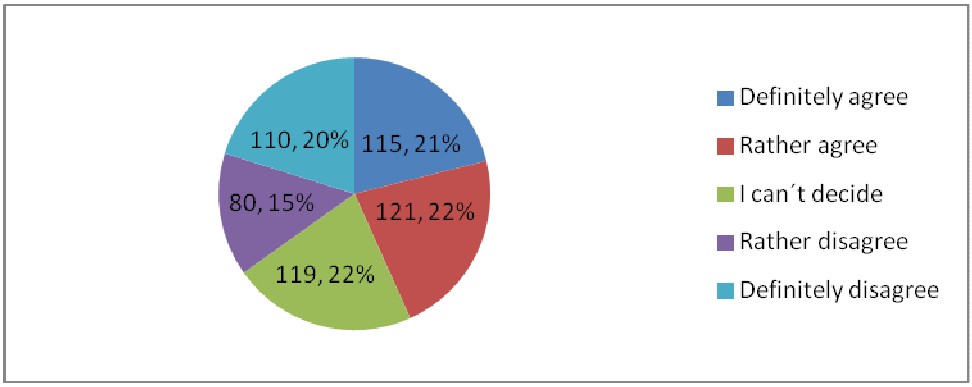

Fig. 6: Statement 'I would like to see on the menu information on the origin of ingredients from which the dish is prepared'
Source: Own processing.

It is obvious, 43 % respondents definitely agree or rather agree with it (see Fig. 6). Currently, there is a duty in the Czech Republic which is to put a list of allergens in food in an accessible place for customers. While producers or traders have to state the origin of food, in the catering establishments this is not common. A significant statistical difference was identified - there is a certain dependence on the respondents' gender. This difference is shown in Tab. 1.

Tab. 1: Absolute and relative frequencies related to the statement 'I would like to see on the menu information on the origin of ingredients from which the dish is prepared

Respondents	Definitely agree		Rather agree	
	absolute frequency	relative frequency	absolute frequency	relative frequency
Female	87	76 %	88	73 %
Male	28	24 %	33	27 %

Source: Own processing.

The two following statements explain respondents' preferences in relation to the Czech cuisine and local cuisine. The first of these statements was 'I prefer catering establishments offering Czech cuisine' (see Fig. 7). There were two approximately equally large groups that agree and disagree with this statement. In the group with answers 'definitely agree' and 'rather agree', there were identified different preferences with regard to the age categories of respondents – it is shown in Tab. 2 (in this case, respondents' gender does not cause differences in preferences). The positive reaction was proved in the age category 46-65 years what is similarly numerous as the age category 27-35 years, however, the number of positive answers was significantly lower in the last mentioned age category.

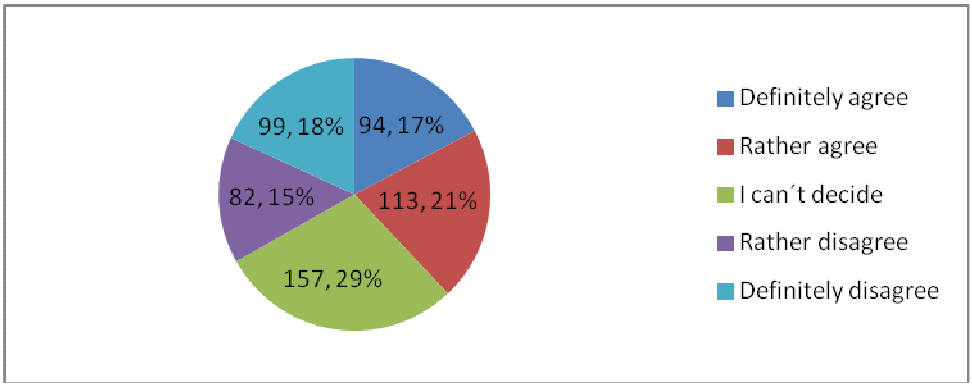

Fig. 7: Statement 'I prefer catering establishments offering Czech cuisine'
Source: Own processing.

Tab. 2: Absolute and relative frequencies related to the statement

Age category	Absolute frequency	Relative frequency
18 - 26	15	7,20 %
27 - 35	32	15,50 %
36 - 45	18	8,70 %
46 - 65	116	56 %
65 and more	26	12,60 %
Total	207	100 %

Source: Own processing.

The second of the statements dealing with the respondents' preferences in relation to the Czech cuisine and local cuisine asked whether respondents prefer catering establishments which offer local cuisine (see Fig. 8). The amount of both positive and negative answers was approximately equal; it is

worth noting that there was a significant group of respondents who answered 'I can not decide' (34 %). It means they were not able to express their preferences.

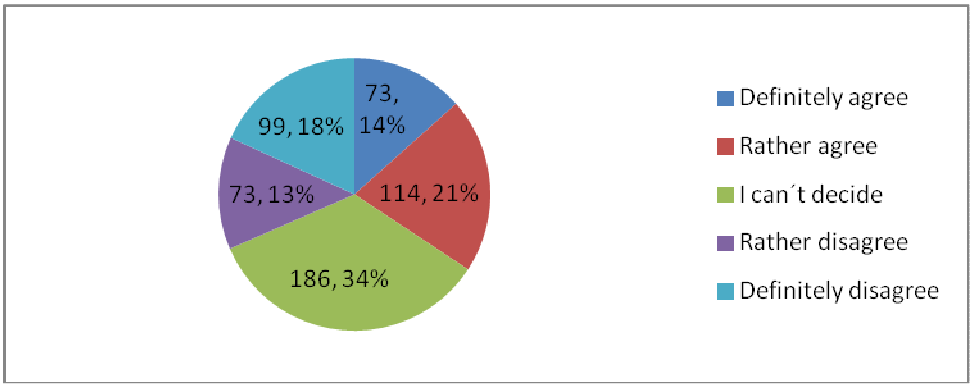

Fig. 8: Statement 'I prefer catering establishments which offer local cuisine'
Source: Own processing.

With the next statement 'I am interested in the origin of the ingredients in restaurants', 15 % of respondents agree and 23 % of respondents are unable to decide (see Fig. 9). This statement was similar to the above introduced statement 'I look for such catering establishments which declare they prepare dishes from ingredients from local producers' – the purpose of this similar statement was to determine the truthfulness of the respondents' answers because fundamental differences of answers to these statements would be problematic when accessing the credibility of the obtained data. Fortunately, the detailed analysis does not show any large discrepancies in respondents' answers.

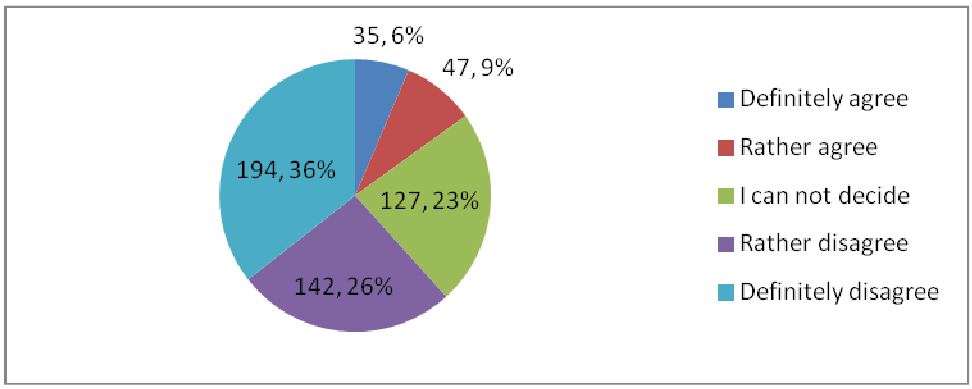

Fig. 9: Statement 'I look for such catering establishments which declare they prepare dishes from ingredients from local producers'
Source: Own processing.

The next statement in the questionnaire was 'I am willing to pay more for fresh dish prepared from ingredients from local producers' (see Fig. 10). Again, this statement divided the respondents into two equally large groups. The authors' expectation that respondents' answers will be influenced by their income, was not confirmed. On the other hand, there was found out a connection between the answers 'definitely agree' and 'definitely disagree'. Respondents belonging to the age category 46-65 years, expressed their agreement. The age category 18-26 years disagrees with this statement – this category was smaller but the response rate 'definitely disagree' was nearly 90 %.

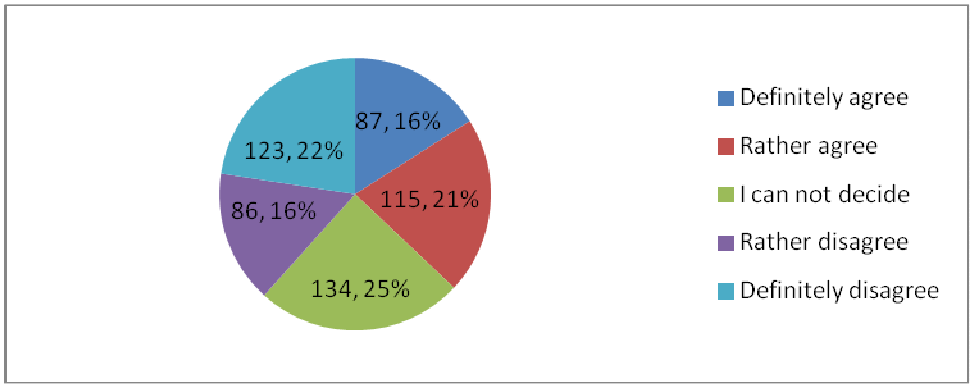

Fig. 10: Statement 'I am willing to pay more for fresh dish prepared from ingredients from local producers'
Source: Own processing.

The last statement was 'when I travel, I like learning local products and local gastronomy' (see Fig. 11). It means, this statement tried to find out the willingness to devote the time on holiday to the Food Tourism. When evaluating the obtained answers, there was the highest number of positive responses (67 %) from the entire questionnaire. Positive answers predominated in all age categories and across respondent's gender. No significant differences in answers were identified (in the context of segmentation criteria).

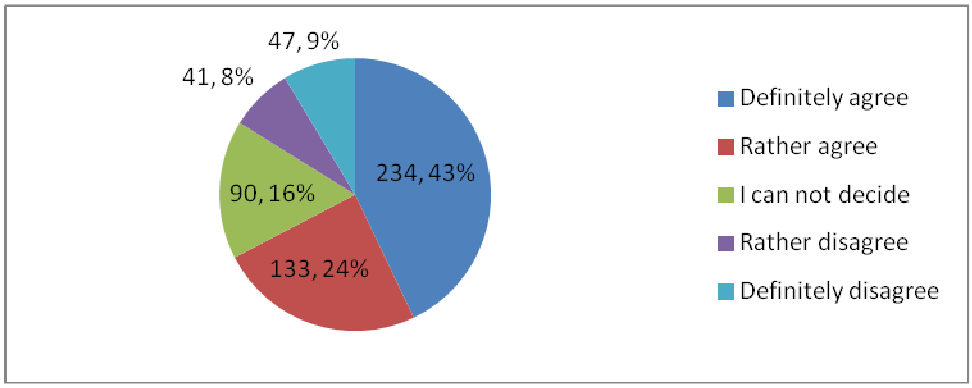

Fig. 11: Statement 'When I travel, I like learning local products and local gastronomy'
Source: Own processing.

4 Conclusion

There has been found out the interest in the studied type of tourism – many authors, e.g. Hjalager and Richards (2003), Willams, Williams and Maktoba (2014) consider it perspective. This type of tourism is based on the cultural traditions of a particular nation and just traditions are nowadays one of the main motives for travelling (Goeldner and Ritchie, 2009). The European literature considers the catering services as the basic services of tourism (Gúčik, 2010) - this fact had probably an impact on the respondents' willingness to complete the questionnaires. Regional or local food is a very often researched topic, primarily as for the preferences in retail. In the Czech Republic, there is the popularity of the farmers' markets and small shops which offer local products. The offer of the local products is also visible in the retail chains. Food Tourism is based on the offering local cuisine to participants of tourism.

However, the lack of the interest in the information about the food origin was found out in catering establishments in the studied area. Although some research studies, conducted in retail units, show clearly that some groups of customers focus on local production in the field of gastronomy, it was not confirmed in this research (see answers to the first statements in the questionnaire). The statement no. 4 showed clearly the disinterest of respondents in the offer of such catering establishments what declare the origin of the food. The age category between 46-65 years, irrespective of their gender, prefers Czech gastronomy. It implicates the main effort to promote the offer of local products should be focused on this segment.

The effort to get answers from tourists what they consider to be the typical gastronomic products or typical food has been successful according to the age of respondents. Older respondents answered more fully than respondents of the younger generation. This may relate to the fact that preparing dishes from regional ingredients is promoted in many popular TV cooking shows, which were often mentioned by respondents in the questionnaires. The overall willingness to explore gastronomy and local products while travelling was proved due to the final argument of the questionnaire, but the results contrast sharply with statements that examine the interest in information regarding the local food producers and their markings on the menu.

Based on the results, we can say that the topic of the regional foods is known mainly due to food buying. It is also demonstrated by the results of our conducted researches what have not been published yet. Despite the willingness to explore regional products and regional cuisine when travelling, respondents stated they are not willing to seek for such catering establishments that offer local products and they are not even interested in this kind of information on menus. These results give the evidence there is an insufficient promotion of the local gastronomy and its benefits.

Further research should be focused on the identification of such tourists' segments which are searching for these products and on mapping of the regional offer in the catering establishments, including subsequent recommendations for expanding the awareness of regional products in catering establishments.

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Innovation Potential Measured By the Hard and Soft Data

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Abstract

Innovation is important, both from a macroeconomic and microeconomic perspective. Anything that is important should have its goal and therefore all activities of the subject should follow a direction to achieve such goals. Managed can be only those things that can be measured. That implies the desire to measure innovation. For this purpose, various scales are being created. We are always choosing between two options of these scales - tough standards are objective, clearly quantifiable, but can measure only the past. Whereas companies need to manage the future, these measures are only partially applicable. Therefore scales which focus more on the company's potential and how to valorize it are being created. It is a measure based on a survey of managerial infrastructure for the management of the company, layout resources and their valorization. Subsequently with the use of converters (scaling), findings are converted into hard data. The aim of this article is to assess the relationship between the hard and soft data in a case study based on the evaluation of companies using soft data and linking them with hard data to evaluate the potential of the company.

Keywords: enterprises innovation, SAII, Czech Republic

Introduction

Hard scales are used at the macro level for comparing countries. Known indices (Innovation Union Scoreboard, 2015) use only hard data, collected several years ago. These measurements cannot be used by companies – they are intended for use by political and economic representatives of states which have the authority to use political tools to influence development in their countries – such as tax benefits for certain types of business, reducing bureaucracy of certain processes, etc. The support of countries in this matter can be both direct and indirect, as well as financial (subsidy) or nonfinancial (removal of administrative barriers). Various scales, regularly evaluated at a national level, which are drafted on a combination of hard and soft data are being used to identify any barriers. Eurostat coordinates the issues, data collection and their processing method, therefore it is possible to perform international comparison. Once in every two years the Czech Statistical Organization (Czech Statistical Organization, 2016) evaluates the position of Czech companies in the field of innovation.

In 2016 a recent survey with data collected within 2010 – 2012 has been released, survey results with data collected within 2012 – 2014 has not yet been issued. It is obvious that the data are an interesting impulse for monitoring the time series, but from the perspective of development and speed are very outdated. The benefit of this kind of data investigation for companies is the possibility of comparison with an average company of a similar focus. It is possible to define the amount of revenue acquired by other firms on innovative products, how much they donate to science and research, how they operate with subsidies and the way the spread cost of individual items of innovation activities, etc. Based on soft data, it is very interesting to observe the innovation barriers and the importance of entities' cooperation in innovation which is evaluated in calculations of IHIS CR. The aforementioned measures, however, do not address the required future direction of the companies. Companies are still searching the best unit to measure the potential for innovation in the future. In the years 2015 - 2016 the SAII index was developed in the Czech Republic within the project "Measuring evaluations", which was based on soft data. (Špaček, 2015)

Research methods

The starting point were already existing metrics (The Global Innovation Index, 2014; Innovation Union Scoreboard, 2015; Vacek, 2010).

The SAII index is designed to meet these requirements:

- focus on future
- constant assumptions on company's innovation behavior (both sources and long-term conceptual work with them)
- goal is not the rating, but the long-term motivation for improvement

The solution was a set of questions on soft characteristics of the company, the first stage was verified on a small sample of firms but showed a large amount of indicative questions (Jiřinová, 2015).

In the second stage, the questionnaire was modified as follows:

- exclusion of questions where the subjects respond the same way
- insertion of comparable metrics (ratio x absolute indicators)
- inserting questions on infrastructure and internal management and pro-innovation culture

Verification was conducted on 40 subjects and showed that there is still a large amount of questions with a low degree of dispersion and due to misunderstanding of the question, respondents are hesitant to provide accurate answers. To increase the clarity, the questionnaire was adapted to be more detailed in terms of scaling each question (range 0-2-3-5instead of yes-no answers) and the answers are more verbally described. The single number success evaluation (innovation potential in [%] of the maximum possible value), has been replaced by a success evaluation in five areas, namely:

- Conceptual activities
- Resources
- Management infrastructure
- Operational management of the innovation process
- Financial/Non-financial indicators

Despite the problems with hard scales, it was decided to include financial issues – which are in line with the terms of what innovative financing tends to monitor, as well as what is pursued by the transnational investigation.

Selected characteristics of the soft type and percentage of applications in companies on fig. 1.
The second phase of the questionnaire was verified on 40 subjects.
Set of surveyed companies ranged mainly in manufacturing industry, with a certain level of innovation activity. Data were obtained by direct addressing, on the basis of previous contact of actions relating to long-term efforts to improve innovative activity.

Furthermore, soft data should be compared with hard data, especially with the financial prerequisites for innovation.

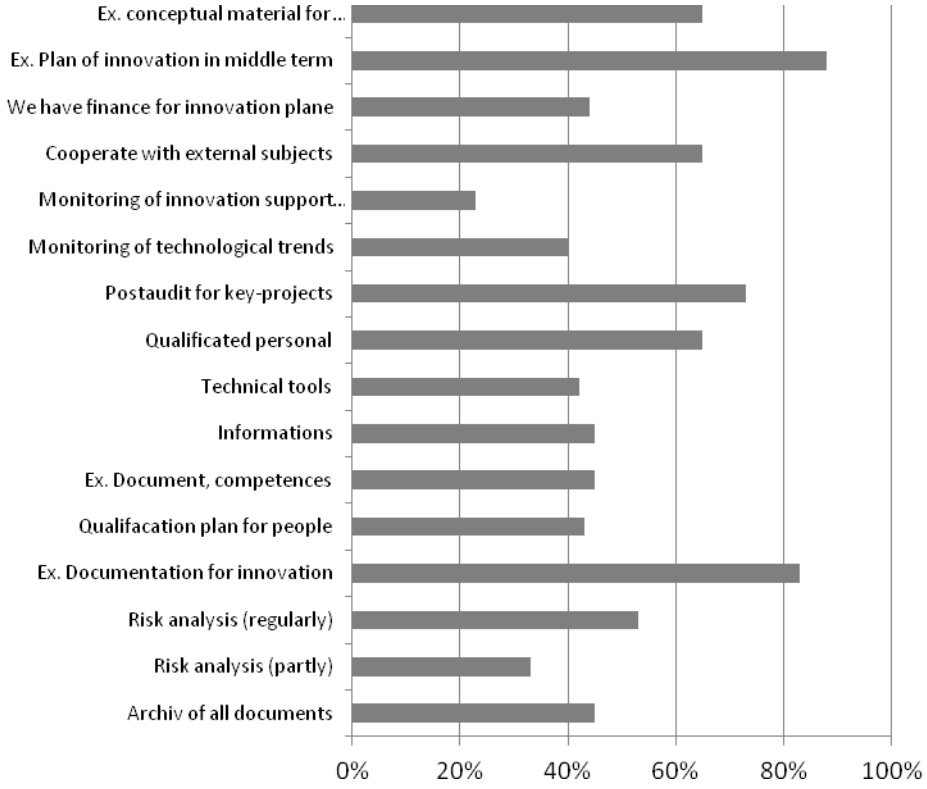

Fig 1. Evaluation presumptions of innovation - soft data, Source: own

Given that innovation is an essential prerequisite for competitiveness, it is appropriate that the scope of innovation potential partially overlaps with competitiveness precautions. For this purpose we use the research (Scholleová, Čámská, 2015), marking the indicators which are significant for identifying the innovative potential - in advance. It does not only take into account the indicators that evaluate the actual financial performance of the company, but indicators that may cause future positive development of the company.

Such indicators are displayed in table 1.

Table 1: Indicators of significant potential for innovation for the company, Source: Čámská and Scholleová (2015)

No	Of short	Explanation	Ideal value
1	OE/OR	Share of operating expenses on operating revenues	minimum
2	I(VA)	Annual growth of value added	maximum
3	I(S)	Annual growth of operating revenues	maximum
4	I(TA)	Annual growth of total assets	maximum
5	I(PE)	Annual growth of personal expenses	maximum

For evaluation it was necessary to work with the hard data of the participating companies. Although companies in the Czech Republic have a disclosure obligation to the accounts given by law, it turned out that it does not comply with 9 companies. 12 of the remaining 31 companies were impossible to analyze because of the incompleteness of the necessary data or incomparability of the data (change in length of the fiscal year, the transformation of society, etc.).

Structure of the resulting firms analyzed in table 2, where in the first column contains the estimated number of all firms in the country in groups of small sized (total assets 0-10 000 EUR), medium sized

(total assets 10 001 EUR - EUR 50 000) and large sized (total assets are more than EUR 50 000) business.

The second column is therefore the share structure of all companies (RF) in the Czech Republic.

Since we have worked with innovating firms, the structure had to be adjusted to take % of data from innovative companies provided in calculations by Czech Statistical Organization (Czech Statistical Organization, 2016) relating to individual groups (RI), which are shown in the next column.

Share of innovative enterprises in the total of each type (RIC) is then calculated based on a formula bellow

$$RIC = RF \cdot RI \quad (1)$$

The data in this column are then converted into a theoretical structure of firms in the country (TRIC) base on a formula bellow

$$TRIC = RIC / \Sigma RIC \quad (2)$$

We can compare the companies according to the computed theoretical structures included in our evaluation, the structure is in the last column of table 2. We can see that it is not a representative data sample, especially due to the greater amount of large firms.

Table 2: Structure of data sample - comparison with theoretical structure, Source: own processing by (Czech Statistical Organization, 2016)

company	Companies in Czech Republic	RF	RI	RIC	**TRIC**	**Research data set**
Small	16 941	76%	38%	29%	**66%**	**58%**
Medium	4 171	19%	58%	11%	**25%**	**16%**
Large	1 141	5%	79%	4%	**9%**	**26%**

Furthermore, our investigation will be viewed as a pilot survey and individual case studies.
Results of soft evaluation are expressed in [%] of points of the possible points obtained of a positive response:

$$SAII = G / P \quad (3)$$

where
G - number of points received,
P - the number of points that could be obtained

In figure 2, you can see the distribution of success of all businesses in the soft scales.
Monitored companies are colored dark.
We can see that companies have available hard data spread across a range of value index SAll.

In selected companies we evaluated the degree of dependence between hard data and innovative potential of the overall index SAll. Correlation coefficient was used for evaluation.

In table 3, we can observe the correlation coefficients, which measure the relationship between hard data and SAll. Stronger degree of correlation is between revenue growth and value added growth. SAll has a weak to moderate correlation with hard data. To continue to work with the assumption of certain independence, we have excluded it from the assessment of hard data I (TA).

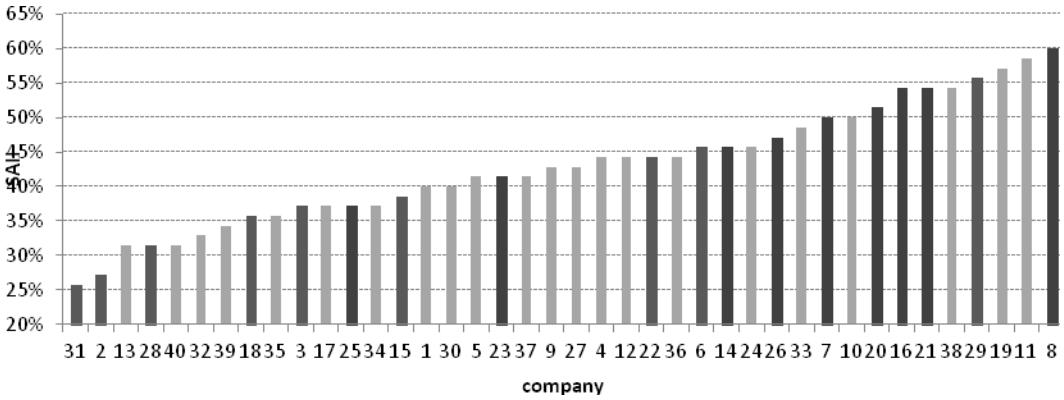

Fig 2. The SAll in a pilot survey for selected transparent companies, Source: own

Table 3: Correlation coefficients, Source: own

	OE/OR	I(VA)	I(S)	I(TA)	I(PE)	SAII
OE/OR	1,00	-0,24	-0,23	0,24	-0,05	0,12
I(VA)	-0,24	1,00	0,90	-0,53	0,04	0,01
I(S)	-0,23	0,90	1,00	-0,42	-0,02	-0,08
I(TA)	0,24	-0,53	-0,42	1,00	0,55	0,63
I(PE)	-0,05	0,04	-0,02	0,55	1,00	0,50
SAII pilot	0,12	0,01	-0,08	0,63	0,50	1,00

Therefore, only indicators OE/ OR, I(VA), I(S) and I(PE) will be used for further work with the evaluation of the financial potential. In order to compare the effectiveness of hard and soft measures, a summary indicator HARD will be calculated from these values.
The problem in input is that one of the indicators is desirable to minimize (OE/OR), while maximization is desired in another one.

For the conversion of the value of each indicator, an ideal value is calculated, and all sub inputs are converted into percentage of the ideal value. HARD endpoint is then the average of the values of input parameters.

Calculation for all respondents is in the table 4.

Indicated in table 4 is the comparison with the value SAll and completed indicators for current business success ROA, which is calculated as EBIT/total assets.

Table 4: Calculation and comparison indicators HARD, SAII and ROA, Source: own processing

	Value of				% of ideal value				HARD	SAII	ROA
company	OE/OR	I(VA)	I(S)	I(PE)	OE/OR	I(VA)	I(S)	I(PE)			
1	0,10	0,77	0,81	0,7	76%	19%	42%	47%	45%	40%	3%
2	0,97	2,17	1,95	1,5	8%	53%	100%	93%	54%	27%	3%
3	0,90	0,95	1,00	1,0	9%	23%	51%	64%	28%	37%	8%
6	0,86	1,11	1,07	1,0	9%	27%	55%	64%	30%	46%	3%
7	0,18	1,12	1,00	1,0	43%	27%	51%	64%	41%	50%	-1%
8	0,77	1,13	1,09	1,0	10%	28%	56%	67%	31%	60%	16%
14	0,08	4,07	1,27	1,1	100%	100%	65%	67%	88%	46%	10%

15	0,93	0,67	0,73	0,6	8%	16%	38%	40%	21%	39%	3%
16	0,72	1,13	1,17	1,0	11%	28%	60%	63%	33%	54%	31%
18	0,31	1,41	1,19	1,0	26%	35%	61%	66%	40%	36%	7%
20	0,37	1,19	1,15	1,0	21%	29%	59%	67%	36%	51%	7%
21	0,74	1,02	1,05	1,1	11%	25%	54%	71%	30%	54%	7%
22	0,87	1,43	1,24	1,3	9%	35%	64%	81%	36%	44%	15%
23	0,83	0,98	0,93	1,2	10%	24%	48%	74%	27%	41%	52%
25	0,10	3,15	1,41	0,9	77%	78%	72%	55%	76%	37%	9%
26	1,00	0,71	1,13	0,9	8%	18%	58%	57%	28%	47%	2%
28	0,38	2,31	1,85	1,6	21%	57%	95%	100%	58%	31%	9%
29	0,96	1,05	1,32	1,1	8%	26%	68%	70%	34%	56%	4%
31	0,99	0,98	0,96	1,0	8%	24%	49%	66%	27%	26%	14%
The best	0,08	4,07	1,95	1,6							

When comparing the observed effect on economic performance benchmarks monitored using ROA (see Fig. 3) we can see that the influence of the hard characteristics of innovation on the actual performance of the company is highly debatable. Companies that have high index HARD, but poor performance in soft scales, are achieving less than ROA firms that focus on the management of soft features, although they have lower HARD assumptions.

The best-performing companies are those, which use both hard scales, focusing on financial assumptions and soft scales, focused on design, strategy and management of infrastructure to control.

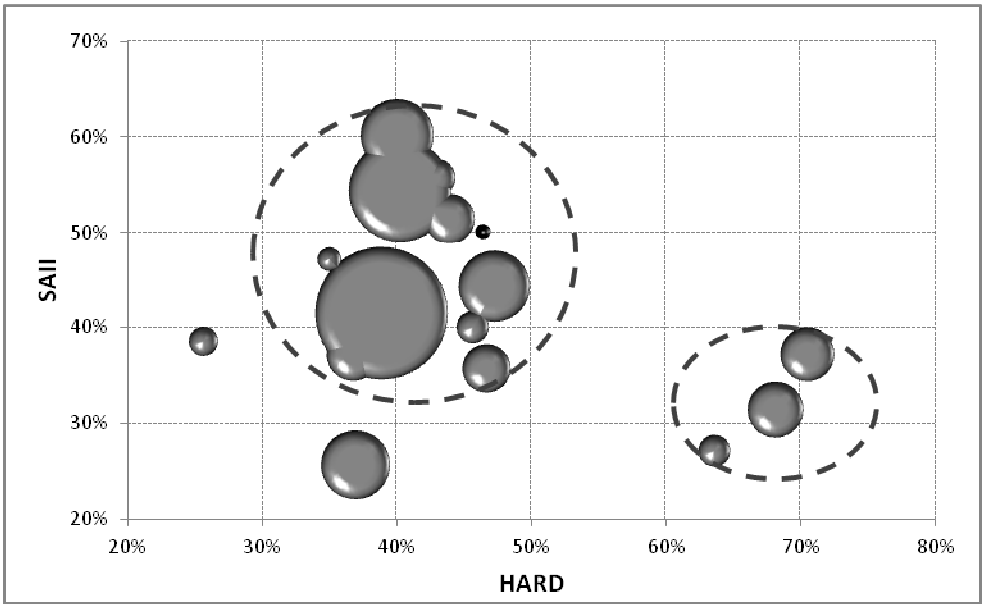

Fig 3. Relationship between power (ROA), and the preconditions for innovation companies, Source: own processing

Conclusion

Innovation is an important prerequisite for the permanent survival of any company. Countries and businesses, who attempt to measure their innovation capability, use scales that are often based on past results, or its presumptions without assessing the possibility of their fulfilment. Assumptions are financial, non-financial, well measurable or estimable only. It turns out that soft scales are often much more important for the future development of the company. The article also compares the

results of a group of companies, which has been evaluated using both hard and soft scales and compared with consequent financial results. It turns out that the best results are achieved by companies that have good (or average) results both in financial assumptions of innovation potential and in assumptions hardly quantifiable (conceptual activities, strategy, management infrastructure, operational management).

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Human Resources Allocation in Project Management

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Abstract:

Resource allocation is an important part of project management. This paper focuses on this area, especially on human resources allocation. The main paper's objective is two-fold: The paper introduces the notion of the Human Resources Information Set (HRIS) and the Human Resources Information Set Extension (HRIS_E), which are used in project scheduling and resource allocation. Various modes of HRIS_E use in project management are presented. Practical examples of HRIS_E use together with benefits obtained are also given. The direction of future research directed towards the advanced use of the concepts presented is charted.

Keywords: algorithm, project management, portfolio, human resource allocation

1. Introduction

Based on Project Management Institute - PMI (2013), the project is *„…a temporary endeavor undertaken to create a unique product, service or result"*. *A* project is temporary, it has defined beginning and end, defined scope and resources. A project is also unique because it is not some daily operation. It is set of tasks with the predefined flow of these tasks to create concrete output. Project management is on the other side defined, related to PMI (2013) as *„application of knowledge, skills, tools, and techniques to project activities to meet the project requirements*".

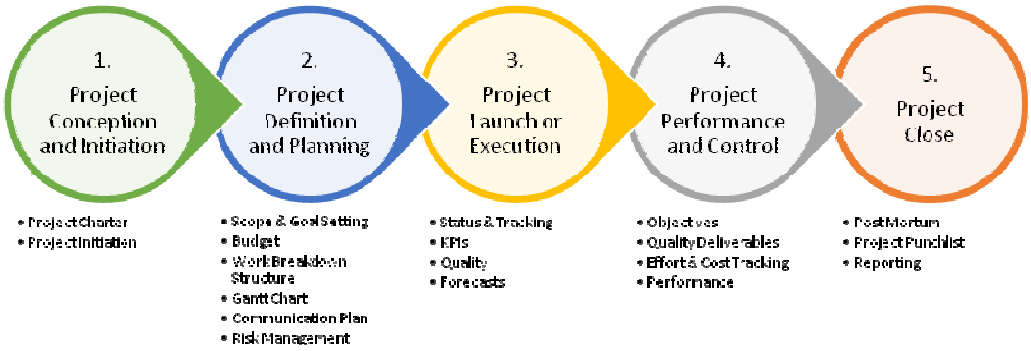

Figure 1 - Phases of project management based on PMI, source: author

Project phases with necessary documents based on PMI are shown in Figure 1. We want to mention particularly the monitoring phase, which is separate from all other phases of the project lifecycle. The monitoring phase runs through all the project phases and needs to be maintained periodically to prevent project issues. Software project management involves the scheduling, planning, monitoring, and control of the people, processes, and resources to achieve specific objectives while satisfying a variety of constraints. The Project Management is tightly bound with company core process, which involves resources through all company. These resources are divided into human resources, material resources, and financial costs. All these resources are allocated in projects and assigned to separate tasks. The problems are often in an overallocation of these resources because companies don't know how many resources they will need. Another issue related to resources is that the companies are not able to get as many useful resources to concrete role area as possible and needed for the projects. This paper is related

to algorithms which should be able to help with resource allocation and assignment problems in the field of project and portfolio management based on sets of information about these resources. Another purpose of this paper is trying to raise the efficiency of use of these resources is another purpose of this paper.

Based on research of Reunak and Osterweil (2005) the "classic" resource planning is done on the static level. When scheduling resources are, however, necessary to take into account the fact that the sources have often dynamic attributes (location, experience etc.). Hegazy (1999), which dealt with multi-objective optimization by using the techniques of genetic algorithms. Although additional information about resources was not taken into account. Based on research of Chang (2008) there was compiled algorithm that addresses the planning of a project based on individual task with its characteristics, skills, and experience. The main research gap is the missing integration of information sources and creation of extended information set. This set is described in section 3 and 4.

The remainder of this paper is structured as follows: Section 2 describes a common ground for section 3. Section 2 is divided into three parts on project management, algorithms for project management and project resources. Section 3, which is the core of the paper, is oriented towards human resources allocation. Section 4 concludes the paper.

2. Background

2.1 Project management

In project management, there is used **Project Management Triangle** (called also Triple Constraint or the Iron Triangle), i.e. the ratio between quality, time, and finances, which must be consumed on the project. Between these variables apply a rule that says that if one value is reduced, it is always at the expense of the other two. Chen and Askin (2009) mentioned, that there is, therefore, the need for constant project balance. It means that in the implementation of the project it is necessary to constantly calculate how individual staffing projects corresponds to the financial calculations for each project phase, i.e. what the rates are for each resource, how do individual tasks as effectively as possible, therefore, for a minimum period of time, with the best quality, for the least cost. This effectiveness should be raised by using algorithms described in section 2.2.

Projects are managed by the two basic techniques – **using the waterfall model, or agile**.

According to Mary (2013), the waterfall model represents the plan at the beginning of the project, which goes across the entire project lifecycle, and therefore includes estimates for each task through the entire project. The second approach – agile – is designed rolling planning, thus fixing the individual tasks to the closest time to come - for example, a week or a fortnight. Sometimes it is necessary to combine these two approaches together, thus establish the project plan with fixed estimates (for example, the project of implementation of an information system), which is part of the development of embedded software. For example, the task has a fixed length of fifty days, which is taken as a summary task and individual cycles with detailed planning tasks, then governed by, for example, a software architect.

2.2 Algorithms for Project Management

Algorithms for project management support project planning, resource allocation (of project resources to individual project tasks) and project optimization (based on given criteria). For these purposes, a great variety of algorithms and techniques have been used. Many of them have a different approach to solving problems of human resources or project planning. In most cases, the amount of important information is the main source for all of these algorithms. Another part is a matching of that information together in a right way. The results are in some cases great and efficiency is raised a lot. A number of resource allocation algorithms is presented by Kolisch and Hartmann (2009).

To review these algorithms, the samples of algorithms from the individual areas were collected, by the author, to describe them briefly and mention their advantages and disadvantages. Selected algorithms constitute the majority content of scientific articles (possibly with some modifications), and, according to the author, they are high-quality algorithms, which are actually applicable for optimizing of the allocation of human resources. It is obvious that some of the procedures are somewhat older; they often omit some influencing factors, such as the amount of input data, system dynamics and its possible combinations with machine learning systems, thus adaptability.

The individual algorithms can be assessed from several classic views as time complexity class of algorithm, etc. However, the algorithms could be assessed only on the specific case and on the basis of their direct measurement, because each of them is based on significantly different principles. It is important to take into account the individual characteristics, the amount of the input variables and the gradual determination of outputs and their classification. In the case of genetic algorithms, an indication of any amount received by the selection of offspring is necessary. These algorithms are typically characterized by high timeliness. For linear algorithms or the Hungarian algorithm, the procedure is significantly different, since it is based on a clean pass of optimization (matrix transpose algorithm). Below is a description of the selected algorithms that have been chosen in connection with the problem of optimizing the allocation of human resources, thus a multi-criteria optimization of the search on the basis of a predetermined volume of data input (human resources with properties). For the algorithms, no integration of information systems, nor any results on a set of data-entry to each of the participants was used. The algorithms have been selected on the basis of author's study of the topic in the literature.

Algorithms are divided based on Kolisch research (2010a, 2010b) into two basic groups – heuristic and genetic. The aim of heuristics is not to find the exact solution, but only an estimation. Genetic algorithms are based on the imitation of the biological evolutionary process, they gradually "grow" to the best solutions using mutation and crossbreeding. Overview of algorithms from the human resource management point of view is in section 2.3.

2.2.1. Heuristic algorithms

Multicriteria linear algorithm (goal programming approach)
Based on research of Azimi et al (2013), Morteza Rashmani Nikoei and Zinat Jamshidi (2013), Ozcan (2009) and Yanfeng Wang et al (2002), linear programming is a procedure in which it is taken into account several basic building blocks that make up this procedure. This is a set of output, which is determined by the starting point of the problem and cannot have negative values (the values x1, x2, x3, ...). Objective function describes the objectives, which the manager who solves the problem, trying to achieve — for example, revenue, profit, price. This variable is described as the cost of the resource, or as a source of profit, etc., he volume of the unit. Other areas are the constraints, which describe the limitations and the last are the parameters that describe the figures fixed sources.

Heuristic search algorithm
Heuristic search algorithms are, regarding Cummings and Bruni (2010), generally fast and complete, i.e., if there is a solution, even partial, the search algorithm will find it. However, heuristic search algorithms are hindered by their non-optimality: they can easily get stuck in local optima, hence offering no guarantee that the solution proposed is the best (provided there is an adequate measure of a solution's quality).

Hungarian Algorithm
This is the combinational optimization algorithm which solves the problem of allocation in polynomial time. The time complexity of the algorithm is $O(n^4)$ - O represents Time Complexity. Based on Edmonds and Karp it can be optimized to $O(n^3)$ – cubic time. This algorithm is fairly simple in its essence, because

of searching of values in the matrix instead of mathematical functions. Based on Srinivasan (2009) and Mills-Tattey et al. (2007), it is built on the principle of a gradual work with the matrix, where the lines are individual tasks and in the columns are resources.

Hungarian algorithm is often used, for example, to optimize the allocation of human resources to the specific tasks according to the costs of a specific resource on a task. With Its use, the cost component is therefore reduced, because the selected tasks should be done in the smaller amount of time. This algorithm can be used to count the highs, for example, where the company has four branches with different products and there is a need to properly distribute those products to these branches so that the company earned the most money in total. The algorithm is unfortunately limited to **one input criterion**, that is, the numeric value of the input, which makes it difficult for multi-objective decision making.

2.2.2. Genetic algorithms

Multi-ant colony optimization
Multiple ant colony optimization is a meta-heuristic approach inspired by ant colony algorithm – multiple in this concrete case means multiple ant colonies and the number of pheromone trails. The ant colony algorithm was inspired by ants, which are searching for an optimal way between the colony and food. Algorithm use in calculations communications between agents which is similar to ants, which are putting pheromones on trails to food – if there is longer way, the pheromone strength quickly fades out, so stronger pheromone means shorter way. This approach was firstly described by Dorigo et al. (1996) and Xiao et al. (2013).

Bio-inspired model
Based on an extension of the bio-inspired response threshold model and takes into account various aspects of the human resource allocation problem, such as the skills of available human resources, activity-related skill requirements as well as social ties/relationships among involved human resources. This model is described in more detail way in research of Karditsa, Griva et al. (2015).

Multi-objective genetic algorithm
As already mentioned, a lot of algorithms (for example, Putnam and Boehm model), which were created for the purpose of optimization of resources in the projects, they can't handle the multi-criteria allocation of these resources as it should be read in research of Ho and McDevitt (1990). A genetic algorithm is, based on Alba and Chicano (2007), one of the types of evolutionary algorithms (EA), which are widely used for the optimization of the different processes. The principle is the gradual creation of a generation of different solutions to a specific problem, where the solution maintains the so-called the population, in which each individual is a complete solution to the problem. It is obvious that in the formation of future generations it is, based on research of Wena and Lin (2008), possible here to apply the principles of "breeding" and thus achieve improvement solutions to the original problem – and the crossing of the various mutations of individuals.

Multi-objective hybrid genetic algorithm
Based on researches of Elihoub et al (2006), Ida et al (2011), Jaylakshmi et al (2001), and Kim (2012) - In multi-objective optimization problems, convergence and diversity are two important issues. The former indicates the algorithm's ability to find the true Pareto-optimal solutions, and the latter reflects the algorithm's ability to find as much as possible different Pareto optimal solutions. In order to improve the convergence of the algorithm, a local search based on critical path theory is incorporated into the H-MOEA.

Table 1 - Pros and Cons of selected algorithms, source Author

	Plus	Minus
Multicriteria linear algorithm	handling the bounds of the decision variables as they are initially presented	In this scenario complicated to program
Multi-objective genetic algorithm	Simple extension of single-objective GA	Usually slow convergence
Multi-objective hybrid genetic algorithm	Improved convergence speed to local optimal	Increased computational time per iteration
Heuristic search algorithm	generally fast and complete, will find also a partial solution	non-optimality: they can easily get stuck in local optima
Multi-ant colony optimization	Can be used for both static and dynamic combinational optimization problems	Convergence is guaranteed, although the speed is unknown
Bio-inspired model	analogies to various phenomena in nature and society	Weights assessment
Hungarian Algorithm	Simplicity	Multi-objective

Kotwal a Tanuja (2015) compared a group of genetic and heuristic algorithms on the specific experiment represented by the predefined amount of tasks and human resources that need to be split between these tasks. Based on the result of this research, it is recommended, that ideally use of the algorithm is the combination of both approaches – both heuristic and genetic. Kotwal and Tanuja (2015) called this combination as a heuristic mixed genetic algorithm. This research, however, disregards the main problem of our paper - use the extra set of input information, which would serve as the basis for the optimization of the use of the most effective algorithm for optimizing the allocation of human resources in project management.

2.3 Project resources

Project management is constantly trying to deal with the allocation of resources in the project. The allocation of resources, which is the main topic of this paper, assigns the resources to the specific tasks of the project. The allocation is carried out in phase 2 according to the Fig. 1. The company mostly does not address just one project, but generally more projects with these resources as it is evident from Fig. 2. Please notice in particular human resources, which is the subject of this paper.

	Resource 1	Resource 2	Resource 3	Resource 4
Project A	X			X
Project B	X		X	X
Project C		X		
Project D	X			X

Figure 2 - Resources allocation on projects, source Author

In many projects, the execution of some set of activities is limited by constraints, typically by resources availability. This situation leads towards the problem of Resource Constrained Project Scheduling

(RCPS). RCPS needs to answer the question, presented by Wall (1996): "*Given a set of tasks, resources, and the way to evaluate performance, what is the best schedule to assign the resources to the activities such that the performance is maximized?"*. Currently, extensive research is carried out in the RCPS area.

Algorithms used in current software tools, such as Microsoft Project Server, or Primavera work with the basic set of the resource information (see also Chapter 3). For example:
- availability of resources in comparison with the personal calendar,
- the total capacity of which is taken from the resource information,
- the role of the source, which is also taken from the personal profile.

Human resources have beside the resources' primary role other additional properties. Based on research of Hart (2012), Bowen (2012), Narahari and Murphy (2009), Raunak and Osterweil (2005), these properties often include a selection of skills (often technical, or professional specialization). They may be logged in the personal training plans, which also contain information about career direction and the motivations in professional life etc. This stored information can be used to optimize the allocation of resources. This information is usually available from various sources of information as mentioned by Chang et al. (2008). There is no rule that the company would retain all of that or more, but if they have this data, it is appropriate to use them. For this purpose, it is appropriate to integrate information units/systems and the subsequent information to consolidate in a centralized repository/Resource Center. This Center can be generally in the ERP system, or in a specialized system for project management support, as well as for portfolio management support.

When working with resources, in particular with human resources, it is necessary, based on Ballesteros-Perez et al (2013), Chantrapornchai et al (2013b), Lotz Mary (2013), PMI (2013) and Ziaidoostan et al (2013), to take into account the following circumstances

- In company resources circulate a lot (recruit and dismiss) and often are unique as well, therefore it is difficult to replace them. It is quite a problem in the case of planned projects with shared resources (see also fig. 2), and in the course of individual running tasks, one of the sources leaves the company and there is no one else, who would have handled the same work, or who would be able to execute the task in a predefined time frame with the same quality of work.
- Projects are carried out by resources typically for a predetermined price. However, new resources, which come to the company are sometimes able to perform the same job with the same quality for less money. The project Manager did not anticipate that, and the resource manager often does not manage it from the running projects view and He is providing for new projects within the portfolio only.
- It is necessary to take into account the additional properties for each resource. These can come from a number of information systems, and make up the difference in the current human resources planning and scheduling, which is related to the individual algorithms.

3. Human resources allocation

Resources used in the project management carry a **limited amount of input information**, i.e. information that describes the given source from the project management point of view. As it is mentioned in the introduction of this work, human resources represent a group of project resources, which has one of the largest sets of input information. Information systems which serve as a support for the project management use different algorithms for resource allocation. These algorithms, based on the input information, assign the appropriate project resources to the specific tasks of the project or projects (in a multi-project environment). In the case of human resources, this information creates (human) resource information set (HRIS). The content of HRIS differs for each of the allocation algorithms. The information included in the HRIS is listed in table 2 for some of the algorithms listed in part 3.

Table 2 - HRIS of allocation algorithms, source Author

	Cost information	Resource capacity	Role of resource	Resource Skill weight (number)	Task Skill weight (number)	Resource skill set
Multicriteria linear algorithm	X	X				
Multi-objective genetic algorithm		X	X			X
Multi-objective hybrid genetic algorithm	X	X	X			X
Heuristic search algorithm		X		X	X	
Multi-ant colony optimization		X	X			
Bio-inspired model	X	X	X			X
Hungarian Algorithm		X		X	X	

This information should be reflected in the process of its allocation to the specific projects, more precisely to its use in project management, especially in a multi-project environment.

Certainly, there is another wealth of information about human resources that is not included in HRIS and that would be appropriate to use in the allocation process as it brings advantage for the use of resources and project management (e.g. shortening of the project duration, see below). Set of these data will be labeled as HRIS_E (HRIS Extension). Adding this information to HRIS, EHRIS (Extended HRIS) will be created. EHRIS is saved in information systems of a company different from the information system for project management (PM IS). It is important to ascertain this data, to consolidate and to use them in allocation algorithms and project management software tools. These data have the crucial influence on the effectivity of the tasks conducted and thereby lead to a higher balance of the project´s portfolios, which is one of the core thoughts of project methodologies related to a multi-project environment of an organization.

Based on long-term practical experience of the author, the first version of E_HRIS includes following set of data:

A/ detailed specification of the work focus of the employee

If we take into account the implementation of a set of attributes related to specific roles of human resources in an organization, it is possible to better highlight the specialization of each employee. This leads to a fact that each employee will be conducting activities at which is he really the best (e.g. a developer will be developing in a specific programming language, an analyst will be analyzing a specific environment like retail or pharma etc.). Also on the other side, developer should have SQL database specialization in his skill set. So If Project Manager doesn't have someone for concrete SQL DB related task, this developer should do it and maybe in more efficiency way, because of learning of something new.

Practical benefits

Based on the author´s experience, after application of the detailed skill set of a source the duration of the conducted task has been shortened by almost one third. This is an important finding, however, there might be an allocation problem in the case that it is not possible to find a free resource as every resource with the demanded skill set is allocated to another project. Then a resource can be found who has no specific role (e.g. a developer), but who has development of a specific programming language at a junior level in his skillset. This resource can hold this post until an appropriate resource has been released for this project. This means that the project will not be prolonged due to resource reallocation that is also an optimization of the project from the project duration perspective.

B/ information from education plan of the employee

If we focus on resources information based on his educational plans - that in his spare time he develops himself in a particular focus, it is possible to work with this information as well. It is possible to put a space in the project such a source, and from the personal experience of the author, the source held activities on the project with more effectivity and concern. Often there are the groundbreaking concepts and scenarios often developed. These devotes personal time and these vice activities will do much faster and at a higher quality. At the same time, practical experience thus obtained is utilized in personal development. Such a procedure is, of course, necessary to support by a multitude of other soft skill techniques, however, it is already a procedural matter not covered in conjunction with algorithms for optimization.

Practical benefits
In practice, there was used the previously mentioned educational plan and experienced developers working on the project have been made concerning the development of the code in a cloud-based environment with the participation in the development of business intelligence over the resulting code. This scenario reduced time by 10-15 percent. And here the result has more than one measure:

- Duration of the task was reduced (the resource was more motivated and want to learn something new),
- the new concept was bored during the execution of the project tasks,
- this concept starts development of a new product in the company.

In further research, the author focuses on the expansion of E-HRIS for more information about human resources. Based on both his long-term practical experience as well as from the study of literature.

The use of E-HRIS in project management
The next stage of the research is to determine how to use E-HRIS and therefore HRISE in project management. This way we denote as PMM (Project Management Mode). Two basic modes should be defined for PMM:

- **Basic mode PMMS (Simple PMM)** – basic
- **Integrated mode PMMC (PMM Complex)** – complex

PMMS
In this case, the project manager is created HRISE. The relevant information in the E-HRIS ("manually") are provided by him into the corresponding information systems in the organization. Information are then transformed into the smaller set, required by the used resource allocation algorithm. That is, it uses the resource allocation algorithm, which does not directly support the information from the E-HRIS. This mode uses the author in the present stage of research.

PMMC
In this case, resource allocation algorithm directly supports the information from E-HRIS, even from across the HRISE. This information set is automated and online synchronized from the corresponding information systems across the Organization and creates new, specified “information system” strictly for project and portfolio management. To ensure this mod is a must, in addition to HRISE, to ensure in particular the following conditions:

- HRISE support by the algorithm
- Application integration in various information systems of concrete organization with PM application
- PM application ensuring referred mode

Depending on the method and extent to ensure the above conditions there is a possibility to define additional mods "lying in between the" PMMS and PMMC.

4. Conclusion and further research

Author’s contribution to human resources allocation in project management is presented in section 3. It is based on author‘s research work as well as on his long-term practical experience in project management. The notion of HRIS is presented, which is mapped towards several widely used algorithms for project management, as well as the notion of HRIS, for which also the first version of the practical content is presented. Based on these two notions the notion of PMM i.e. the mode of human resources information use in project management is defined. Besides the theoretical contribution the author‘s work has a significant contribution to praxis. This is documented by presentation of practical benefits of his work, although they were implemented with first author’s version of HRISE and in PMMS mode.

There are several directions of further research. Extension of the current version of HRISE may be seen as a shorter-time goal. Then the long-term goals are directed towards research and implementation of PMMC.

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Linkage between Corporate Social Performance and Corporate Financial Performance in Indian Firms

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Abstract

Corporate Social Responsibility has multiple facets and has been practiced and implemented for several years in the Indian context. The new Companies Act India, formulated in 2014 includes mandatory expenditure requirement on Corporate Social Responsibility. This is designed to encourage firms to contribute towards some of the most critical societal needs. This paper attempts to assess the type and strength of the bi-directional relationship between corporate social performance and corporate financial performance in the Indian context by looking at the Top 141 Indian companies across 15 industries over the years 2013, 2014 and 2015. The relationship between CSP and prior-CFP for the applicability of the theory of slack resource availability is gauged. The theory of good management is validated by assessing CSP contribution to future-CFP of firms. Also, assessed are the effects of control variables such as industry and R&D on the relationship. The result shows a strong positive relationship between CSP and CFP and validates both slack resources theory and good management theory. The slack resources theory and good management theory provided mixed results when the control variables were industry and R&D.

Keywords: Corporate social responsibility, corporate financial performance, Indian firms

Introduction

Corporate Social Responsibility has been gaining a lot of prominence in recent decades as companies are expected to have a moral obligation towards society. Milton Friedman, 1970, and several neo-classical economists have strongly advocated against the use of a company's resources for purposes other than maximizing shareholder returns. Friedman famously said that 'a corporation's social responsibility is to make profit'. This has led to several arguments, theories and research that have tried to understand the relationship between a firm's corporate social performance (CSP) and corporate financial performance (CFP). A positive relationship has been observed between the two parameters in many studies (Cochran and Wood, 1984,Waddock and Graves, 1997) while several other studies have found a negative relationship(Shane and Spicer, 1983) while a few other studies have found no relationship at all(Margolis and Walsh,2003). However, Beurden and Goessling, 2008, have specifically asserted the positive correlation between corporate social and financial performance in Western societies.

Similar studies have been conducted in other non-western societies across the world and the results have varied from country to country – Taiwan (Yang et all, 2010), Tunisia (Dkhili and Ansi,2012), Brazil (Criso´stomo et al., 2011).

However, in India, the study of CSP-CFP relationship is limited by scope and extent (Mishra and Suar, 2010). CSR in general has been analyzed and studied through multiple surveys (Khan and Atkinson,

1987) while some studies have tried to explore the various definitions of CSR and studied the current CSR practices in India (Gautam and Singh,2010), other studies have looked at CSR in Indian government-owned firms (Subramanium et.all ,2015). Mishra and Suar, 2010 have looked at the relationship between CSP and CFP but its focus has been only on the manufacturing companies in India. Though India is one of the fastest developing countries in the world with a large number of corporate firms, there hasn't yet been a comprehensive study that looked at the CSP-CFP relationship across several firms and industries. A few papers have assessed the linkage between CSP and CFP parameters as outlined in Margolis and Walsh, 2003 but these papers have only looked at a single industry. This paper attempts to bridge that gap by studying 141 firms across 15 industries over the years 2013, 2014 and 2015.

Corporate Financial Performance

There are more than 80 financial measures to assess the CFP of a firm (Griffin and Mahon, 1997). Researchers have been inconsistently using measures based on availability of data. Some researchers have used 5-year return on equity (Cochran and Wood, 1984) or return on assets (Wokutch and McKinney,1991). Many papers have looked at three key measures- Return on Assets, Return on Equity and Return on Sales and have concluded that Return on assets is the preferred financial measure (Waddock and Graves, 1997). In this paper, return on assets is used as the measure for corporate financial performance.

Corporate Social Performance

Corporate social performance is a multi-dimensional construct with several parameters which lead to several inconsistencies and varied results for the linkage between CSP and CFP. Several past studies have used the Fortune reputation index (McGuire et al., 1988) but many others have claimed problems with this index (Fryxell and Wang,1994). The KLD database has been used more frequently to determine the CSP from a stakeholder's perspective. However, several researchers have found Fortune reputation index to be similar to KLD index (Griffin and Mahon, 1997) and have found support (Waddock and Graves, 1997) for researchers using the Fortune reputation index. Moreover, Stanwick and Stanwick,1998 looked at the fundamental question- whether the Corporate reputation index is a valid measurement of a firm's CSP by looking at relationship between CSP and three organizational variables, including the firm's environmental performance. The results conclusively proved that corporate reputation index is a valid indicator of the firm's overall CSP.

The KLD index is not available for Indian corporate firms. In the absence of the KLD index and the need for a more comprehensive look at the multi-dimensional construct for CSP, the Fortune's annual ranking of Indian firms, also called as Fortune's most admired companies which is similar to the Fortune reputation index was used. This index has more than 10 parameters to determine the final score for a firm. The various parameters are Corporate Governance, endurance, social impact, investment value, product/service quality, innovativeness, leadership quality, talent development, employee empowerment and global footprint.

Use of control variables

Several studies have put forth the theory that in order to obtain a positive relationship between CSP and CFP, multiple control variables such as size, industry (Callan and Thomas 2009; Margolis and Walsh

2003; Russo and Fouts 1997) need to be used. Research and Development which is considered a discretionary spending is also suggested as another control variable (McWilliams and Siegel 2001). This paper analyzes both industry and research and development as control variables.

Hypotheses formation

The CSP-CFP relationship involves 2 empirical issues that need to be addressed- 1) direction of the relationship- positive, neutral or negative and 2) Causal relationship- Does corporate social performance influence corporate financial performance and vice-versa (Preston and Obannon, 1997). Combining these two dimensions result in six causal and directional hypothesis.

Direction of relationships

Stakeholder analysis is used to understand the positive relationship between CSP and CFP. Both internal and external stakeholders are critical in running a business. A firm will always act in the favor of stakeholders if the strength of the stakeholders is high (Ullman, 1985). Stakeholders vary from customers, employees, bondholders, shareholders, suppliers to community and environment. Responding positively to stakeholders will result in a better reputation of the firm which will lead to better financial performance (Waddock and Graves, 1997). The strategic posture of the organization is critical to improving economic performance (Ullman, 1985). For e.g., customers would view products from the company to be of superior quality leading to higher sales, top employees will be attracted to the company which will improve productivity (Moskowitz, 1972). These activities will in turn help in improving the financial performance of the firm leading to a positive relationship between CSP and CFP.

A negative relationship promotes the idea that firms that are involved in socially responsible behavior are taking away resources from the firm's primary activities and incur costs thus resulting in the negative financial performance (Aupperle, Carroll, and Hatfield, 1985). Friedman(1970) and several neoclassical economists have argued that a firm should be only involved in maximizing profits.

Considering the wide range of factors associated with measurement of corporate social performance leads to the theory that there is simply no relationship between CSP and CFP. Corporate social performance is a multi-dimensional construct with several parameters which lead to several inconsistencies and varied results (Ullman, 1985).

Causal Relationships

The direction of the relationship between CSP and CFP is evaluated. Does social performance help in the improvement of financial performance or does the financial performance help in the improvement of social performance. These can be listed as two theories: Slack resources theory and Good Management Theory (Waddock and Graves, 1997).

Good management theory tries to explore the role of management in building and managing relationships with key stakeholders. A positive perception of the firm by external stakeholders such as customers, communities will improve sales, reduce costs and improve productivity (Moskowitz, 1972). These factors will positively influence the financial performance of the firm. The Hypothesis for this would be:

H1: Good compliance with corporate social performance guidelines yields better financial results.

According to the slack resources theory, firms will engage in social responsible ways only if they have adequate financial resources. If the financial resources of the firm are limited, then the firm will use those resources for purposes that will improve its financial performance and would not consider allocating those resources for socially responsible activities. This leads to the following hypothesis:

H2 : Good financial performance leads to better corporate social performance.

Methodology

The Top-198 companies spread across 15 industries were selected for this study. The industries were selected based on the highest impact on the Indian economy in terms of contribution to national GDP, growth rate, maturity of industry and competition in the industry. The top companies in each industry were selected based on their turnover, market share and CAGR (Fortune, 2014).

Out of the 198 companies selected for the study, multinational companies were removed from the list even though they had significant operations in India as the financial influence of their headquarters on their Indian operations could not be properly assessed. A few companies that lacked proper financial statements were removed. This reduced the final list to 141 Indian companies. The listing of companies across each industry is provided in Table-1.

Table 1: Listing of companies and industries

Industry	Total
Auto Components	10
Automotive	6
Banking	11
Capital Goods	11
Cement	13
Consumer Durables	8
Engg and Construction	10
FMCG	10
Iron and Steel Metals	11
IT and ITES	4
NBFC	9
Oil and Gas	12
Pharma and Healthcare	12
Power	8
Telecom	6
Grand Total	141

Corporate financial performance of the firms was calculated using ROA (return on assets). Data for the ROA was obtained for 3 years viz. 2012-2013, 2013-2014 and 2014-2015. The data was obtained from the Economic Times ET500 database. In India, the financial year runs from April 1st through March 31st of next year.

Corporate social performance of firms was obtained from the Fortune's list of most admired companies, 2014. The methodology involved two phases- phase-1 and phase-2. Phase-1 involved 523 companies. The intensity in engagement with respondents, and the respondents who demonstrated low intensity were eliminated. After the usage of validator questions and statistical validation, the final list reduced to 443 responses. Respondents evaluated the companies on a multi-dimensional construct that consisted of ten parameters viz. corporate governance, endurance, social impact, investment value, product/service quality, innovativeness, leadership quality, talent development, employee empowerment and global footprint.

The top-3 companies were selected from each of the 15 industries was further selected and was again re-assessed by 84 respondents on the same ten parameters. This led to final scores that were provided to the companies. The ten parameters and evaluation criteria are listed below:

- Corporate governance: the extent to which the company ensures consistent management, cohesive policies, accountability etc.
- Endurance: Consistency in the company's overall performance during recession or any other lean period.
- Social impact: The degree of positive impact the company's business activities have on the society and the environment it operates in.
- Investment value: The strength of a company's finances, operational cash flows and overall asset management.
- Product/service quality: The value of the quality of products and services delivered by the company to its customers.
- Innovativeness: The company's ability to understand its environment and customers, and offer breakthrough products and services
- Leadership quality: The level of competence, managerial skills, and business understanding of the company's top management team.
- Talent development: The company's ability to groom individuals who go on to occupy leadership positions in the firm and industry.
- Employee empowerment: The extent to which the company's employees are allowed to take key decisions related to their area of work, and the feeling of empowerment that they enjoy.
- Global footprint: The extent of the company's presence in the market that allows it to increase the magnitude of business activities, diversify resources, and increase revenue and profit.

Control variables

There are a total of 15 industries in the sample. Industry as a control variable and the relationship between CSP and CFP within each industry is assessed. Companies within the same industry are grouped together as they all face same challenges, similar issues and problems. The R&D values across the companies have been obtained and used as a control variable. They are grouped into firms having high R&D investments and low R&D investments.

Discussion and Results

The sample is composed of 198 Indian companies whose corporate social performance score was retrieved. After removing the multinational companies and companies that lacked proper financial data, the sample consisted of 141 companies.

The top 3 companies in each of the 15 industries were selected and further assessed on the ten parameters discussed above resulting in a score for these companies. This set of companies was analyzed for relationship to the corporate financial performance using ROA.

H1: Good compliance with Corporate social performance guidelines yields better financial results.
Good Management Theory

Variables used in H1

Social Variable (Corporate social responsibility score used as dependent variable)	Financial Variable (Return on Assets for the following year ,2015 is used as independent variable)
CSP Score for the year 2014	ROA for the year 2015

H2 : Good financial performance leads to better corporate social performance.
Slack Theory.

Variables used in H2

Financial Variable (Return on Assets for the previous year ,2013 is used as dependent variable)	Social Variable (Corporate social responsibility score used as independent variable)
ROA for the year 2013	CSP Score for the year 2014 from Fortune

Overall relationships

The table 2 summarizes relationship between corporate social performance and corporate financial performance. Here CSP for 2014 is taken and analyzed with 2015 Return on Assets value. Pearson Coefficient value is 0.527 and P value is 0.001 which indicates strong positive relationship between the two variables.
This validates our first hypothesis- H1: Good compliance with Corporate social performance guidelines yields better financial results.

Regression analysis results are shown in the table 3 for Slack Theory. Here CFP for 2015 is taken and analyzed with 2014 Corporate Social Performance value. Pearson Coefficient value is 0.492 and P value is 0.009 which indicates strong positive relationship between the two variables.

This validates our second hypothesis- H2 : Good financial performance leads to better corporate social performance.

Relationship when industry is control variable

The two hypotheses are tested for the industry control variable. The CSP-CFP relationship is assessed for each of the 15 industries listed. When Corporate financial performance is independent variable and Corporate social performance is dependent variable, the industries that show strong positive relationships

are Cement, FMCG and Telcom. These industries support the good management theory with strong relationship. Automotive, Consumer Durables, Engg and construction, Iron and Steel metals, NBFC, Pharma and Healthcare show negative relationship. Rest of the 9 companies show weak positive relationship.

Overall, it cannot be concluded that good social performance leads to better corporate financial performance and the Hypothesis-1 cannot be validated when industry is a control variable.

The industries that show strong positive relationship between Corporate Social performance (2014) and Return on assets 2013 are Capital Goods and Telecom. Eleven industries show weak positive relationship. However negative relationship was found in 4 industries. They are Automotive, Iron and Steel Metals, NBFC and Oil and Gas.
Overall, it cannot be concluded that good financial performance leads to better corporate social performance and the Hypothesis-2 cannot be validated when industry is a control variable.

Relationship when R&D is control variable

When R&D is used as control variable to test hypothesis-1, companies that have lower R&D value showed strong positive relationship between corporate financial performance 2015 and corporate social performance 2014, supporting Hypothesis 1.Weak positive relationship was found in companies with high R&D value.

Overall, it cannot be concluded that good social performance leads to better corporate financial performance and the Hypothesis-1 cannot be validated when R&D is a control variable.

For Hypothesis 2, companies that have lower R&D value showed negative relationship. Companies with higher R&D value show moderate positive relationship.

Overall, it cannot be concluded that good financial performance leads to better corporate social performance and the Hypothesis-2 cannot be validated when R&D is a control variable.

Regression analysis results are shown in the table 2 to assess Good Management Theory:

Independent variable= Return on Assets (2015), Dependent Variable= Corporate Social Performance (2014).

Table 2: Overall relationship, CSP dependent variable

R Square	Adjusted R Square	P value	Pearson Coefficient
27.8	25.6	0.001	0.527

Regression analysis results are shown in the table 3 to assess Slack Theory.

Independent variable= Corporate Social Performance (2014), Dependent Variable= Return on assets (2013)

Table 3: Overall relationship, ROA dependent variable

R Square	Adjusted R Square	P value	Pearson Coefficient
24.2	21.2	0.009	0.492

Regression analysis results when Industry is used as control variable to assess Good Management Theory

Independent variable= Return on Assets (2015), Dependent Variable= Corporate Social Performance (2014) shown in Table 4.

Table 4: Relationship with industry as control variable, CSP dependent variable

Industry	**R Square**	**Adjusted R Square**	**P Value**	**Pearson Coefficient**
Auto Components	0.2	0	0.903	0.044
Automotive	8.7	0	0.570	-0.295
Banking	8.4	0	0.388	0.289
Capital Goods	23.5	15	0.130	0.485
Cement	40.1	34.6	0.020	0.633
Consumer Durables	2.6	0	0.702	-0.016
Engg and Construction	0.3	0	0.880	-0.055
FMCG	39.9	32.3	0.050	0.631
Iron and Steel Metals	1.7	0	0.700	-0.132
IT and ITES	0.6	0	0.926	0.074
NBFC	1.2	0	0.775	-0.112
Oil and Gas	1.6	0	0.696	0.126
Pharma and Healthcare	0	0	0.997	-0.001

Power	11.5	0	0.412	0.339
Telecom	76.8	71.1	0.022	0.527

Regression analysis results when Industry is used as control variable to assess slack theory

Independent variable= Corporate Social Performance (2014), Dependent Variable= Return on assets (2013) shown in Table 5.

Table 5: Relationship with industry as control variable, ROA dependent variable

Industry	**R Square**	**Adjusted R Square**	**P Value**	**Pearson Coefficient**
Auto Components	16.8	6.4	0.239	0.410
Automotive	31.6	14.5	0.246	-0.562
Banking	6.3	0	0.457	0.251
Capital Goods	37.4	30.4	0.046	0.611
Cement	16.4	8.8	0.170	0.405
Consumer Durables	1.7	0	0.755	0.132
Engg and Construction	5.2	0	0.526	0.228
FMCG	36.9	29	0.063	0.607
Iron and Steel Metals	5.1	0	0.506	-0.022
IT and ITES	2.4	0	0.847	0.153
NBFC	0.2	0	0.906	-0.046
Oil and Gas	0.3	0	0.856	-0.005
Pharma and Healthcare	2.3	0	0.640	0.151

Power	16.6	2.7	0.317	0.407
Telecom	82.1	77.6	0.013	0.906

Regression analysis results when R&D is used as control variable to assess good management theory

Regression analysis results when R&D is used as control variable

Independent variable= Return on Assets (2015), Dependent Variable= Corporate Social Performance (2014) shown in Table 6.

Table 6: Relationship with R&D as control variable, CSP dependent variable

R&D	**R Square**	**Adjusted R Square**	**P Value**	**Pearson Coefficient**
Higher R&D	3.1	-6.6	0.587	0.174
Lower R&D	90.5	89.1	0.000007	0.950

Regression analysis results when R&D is used as control variable to assess slack theory

Independent variable= Corporate Social Performance (2014), Dependent Variable= Return on Assets (2013) shown in Table 7.

Table 7: Relationship with R&D as control variable, ROA dependent variable

R&D	**R Square**	**Adjusted R Square**	**P Value**	**Pearson Coefficient**
Higher R&D	24.3	14.8	0.147	0.490
Lower R&D	2	-10.8	0.890	-0.044

Conclusion

In this paper, the relationship between corporate social responsibility and corporate financial performance in the top 141 firms across 15 industries in India was assessed. The results indicate a strong positive relationship between corporate social performance and corporate financial performance. The slack resources theory which states that firms will engage in socially responsible ways only if they have adequate financial resources is validated. This was validated by looking at relationship between 2013 ROA and 2014 corporate social performance. The good management theory reviews the relationship between the firm's ability to manage relationships with its important stakeholders and its impact on the

financial performance. This theory has been validated by looking at the relationship between 2014 CSP and its impact of 2015 CFP. The impact of the two control variables – size and R&D on the CSP-CFP relationship is inconclusive. The slack resources theory and good management theory provided mixed results when the control variables were industry and R&D. We can conclude that the control variables (size and R&D) had limited effect on the relationship between corporate social performance and corporate financial performance. However without the control variables, we observe a strong positive relationship between corporate financial performance and corporate social performance.

Limitations and Future Research

There are a few limitations of this study. First, the measure of corporate social performance may narrowly look at meeting the needs of the stakeholders that improve the financial performance of the firms. India has a range of social issues ranging from education, poverty, malnutrition and empowerment. The corporate social performance measure of the firms may not actually reflect their work in alleviating these concerns. A comprehensive corporate social performance measure that is strengthened by incorporating actionable outcomes (Mishra and Suar, 2010) will truly reflect the social responsibility of the firms. Second, there are large and relevant literatures available on principles, processes and consequences to stakeholders of business activity, both beneficial and harmful, but they have not been brought into the CSP fold (DJ woods, 2010).

The Indian government through the new Companies Act (2014) has made it mandatory for firms that meet certain financial thresholds to include expenditure that support corporate social responsibility. The government has also laid out a clear reporting structure that details the various aspects of social issues and the firm's contribution towards these issues. A future study can look at incorporating the results from these reports and build a more comprehensive corporate social performance measure to assess the linkage to corporate financial performance.

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Migration in EU

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Abstract

Migration of foreigners is more and more mentioned and dreaded topic recently. There is a lot of independent theories, present or past, that tried to explain migration according to different fields of study. Each theory explains some type or aspect of a migration according to an event and an epoch when it was created. These theories can be distinguished mainly by what is considered as the main reason and by which questions they are looking for answers.

We can say that there is no integrated theory that would cover all of migration theories because each branch of science provides different sight on this term. As there is so many different theories we will deal only with a couple of them.

Keywords: Migration EU, migration theories

Introduction

The concept of a word migration generally means a moving of people from one place to another. “The term migration can be defined as a process more or less bounded in time of shift of people between places divided by national borders.” (Šiklová, 1998). Therefore we can split the migration as a domestic migration and an international migration where a domestic migration defines a change of a permanent residence over some administrative unit and an international migration stands for a change of an usual residence over a state border. There is a question how long someone should be at a new place to be considered as a migrant. OSN puts one year as a limit boundary. The international migration has a huge demographic, political, social, cultural and psychological impact on tranzit and the most on immigrant states.

If we consider time, we can split migration into short-term and long-term migration. The short-term migration is usually because of a job, study or recreation. The long-term migration means permanent change of residence. If a migrant is sole person, we talk about an individual migration. On the other hand, the collective migration covers bigger groups of people, usually families to reunite. Other aspect of migration is a reason and motivation that can be voluntarily or involuntarily, because of a political or an economical situation, catastrophes or other threatening factors.

Migration

The word “migration” comes from the latin word “migratio” which means “moving”. Oxford Dictionaries use a definition: „Movement of people to a new area or country in order to find work or better living conditions:the extensive rural-to-urban migration has created a severe housing shortage”.

Process of migration is analyzed by many authors. In this subsection, we will discuss migration variables proposed recently by Bonasia and Napolitano (2012), Cattaneo (2008), Czaika and Vothknecht (2014), Czaika (2015), Jennissen (2004), Kurunova (2013), Polgreen and Simpson (2011), Tupa and Strunz (2013) and van der Gaag and van Wissen (2008).

Cattaneo (2008), Jennissen (2004), Kurunova (2013), van der Gaag and van Wissen (2008) showed that factors they analyzed have a strong connection with standard economics theories. Cattaneo

(2008) done a research based on determinants that was identified by Harris-Todaro and on human capital theories. His analysis involved differentials of wages, unemployment rates and personal characteristics including differences between migrants and non-migrants. Van der Gaag and van Wissen (2008) and Kurunova (2013) supplied analysis with financial, demographic and social variables. As we look at the Jennissen (2008) study, we see that, in addition to factors as wages and unemployment, he has drawn attention to factors proposed by dual labour market, new economics and relative deprivation theories as shortages at the bottom of the labour market, the certainty of sufficient household income and the level of income inequality. He also analyzed determinants from theories of interntional movement solvents.

International migration flow between unrestricted mobility regions such as the European Union, and that is why it should be studied more precisely (Cushing & Poot, 2004). Fluctuations in emigration and immigration in the EU are frequent over the last decade, especially during different periods of economic downturn and growth. However, the use of push-pull perspective could be useful in such cases (Zimmermann, 19996).

In a year 2014, there was the most people on the move since the end of the World War II globally according to OSN. Around 59.5 millions of people were forced to leave their homes. Fig. 1 shows the migration in Europe and in a world from the year 1960 till 2014. The total number of international immigrants rose from 80 millions to almost 240 millions of people, which is almost three times. But it corresponds with the total population, the proportion of immigrants rose from 2,3 % to 3,2 %. On the other hand, in absolute numbers, numbers of immigrants in Europe rose also almost three times (from 20 millions to 60 millions) but the proportion of immigrant went from 3,4 % to 9,8 % (MPI, 2016). In a Fig 2., we can see the population change by component EU-28 with respect to Natural Change, Net Migration and Total population Change. Natural change shows the difference between the number of live births and deaths during the year, Total population change shows the difference in total size of a population at the beginning of a year and at the end and the last one, Net Migration shows the difference between the number of immigrants and emigrants during the year. Eurostat calculate this Net Migration as a difference between Natural change and Total change in a population; this method is known as “statistical adjustment”.

We can see as natural change in European population is decreasing, growing migration “helps” balance this drawdown which can be seen as slowed decrease of total population change.

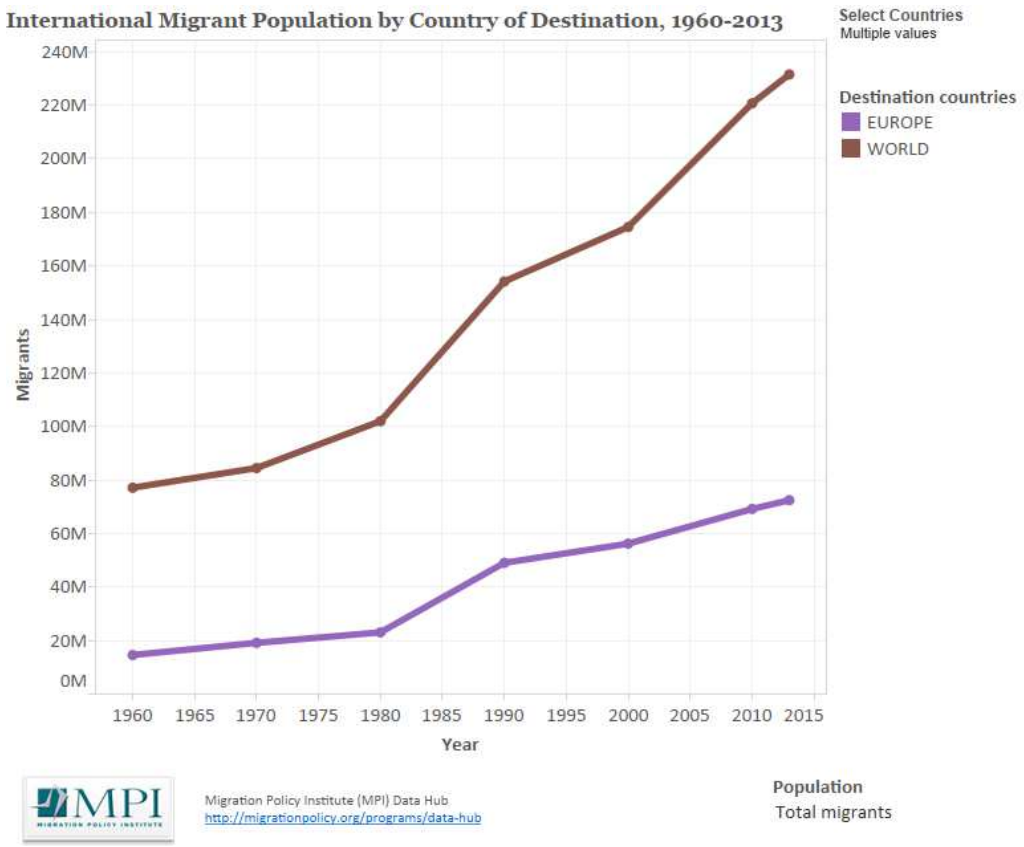


Fig. 1.: Migration in Europe and in the world since 1960, source: MPI

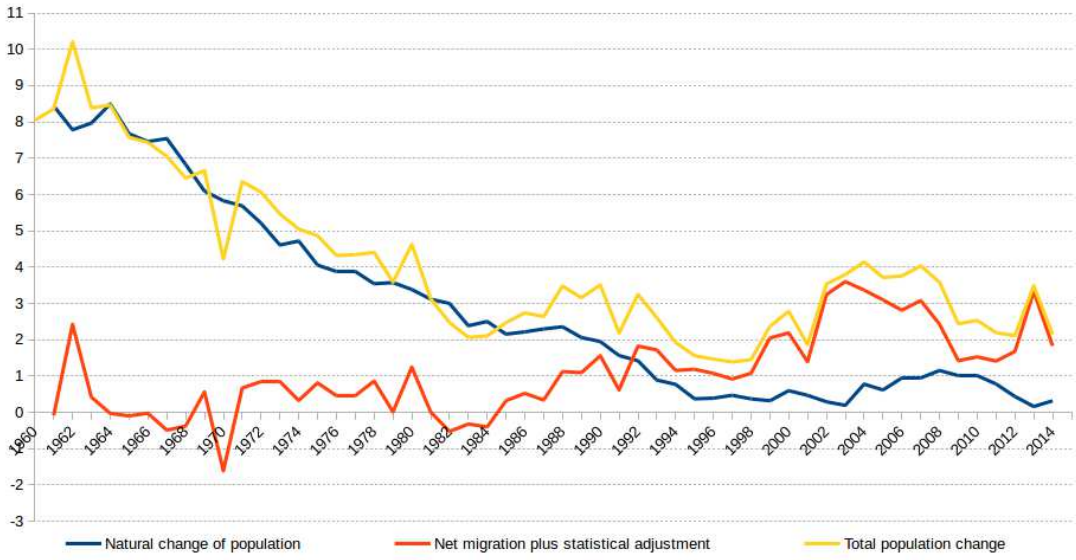
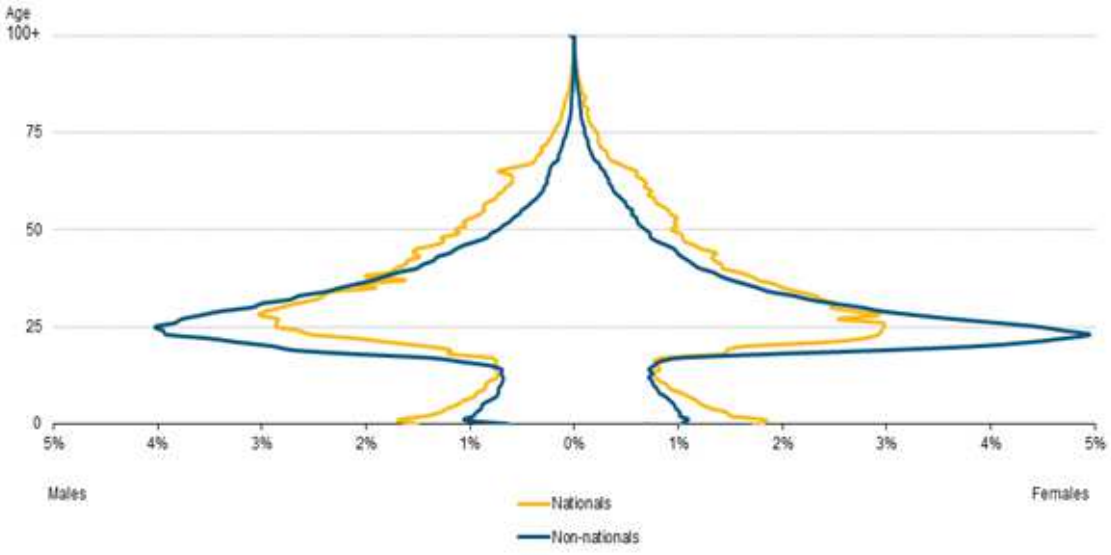


Fig. 2.: Population change by component, EU-28 (per 1000 population), own processing by Eurostat.

Fig 3. shows an age structure of immigrants by citizenship EU-28 at year 2013. There can be seen a peak of age of immigrants around an age 25 and especially for Non-nationals. This could be the advantage for aging European population.



(*) Excluding Slovakia: detailed data by age are not available.
Source: Eurostat (online data code: migr_imm2ctz)

Fig.3: Age structure of immigrants by citizenship, EU-28, 2013, source: Eurostat

According to Eurostat, most of migrants heading to Europe are from Syria, Afghanistan, Kosovo, Eritrea and Serbia. Statistically closer we can talk about two states from former Yugoslavia that are considered as dangerous by European Union. The most feared Syrians run to Europe from a war site in the number around 122 thousands. A lot of people runs from Afghanistan because after returning of Taliban there is a great danger for people who joint the international community.

In 2005 the Policy Plan on Legal Migration was presented, that marks a "road map", in which the European Commission coordinates with member states to measures such as: presentation of 5 new directives, creating a non-legislative instruments to improve awareness, measures to further improve the integration of migrants into society etc. (MVČR, 2005)

Push-pull theory

To understand all aspects of migration theories it is necessary to explore multiple approaches, for example the push-pull theory based on neoclassical economic theory otherwise known as Macro, which previously described labor migration in the process of economic development. Push factors force the migrants to leave the country from which they originate. These factors include political repression, poor living conditions, demographic growth, low employment opportunities. Economic opportunities and political freedoms, demand for and availability of land are classified into pull factors. As a disadvantage of push-pull theory we can consider a focusing only on the job. The demand for migrants in destination countries is neglected in the theory. (Antropoweb, 2007)

Health human resource migration has traditionally been seen through ‘push–pull’ migration, which tends to exhibit a dualist vision of migration where two separate systems are compared in terms of opportunity and then connected by migration (usually in a unidirectional manner). This approach is also evident in neoclassical gravity models which maintain that spatial difference generates migratory

flows and propensities as part of an 'equilibrium recovering process' (Hart, 1975). However, after decades of Global South to North nurse migration (Organization for Economic Cooperation and Development (OECD), 2007) the inequalities between sending and receiving regions have not 'recovered equilibrium'. Migration, therefore, is not merely the accumulation of rational decision making units moving their respective systems toward some kind of equilibrium; rather migration is berthed within wider power and resource allocation structures. More recent analysis has recognized that global political-economy factors shape HHR migratory flows while using the language of push–pull, (Kalipeni et al., 2012).

The paper (Xu, D.-D., 2015) utilizes sectional data from a 2013 survey of farmers in China's Three Gorges Reservoir area to empirically analyzes the factors influencing migrant workers' choice of employment location.

Theory of dual market

Another theory, which is also based on the pillars of neoclassical economics, is the theory of dual market. It focuses mainly on the demand of the target countries of migration and on the possible recruitment of manpower from developing countries and it does not care about the inequality of wages. Immigrants therefore fill in the missing jobs in selected sectors. Demand for migrants persists even at the moment where in the remaining sectors is high unemployment. This adds the indispensability to immigrants. (Antropoweb, 2007)

World-systems theory

World-systems theory explains the causes and origin of migration by the historical arrangement of market relations of the world system. Like the theory of double market, it operates with the arrival of unskilled migrants with low salaries in wealthy areas. The idea is to expand the capitalist relations of the most successful areas into places where the economic situation is slightly worse and there is more agriculture. (Antropoweb, 2007)

Network theory

During research, Manchester School invented a social network - an innovative method which appeared to be very useful for examining migration from rural to urban locations in Africa. It has been used for research of migrants in Europe after some time. Today it is hard to unify the thesis of network theory, since its importance and practice changed greatly in the history. Sociologist Granovetter found some similarity with the Manchester school when he created the concept of strong and weak ties, which leads to the conclusion that the weak links in social networks are more important as the information is usually spread through weak ties. Its indispensability weak ties also demonstrate in the integration of individuals into teams. (Antropoweb, 2007)

Institutional theory

Institutional theory deals mainly with processes affecting migration and ignores what causes it. Migration here becomes a market where the institutions developed because of migration itself can profit. Theory then watches how institutions stand and to what extent they participate in the institutionalization of migration trends. (Antropoweb, 2007)

Models of integrational politics

Drbohlav (2001) mentions three basic models of imigration policies in a current world.

1. *Discriminatory model* - based on temporary and returnable residence of foreigners, immigrants are only included in certain social areas (labor market), but in others (social welfare, obtaining citizenship) they are denied an access. Foreigners are socio-economic disadvantaged by this inability of entering into many spheres of life. This approach is chosen, for example, in Germany, Austria and Switzerland.

2. *Assimilation model* - expectes, in exchange of rapid acquisition of citizenship, rights and obligations of mainstream society, the immigrant completely give up their original language, with their specific cultural and social characteristics and rapidly assimilats into mainstream society. This approach is closest to the immigration policy of France.
3. *Multicultural (pluralist) model* - promotes diversity of minority from the majority. Immigrants are granted equal rights in all spheres of society, but they are not expected to withdraw from their peculiarities. State instead promotes and develops their specificity. Model applied eg. Sweden and Canada.

Conclusion

Population migration represents a significant dynamic process affecting a substantial long-term development of mankind. Undoubtedly we can expect persistent interest in the European Union as a target area of international migration. Respect for human rights and better living conditions are the main drawing factors that make the EU attractive for migrants. Current demographic trends - an aging population and low birth rate - EU Member States can cause considerable difficulties. Labor markets will lack the staff and social systems will need to provide ever-increasing number of clients. The EU is aware of these forecasts and supports the adoption of common rules in the field of immigration.

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Xu, D.-D., Zhang, J.-F., Xie, F.-T., Liu, S.-Q., Cao, M.-T., Liu, E.-L.

Influential factors in employment location selection based on “push-pull” migration theory—a case study in Three Gorges Reservoir area in China

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Factors Influencing Users Satisfaction Using Electronic Resources

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Abstract

Electronic resources are no more alien in this era of globalization. Information and knowledge provided in electronic resources is vital and play important elements for survival in information and knowledge society. In achieving the vision of 2020, Malaysian are moving forward to become a knowledge-based society with high skilled economy where intellectual capital, creativity and innovation act as prime drivers for the economic growth. Adequacy of collections is one of the most important factors that fulfilled the needs of user demand. This research examines the factors influencing usage of electronic resources at National Library of Malaysia (NLM). The four factors are individual behavior, library staff, library services and library technology are selected to be the research variables. A total of 218 library visitors participated in the study survey. Findings indicate that the library technology and library staff are having the strongest relationships with user satisfaction. Results indicate that user experience cannot belittled as it would determine their interest and willingness to consistently use the electronic resources provided by the library.

Keyword: Electronic resources, information, library, user satisfaction

I. Introduction

Electronic resources are no more alien in this era of globalization. Information and knowledge provided in electronic resources are vital and play important elements for survival in information and knowledge society. Information and knowledge society is to create, distribute, use, integrate and manipulate the information that is significant to the economic activities. Library plays crucial function in positioning and delivering the information and knowledge to the society. Act as a repository, library serves users with processed information and disseminate to the right users who acquire them. In achieving vision of 2020, Malaysian are moving forward to become a knowledge-based society with high skilled economy where intellectual capital, creativity and innovation act as prime driver for the economic growth. Adequacy of collections (such as books, journals, magazines) is an important factors that fulfill the needs of user demand especially to support their academic or research activities.

National Library of Malaysia (NLM) takes the initiative to give the best services by providing the latest and advance technology to community. The technology behind is the Information Communication and Technology (ICT) where it becomes one of the challenges to NLM in giving the services at par with community's expectation. Embroiled with ICT, electronic resources are the main focus to users to access their information of interest. This medium is indeed make them easier and faster to reach out the information as compared to printed materials. The growing demand on the electronic resources has led NLM to accommodate latest information to fulfill users' requirements. The accessibility to the electronic resources is equipped with latest technology infrastructure such as latest hardware and software, Internet with high-speed broadband connection and learning space with conducive environment. These are among factors that will necessitate users' experience in using the library services. Little works had been published on the user satisfaction at library. Library's main function is as a service provider to the academic community where in order to provide the best service, library should have a periodic assessment where they can evaluate and improve the service to meet user's expectation. Hence this study is conducted to examine the relationships between user satisfaction and selected factors related with electronic resources access in library.

The rest of this paper is organized as follows. The following section reviews the past works on electronic resources, focusing on its concepts and theories, as well as model or framework used. Section III describes the study framework and the research method by giving the details on measurement, population, sampling and data collection approach. Section IV provides the study findings and finally the last section concludes this paper.

II. Literature Review

The rapid growth of information, communication and technologies (ICT), libraries have challenges in holding information resources in traditional and electronic forms to the users. According to Lee and Boyle (2004) an electronic resources is defined as a product and services in digital form that is being marketed. Electronic resources are the product that delivers data in text, numerical, graphical as a commercial product available in digital form includes full text databases, electronic journals, image collections and multimedia products. The electronic information becomes a significant resource to the people to the get the information. The statistic of the usage of the electronic resources has become a hot issue in the field in the library (Wu, 2006).

The electronic resources were influenced by the information literacy and skill in accessing the information of the users. The factors affecting electronic resources access caused of few computers that gave the limitation of the users' access to the electronic resources, lack of awareness of the resources and slow Internet speed. A low level of skillfulness to search data and information to retrieve good information affected of utilization of electronic resources. The issues and problems encounter by respondents in accessing electronic resources are large number of irrelevant information, download delay, failure to find information, inadequate or lack of search skills, high cost of access and difficulties in navigating through electronic resources (Kinengyere, George and Bernard, 2012).

According to Tyler and Hastings (2011) study the growth of online learning and information technology has resulted more access to digital resources than printed resources. Online learning library support for virtual patrons has evolved into the digital or virtual component of the library. The use of electronic resources determines the use of electronic resources, users' skills in handling electronic resources, and the purpose of their use. An electronic resource helps the users to access the information timely and manage the information effectively and efficient retrieval and meeting information needs. The electronic resources are good substitutes for conventional resources for the conventional resources, if the access speed is fast, and more computer terminals are installed to provide access to electronic resources. The librarians have to reallocate more budgets to expand the availability of electronic resources for students and faculty. Furthermore, library professionals should help users to know what high-quality free resources are available on the Internet and how to search these resources more effectively and efficiently. The librarians need to focus more on opportunities for providing training programs for academics on the use of online databases, use of electronic resources and information skills.

III. Research Methodology

This section presents the proposed study framework and methodology used. The proposed framework consists of four independent variables and one dependent variable, as displayed in Figure 1. These variables have been identified from the theoretical review and previous works.

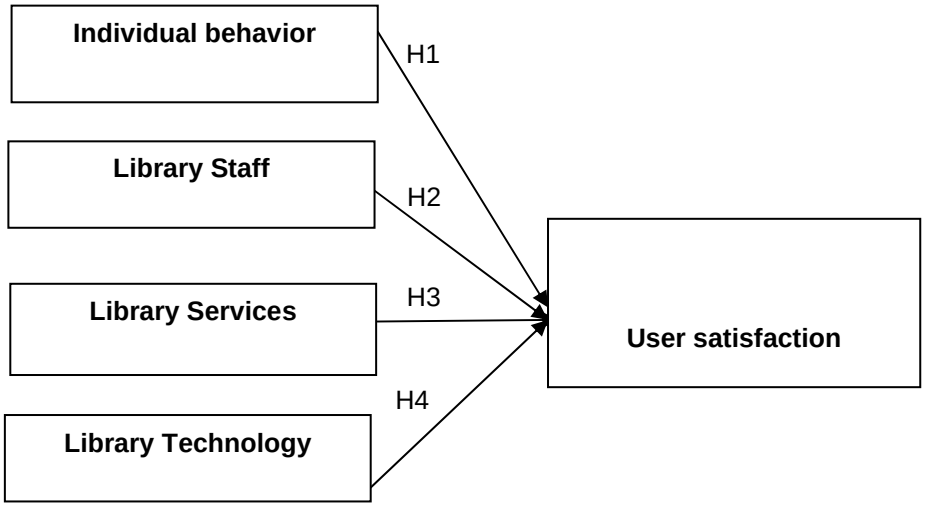

Figure 1: Theoretical framework

The description of each variable used in the study model is given as follows:

A. User satisfaction using library electronic resources

User satisfaction is to measure of how services supplied by a library meet or surpass users' expectation. They focus on the importance of fulfilling users' expectations. According to O'Brien and Toms (2010) user satisfaction is one method of evaluating the effectiveness of library services. Users' feedback help the library to improve services and changes in the service to make it easier to use, more welcoming, or otherwise enhance the user's experience. User satisfaction depends to a large extent on the ability of the library to integrate user needs into the development of the library. Users' satisfaction helps the library to measure the overall quality of the service experiences and improve the services based on the satisfaction feedback from the users.

B. Individual behavior

According to Wilson (2000) information behavior is the totality of human behavior in relation to channels and sources of seeking and use information. Information use behavior consists of the

physical and mental acts involved in incorporating the information found into the person's existing knowledgebase. In this process of information seeking behavior, it involves act to compare, analyze and evaluating the existing and new information. Study from Nadzir and Salim (2013) they mentioned that person who have the knowledge on information seeking behavior has an advantage in finding information to support their study or research process. Information seeking behavior arises as a consequence of a need to accomplish the task which the information is success or failed to determine their need and satisfaction. The improvement of the information literacy will guide them to the right techniques to search the information (Shen, 2010). As claimed by Mohd Nazir, Abd Wahab and Othman (2015), in order to satisfy the information seeking activities, one should possess information literacy skills.

C. Library staff

Library should have professional staff to handle the information and knowledge. Librarian must have qualification to manage the library and its services. The librarian who is positive, proactive, highly motivated and assertive is likely to foster productive relationships with other staff and give them confidence in his or her ability (Steve, 1996).The librarians must have a qualification in library management and experience to handle the library activities (Skretas, 2005). Library staff must be pro-active and aggressive to assist and accommodate the user solved the searching problems. Mamtora (2013) explained that the primary role of the librarian is to provide support information delivery services. In order to meet the user's requirements, librarian should have skill and familiar themselves with various stages of research life cycle and information activities.

D. Library services

The library provides services to the users to search and obtain the information available to users in the library. The library services such as reference collections, borrowing and returning, electronic resources, free Internet access, audiovisual services and others. According to Collison (1952) the information services is library capabilities to provide the vast amount of material contained in the circulation departments and their reserve stocks to meet users' need. According to Skretas (2005) all the equipment and similar technical infrastructure that support the library functions should be appropriate and well function. These included telecommunications and computer networks with appropriate technical support for regular and unexpected conditions to protect library information services. The library should have conducive environment of space, heating or cooling, lighting to attract user entry and provide comfortable for library personnel.

E. Library technology

Technology is the collection of tools, including machinery, modifications, arrangements and procedures used by humans. The library provides the technology to support of new digital environment in this age. The new technology available in the library influence to the users visits the library. University of Michigan (2015) mentioned that Library Information Technology (LIT) is the library division charged with the design, development, management, and maintenance of a flexible and reliable technology environment in the library. Meanwhile, technology support of server-based technologies for the delivery of library services and the maintenance of library management systems. It also helps in delivery of frameworks and systems to support collaborative storage, delivery, and preservation of information resources. Libraries have become technology leaders by providing digital resources into library website. New digital collections are stored in the cloud and mobile applications are developed around them.

Having outlined all the variables' description, the hypotheses formulated for the study are:

1. *H1: There is a significant relationship between individual behavior and user satisfaction.*
2. *H2: There is a significant relationship between library staff and user satisfaction.*
3. *H3: There is a significant relationship between library services and user satisfaction.*
4. *H4: There is a significant relationship between library technology and user satisfaction.*

The data collection approach is via survey method with questionnaire as the survey instrument. The questionnaire is designed based on the previous studies where the corresponding Likert scale is

anchored as 1 for “Strongly Disagree”, 2 (“Disagree”), 3 (“Neutral”), 4 (“Agree”) and 5 (“Strongly Agree”).

The population of the study is the users of the NLM. As being advised by the NLM’s personnel, the total number of NLM users is estimated to be about 550 visitors per day. The users are coming from different background includes student (primary, secondary and higher learning institutions), unemployed, self-employed and those who are having background in teaching, medical, business and others. In this study, the probability sampling techniques was used to select the sample. According to Wilson (2000), probability sampling is a sampling technique wherein the samples are gathered in a process and the population equal chances of being selected to answer the questionnaire. This sampling technique warrants that every individual has an equal opportunity to be selected where it is a characteristic of probability sampling called randomization. The sample is randomly selected among the users who come to the library and the research’s questionnaire is distributed personally. The total sample of this study is 218 respondents.

V. Findings

The study finding begins with users’ demographic profiling. Table I displays the demographic profile of the respondents. Out of 218 respondents, majority is female (56.4%).

Age

Age distribution shows that young adults is prominent with almost covering two third of the sample. While this is as expected, young generations are amongst who are still in study life which made them more frequent to visit libraries. The very low rate for the youngsters (aged below 17 years) could be due to dependency to school’s library which might sufficient enough to support their academic needs.

Table 1: Age distribution

Age category	Frequency	Percent
11-17	7	3.2
18-24	140	64.2
25-31	34	15.6
32-38	26	11.9
>39	11	5.0
Total	**218**	**100.0**

Occupation

In Table 2, the distribution of users’ occupation is given. Majority (67.4%) of the respondents are students, followed by 11.5% from business industry. The results show the involvement of students using library is undeniable due to fulfilling their education needs. Furthermore, it is good to acknowledge about 1% of the sample is unemployed who are still willing to spend their time in NLM. Apart from that, medical background users which composed of only 0.9% of the sample, is expected they are non-regular users of NLM as they may find more relevant materials at their hospitals or specific library.

Table 2: Occupation distribution

Background	Total	%
Student	147	67.4
Business industry	25	11.5
Administrative and secretarial	4	1.8
Teaching	3	1.4
Medical	2	0.9

Unemployed	2	0.9
Hospitality	7	3.2
Transportation	5	2.3
Self employed	6	2.8
Others	17	7.8
Total	**218**	**100**

Total number of visits

Figure 2 exhibits the total number of visit to the library. The intention to capture the frequency is to acquire knowledge on the how critical is the library in users' life routines. It was found that majority of visitor to NLM is between 4-6 visits per month, i.e. about 40%, followed by less than 4 visits (about 38%). About less than 21% paid their visits ≥ 10 times. In overall, the visitors may find the library as part of their needs due to very low frequency detected per month i.e. less than 5 visits. However, there are some visitors who might consider NLM as an important place to fulfill their work/education/life needs, as they become regular visitors within a month.

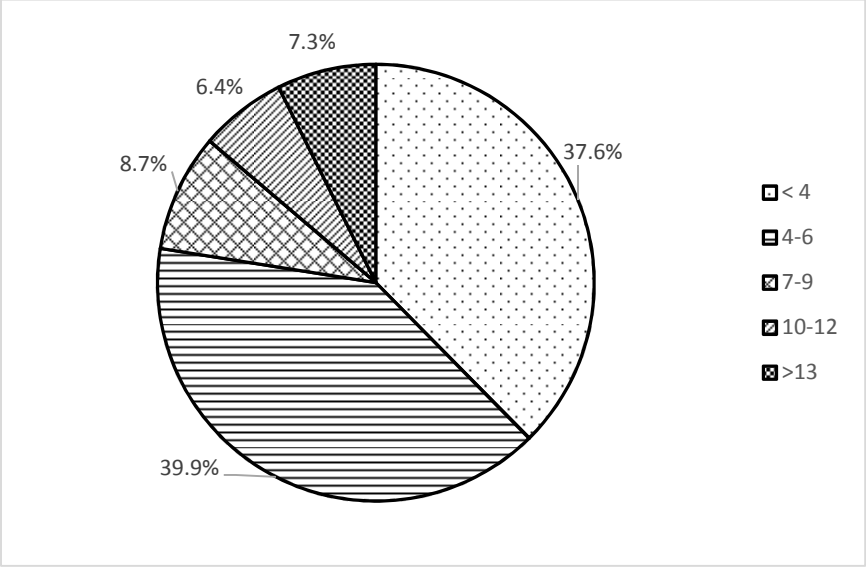

Figure 2: ***The distribution of number of visits to National Library of Malaysia***

Level of Education

Table 3 presents the education background of the respondents visiting the library. It was found that more than three quarter of the total sample are from having higher degree background, which makes about 75%. The respondents could be still engage with the higher learning institution or might have finished their studies. However, observing back the age distribution (in Table 1), it can be drawn that majority of the visitors are students.

Table 3: Education level of NLM visitors

Level	Frequency	%
Primary	3	1.4
Secondary	34	15.6
Diploma/Certificate	65	29.8
Bachelor's degree	99	45.4
Master's degree	17	7.8
Total	**218**	**100**

Types of Electronic Resources Used

Figure 3 depicts the types of electronic resources used by the respondents. Majority is accessing to the Internet (34%), followed by articles (16%). Visitors seem to have interest to access e-newspaper, about 14% of access captured in the findings.

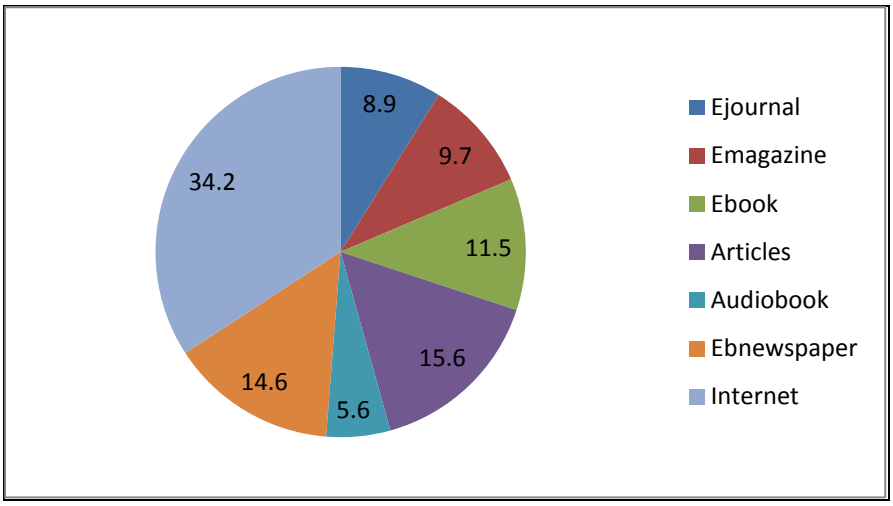

Figure 3: Types of electronic resources used

The following findings present the study variables' statistics properties of mean and standard deviation.

Individual Behavior (IB)

The average of mean score for Individual Behaviour (IB) variable is 3.41, indicates the inclination to positive agreement of the variable. The mean and standard deviation of each item in IB is as exhibited in Table 4. The results show that IB4 and IB5's mean score are among the highest, 3.47 and 3.56, respectively. IB4 relates to "*I know how to evaluate electronic resources for my study*" and IB5 refers to "*I used the electronic resources to solve problems*". The dispersion of each item is small indicating low variability. This early findings suggest the respondents show their positive capabilities in assessing and knowledge of using electronic resources for their intention of use.

Table 4: Descriptive Statistics for Individual Behavior

Item	Questionnaire	Mean	SD
IB1	I have skill to access electronic resources	3.3991	0.94132
IB2	I know the methods use to search electronic resources	3.2844	0.84343
IB3	I know how to select the appropriate electronic resources	3.3624	0.80999
IB4	I know how to evaluate electronic resources for my study	3.4679	0.85404
IB5	I used the electronic resources to solve problems	3.5642	0.93474

4.6.2 Library Staff (LS)

The descriptive profile of this variable is as presented in Table 5 where the average mean score is 3.24. The lowest mean score is 3.18 for LB2 and LB3, relating to questions of "*Library staff are very knowledgeable in electronic resources*" and "*Library staff are very courteous*", respectively. The highest mean score is 3.33, for question "*Library staffs are very helpful in accessing electronic resources*". Based on the finding, early conclusion signifies that respondents inclined to agree with

the items describing the factor of library staff. Moreover, the standard deviation for all items in LS show low variability indicating a strong agreement towards the respective mean scores obtained.

Table 5: Descriptive Statistics for Library Staff

Item	Question	Mean	SD
LS1	Library staff are very friendly and cooperative	3.2202	0.813
LS2	Library staff are very knowledgeable in electronic resources	3.1835	0.844
LS3	Library staff are very courteous	3.1835	0.871
LS4	Library staff are very helpful in accessing electronic resources	3.3394	0.563
LS5	Library staff provide a training for the first timer user to use electronic portal	3.2661	0.720

Library Services (LS)

Table 4.12 provides the summary statistics for library services. The average mean score of LS is 3.34, where the highest is 3.62 ("Library provides conducive learning environment to support electronic resources") and the lowest score is 3.18 ("*Library has conduct adequate promotion and activities to encourage usage of electronic resources*"). The finding provides an early indication that respondents are in positive agreement with the item describing the factor of LS.

Table 6: Descriptive Statistics for Library Services

Item	Question	Mean	SD
LS	Library electronic resources are up to date	3.3165	0.835
LS2	Library provided community space for group learning and study using electronic resources.	3.5275	0.860
LS3	Library electronic resources easily accessible to use	3.3028	0.718
LS4	Library provides adequate electronic resources to meet users' need.	3.2248	0.756
LS5	I am aware the availability of electronic resources in the library	3.2844	0.775
LS6	Library has conduct adequate promotion and activities to encourage usage of electronic resources	3.1835	0.733
LS7	Library provides conducive learning environment to support electronic resources	3.6284	0.866

Library Technology (LT)

Library Technology (LT) variable shows the overall mean score of 3.35. The result of all items is as given in Table 7. The lowest mean score is 3.19 for LT6 ("*Interface of electronic resources portal is friendly*") whilst the highest mean is 3.52 ("WIFI/Internet is accessible to me"). Again, the results

attained are in favour of inclination towards positive agreement to the items as per described in the questionnaire.

Table 7: Descriptive Statistics for Library Technology

Item	Question	Mean	SD
LT1	Library has adequate and latest computers to access the electronic resources	3.3807	0.807
LT2	WIFI/Internet is accessible to me	3.5229	0.932
LT3	Technology equipment support to access online databases	3.4630	0.726
LT4	Library provides latest hardware for computer application for electronic resources.	3.3945	0.712
LT5	Library provides latest software/contents for computer application	3.2798	0.644
LT6	Interface of electronic resources portal is friendly	3.1972	0.653
LT7	Electronic resources easy to download and print	3.2477	0.667
LT8	Electronic resources easy to access remotely	3.4266	0.589

User satisfaction (US)

The variable of User satisfaction (US) shows an overall mean of 3.30, signifies a positive agreement towards the user satisfaction variable, as defined in the study. Table 8 displays the mean scores of all items under US factor. It is discovered that the lowest mean score is 3.21, meant for question of US2 ("*I am satisfied with the convenience to use of the electronic resources*"). The highest mean score (3.38) is relating to question of "*I am satisfied with library services providing electronic resources services to the users that can access remotely*". Again, low dispersion of the mean score is detected for US variable. As indicated by Razilan et.al (2009) user satisfaction is achieved by usability of a system that fits to support the work practice/environment.

Table 8: Descriptive Statistics for User Satisfaction

Item	Question	Mean	SD
US1	I am satisfied with the electronic accessibility efficiency	3.2156	0.640
US2	I am satisfied with the convenience to use of the electronic resources	3.211	0.700
US3	I am satisfied with library staff in helping accessing the electronic resources.	3.2706	0.783
US4	I am satisfied with library infrastructure that support on usage of the electronic resources.	3.3716	0.654
US5	I am satisfied with library electronic resources content that are update and informative.	3.3394	0.580
US6	I am satisfied with library services providing electronic resources services to the users that can access remotely.	3.3853	0.613
US7	Overall, I am satisfied with electronic resources provided in the library	3.2982	0.678

The following section provides the findings in relation to analysis of relationships of the research variables.

Correlation Analysis

In this section, the relationship of the factors is observed through correlation analysis. The correlation approach provides the platform to investigate bivariate linear relationship of variable of interests. The Pearson product-moment correlation test is performed using in SPSS where the results reveal the strength and magnitude of the relationships. The significance of result indicates the statistical evidence of relationship in linear fashion.

The correlation analysis is performed to investigate the bivariate linear relationships between *user satisfaction* and study variables i.e. *individual behavior, library staff, library services and library technology.* All of the study variables possess a positive relationship with *user satisfaction.* Moreover, all are significant at 0.01 significance level. Full results can be referred to Table 9. It exhibits the results where, among the four study variables, the variable of *library technology* shows the **highest** positive relationship with *user satisfaction,* i.e. by having r=0.588. In spite of the fact that it is the highest value, the coefficient indicates only a moderate positive relationship. The weakest relationship is shown by *individual behavior, with r=0.341.*

Table 9: The Pearson product-moment correlation coefficients of all study variables against User Satisfaction

Variable	User Satisfaction
Individual Behaviour	0.341*
Library Staff	0.571*
Library Services	0.468*
Library Technology	0.588*

*Note: *p < 0.01*

The result is as shown in Table 9 where it serves as preliminary finding in examining the relationship between user satisfaction in using electronic resources and selected factors. This initial study implies how crucial the services and technology of a library in fulfilling users' satisfaction.

VI. Conclusion

A study on the relationship between factors of electronic resources usage and user satisfaction at National Library of Malaysia is presented in this paper. NLM plays important roles to provide the collection of knowledge at the national level for present and next generations. Apart from that, NLM has to determine the high-demand of library resources from users to help the Malaysia's people to be an informative and knowledgeable society. This study had revealed that Library Staff and Library Technology play crucial roles in influencing the usage of electronic resources at NLM. Due to this, NLM should play their vital role in positioning themselves to be at par (or more) with users' expectation.

The study findings provide evidence of relationships between Individual Behaviour, Library Staff, Library Services and Library Technology. Although the moderate and weak relationships detected from the data, moving forward, NLM could establish priorities to align with users' expectation and needs for the betterment of their services. Users' experience is far more valuable to NLM to under the radar of users' requirements, needs and interests.

Moreover, in order to promote and encourage users to visit the library, the librarians should be knowledgeable and supportive in guiding users to easily access information of their interest in particular for electronic resources. Information overload may be wasted or underused or can make users confused in choosing the right information. On the other hand, lack of information could lead to insufficiency of guidance. Library staff should play their role in assisting users with basic library information literacy on matters like how to search and retrieve the right information. The advance of

technology provided by the library could attract users to come and use library services. Library, as well as librarian, needs to conduct regular and adequate promotion to ensure all the users recognize the availability of the digital services.

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Knowledge Transfer in Cross-Border Merger and Acquisition

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Abstract

This research is conducted to provide a holistic research framework that incorporates key socio-cultural factors affecting knowledge transfer in cross-border M&A. This research will provide empirical suggestion to domestic companies to improve the current management of cultural differences that may be the main reason for the high failure rates of knowledge transfer in international M&A.

A total of 10 domestic companies in Malaysia which had involved in cross-border M&A in the past 5 years participated in this study. The M&A cases were collected from the Thomson One Banker database. At the same time, this research has also cross-verified the selected cases with the Securities Commission and Bursa Malaysia. During company visits, questionnaires were distributed to managers who had been identified through a purposive sampling method based on a list provided by the participating organizations. A total of 200 managers were selected to participate in the survey.

Findings of this research indicate that organizational cultural difference has significant negative influence while relationship and trust has significant positive influence on knowledge transfer in cross-border M&A.

Keywords: Socio-cultural, Cultural difference, Cross-border, Merger and Acquisition.

Introduction

Cross-border merger and acquisition (M&A) are important for organizational growth and development. According Pricewaterhouse Coopers (2011), cross-border M&A is essential for the local organizations to expand their market internationally. Over 80% of the Asia-based senior executives expected cross-border M&A for their companies in the next 12 months with almost 49% also consider to involve in cross-border M&A deal in the next 2 years (PricewaterhouseCoopers, 2011).

Despite current national economic fluctuation, many large organizations in Malaysia are still adopting cross-border M&A to acquire more international consumers, expand market share and offer better value to customers across borders. Cross-border M&A has been recognized as one of the tools for international expansion and diversification among local and government-linked companies (Barrock, 2006). For instance, Telekom Malaysia Berhad (TM) and Maxis communication Berhad, two local telecommunication companies, had ventured abroad by using cross-border M&A to acquire firms in India and Indonesia (Jayaseelan, 2006).

A half or more of cross-border M&A in Malaysia had resulted in a failure and did not achieve a good performance what they expect to achieve in the past (Jansen, 2002). Socio-cultural change is one of the crucial factor of cross-border M&A failure, which is apparently difficult to control and manage by local organizations when M&A takes place across borders and language barriers (PricewaterhouseCoopers, 2011). Thomas and Kummer (2006) indicated that socio-cultural factor may hinder cross-border knowledge transfer in M&A and impede local company from

enjoying more benefits from cross-border M&A. However, at present, there is still a lack of research to investigate key socio-cultural factors affecting knowledge transfer in cross-border M&A. Among the very few previous literature that examine cultural impact on cross-border M&A performance, some previous studies revealed a negative impact of cultural factor on the performance of international M&A (Datta & Puia, 1995; Olie, 1994; Geschwind, Melin & Wedlin, 2016), while some studies identified a positive relationship (Sousa & Bradley, 2015). Other studies indicated either no direct cultural impact on international M&A performance (Efthyvoulou, Bamiatzi, & Jabbour, 2016) or least significant impact on M&A performance (Kanter and Corn, 1994).

Many of the previous cross-border M&A studies were either fragmented (Larsson & Finkelstein, 1999; Deng, 2010) or scattered (Kish & Vasconcellos, 1993). None of the previous study has focused on examining knowledge transfer in cross-border M&A. Therefore, this study is timely and relevant to help improve Malaysian companies' knowledge transfer strategy in cross-border M&A.

This research is therefore conducted to provide a holistic research framework that incorporates key socio-cultural factors affecting knowledge transfer in cross-border M&A. This research will provide empirical suggestion to domestic companies to improve the current management of cultural differences that may be the main reason for the high failure rates of knowledge transfer in international M&A.

Literature Review

Knowledge Transfer in Cross-Border M&A

Knowledge transfer is movement of knowledge among different departments, unit, or organizations rather than individual (Ko, Kirsh & King, 2005; Zhou, Fey, & Yildiz, 2015). Knowledge transfer included transfer of tangible information and intellectual property, expertise, experience, learning and skills (Kalar & Antoncic, 2015). Knowledge transfer across borders in international M&A include the movement of tacit knowledge, which resides in the individual head, and explicit knowledge, which is clearly recorded in reports, documents, articulated and captured among employees in headquarter and international subsidiaries (Veiru & Rivard, 2015).

The following factor may has significant effect on the success of knowledge transfer in cross-border M&A:

Organizational Cultural Differences

The first factor that influences the knowledge transfer in cross-border M&A is organizational cultural differences. Organizational culture is a system and common belief, shared assumptions, values shaped by organizational members (Bauer, Matzler, & Wolf, 2016). According to Kruger and Johnson (2011), organizational cultural is able to support knowledge transfer and facilitate learning among employees in headquarter and international subsidiaries.

Organizational cultural differences may reflect differences in ability to identify, transfer and implement potentially useful knowledge among employees in headquarter and international subsidiaries (Sirmon & Lane, 2004). Organizational cultural differences increase social conflict and have negative impact on knowledge transfer. Organizational cultural differences can also be a source of capability development and value creation on knowledge (Morosini, 1998; Lee, Kim & Park, 2015). Therefore the following hypothesis is tested in this study:

H1: There is a positive significant relationship between organizational cultural differences and knowledge transfer in cross-border M&A.

Relationship and Trust

The next factor, relationship and trust, is also important for knowledge transfer in cross-border M&A. The interaction and knowledge transfer between employees from headquarter and international subsidiaries determine whether both parties can obtain the greatest benefits during the interaction and collaborative alliances (Appelbaum, Roberts, & Shapiro, 2013). International counterpart who is lack of complementary knowledge may cause conflict and instability in alliances, which will eventually affect the efficiency and effectiveness of knowledge transfer process (Lander & Kooning, 2013; Van Gorp & Honnefelder, 2015). Similarly, lacking of mutual trust among international affiliates may result in knowledge silos due to the lack of credibility and trustworthiness in the working relationship across borders (Shah, & Coyne, 2012). Therefore the following hypothesis is tested in this study:

H2: There is a positive significant relationship between relationship and trust and knowledge transfer in cross-border M&A.

Knowledge leadership

The next factor, knowledge leadership, supporting organizational climate for learning, may also affect knowledge transfer in cross-border M&A (Puusa, & Kekäle, 2013; Zhang, 2014). It is essential important for company leader to learn from both past and current decision to ensure organizational effectiveness. A transformative leader can exploit their knowledge in forming international working communities and cross-functional teams after cross-border M&A to enhance employee's commitment and reduce ambiguity in the cross-border collaboration among employees from different countries (Piper & Schneider, 2015). Therefore the following hypothesis is tested in this study:

H3: There is a positive significant relationship between knowledge leadership and knowledge transfer in cross-border M&A.

Employee Job Satisfaction

Cross-border M&A is more likely to be accompanied with job dissatisfaction, which will lead to unwillingness to participate in knowledge transfer, increased turnover and absenteeism. Employees become the key point of the merger failures. Failure to communicate leaves employees to feel uncertain about their future that will cause more anxiety and significant increase the level of employee anxiety, tension and stress (Giessner, Dawson, & West, 2013; Kyei-Poku, & Miller, 2013).

However, if the organization is able to understand their employees' needs and adopt measures to improve their job satisfaction after the cross-border, it will tremendously improve the participation in cross-border knowledge transfer and the success rate of international M&A (Thompson & Phua, 2012; Vetter, 2014). Therefore the following hypothesis is tested in this study:

H4: There is a positive significant relationship between employee job satisfaction and knowledge transfer in cross-border M&A.

Figure 1 depicts the research framework of this study.

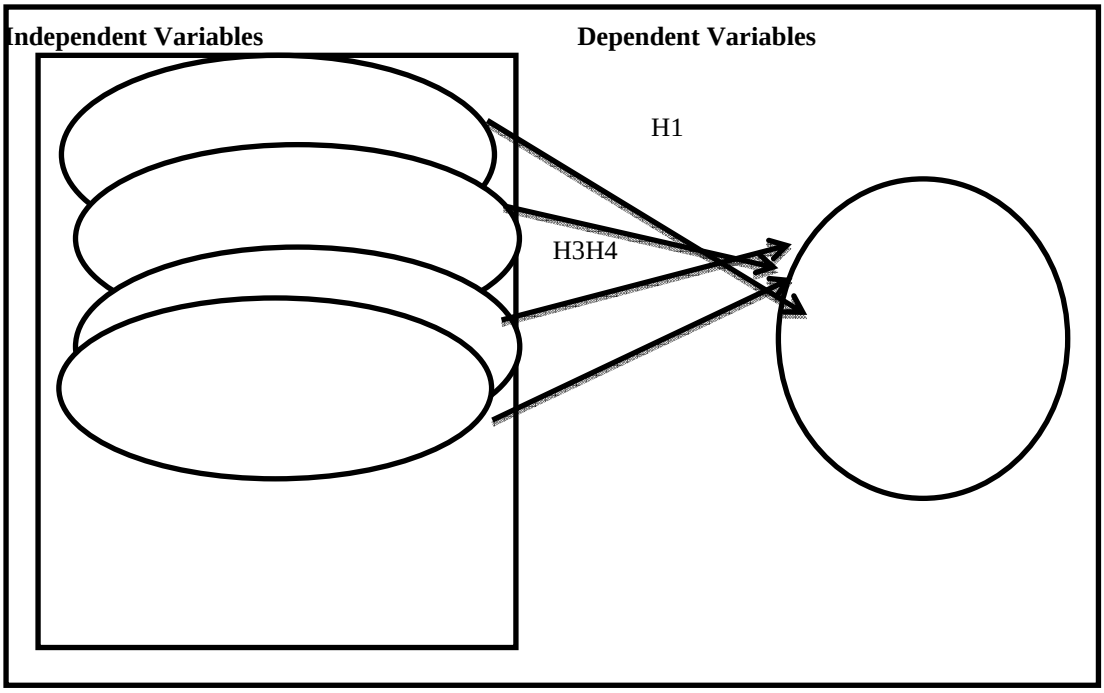

Figure 1: Research Framework

Research Methodology

A total of 10 domestic companies in Malaysia which had involved in cross-border M&A in the past 5 years participated in this study. The M&A cases were collected from the Thomson One Banker database. At the same time, this research has also cross-verified the selected cases with the Securities Commission and Bursa Malaysia. During company visits, questionnaires were distributed to managers who had been identified through a purposive sampling method based on a list provided by the participating organizations. A total of 200 managers were selected to participate in the survey.

The questionnaire is divided into two parts. The first part asks respondents to indicate their agreement or disagreement on 30 items measuring organizational cultural differences, relationship and trust, knowledge leadership and employee job satisfaction using a five-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The second part requested information on employees' demographic data, such as age and gender.

Results

Demographics Profile

Table 1 illustrates the demographics profile of the sample. Most of respondents belong to the 20 -25 years old (66.0 %). The second highest percentage from the age group which from 26-30 years old (22.5 %). Meanwhile, the lowest percentage of respondent is from the group between 31-35 years old at the percentage of 11.5 %. There are 94 (47.0 %) of Males and 106 (53.0 %) of Females respondents. The two genders of sample respondents are nearly fairly distributed.

Table 1: Age Profile

Age	**Frequency**	**Percent (%)**
20-25	132	66.0
26-30	45	22.5
31-35	23	11.5
Gender	**Frequency**	**Percent (%)**
Male	94	47.0
Female	106	53.0

Reliability Test

Table 2 shows the values of Cronbach's Alpha for the five variables. Reliability test is used to check the consistency of items in the questionnaire. Cronbach's alpha was reliability coefficient allow to see how close the items related to each other. Table 2 presented the result of reliability test on four independent variables and one dependent variable. The total five variables are reliable to be used in this research. The alpha values ranging from 0.70 to 0.90 are considered acceptable or better for a research, indicating that items measuring each variable are reliable.

Table 2: Reliability Test

Variables	**Number of Items**	**Cronbach's Alpha**
Organizational Cultural Difference	6	0.886
Relationship and Trust	6	0.866
Knowledge Leadership	5	0.751
Employee Job Satisfaction	5	0.831
Knowledge Transfer in M&As	5	0.754

Multiple Linear Regression

Multiple linear regression is used to test the independent and dependent variable. It is used to measure the degree of corresponding of independent variables (organizational cultural difference, relationship and trust, knowledge leadership, employee job satisfaction) towards the dependent variable (knowledge transfer in cross-border merger and acquisition) is analysed.

According to Table 3, organizational cultural difference ($p = 0.000$) and relationship and trust ($p = 0.003$) have significant influence towards knowledge transfer in cross-border M&A. Thus, H1 and H2 are supported. Organizational cultural difference has a significant negative influence on knowledge transfer in cross-border M&A (standardized beta coefficient =-.269) while relationship and trust has a significant positive influence on knowledge transfer in cross-border M&A (standardized beta coefficient = .220). Both factors explain 27.3% of the variance in knowledge transfer in cross-border M&A. However, knowledge leadership and employee job satisfaction are not

statistically significant with knowledge transfer in cross-border M&A (p>0.05). Therefore, H3 and H4 are not supported.

Table 3: Multiple Linear Regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	p	R^2
	B	Std. Error	Beta			
(Constant)	1.469	.278		5.279	.000	.273
Organizational Cultural Difference	-.226	.063	-.269	3.594	.000	
Relationship and Trust	.200	.067	.220	2.995	.003	
Knowledge Leadership	.136	.079	.145	1.722	.087	
Employee Job Satisfaction	.021	.071	.023	.292	.771	

Discussion

The research aims to study the sociocultural factors that affect Knowledge Transfer in cross-border M&A in Malaysia. Organizational cultural difference and the relationship and trust were discovered to be the most influential factors in explaining the knowledge transfer in cross-border M&A.

Organizational cultural difference has significant negative impact on knowledge transfer in cross-border M&A. This result is in line with Bauer, Matzler and Wolf (2016), which discovered that organizational cultural differences has a negative influence in the knowledge transfer where different organizational practices among headquarter and international subsidiaries discourage cross-border knowledge transfer and delay organizational decision making. Efthyvoulou, Bamiatzi and Jabbour (2016) also stated that organizational cultural is important in ensuring the success of knowledge transfer enormous organizational cultural difference lead to organizational performance failure after cross-border M&A. According to Kalar and Antoncic, (2015), if the organizational cultural difference is ignored in cross-border knowledge transfer, it might contribute poor M&A performance.

Therefore, in order to enhance participation in knowledge transfer after cross-border knowledge transfer, organizations should ensure a better understanding of the organizational structure, governance mechanism and business practices immediately after the M&A.

Relationship and trust is another factor, which positively influence knowledge transfer in cross-border M&A. Successful knowledge transfer in M&A required employees in both headquarter and international subsidiaries to build a basic trust immediately after cross-border M&A and then after enhance the trust and relationship between employees across-border gradually. Strong trust and relationship are particularly important in two-way interactions of both sender and receiver to transfer complex explicit knowledge or tacit knowledge.

Therefore, in order to enhance knowledge transfer in cross-border M&A, members in both headquarter and international subsidiaries should be encouraged to form an online community of practice so that they can share their solution to common organizational problems, learn from each other and understand the needs and requirements of each other.

The knowledge leadership is found not significantly important towards the success of knowledge transfer in cross-border M&A. Although Politis (2001) stated that good knowledge leadership is important in M&A to cultivate trust, discover and disseminate knowledge, this study discover that a knowledge leadership is not perceived as an important factor in guiding and motivating employees to effectively transferring knowledge after cross-border M&A. This is probably because most knowledge leaders in the organizations do not use their communication channels optimally and do not focus enough on efficient communication with the employees before

and after cross-border M&A. Since communication is essential during major organizational change such as M&A, it is important for knowledge leader to provide crucial real-time information to employees.

In order for organizations to enhance knowledge transfer across borders, communication from the top to the bottom should be implemented and correct data is essential to be communicated throughout all levels in the organization after M&A in order to ensure that employee know what will happen next. Clear communication from knowledge leader is essential during M&A process as it will effectively reduce the feeling of uncertainty and motivate the employee to be more engaged in cross-border knowledge transfer.

Theoretical Implication

The theoretical framework of this research provides a better perspective on key socio-cultural factors that influence knowledge transfer in cross-border M&A and it contributes to the literature of knowledge transfer in cross-border M&A, which is apparently under-researched.

The findings of this paper raise several interesting issues for future research. Key findings such as knowledge leadership and job satisfaction is not important in influencing knowledge transfer in cross-border M&A, suggest that at least in Malaysian acquisitions, there is the potential for improvements in the organizational leadership and operating performance so that employee will feel more happy and committed working in a big domestic with a lot of international business associates and cross-border M&A activities.

Managerial Implication

The main findings of this study is that organizational differences is crucial in determining the success of knowledge transfer in cross-border M&A. Hence, organizational practitioners should be cautioned of the dynamic nature of knowledge and the complexity to manage organizational difference in sharing and transferring knowledge. Better preparation and understanding of the requirements of the knowledge transfer process is essential before and after M&A. More employees should be involved from the very beginning of the planning of the knowledge transfer process in order to minimize the possible hardships and arising issues that the employees and company may need to undergo after cross-border M&A.

Another implication for practitioners is to emphasise more on motivation and communication of employees after M&A as motivation and communication serve as a virtue base for mutual understanding and trust. Employees will more willing to share and transfer the knowledge across borders if they are treated equally by the leaders and if there is strong relationship and trust among each other.

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Le Management Des Universités : Gouvernance Et Compétences Requises

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Résumé

Avec les réformes et les restructurations de l'enseignement supérieur mises en œuvre par la France depuis des années, le rôle privilégié des universités publiques dans la production et la diffusion du savoir impose une réflexion préalable sur les compétences des dirigeants universitaires qui sont, au final, des enseignants-chercheurs appartenant à diverses disciplines et ayant des cursus non strictement homogènes.

Manager les universités fait allusion à différentes formes de pilotage, à des mécanismes de coordination, à des modalités d'évaluation ainsi qu'à des méthodes spécifiques de négociation et de prise de décision. La dynamique relationnelle avec les parties prenantes de l'université tiendra compte, entre autres, de l'aptitude des dirigeants universitaires à construire, à développer et à capitaliser leurs compétences acquises et requises en matière de management des universités dans le but de réaliser, d'une manière satisfaisante, toute mission consentie.

Mots clés : Compétence, management des universités, gouvernance, gestion des ressources humaines

Abstract

With the reform and restructuring of higher education implemented by France for years, the privileged role of public universities in the production and dissemination of knowledge requires prior reflection on the skills of university leaders who are ultimately professors from various disciplines and with not strictly homogeneous curriculum.

Manage universities refers to different forms of control, in coordination mechanisms, methods of evaluation as well as specific methods of negotiation and decision making. The dynamic relationship with the stakeholders of the university will consider, among other things, the ability of university leaders to build, develop and capitalize personal characteristics and required skills in universities management in order to achieve their mission in a satisfactory way.

Keywords : Skills, universities management, governance, human resource management

Introduction

La France, comme tous les pays de L'OCDE, a réformé, restructuré et revu ces dernières années son système d'enseignement supérieur. Ces réformes apportent toujours des changements structurels et organisationnels tels que:

- le souci continu d'harmoniser l'architecture du système européen de l'enseignement supérieur avec notamment le système LMD ;

- la pression exercée par la concurrence internationale à travers notamment les classements tels que Shanghai, Financial Times, etc. ;

- le renforcement de l'autonomie des universités avec la mise en œuvre de trois grands principes apportés par la loi Savary de 1984: l'autonomie financière et pédagogique, l'instauration de conseils pour administrer les établissements et la pluridisciplinarité ;

- la politique de contractualisation entre l'Etat et les universités, ce qui a vraisemblablement changé la relation de ces établissements avec l'administration centrale puisqu'on parle désormais de projets d'établissements et de négociation de contrats avec la tutelle.

Ainsi, plus les exigences et les contraintes de l'environnement influencent le paysage de l'enseignement supérieur, plus il était nécessaire de soulever des questions et des réflexions sur le management des organisations universitaires.

L'organisation universitaire publique est une entité qui dispose d'un ensemble de ressources humaines (enseignants et/ou chercheurs, personnel administratif et de support), financières (financement public principalement) et matérielles et est reconnue en tant qu'établissement autonome et non indépendant de l'Etat.

Les universités publiques françaises vivent dans un environnement caractérisé par de multiples changements politiques, économiques et sociaux affectant la relation interactive de gouvernance entre les différentes parties prenantes (organisations publiques, citoyens, acteurs privé, etc.). Celles-ci se retrouvent donc contraintes de s'adapter d'une façon continue et actualisée aux changements notamment par le renforcement du rôle de ses instances consultatives et décisionnelles.

Si l'université est une institution complexe qui a pour mission principale la production et la transmission du savoir, alors comme toute organisation publique ou privée, elle a besoin d'être managé mais avec un mode de coordination et de contrôle bien spécifique. Ce sont les enseignants-chercheurs eux-mêmes qui se retrouvent à la tête des structures organisationnelles universitaires. Ils ont pour rôle principal de manager et de diriger ces organisations mais aussi, selon Châtelain-Ponroy et al (2012), de prendre des décisions, de concevoir des plans stratégiques et de négocier des moyens financiers. Toutefois, comme tout gestionnaire public, ces enseignants-chercheurs se retrouvent, selon Mazouz et al (2015), confrontés à des logiques à la fois bureaucratique et managériale.

Dans une première partie, nous cernerons le contexte de l'enseignement supérieur français en analysant sa spécificité et ses principales caractéristiques. Puis nous présenterons la thématique de la gouvernance en relation avec le management des universités. Il sera question ensuite de décrire la place de la notion de compétence dans le management des ressources humaines et ses implications organisationnelles dans la sphère publique et plus précisément dans celle universitaire. L'intérêt sera porté en particulier à la relation étroite entre compétences des enseignants-chercheurs et leur mission de management des universités.

Contexte de l'enseignement supérieur français

Le système de l'enseignement supérieur français, influencé par le système napoléonien, est un système qui trouve, selon Picard (2009), son origine depuis la création de "l'université impériale" par Napoléon en 1806. Felouzis (2006) explique que cette université fonctionna avec un organe consultatif et un autre juridictionnel qui constituèrent autrefois le conseil de l'université. C'est à partir de cette date que l'université impériale devint une institution nationale laïque avec une autonomie budgétaire et décisionnelle importante puis, par la suite, le ministère publique (1828) et le ministère de l'éducation

nationale (1832) sur décision du gouvernement Herriot. Ce n'est qu'en 1850 que la loi Falloux, en supprimant l'université impériale, donna naissance à l'université de France qui comptait une académie par département.

Lorsque la France a été divisée depuis 1854 en 16 circonscriptions académiques, des facultés ont été créées par le ministère et dirigées par des doyens nommés par les pouvoirs publics. Ce n'est qu'en 1896, notamment avec la loi du 10 juillet 1896 que des universités modernes apparaissent. Elles sont désormais dotées d'un statut légal et reconnues en tant que personnes morales de droit public. La grande réforme apparue suite aux événements du mois de mai 1968 constitue un tournant important dans l'histoire des universités françaises. Ces dernières sont désormais dotées d'un nouveau statut celui d' "Établissement Public à Caractère Scientifique et Culturel" (EPCSC). Un nouveau statut qui remplace les facultés par les Unités d'Enseignement et de Recherche (UER). Cette réforme apporte trois grands principes: l'autonomie (administrative, pédagogique et financière), la participation (élus, représentants du personnel, du corps enseignant et des étudiants, partenaires publics, etc.) et la pluridisciplinarité des universités avec l'apparition de nouvelles disciplines, de nouvelles filières et de nouveaux diplômes. Ces principes ont été maintenus avec la loi du 26 janvier 1984 sur l'enseignement supérieur qui rend les universités dotées de diverses composantes: des instituts, des écoles, des unités de formation et de recherche appelées UFR, des départements, des laboratoires et des centres de recherche.

Avec l'évolution du contexte environnemental de l'enseignement supérieur (avec notamment l'augmentation de l'effectif étudiants, la construction du paysage européen avec notamment l'harmonisation des diplômes, les nouvelles exigences économiques en matière de formation initiale et continue…), de nouvelles réformes sont apparues pour tenter de s'y adapter en apportant à la fois de nouveaux principes, de nouvelles propositions ainsi que de nouvelles lois (plan "Université 2000", plan "U3M"[Université du 3ème Millénaire], loi du programme pour la recherche, loi relative aux libertés et responsabilités des universités, loi ESR [loi pour l'enseignement et la recherche] …)

Gouvernance et management des universités françaises

Selon Bartoli (2005), la gouvernance renvoie à plusieurs facettes et recouvre plusieurs champs disciplinaires. C'est un concept polysémique selon Baron (2003). Shattock (2006) mentionne qu'on parle de gouvernance du moment où il existe des problèmes de coordination entre acteurs qui se déclinent souvent au niveau de l'Etat, de la ville et de l'organisation. La gouvernance d'après Mercier (1999) tient compte de l'ensemble des dispositions qui permettent de s'assurer que les objectifs poursuivis par les dirigeants sont légitimes et que les moyens mis en œuvre pour atteindre ces objectifs sont adaptés.

Il existe souvent un amalgame entre gouvernance et gouvernement. Appliqué aux organisations publiques et plus précisément aux organisations universitaires, les deux notions n'aboutissent forcément pas à la même logique.

Alors que le gouvernement s'intéresse à la répartition du pouvoir exécutif au sein de l'organisation universitaire, aux différentes logiques d'actions relatives à la prise de décision et à la responsabilisation des acteurs concernés par le pilotage et la direction de l'organisation, la gouvernance tend plutôt à considérer plusieurs niveaux de décisions politiques qui intéressent l'avenir, les rôles, et l'évolution du champ d'action de l'organisation en tenant compte de la spécificité des intervenants (parties prenantes) dans les processus consultatif et décisionnel.

En France, la gouvernance appliquée aux universités publiques fait intervenir, selon Braun (1999) des acteurs publics et privés, internes et externes, et d'autres intervenants qui participent tous à la formulation et à la conception de la politique de l'organisation. L'organisation universitaire joue pleinement son rôle de "négociateur" quant aux spécificités contractuelles et aux besoins en ressource.

Les principales parties prenantes susceptibles d'intervenir directement ou indirectement dans la gouvernance d'une organisation universitaire peuvent être divisées en quatre grandes parties:

- Les étudiants, les enseignants et/ou chercheurs
- L'équipe présidentielle de l'université
- L'équipe dirigeante (directeurs des UFR/IUT, des laboratoires, des départements…)
- Le personnel BIATSS et les syndicats

Le mode de gouvernance et de management de chaque organisation universitaire pèsera sur la capacité de cette organisation à réagir aux différents besoins et attentes exprimés par l'ensemble des parties prenantes. Les différentes réformes de l'enseignement supérieur survenues en France ont certes renforcé l'autonomie des universités mais l'Etat reste tout de même la principale partie prenante assurant ainsi son rôle de régulateur, de principal financier et de protecteur du statut public des diverses services proposés.

Le style de management de chaque organisation universitaire tient compte de la capacité de l'équipe dirigeante à partager les expériences, les bonnes pratiques et à requérir à des modes de coordination et de contrôle adaptés au niveau de compétence et de responsabilité des différents acteurs intervenants dans la sphère décisionnelle et opérationnelle de l'organisation. Ainsi, l'organisation universitaire évoluera et réagira d'après Saide (1992) sous l'impulsion de formes diverses de pilotage, de projets et de visions stratégiques, de modalités spécifiques de négociation et de prise de décision mais aussi de l'aptitude des managers universitaires à construire, développer et capitaliser les compétences acquises et requises en matière de management des universités.

Compétences requises en management des universités

La compétence en GRH

L'étude de la compétence revêt, selon Minet et al (1994), une importance particulière en sciences gestion et plus particulièrement en Gestion des Ressources Humaines (GRH) telle que constatés également par Arnaud et Lauriol (2002) et Dietrich (2010). Elle se trouve depuis les années 1980 non seulement au cœur des discours des dirigeants et des directeurs des entreprises publiques et privées mais aussi, selon Dejoux (2001), au cœur des préoccupations des chercheurs et des praticiens. Il s'agit d'un concept considéré comme une disposition à agir suivant un processus bien déterminé. Selon Aubret (2002), la compétence peut être individuelle, collective ou organisationnelle et révèle, d'après Lichtenberger (1999), les capacités d'un individu à répondre aux exigences de performance d'une organisation.

Zarifian (1999) note que l'avènement du modèle de la compétence en GRH remet en cause les notions de poste et de qualification. Une analyse des concepts de qualification et de compétence réalisée par Wittorski (1998) montre que cette dernière dépasse largement le simple clivage entre les deux notions citées surtout lorsqu'on expose, à la lumière des travaux d'Oiry (2005), les « points de repères » permettant de définir chaque concept et ce à partir de la littérature qui lui a été consacrée. L'individu dans l'organisation n'est donc plus réduit à ses seuls savoirs et savoir-faire certifiés par des diplômes ou par d'autres moyens de reconnaissance, mais avec la compétence, on prend en compte plusieurs autres caractéristiques, niveaux et dimensions permettant à l'individu de répondre aux besoins d'une quelconque activité professionnelle. Cette action respecte généralement deux principales conditions : l'implication dans une activité de travail et l'employabilité résultant de cette action. De ce fait, chaque

individu est capable, selon Le Boterf (2000), de construire une compétence et réunir les conditions favorables pour la réaliser, la préserver et la développer continuellement dans chaque situation de travail.

Notre intérêt pour les compétences construites et développées par les enseignants-chercheurs dans leur mission de management des universités est défini à partir du fait que ces enseignants-chercheurs n'ont pas forcément été formés à ces genres de mission ou n'ont pas les compétences requises pour les réaliser efficacement. Mais en contre partie ils emploient certaines prédispositions afin de construire de nouvelles compétences ou pour développer des compétences déjà acquises. La construction et le développement de ces compétences ne sont pas le fruit du hasard ; il existe une formalisation voire une relation étroite entre les compétences d'un individu et les attentes professionnelles de son poste de travail. Selon Le Boterf (2000), l'exercice d'une compétence ne peut se réaliser sans maîtriser un certain nombre de connaissances indispensables, de savoir-faire techniques, de comportements et traits de personnalité adaptés. L'apprentissage, tel qu'analysé par Argyris et Schön (2002), joue ici un rôle important dans l'appropriation et la construction de ces compétences.

Un individu en situation de travail s'approprie tout d'abord un certain nombre de savoir et connaissances. Comme analysé dans les travaux de Nonaka (1991) et Reix (1995), les connaissances peuvent être tacites (difficiles à formaliser ou à communiquer car elles ont un aspect personnel) ou explicites, c'est à dire capturées dans les livres, les monographies, les plaquettes ou même à travers la formation pendant les séminaires, les stages ou autres…comme le montrent Ballay (2002) et Bouvier (2004) dans leurs travaux de recherche. Ensuite, il s'agit pour l'individu de reconvertir et de développer ces connaissances tacites et explicites suivant un processus de création de connaissances qui tient compte, selon Nonaka et Takeuchi (1995), de quatre procédés de conversion :

- **La socialisation** (reconversion des connaissances tacites en d'autres connaissances tacites grâce à l'apprentissage et le partage d'expérience) ;
- **La combinaison** (reconversion des connaissances explicites en d'autres connaissances explicites par le biais d'un langage commun et de divers mécanismes de communication) ;
- **La formalisation** (transformation et consolidation des pratiques en un discours formalisé prêt à être communiqué)
- **L'intériorisation** (appropriation par un individu/groupe des connaissances explicites pour les transformer en savoir-faire)

Cette analyse nous permet de montrer que tout individu a des prérogatives pour s'approprier les connaissances dans le cadre d'une situation de travail. C'est le caractère construit de cette appropriation qui lui permet ensuite d'acquérir de nouvelles compétences. L'individu dans l'organisation, quelle soit publique ou privée, n'est pas réduit à ses seuls savoirs et savoir-faire certifiés et reconnus par des diplômes ou par d'autre moyens de reconnaissance mais, avec la compétence, on prend en compte plusieurs autres caractéristiques et dimensions qui permettent à cet individu de répondre aux exigences d'une activité professionnelle donnée.

Compétences distinctives des managers universitaires

En France, les enseignants-chercheurs, parmi ceux qui ont été élus, s'occupent de la présidence des universités ou de la direction des composantes. Ces enseignants-chercheurs accèdent ainsi à des missions managériales universitaires et ils se retrouvent pour un temps, comme le souligne Musselin (2001, 2009), en position de manager public. Dans l'exercice de leurs missions, ils se retrouvent généralement confrontés à certains obstacles :

- **Structurels** (mauvaise compréhension des rouages administratifs, formation préalable quasi-absente, contrariétés bureaucratiques…),

- **Professionnels** (manque d'expérience, absence de maîtrise de certaines conduites managériales…)

- **Comportementaux** (conflits internes, jeux de pouvoir, influence du leadership…)

La réalisation d'une mission managériale universitaire requiert la maîtrise et l'adoption de certaines compétences spécifiques surtout lorsque l'accès à ces types de mission se fait à la suite d'un processus électif qui ne s'appuie forcément pas sur les qualités et aptitudes managériales de l'élu mais plutôt sur son parcours politique, académique et institutionnel à l'université. De ce fait, il n'est plus possible aujourd'hui d'élire des dirigeants universitaires uniquement sur des performances académiques mais plutôt, et comme le souligne Demichel (2000), sur la base de compétences managériales acquises.

Les compétences des enseignants-chercheurs dans le contexte managérial universitaire sont un sujet en action et en perpétuelle construction. Elles ne sont pas directement observables et elles dépendent fortement de leur contexte. Elles sont acquises généralement par le biais de quatre principales sources:

- **La discipline ou la spécialité de l'enseignant-chercheur** : ce sont les années de spécialisation ainsi que les différentes tâches pédagogiques et de recherche entreprises durant la réalisation du travail. Cet apport procure aux enseignants-chercheurs des compétences intellectuelles, interpersonnelles et relationnelles qui sont à la fois générales et spécifiques. Lorsqu'elles sont spécifiques, ces compétences se rattachent surtout à la spécialité de l'enseignant-chercheur (par exemple les enseignants-chercheurs en sciences de gestion auront des compétences spécifiques en gestion…).

- **Les expériences professionnelles extra-universitaires** : certains enseignants-chercheurs ont (eu) la possibilité par exemple de diriger une association, d'assumer une responsabilité ou une mission dans une entreprise privée ou publique, etc. C'est un apport qui accentue la capacité d'avoir vécu des situations professionnelles pouvant être proches de leur mission managériale universitaire.

- **Les responsabilités universitaires administratives et/ou managériales** : l'enseignant-chercheur qui a précédemment assumé une mission administrative ou managériale dans une organisation universitaire est un terrain favorable de se sentir familier avec certaines situations ou pratiques professionnelles semblables. Cela accentuera la capacité de l'enseignant-chercheur à détenir un certains nombres de compétences supplémentaires et complémentaires aux compétences de base (un président d'université qui a été précédemment directeur d'UFR a déjà acquis une expérience précédente en matière de pratiques managériales universitaires).

- **Le transfert et le partage de compétences entre collègues** : le transfert et le partage de compétences sont considérés parmi les mécanismes d'acquisition des compétences entre enseignants-chercheurs eux-mêmes ou entre enseignants-chercheurs et agents administratifs.

Avec un tel portefeuille de compétences que peut détenir un enseignant-chercheur, la construction de nouvelles compétences à mobilier et à développer demeure l'étape la plus importante et la plus décisive pour l'efficacité de la réalisation de sa mission managériale à l'université.

L'enseignant-chercheur construit et développe ainsi trois catégories de compétences:

- ***Des compétences formalisées*** : qui sont produites dans l'organisation universitaire en faisant référence au cadre législatif, au règlement intérieur, aux usages et habitudes organisationnelles...

- ***Des compétences opératoires :*** qui réunissent les savoirs pratiques et les savoirs élaborés dans l'expérience. L'enseignant-chercheur exploite ces savoir-faire construits qu'il mobilise et développe dans l'exercice de sa mission managériale.

- ***Des compétences managériales :*** qui se réfèrent généralement à la capacité de l'enseignant-chercheur à se comporter comme un « manager » d'une organisation.

Ces trois catégories de compétences sont construites et développées tout au long de la carrière de l'enseignant-chercheur, elles sont plus utilisées et accentuées lors de l'exercice d'une mission managériale universitaire.

Conclusion

Les compétences des enseignants-chercheurs dans le contexte managérial universitaire sont un sujet en action et en perpétuelle construction. Elles ne sont pas directement observables et elles dépendent de leur contexte.

Ces compétences sont interpersonnelles (aptitudes communicationnelles, aptitude à la conduite d'équipe, emploi de certaines attitudes et traits de personnalité). Elles sont aussi politiques dans la mesure où un dirigeant universitaire sait exercer son autorité, se comporter comme un leader pour exercer un rôle dans l'organisation, prendre les décisions adéquates et s'assurer de leur application et aussi donner un sens à tout changement organisationnel dans l'université.

Si les universitaires n'appartiennent forcément pas à une même discipline, n'adoptent nécessairement pas les mêmes pratiques professionnelles et organisationnelles dans l'exercice de leur mission de management des universités, alors il serait judicieux de penser à des formes d'accompagnement et de développement appropriées pour atteindre et valoriser les potentialités managériales recherchées.

L'analyse des compétences des enseignants-chercheurs qui occupent des postes managériaux dans les organisations universitaires peut servir à s'interroger sur la nature et les exigences de ces postes en termes de compétences professionnelles et d'attentes managériales. Face aux nouvelles exigences et évolutions environnementales, les pratiques managériales changent et de nouveaux modes de travail apparaissent. Ceux-ci remettent en cause les composantes même des compétences actuellement acquises par ces managers universitaires et requièrent probablement des compétences distinctives et différentes dans le but de consolider la place de leurs organisations universitaires dans un contexte de compétitivité internationale.

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A Comprehensive Model of factors for Sustainable Leadership

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Abstract:

Modelling, creating and identifying the leader typology facilitate leadership support and builds leadership sustainability. Such a model creates a cycle of ongoing leadership development that continuously manages and sustains the future leader. The model proposed in this paper presents a primary mechanism of how leaders shape culture. The cultural diversity of businesses requires that management makes sure they understand cross-cultural boundaries. A survey was submitted to persons involved in small and medium business owners to identify a leader model and his capacity of adaptation with the new trends in management culture. The factors influencing managerial styles and behavior were identified: external and internal factors, decision-making factors for leading and factors which can affect their behavior and attitude in organization. The results indicated that leader and staff organization approaches to a specific model in function of their culture and the results obtain are useful to characterize the work of small business owner-managers. The comprehensive model proposed by authors will help local organizations and their leaders to understand the current market conditions as well the business culture. The paper can contribute to the development of sustainable leadership in other countries and establish a new orientation in organization culture management.

Keywords: sustainability**;** leader model; leadership; cross culture model; **s**mall business; management culture

1. Introduction

The cultural models of Peterlin et. al (2013) and Grooms et. al (2011) are very relevant in today's global world. The GLOBE project (Global Leadership and Organizational Behaviour Effectiveness Research Project) is the largest study of international leadership across cultures (2015).
The results of the GLOBE project support the argument that leadership values, or the strength of the relationship between leadership values and what is viewed as effective leadership, can be identified from the cultural dimensions (Javidan et. al. 2006).
The information from GLOBE (Project Globe, 2015) can help leaders explain their approach to leadership in cultures other than their own, identify how their approach is similar and different from leadership approaches typically seen as effective in another culture, and understand why they prefer a particular leadership approach.
Through this data-driven approach, the project teaches about leadership across cultures. Matthews and Thakkar (2012), present an interesting model of the impact of globalization on cross-cultural communication: 4 C's Global Leadership Model. The new model consists of four key elements: communication, creativity, conflict and connectivity. The novelty lies in the support of innovation and management change.
The model provides a support for organizational leaders who are working with multicultural teams, to compete in the ever-changing global environment. Hamel (2009) introduced a new concept regarding the reinvention of management and definition of a new democracy of information for organizations in a turbulent world. He identifies 25 moon shoot factors that are important for managers in implementing innovation in organizations. Sustainability is defined by Steiner and Posch (2006) as humans surviving indefinitely into the future with a reasonable quality of life. The three dimensions of sustainability are:

economic, social and ecological development. Although sometimes the ecological/environmental dimension of sustainability is presented as the core discussion, the three dimensions must be equally important to leaders, and it is necessary to equip them with the knowledge and skills that will enable them to function in a business environment that has sustainability as its core value. Globalization creates a need to understand how cultural differences affect leadership performance and leaders need to become competent in cross-cultural awareness and practice. Cross-cultural competencies for leaders are:

1) To understand business sales and the cultural environment;
2) To understand economic trends and technologies;
3) To be able to work simultaneously leader- staff:
4) To be able to adapt to other cultures.

The dynamic quality spiral provides an important constraint in the evolution of sustainability, demonstrating that just like sustainable development, sustainable leadership represents a process and not an end.

1.1. Leadership vs. Culture

There are three required elements of leadership: the ability to influence, a common goal or vision, and followers that are willing to work toward the vision. However, even with all three elements in place, there is no guarantee that effective leadership will automatically follow. Even in an ideal organization, where a culture has traditional values, norms, and practices, it is still not easy to be a leader. Leaders achieve little if the culture does not allow them to influence staff to work toward a common goal. Leadership cannot exist in the wrong culture.

In the literature there are articles by Northouse (2007), Newstrom and Pierce (2010 and Druker (1996) on leaders and the leadership role. In sustaining societal change, Druker (2004) focused on visionary leadership with an emphasis on leaders of the future. Hargreaves and Fink (2004, 2015), define their critical principles of sustainable leadership as the ability to:

1. create and sustain learning process ;
2. ensure success over time;
3. sustain the leadership of others;
4. address issues of social justice;
5. develop rather than deplete human and material resources;
6. promote environmental diversity and capacity;
7. actively engage with the environment.

Today's leadership in a global society requires an educational model. Ceulemans et al. (2015), Marcote et al. (2015), Velasco et al.(2014) propose a cross cultural evaluation and report a model for organizational management based on attitude changes for sustainable development. Vann et al. (2006), Hamel and Breen (2007) mention the future of management where leadership has an important role. Leadership sustainability is the ability of leaders to recognize the intricate systems interwoven with human values that promote sustainability.

Leadership is important for an organization's success in the globalized economy, however leaders have not been trained, educated or prepared to deal with the complexity and environmental reality. Hofstede's work (1991), presents an approach to cross cultural management. The model is important because it bridges the connection between companies in different countries that are now in a global market and multinationals, where difficulties and cultural feedback can be different. Culture can be defined as dynamic in the sense that it changes over time and this change in culture could lead to conflict. According to Adler (1986), a cross cultural management model explains the behaviour of people in organizations around the world and shows people how to work in organizations with employees and client populations from many different cultures.

2. Leaders for Sustainability

2.1. What qualities does a sustainable leader need to have?

The literature research by Fullan (2001) and Hargreaves (2005) suggests the following seven key characteristic traits and styles in distinguishing the leadership approach taken by individuals tackling sustainability issues:

- Systemic, interdisciplinary understanding;

- Emotional intelligence and a caring attitude;
- Values orientation that shapes culture;
- A strong vision for making a significant difference;
- An inclusive style that engenders trust;
- A willingness to innovate and be radical; and
- A long-term perspective on impacts.

Leaders are facing financial and structural challenges, and represent a sustainable management signals to investors, employees, and customers that a business is stable and the leadership has a long-term vision, drawing on state-of-the-art practices. Leaders stand at the intersection of leadership, culture and brand. They need to be trained to lead stakeholders and not just to respond to crises, with one foot in the investor world and the other deep inside their culture in order to be able to manage the triple-bottom line, which means overseeing social issues. The model proposed in this paper presents a primary mechanism of how leaders shape culture:

1) Problem structure: How or what is the structure of the problem?
2) Organization goals: How the employees share the organization goals? Are they involved in solving problems?
3) Subordinate conflicts: Is there conflict among subordinates over preferred solutions?
4) Subordinate infrastructure: How subordinates have a supporting infrastructure to make a decision?

According to Fullan (2005), sustainability is the capacity of a system to engage in the complexities of continuous improvement that are consistent with profound human values.

2.2. Why Sustainable Leadership Matters

According to Hargreaves and Fink (2005), leaders develop sustainability through the way they approach, commit to and protect deep learning in their organizations. These authors consider the first principle of sustainable leadership to be leadership for learning and caring for others. Today's leaders need to adapt to leading and managing people from different cultures. Today's businesses are complex entities. The cultural diversity of businesses requires that management makes sure they understand cross-cultural boundaries. Modelling, creating and identifying the leader typology facilitates leadership support and builds leadership sustainability. Such a model creates a cycle of ongoing leadership development that continuously manages and sustains the future leader.

2.3. How we can sustain sustainable leadership?

For a manager, the comprehensive model proposed in this paper, helps to identify gaps in the change management process and to provide

- effective coaching for his/her employees;
- diagnosis of employee resistance to change;
- a learning tool in teaching change management;
- a framework for change management teams to evaluate change management plans;
- help for the employees through the change process;
- successful action plans for personal and professional development during change;
- a transition plan within change management for his/her employees;
- a track of progress and an understanding of gaps in any existing change program.

A broad research area called organization cultures is carried out the comprehensive model of this paper within cultures, which maintains that until now organizations have mainly been studied in terms of organization as an economic system.

Grooms and Reid (2011) states that leadership sustainability is the ability of leaders to recognize the intricate systems interwoven with human values that promotes sustainability. Leadership is a complex process involving three dimensions: the leader, the employee and the demands of the situation. Speaking about the world of business with Edersheim (2007), Peter Drucker (2004), who is considered to be the father of modern management, and a respected management thinker in his own right, focused on the visionary leadership role in sustaining societal change with an emphasis on leaders of the future. The communication barriers include culture, technology, language, workforce, and environment. Culture values have an important effect on how the leader management run an organization. Each culture model takes into consideration time, space (country), business structure (state or private) and action type of

activity. Time in every culture depends on its traditions. Time can influence the history and traditions of a company. Culture itself is a shared set of assumptions, values and norms of a group of people which helps them to prioritize what they are going to do and how they are going to get things done. It makes it easier to get things done within one's own culture than working across cultures. The strategic development for a comprehensive cross model considers the following stages of management culture changes from a traditional culture as an inside culture to organization to a future culture as an outcome culture, which is necessary for organizations that have to communicate across cultures to ensure that their message is understood (Figure 2).

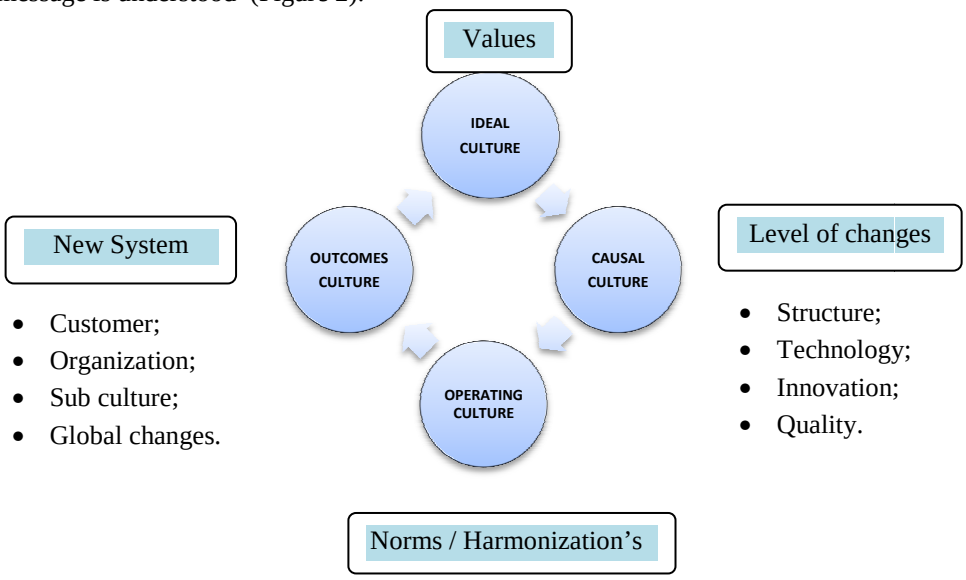

Fig. 2. A strategic approach to cross culture in organizations Source: The authors

From quality management point of view, the role of leader is important because the translation from quality management to the cross cultural model can be performed following the stages: *vision* – ideal culture with values of global culture, *mission*- traditional culture with specific structural changes, technology, innovation and quality, *politics*–operating culture adapted with the norms and harmonization of other cultures and *strategy*–outcome culture with new system for customers, organizations, subcultures and global changes. Culture also helps to define the group, because cultural intelligence is key to the success of todays cross cultures, cross borders, cross organization workers.

3. Research and Methodology

This article looks at the applicability of certain aspects of sustainable leadership to the circumstances surrounding small and medium enterprises in Maramures County, Romania.
The article examines the distinctive challenges encountered by directors of small organizations experiencing problems in pursuing sustainable leadership. The reason for our interest in leadership of small and medium enterprises located in urban and rural areas has been explained in the contextual background of the article's focus on sustainable leadership, identifying the variables which can influence the leader's characteristics and behavior and be capable of changing it when there is a comprehensive model for leader and leadership. A total of 250 people participated in the research, with different education backgrounds, and involved in different activities. The survey developed for this study consisted of 24 items that were rated according to five points. Each of the items assessed one of the cultural measurements of acceptance, conflict, individualism, risk, or sharing. The survey was carried out between June-July 2015, in Maramures County, Romania, in several cities: Baia Mare, Sighetul Marmatiei, Cavnic, mining cities affected by the economical crises and which are under transition to a surviving solution. The study identified the variables influencing the leader model thus enabling it to be adapted to a future global market.
The survey was structured as follows:

- **Part 1**. Identifying the characteristics of respondents involved in economic activities, on age, gender, education, work experience;

- **Part 2**. Collecting information on the business type and the familiar field of business for respondents. period of employment with the same business, size of business, type of business (services, manufacturing, retail, structure of legal business state, private, SMEs, relation between business manager, employee.
- **Part 3**. The structure was created to determine the leadership profile, and establish the variables that could influence the leader profile. Part 3 of the survey contained 15 items, designed to obtain the leader model depending on factors of influence. For a better understanding of the structural factors of influence, it was necessary to create four groups of factors: internal factors, decisional factors, affective factors with internal impact of influence, affective factors with external influence questions.

Leadership involves an influencing process between leaders and followers to ensure the achievement of organizational goals. The items were characterized using a Likert scale with values from 1=strongly disagree to 5=strongly agree (Allen and Seaman, 2007). The research was designed to evaluate the effect of an experimental leadership model for Romanian leaders, based on the development of sustainable competencies as opposed to a traditional leadership model.

3.1. Principal Component Analysis

Reynolds and Valentine (2011), Osvald et al. (2006) defined the leadership capabilities for a leader profile, which is why the research focused on a new leader model adapted with the new global competition.

The model predicts the variables of leader personality characteristics and indicates non significant relationships. Increasing cultural flexibility is an important development goal in those global leaders who frequently take business trips to different countries or those who may move abroad in the future. There are various effective ways to build positive cultural capital

1. Using cross functional teams;
2. Creating a shared vision;
3. Coaching;
4. Using democratic decision making processes.

Another dynamic component companies seek to develop in their future global leader is the ability to manage, to be open to new solutions, innovation, and differences (Figure 3).

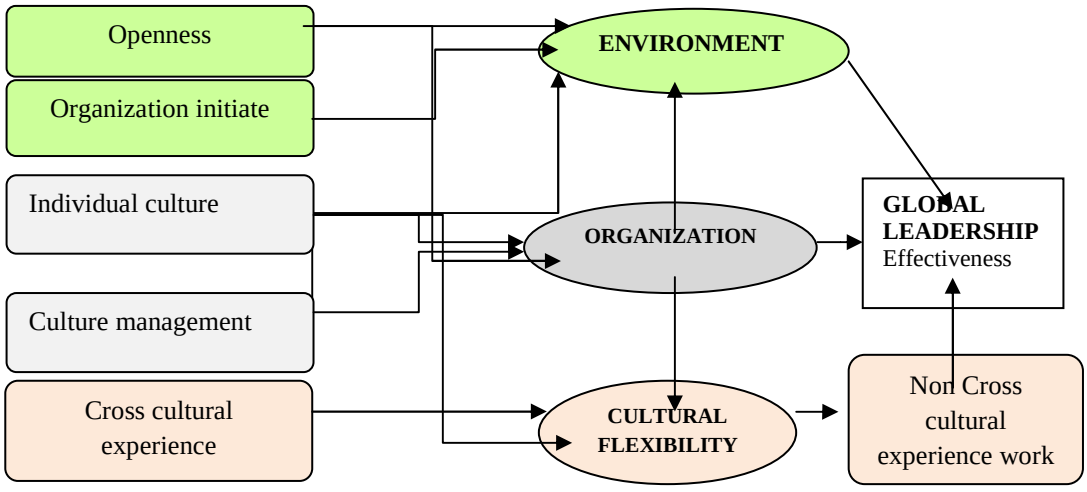

Fig. 3. A Comprehensive Leadership Model. Source: The authors

The concept of sustainable development needs to be integrated with the politics and practices of management across organization borders using personal examples. Woods (2004) evaluated cross cultural management performances and established that culture has many areas of impact with management:

- The Cultural West Industry for East countries:
- The role of culture training;

- The organizational culture.

Other significant performance elements for Romanian leaders that should be uniquely tailored to the cross-cultural organizational context under the strong influence of west-east culture should be taken into consideration. Bell and Pavitt (1993) mention technological accumulation and industrial growth as contrasting elements between developed and developing countries.

For Romania which belongs to the eastern market and is a transition economy, the differences between the western and non western culture are:

- **Western culture**: individualism, time is money, achievement, equality, respect for results, internal self control, acting by doing;
- **East culture:** collectivism, hierarchy, humanistic, respect for elders, collaboration, external control, formal relationships

Leadership plays a critical role in sustainability through its vision, mission and by making strategic decisions for the organization. Hammer (2004) management change theory it is a necessary especially today when cultural values of Romanian organizations are oriented to the west culture and are in a turbulent market. Also the communication and the impact of leaders with subordinates are important for a comprehensive leader model can be drawn as shown in Figure 4.

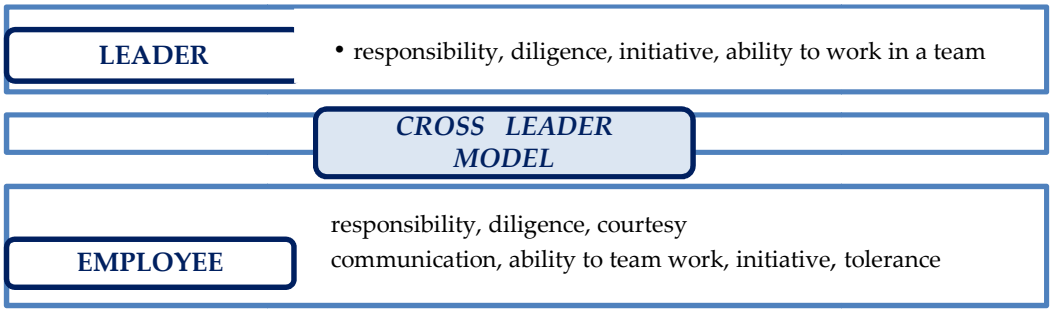

Fig.4. A Comprehensive model for leader /employee characteristics, Source: The authors

Tagred (2012) reports cross cultural differences in organization management, that's the reason of the actual research to identify the necessity for deep changes for Romanian organizations, to establish a comprehensive leader model. Abrudan (2012) stated that concrete results in organizations management sustain the idea that culture can be considered environment as the primary development for organization. Leadership is a complex process involving three dimensions: leaders (inspiration), employees (guide) and the motivation (Figure 5).

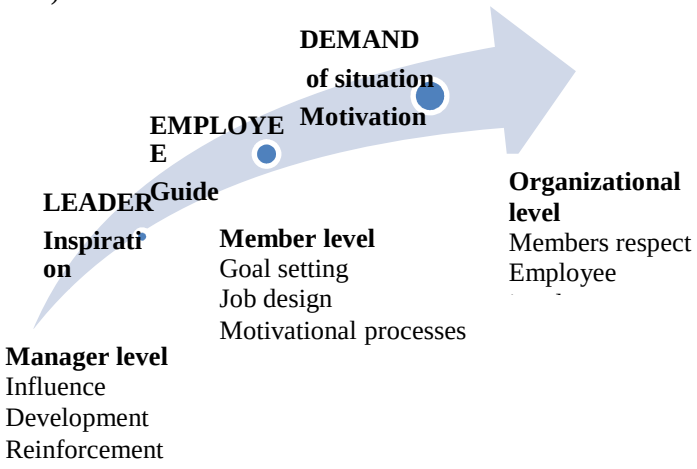

Fig. 5 A Comprehensive model vs. Leader Model. Source: The authors

There are many challenges that would-be leaders face: understanding how to deal with people, identifying goals, maintaining energy and dedication toward a brighter and better future.

4. Results

The internal consistency of the measures and results present the economic activity in the Maramures County, Romania. The results highlight the extensive structure of the socio-cultural elements and provide a possible indication on how to solve organizational problems and establish a model for future leaders and sustainable leadership. Taking into consideration the traditional model of leader, in the first part of the survey it was possible to identify the personal characteristics of the leader.

The leader profile from Maramures County is a business person aged between 25-40, involved in small and medium family businesses, in order to provide extra money in support of the family.

It was also possible to identify Pavitt's (1981) taxonomy groups and specify that most activity describes the level of technological opportunities in industry, the influence of innovation and new technology for future development, and the harmonization with customer needs.

The results can be divided into the categories of retailer and supplier dominated industries (44.4%), including traditional manufacture sectors, food, textiles, clothing, handmade products (8.8%), training and other services with the involvement of women in the majority of organization typologies (20.8%).

The economy, and production, occupied the fourth place with 59 participants (23.6%) involved, including people from the mechanical industry, electrical and electronically products and furniture.

As the factors proposed are generic in the leadership profile, non-productive activities are also very successful in our region which is a good sign considering that Maramures County was a mining region (after 1989 all the mines producing minerals, coal, and gold were closed) which was declared an disadvantage economical zone. Tourist services, travel agencies and traditional handcrafts and manufacture small business are significant for our region.

This is important because Maramures County is a UNESCO heritage site in terms of its culture and tradition, and hospitality has been an important factor in the development of our region. In fact if we consider that the mines were closed, and the majority of male manual power emigrated to developed countries.

The number of unemployed people from textile and ceramic factories is a significant target for the new model, the majority of these people are involved in businesses as individuals or families and only 49 people belong to partnerships association and private activities (Table 1).

Table 1. Legal Structure of the businesses in Baia Mare city, Romania

		Legal Structure of the business				**Total**
		single	partnership	limited partnership	cooperative	
Gender	M	49	27	18	5	99
	F	68	57	21	5	151
Total		117	84	39	10	250

The leader profile also included the education level of people involved in different business activities. The research used a scale from 1 =general school, 2 =middle school, 3 =high school, 4=professional and art school and, 5 = academic education, which was used to identify the education level of managers who were our target group. In conclusion, educated people are involved in business activities and have the courage to open and manage organizations Table 2. Because production and manufacture are the engine of economy, it is necessary to encourage this segment. Thus production activities also require educated more responsible people who are open to the new changes from global market.

Table 2. Education Level of Romanian business leaders

		Type of Operation					**Total**
		manufacture	retailer	wholesaler	services	5	
Education Level	1.00	1	0	0	0	0	1
	2.00	12	38	3	12	0	65
	3.00	2	8	0	0	0	10

	4.00	6	21	0	6	0	33
	5.00	38	44	19	34	6	141
Total		59	111	22	52	6	250

In part 3 of the survey, the questions established the characteristics of leaders. A PRELIS™ program was used to manipulate, transform, and generate data, compute moment matrices, and perform regression analyses and exploratory factor analyses. To maximize the difference between the 250 respondents and arrange them into different groups in function of leader typology, the following variables were used: age, type of business (services, manufacturing, retailer and wholesaler) and business structure (private, individual or state). Path Analysis is the statistical technique used to examine causal relationships between two or more variables, external factors = EF, decisional factors = DF, affective factors = AF, and internal factors= IF, as variables. The final selection of variables that can influence the leader model is realistic because it is representative for each of the four variables (Table3).

Table 3. Number of Clusters in function of the variables

Cluster	1	87
	2	35
	3	94
	4	34
Valid		250
Missing		0

In terms of the cluster grouping, out of 250 people, 94 belong to cluster 3=affective factors, and 87 to cluster 1= internal factors. In function of age, the younger generation is involved in independent activities, services and wholesale.

4.1. A Leadership equation

Three aspects are common for many leaders: employee, self confidence and objectivity in dealing with others. An equation for the new millennium leadership can have the following ingredients:

$$E^6 = \begin{bmatrix} Energy & Edge \\ Execution & Energizer \\ Economy & Evolution \end{bmatrix} = Q = Quality \qquad [1]$$

To meet the demands of emerging markets, companies are accelerating the development of talent and leadership.

4.1. A proposed model profile of leaders

This paper looks at sustainable leadership in small and medium enterprises in Maramures County, and examines the distinctive challenges encountered by leaders of small organizations in pursuing sustainable leadership.

For a descriptive analysis clusters were created, and the 250 respondents were divided into five different groups concentrated around the same factors of influence. We thus considered: personal information of the individual: age, gender, work experience, and business profile: type of business (services, manufacturer, retailer and wholesaler) and business structure (private, individual or state).

The findings of the survey showed that a big segment in relation to age considered that a leader is influenced by the relation between the leader and the staff (staff – leader). 78 respondents considered that cluster 1 = individual culture (cultural education) is important for a leader as a person influenced by his/her own education, management style, work experience and making his/her own decision.. One of the most important qualities addressed by the research team confirms the extent to which the practices

and values associated with leadership are universal. The participants/leaders were asked to rate the experience along certain dimensions, such as:

- the internal factors leader-staff:
- the perceived reaction between leader and group members;
- their emotional reactions and their feelings towards group members;
- their decision factors regarding group members.

5. Conclusions

The Cross leader model is useful in identifying the abilities, that enable leaders to adapt in different cultures spaces, and as a final conclusion the study presents a model for cross cultural competence for Romanian leaders.

A new cross cultural model also considers the traditional quality indicators: staff, innovation, strategy and behaviour in the financial market, production and technology.

The transmission system does not work sufficiently in Romania, the management of information and communication on the hierarchy pyramid is poor, the information flow does not ensure the understanding of employees' tasks, rights and responsibilities.

The major findings are how cultural similarity is greatest among organizations that constitute a cluster concentrated around the same dimension:

- dimension of cultural values, individual culture and how culture is similar or dissimilar from each other;
- dimension of how peoples' ideas of good leadership vary across culture;
- dimension of changes in culture of communication, role of emotional intelligence;
- dimension of interactive leadership platform.

In conclusion, being aware of the particularities of other cultures and organization management, learning (Fullan, 2015) the differences and assimilating corresponding behaviour are important values, together with

- knowledge of professional information;
- familiarity with the tradition of other cultures, tolerance.

The results show the quality balance of culture with its impact on competence and organization efforts and the feedback balance between economic success and the ability to sustain expenditure.

In an economic crisis and with the fluctuation of employees in organizations, with the free market movement from East to West, the study does not show many significant differences between leaders and staff, the opinions of managers and subordinates in comparison with other countries:

- lower orientation to human relationship, business efficiency, individualism and collectivism;
- higher orientation to autocratic management.

Culture is expressed through people's attitudes and actions because culture also has economic effects and might be moved

- for leaders - their culture reflects a future vision, a portfolio of solutions regarding the construction, objectives of organization;
- for staff / employee - their culture allows them to understand the necessity, utility of objectives as a factor in their accomplishment.

Culture, history, tradition can be evaluated in a similar way. Thus various new elements related to the employees, skills and creativity as well as to the culture where the organization is located are the new direction in organization management.

The east culture contradiction with west culture arose from the specific characteristics of the surveyed organizations in terms of the cultural and historical characteristics of each country. Recent research has focused on the charismatic and transformational theories of leadership and has examined its application in the cross cultural context and the new concept of global etiquette.

The comprehensive model proposed by author will help local organizations and their leaders to understand the current market conditions in the country and outside, the demand for products or services, as well the business culture. However, even the most talented leaders will achieve little if the culture does not allow them to influence people to work toward a common goal.

As the present study was conducted in Romania, further research should be repeated in other countries with similar economic conditions with a non-western culture. This idea echoes calls for a cross cultural, leader model in the field of business.
The present study was the limitation of organization from a specific zone from Transylvania region from Romania. The results of the present study could be used for a future leader model unit.

Limitations of the Model
The study has certain limitations that must be acknowledged, introducing opportunities for future research. First, the scale of measuring the leader profile and shaping his/her leadership capability was developed and tested only with SMEs in Maramures County, as a case study of a disadvantaged area, thus, more studies should be conducted in other industries. Secondly, the individual informants were the managers who completed the questionnaire. Future research should ask more people to complete the questionnaire, for example R&D managers, engineering managers, even employees.
The model developed in this study suggests further research opportunities in this field. Further research could examine the leader's behaviour and the factors that drive or hinder innovation of SMEs and how leadership sustains harmonization with the environment protection standards. Another area of research is to explore the performance of industrial SMEs resulting from leader and leadership sustainable development in terms of their innovation capacity.
The suggested areas for future study could potentially be expanded to identify and investigate sustainable leadership in other countries.

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Impact of Land Externalities and Real Estate Economic Potential

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Abstract

Each land may bring externalities, positive, as well as negative ones. It results from the place where they are located and their previous utilization. Also, the need for change in the soil utilization, which is time and financially demanding, seems to be an externality. The building boom in Slovakia in the recent 15 years has caused several serious problems. Predominantly, it is the origination of negative externalities which endangers the availability of high-class building sites, and they have an impact on their economic characteristics in relation with the uncoordinated build-up of new investment projects. At the same time, they are a limiting factor for the sustainable development of the region. In the paper a model case is presented - from the view of investment interests of development companies - in a very interesting developing region, close the capital city of the Slovak Republic. The aim of the author is to point to the origination of negative externalities, which have a direct impact on the quality of life of inhabitants living in the region, in the frame of its sustainability.

Keywords: Land externalities, Land development, Sustainability

Introduction

In the functioning economy, a well-functioning real estate market has a role which is irreplaceable. A fast development of financial tools in two recent centuries caused that nowadays the real estate market does not represent an independent market, but it is an integrated part of global financial markets. Regarding the fact that the real estate sector is closely related to the functioning of the economy as a whole, whose not proportional development presents no small risks in the development of the financial sector and economy in its entirety. Land, including both terrestrial and marine space, is one of the most important resources in any country, it is a key to economic growth, and it plays a central role in national and community development; the management of land is a critical and essential requirement for sustainable development. Many of the issues that affect land development and management, impact ultimately on economic, financial and environmental sustainability and on the country's social development (Spirkova, 2015). The long-term problem in the Slovak Republic is grabbing of farmland for the purpose of mainly large development - building industrial and residential projects. The Slovak Republic is one of the transition economies, which since 1990 has undergone major political and economic changes. Factors that contributed to the grabbing of land are primarily due to the need for new residential, industrial and commercial sites, as well as transport infrastructure. It is mainly a response to population growth and increased demands on the quality of life and standard of living (larger residential units, more sports activities and social facilities, etc.).

Problem identification

The building boom in the Slovak Republic in the last 15 years has caused several serious problems. It was a consequence of externalities origination (we will discuss externalities later in the text), id est, prevailingly of negative ones as e.g.: concentration of the area, non-solving or just partial of questions of citizen, technical and transport infrastructure from the side of local self-administration, which subsequently caused and causes a big amount of problems for present and future users of real estates, built and traded on the real estate market (Spirkova, 2015). One of the determinants of this stage is the

failure of the state administration to solve developmental activities. They are predominantly building authorities that contribute to the existence of negative externalities because they are under the pressure of rich developers. Externalities present a case of so-called market failure, requiring the correction from the side of the state. According to Spirkova (2015), just externalities significantly influence the economic potential of real estates, as they are also manifested in real estate evaluation. Here the externality is understood as any outer influence, which may positively or negatively influence the price of the real estate, in this case, we speak about economic devaluation. As an externality might seem also so-called effective age, which is used, when the real estate is in a bad condition in comparison with its real age. This implies that an effective age is on a large scale of subjective indicators, and it might be misused and overvalued the value of a real estate in its actual condition.
The externality is an impact of human activity on the welfare of others, who are not involved in the mentioned activity. In the case of unwanted impact, it is a negative externality (they prevail in the field of the environment), in the case of favourable impact, it is a positive externality. If the externality is present, the market does not allocate sources effectively, because a producer of an estate does not count in the value of the externality into the production. So the scope of production is higher and prices lower than social expenses. The social profit is not maximized in the point of balance between offer and demand, as it would be under normal conditions in fully functioning markets.

Externalities and their impact on the territorial development V4 countries

In terms of sustainable development in the urban development, the important role is played by housing as a basic component of the urban environment and social development. The statistics show that:

- 68% of the population of EU countries live in urban areas,
- 85% of EU GDP is generated in cities,
- urbanized areas represent about 70% of the total primary energy demand,
- energy consumption in urban areas is growing annually by 1.9% (compared to 1.6% globally),
- municipalities are part of the problem but also part of the solution.

According to the reference scenario of the International Energy Agency, "urban" energy consumption will grow twice as fast compared to the EU as a whole. Cities and regions have great potential for the realization of energy efficiency measures and using renewable energy sources with a positive impact on the local economy, employment, investment, and innovation.
All V4 countries - Slovakia, Czech republic, Poland, and Hungary - (at differentiated rates) confront negative effects due to trade liberalization, income disparities and the development of the well-paid social class, as well as the growing number of cars during the transformation of urbanization development. This effect is most visible in the metropolitan areas of major cities (Budapest, Warsaw, Prague, and Bratislava). The same trend occurred in the case of other major cities. At present, the suburbanization tendencies are constantly getting stronger. They are related to the migration of urban population to the surrounding "green" zones in the nineties of the 20th century. Installation of a so far free country still brings negative consequences. It creates inefficient and unregulated structures (sprawl) of land use, which will for a long time obstruct sustainable urban development (Gremlica, 2002).
The uncontrolled spread of cities into the country, manifesting in all V4 countries, is disorganized and uncontrolled by definition. The situation is additionally complicated by the fact that land use planning have relatively weak instruments. Corrupt behaviour is evident at the local level at issuing permits and making a decision throughout the whole Visegrad region. Supported are investments in developing on new "green field" and large devastated or otherwise unused areas (brownfields) remain unnoticed. As a result, the built-up area extends about 1% per year, with a serious impact on local hydrological cycles, the structure of the country, local climate, landscape, biological or cultural diversity and many other things.
From the economic, social and environmental point of view, we can characterize "sprawl" (spread build-up in the countryside) as an undesirable form of suburbanization (Ourednicek, M. 2002). It is the uncontrolled and unconsidered placement of residential or commercial real estate in the country, which is typical of Visegrad Countries. The result is usually mosaic structure in newly developing urban areas.

The main force of such development are efforts of individual landowners or developers to maximize their profits. Locations which are marked by sprawl, increase of economic costs and reduce the quality of life in the suburb. It is mainly caused by lack of territory connection, lack of roads and sidewalks, garbage collection, maintenance in winter, introduction and management of technical, social and transport infrastructure, and extreme dependence on the personal automobile.

From a sustainable development perspective, it is desirable to monitor the economic value of long-term perspectives and keep in mind that the values in relation to the territory have spatial dimension and the events which are taking place in different areas are interdependent but mutually influencing. This means that the values and events in the area have an external effect - to act as externalities for other territories.

With regard to economic aspects of the built-up area, we must also talk about the cases of so-called market failure - externalities which require correction by the state. Economic theory distinguishes positive externalities (increasing value of the territory) and negative externalities (depreciation of area, depreciation of housing in part of the city).

A positive externality occurs at the moment when a subject obtains benefits from the action of others without paying for it, respectively to have an appropriate share of (in proportion to its benefit) the costs. Because of that comes to post-production of given estate and optimal level of output is not achieved socially (Stefunko, 2005). Therefore, the State must ensure the contribution (payment) of these provisions to externalities providers. This theory, according to the Austrian school totally ignores the fundamental centre of the functioning of the real economy (market). Real life is, in fact, full of positive externalities. In fact, we can hardly find any human action that does not cause positive externalities to "neutral" (not cost carrying) person. For example, if a Volkswagen decides to build large factories in a region and thanks to that the real estate prices in this area arise, it represents the positive externality of real estate owners. Does that mean that we should now be forced to pay some contribution to Volkswagen? If yes, how? We have previously emphasized that preferences can be demonstrated only by the specific procedure. If the automaker decides to build a given factory, it does it because it (ex-ante) expects from that step more income than the costs that are associated with it. It does it without consideration of any possible cash support from property owners. On the other hand, if the automaker is willing to implement the project only with a certain minimum monetary support from property owners, it may let them know. In case that property owners are willing to provide given amount - they will demonstrate that the benefit of the project is higher than the cost associated with it, so the given amount is provided. On the other hand, if they will not provide the given amount, the costs exceed the potential benefit. Again, we obtain the conclusion that only with a free interaction between market participants we can come to the optimal level of output and the fair distribution of costs and benefits associated with it (Mises, 1992).

In general, we can say that positive externalities are caused by decisions of an individual or company, but no individual or firm does obtain the full benefit from their decision. Benefit acquired by a company or individual because of their decision is smaller than the benefit the society gets from it. Negative externalities occur when an individual or company makes a decision for which do not take the responsibility and cost of such decision is a burden for society. Positive externalities include better environment, increase in value, and thus also house prices and rents, population dispersal, reducing the concentration and movement of construction from the crowded centres, improving health and hygiene.

A negative externality is a condition where the conduct of one or more entities formed a harm to (cost) uninvolved (of income) side. Therefore, the state must intervene and stop this kind of action or, at least, minimize it. Such a situation can certainly occur, and it is happening in the real world. This situation does not constitute a market failure, but the failure of the state which is unable to protect private property. But for example, if some plant with its activities pollutes a river, it cannot be viewed as a market failure. The problem is just at that point that in the fact there is no present market. In the market conditions, the river owner can demand from the polluter a full compensation for damages, including lost profits, which were caused by pollution. In contrast, in the current system, the river is owned by the state. And the state, instead of this approach, selects either the (small) fine and / or completely disable a given activity.

In any case, there is an inefficient and unfair solution that leads either to an unreasonably (having regard to all the real costs) high level of activity, or too small or none. Conversely, the free market through the interaction between (potential) victims and (potential) damage makers leads to an optimum level of

troubled operations. Thus, a solution does not lie in state intervention, but in the full state disestablishment of all rare resources and consequently to the absolute protection and respect for property rights (Rothbard, 1997).

Negative externalities can be noise and air pollution during construction, the decline in real estate prices, various additional requirements directed at the government, the failure of governments to manage land use plan and activities of building authorities, developer aggression, concentration of construction and many others, which can result in a variety of extreme situations such may be the abdication of city due to aggressive and unfair actions of developers to push out their requirements.

As an interesting example, we can mention the UK from the period of the great industrial revolution in the years 1750-1850. The population in this period increased by almost 190%. Increased urbanization and cities have developed with rapid pace, where bureaucratically centrally enforced land-use plans did not exist. Landowners, developers, and small builders coordinated their activities in order to meet needs of different market segments while favouring contractual limitations. In practice, this meant that if the land or any rights connected to is were transferred to another entity, the transfer, whether it was a sale or lease, usually contained several specific conditions or contractual constraints that legally bind each party in a way that breaking of the terms could make an agreement invalid. They controlled and thus restricted the form of exploitation of land or property built on it. There were also applied some contractual obligations, which determined the type of building or even use each constructed buildings. The most common are those that prohibit certain types of business or activities. Even today, many obligations in Britain are valid, and some buyers are confused about the restrictions of type "prohibition of breeding pigs", "prohibition of the manufacture of soap" or "prohibition of creating a bad reputation of the house". Many activities were banned because of these restrictions, such as those that produce waste or noise. By this, the owners could define the admissibility of certain activities. So, in industrial zones, owners could control the character and size of the factory. Contractual obligations, therefore, were able effectively to counteract the negative externalities, and can be established for a fixed period or for a timeshare property lease and in rare cases, even for an indefinite period of time (Ivanicka, Spirkova, 2013).

Among the important externalities that affect the price of the property including crowding, which increases demands on transport, construction that makes the life unpleasant during construction, requirements for parking spaces, reducing of green areas for relaxing and many others, and acts as a negative externality, although for a small number of the population in the new site it can be positive, as it reduces commuting trip to work. If the authorities allow crowding, they cause a deterioration of the living conditions of the natives while reducing the cost of property which will be less desirable than in the original building site.

The excessive intensity of use of the built-up area. We record it particularly in the attractive majority of towns and cities mainly in their centres, where inside-block spaces are built up, there is an effort to raise the level of new buildings. The result is a deterioration of microclimate, increase of dust, very dry air or overheating of the city in summer. Also, there may be clogging of drains during torrential rains, like water on "hard" surfaces of roofs, paved courtyards, and parking lots have nowhere to drain.

Increasing the number of users of such urban areas is further aggravating the traffic situation and problem with parking are growing. Last but not least, there is often damage to the aesthetic quality of the place. Secondarily, the deterioration of attractiveness of the territory may occur, which was the primary cause of area overexploitation. Often referred to a sustainable alternative to excessive concentration in the centres of the polycentric development, i.e. development in other centres that attract investors and visitors.

The decline of the use of the built-up area is the opposite of the previous two different effects, whose common feature was the disproportionate growth (extensive or intensive). The inadequate or insufficient use of area may occur locally but can also affect entire cities and regions. The primary cause is a loss of attractiveness of the area, which causes that residents and businesses are leaving for the other attractive destinations. On their place may at first come members of lower social strata and less successful companies, but gradually also more successful of them go somewhere else. Reducing social status of the territory accompanied by other adverse effects for its sustainable development: deteriorating of age structure of the population, increase in the turnover of users (growing share of temporary use), decrease of the number of customers and reduction of their purchase power leads to the closing of shops, service

establishments and educational institutions, the maintenance of buildings and public spaces impairs. A typical environment where these phenomena occur is the rural area away from larger centres, as well as downtown and older neighbourhoods of some cities.
Excessive functional specialization and concentration - one-sided development of only one function, for example, the concentration of office workplaces, shops, and leisure and entertainment activities. The following are typical examples of disproportionate functional specialization in the area:
Imbalance of residential and workplace functions in the territory, thus separating living space from offices or industry, entails high costs for transport between residence and workplace. This transport also burdensome the environment.
Extensive area build-up - suburbanization, urban sprawl. In the last fifteen years, we are witnessing a large increase in residential areas or office areas "greenfield" facilities in large cities. Suburbanization and urban sprawl consume parts of the country, which could be used for example as agricultural land or forest. That is how natural environment disappears and loses its ecological function. Extensive built-up areas can cause a change of microclimates, require connection to utility and transportation networks caused by operating costs of this infrastructure and last but not least, change the character of the country, usually for the worse. Sustainable alternatives for the country's extensive build-up is the better use of built-up areas, particularly with the use of land which has lost its original use, such as abandonment or underutilized manufacturing and military sites, etc (Maier et al., 2012).
Urban sprawl. In many developing countries, urban sprawl comprises two main, contrasting types of development in the same city: one is characterized by large peri-urban areas with informal and illegal patterns of land use. This is combined with a lack of infrastructure, public facilities, and basic services, and often is accompanied by little or no public transport and by inadequate access roads. The other is a form of “suburban sprawl” in which residential zones for high- and middle-income groups and highly-valued commercial and retail complexes are well-connected by an individual rather than public transport. Urban sprawl adds to the urban divide, pushing social segregation along economic lines that result in a spatial difference in wealth and quality of life across various parts of cities and metropolitan areas run down inner cities and more suburbs. Suburbanization in developing countries happens mainly because people – rich and poor – flee poor governance, lack of planning and poor access to amenities. "Sprawl is a symptom of a divided city” (Unhabitat report, 2010). Urban sprawl has a negative impact on infrastructure and the sustainability of cities. In most cases, sprawl translates to an increase in the cost of transport, public infrastructure and of residential and commercial development. Moreover, sprawling metropolitan areas require more energy, metal, concrete and asphalt than do compact cities because homes, offices, and utilities are set farther apart.
Status, where the property rights are in the locality, may also become a positive or negative externality. If for example, grazing or other valuable sources are common ownership, nobody takes into account the costs associated with such property. Defining and encouragement of private property rights is often an effective way of addressing how to manage ownership of valuable resources. Not surprisingly, the most economically developed countries have highly developed institutions dealing with private property.
Advanced economies, which have traditionally well-functioning institutional environment which is generating implicit rules, governing jointly owned resources and thus have an impact on the cost of managing them. On the other hand, such an approach is not effective in emerging economies because it causes that the property, which is mutual, is often handled as it does not belong to anyone.

Methodology

The combination of several scientific methods and approaches (analysis, abstraction, synthesis, induction, deduction, comparison) were used for the elaboration of the issues in the paper. The important sources of data were scientific literature devoted to this issues and research report Unhabitat of the Ministry of Economics SR, a database of the Slovak statistical office, the Land Register Office SR, the Office of the Government as well as international institutions. Another knowledge was gained in personal consultations and by the method of brainstorming with professionals and scientific workers in the field of territorial and spatial planning and the real estate market from Slovakia, the Czech Republic, Austria and Great Britain.

Consequences of negative externalities at uncontrolled building activities are presented in the model case of the municipality Chorvatsky Grob which is an important satellite at the capital city of the Slovak Republic - Bratislava.

Model case

The municipality Chorvatsky Grob between the municipalities Ivanka pri Dunaji, Bernolakovo, Velky Biel, Slovensky Grob, and the capital city Bratislava. It is approximately 15 km far from Bratislava. At present approximately 7,000 inhabitants live in the village, out of them, just 4,800 have the permanent address there, with the outlook for 20 years according to the territorial plan approximately 60,000 inhabitants are estimated. The village has a well-built information system, active approach to implementation of innovation and has an approved territorial plan.
Construction boom in this village started approximately in 1998, when reforms in the area of housing policy in Slovakia allowed implementation of several new forms of housing financing in retail as well as corporate area and so to increase housing availability for inhabitants (e.g. project financing, lease of real estates, pre-mortgage and mortgage financing and also new forms of building loans for natural entities - citizens). Improvement in the market environment in Slovakia also manifested in the intensity of residential housing in attractive locations close to Bratislava, as which the territory of Chorvatsky Grob is also considered. The period 2003 - 2010 meant for the municipality an extensive development, which presents almost 6-time increase compared with the original build-up area. The mentioned situation, according to experts, might be compared with the development of Chilean towns, which means, that the original village with 1,200 inhabitants today has 6,500 - 7,000 inhabitants. This huge increase in inhabitants was caused predominately by the construction of residential zones in the way of non-professional and non-conception constructions and not coordinated approval process. According to the opinions of professionals, this benevolence in permissions for construction of large housing zones does not have anything in common with the complex urbanization, the logic of housing environment and be no means with the public interest of the village and its inhabitants - present, but also future ones. The mentioned situation causes a devastation process, which at present the authorities of municipality and construction administration try to stop, it means to stabilize and partially correct past controversial decisions. But it meets with the barrier of contradictory and negative standpoints of appeal organs in the state administration.

Result and Discussion

In case “Chorvatsky Grob”, we may talk about a significant negative externality as the village is facing a possible collapse due to subsequent reasons:

- unsolved questions of technical, transport and citizen infrastructure (e.g. missing new elementary school due to a big increase of young families, health centre, post office and so on),
- the unsolved question of realization of housing environment (the square, sports zone, greenery and so on),
- uncontrolled concentration and an unsolved technical and transport infrastructure (which causes a huge traffic jam when commuting to work in the morning and in the evening - car colonies are long even more than 5 km and to travel 15 km from Bratislava lasts even more than 90 minutes),
- there is not created the possibility of optical internet connection in all streets - many streets do not even have fixed phone lines,
- minimum shops (e.g. just one Tesco express store, pharmacy, drugstore and few cafes and so on),
- the risk of possible future serious demographic and social problems and so on.

Factors, which significantly influence and will influence the current situation we may characterize as follows:

- the pressure of developers as well as individual subjects to widen residential constructions, which causes insolvable problems with endangering of already existing housing (see Fig. 1),

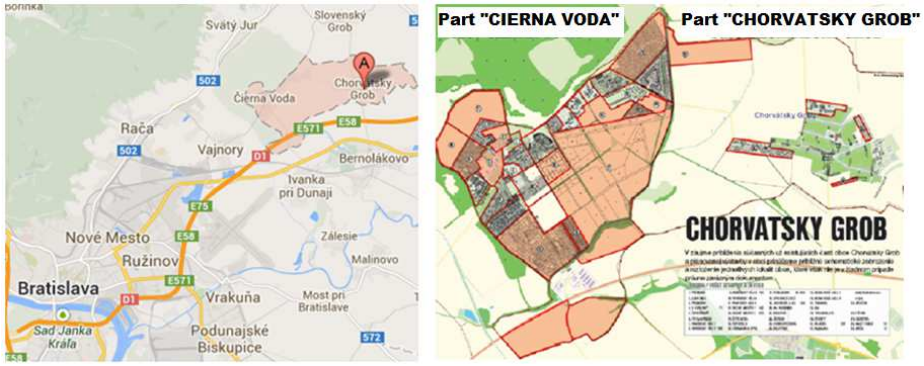

Fig. 1 Location of the planned new building activities in Chorvatsky Grob – part Cierna Voda
Source: elaborated according to the data from the territorial plan of the municipality

- negative approach of organs of the state administration in the form of their standpoints to the current situation,
- inflexible - in some cases even limiting legislative (inferiority of the system of state administration and economic policy) for the management of self-administration,
- conflicts with the municipal authorities, which does not create the space for realization of changes and further development of the village due to conflicts between the old and new part of the village (the old part of the village has despite a significantly smaller number of inhabitants. But in the municipal authorities it has approximately the same number of deputies, who slow the support of development projects in the new part of the village) and so on.

Another negative externality, which significantly influences the quality of life of inhabitants of the village is repeated closing of so-called “Triblavinska road” by a private, public limited corporation (see Fig. 2).

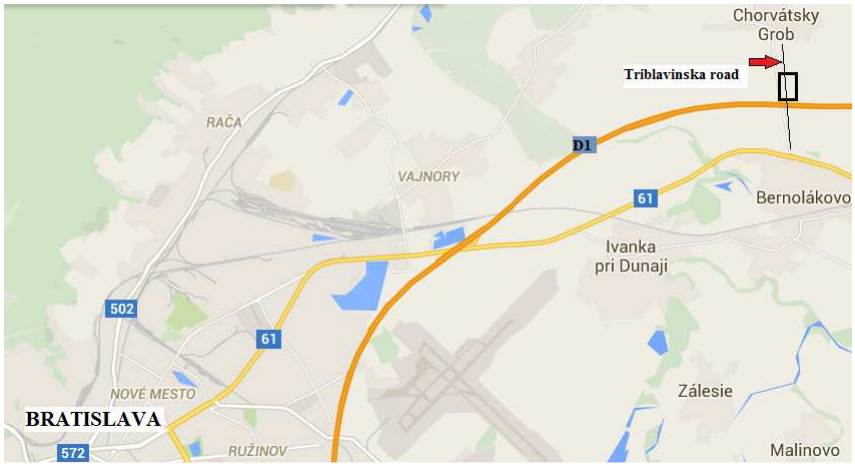

Fig. 2 The part of Triblavinska road repeatedly closed by a private company, which cuts connection to Senecka road in direction to the capital city Bratislava
Source: own elaboration of the municipality map - Chorvatsky Grob

The importance of this road is in the fact that it links a part of the village Chorvatsky Grob - Cierna Voda with the village Ivanka pri Dunaji and with the old Senecka road. The acting of the private company is in conflict with public interest. It is necessary to say, that in the wording of the Road Code about the special purpose communications, the municipality performs the state expert supervisory. In the wording of § 3c sec. 2 of The Road Code as the organ of the state expert supervision the village cares for provision of land road and supervises if the duties, the conditions of land road usage appointed by the Road Code, and the regulations issued for their execution are kept, as well as regulations of the road administrative organs.

Conclusion

As the model case showed, negative externalities may have fatal consequences for the regional development in the view of the improper realization of developing projects, which is mainly related to pressure activities of development companies to gain the highest possible profit. This situation is also caused by uncontrolled concentration, and unsolved questions of technical and transport infrastructure, which we consider as badly managed development and bad regulation of building activities by the organs of the state administration. Such approach may even result in an abdication of representatives of municipal bodies. The most important negative externality of the real estate market in the Slovak Republic is the fact, that there is no institution that would deal with complex characteristics of real estates and allow an easier orientation in the market for the buyers. Real estate companies have in their offer just a small amount of real estates and their priority interest is to obtain a commission and not to provide complex information for a client about positive and negative characteristics of a real estate, including building sites.

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Studies on the involvement of local government in the Danube Delta in raising the living standards

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Abstract

Geographic and climatic conditions in the Danube Delta have favored the development of major renewable natural resources: fish, reeds, meadows, forests, medicinal plants, mushrooms, etc., which are capitalized through traditional economic activities of the local population. A resource is an important natural delta landscape with particularly attractive characteristics. The landscape is valued by tourism activities, both by specialized companies and the local population. In this study, we wanted to analyze the involvement of local government in the Danube Delta, in order to identify solutions to increase the living standards of people in this area. To do this, we applied a questionnaire to 21 representatives of local governments, depending on the number of inhabitants that it has common. In interpreting the results, we used: the test of association (chi-square); Critical value (Pearson's C) and the critical value (Cramer's V).

Keywords: standardized residue, tourist movement, probability, questionnaire, test of association, association test (Chi-square), respondents

Introduction

Danube Delta Biosphere Reserve (ARBDD), delimited by law, has a total area of about 580,000 hectares and is located in southeastern Romania. DDBCA are 25 settlements, organized in 7 villages, located entirely in this area: (Ceatalchioi, Pardina, Maliuc, Crişan, C.A. Rosetti, St. George, Chilia Veche) and Sulina. There are also common areas were partially DDBCA (Nufăru Beştepe, Murighiol) and suburban Tudor Vladimirescu Tulcea Municipality (*** Zonal Spatial Plan Delta, 2015).
Local government plays an important role in determining and understanding the importance of the Danube Delta Reservation, especially the tourism potential that it has for its residents this area and what to do to correct this situation (Palmer A., 1994).
Rural tourism and agritourism activities are intertwined, complement and reinforce each other, forming an area to be organized specifically taking account of the specific geographical, economic, social, etc., the specificity of its products and the role they have to play in rural development (Alecu Ioan Niculae, Constantin Marian, 2006).
Europe compared to other regions in the world has a very favorable position where you can find most industrialized countries possessing an impressive tourism potential natural (characterized by exceptional landscape) and anthropogenic (represented by historical, cultural, art and architecture) (Albu L., Dobrescu E., 2005).
To encourage rural tourism in the European Union, we have developed a number of programs. They noted the following programs: "Expert", "The Village I Love", "Data Base on Rural Tourism Services",

"Interregional Cooperation Celtic", "European Rural Tourism Network", "Transnational Agri -Tourism Information Centre", " Study on Rural Tourism ", and so on. a. in some of them it was involved and Romania (Kotler Philip, Gary Armstrong, John Saunders, Veronica Wong,1998).

The research method

As a research method we used questionnaire method and interpretation of the results we used: the test of association (chi-square), the critical value, the value of Pearson's C and value Cramer's V (Merce, E., ş. a., 2010).
The questionnaire was applied to local governments within the Danube Delta, it was distributed to 21 local government representatives, depending on the number of people you have common (less than 500 inhabitants, between 501-1500 people, 1501 - 3,000 inhabitants), the surface that extends commune (1,000 ha, 1001-5000 ha, 5001-10000 hectares and over 10,001 ha), but also by the industry mainly households in the commune represented (fishing, tourism and agrotourism , agriculture or other concerns).

Results and Discussions

Analyzing the structure of the number of inhabitants according to the area, we note that most common of those studied have less than 500 inhabitants and a surface area ranging between 1,001 and 5,000 ha. Also, localities have less than 500 inhabitants represent 62% of those studied, followed at a great distance from villages with 501-1500 people (24%), respectively municipalities with 1501-3000 residents (14%) (Table 1.).

Table 1. Structure of inhabitants according to the areas that stretch the villages

On what surface spreads town you represent? (ha)					
Number of inhabitants	**<1,000 ha**	**1,001 – 5,000 ha**	**5,001 – 10,000 ha**	**> 10,001 ha**	**Total**
< 500 inhabitants	19.05%	28.57%	14.29%	0.00%	61.90%
501 – 1,500 inhabitants	4.76%	4.76%	9.52%	4.76%	23.81%
1,501 – 3,000 inhabitants	0.00%	4.76%	0.00%	9.52%	14.29%
Total	**23.81%**	**38.10%**	**23.81%**	**14.29%**	**100.00%**

(Source: Data processing from the questionnaire)

Regarding areas analyzed municipalities, most of them falls among those who have an area of 1001-5000 ha. The under 1,000 hectares and 5001-10000 represent a similar share of 22%, and last fall the more than 10,000 hectares (14.29%) (Table 1).
Between representatives of local governments who answered the questionnaire, most said that the main occupation of the inhabitants is agriculture (38%), followed by fishing (24%), tourism and rural tourism (19%), and that other concerns, in an amount of 19% (Table 2).

Table 2. Structure of the inhabitants number according to the most prevalent activities of the population

In which field is occupied most of the population?					
Number of inhabitants	**agriculture**	**other concerns**	**fishing**	**tourism and agrotourism**	**Total**
< 500 inhabitants	23.81%	9.52%	19.05%	9.52%	61.90%
501 – 1,500 inhabitants	9.52%	4.76%	0.00%	9.52%	23.81%
1,501 – 3,000 inhabitants	4.76%	4.76%	4.76%	0.00%	14.29%
Total	**38.10%**	**19.05%**	**23.81%**	**19.05%**	**100.00%**

(Source: Data processing from the questionnaire)

Referring to areas that stretch municipalities analyzed by field of activity, we note that the settlements of the area to 1,000 ha focuses on activities aimed at fishing or other concerns (10%) and those with surfaces between 1,001 and 5,000 ha, activity predominant - agriculture (19%).

Table 3. Surface structure that stretch the analyzed villages according to the activity what drives most of the resident population

In which field is occupied most of the population?					
Surface (ha)	**agriculture**	**other concerns**	**fishing**	**tourism and agrotourism**	**Total**
< 1,000 ha	0.00%	9.52%	9.52%	4.76%	23.81%
1,001 – 5,000 ha	19.05%	4.76%	4.76%	9.52%	38.10%
5,001 – 10,000 ha	9.52%	4.76%	4.76%	4.76%	23.81%
> 1,0001 ha	9.52%	0.00%	4.76%	0.00%	14.29%
Total	**38.10%**	**19.05%**	**23.81%**	**19.05%**	**100.00%**

(Source: Data processing from the questionnaire)

In the case of localities with between 5,001 and 10,000 surface and those with more than 10,000 hectares held predominant activity is agriculture, accounting for 10% of communes analyzed (Table 3).
Of the total respondents, 86% of representatives of local government believes that the diversification of activities by people can help raise living standards, while only 14% consider that this is not enough for raising living standards (Table 4).

Table 4. Representatives opinion structure of local government on the diversifying population activities by villages for raising living standards in terms of number of inhabitants

Consider diversifying activities by the inhabitants can contribute to raising living standards?					
By Number of inhabitants					
Number of inhabitants	**U.M.**	**Yes**	**Not**	**Total**	
		No.	**No.**	**No.**	**%**
< 500 inhabitants	No.	11	2	13	62%
501 – 1,500 inhabitants	No.	4	1	5	24%
1,501 – 3,000 inhabitants	No.	3	0	3	14%
Total	No.	18	3	21	-
	%	86%	14%	-	100%
Standardized residue					
< 500 inhabitants	No.	-0.04	0.10		
501 – 1,500 inhabitants	No.	-0.14	0.34		
1,501 – 3,000 inhabitants	No.	0.27	-0.65		
Chi Square Calculated =	0.65	Critical value (Theoretical) =	4.61	p > 0.1(*)	
			5.99	p > 0.05(**)	
Degrees of freedom (df) =	2		9.21	p > 0.01(***)	
Cramer's V =	0,18	Pearson's C =		0,17	

(Source: Data processing from the questionnaire)

We can say that over 52% of those who answered yes to this question are those representing municipalities under 500 inhabitants, while local government representatives from municipalities with 501-1,500 inhabitants have a share of 19% and 14% of those representing municipalities with a total population of between 1,501-3,000 people.

Table nr. 5. Representatives opinion structure of local government on the diversification of activities carried out by the villagers for raising living standards depending on their village surface

Consider diversifying activities by the inhabitants can contribute to raising living standards?					
After the commune's surface (ha)					
Surface (ha)	**U.M.**	**Yes**	**Not**	**Total**	
		No.	**No.**	**No.**	**%**
< 1,000 ha	No.	4	1	5	24%
1,001 – 5,000 ha	No.	6	2	8	38%
5,001 – 10,000 ha	No.	5	0	5	24%
> 10,001 ha	No.	3	0	3	14%
Total	No.	18	3	21	-
	%	86%	14%	-	100%
Standardized residue					
< 1,000 ha	No.	-0.14	0.34		
1,001 – 5,000 ha	No.	-0.33	0.80		
5,001 – 10,000 ha	No.	0.35	-0.85		
> 10,001 ha	No.	0.27	-0.65		
Chi Square Calculated =	2.22	Critical value (Theoretical) =	6.25	p > 0.1(*)	
			7.81	p > 0.05(**)	
Degrees of freedom (df) =	3		11.34	p > 0.01(***)	
Cramer's V =	0,23	Pearson's C =		0,31	

(Source: Data processing from the questionnaire)

In terms of areas municipalities examined, local government representatives who stated that the diversification activities can help raise the standard of living is communes with areas between 1,001 and 5,000 hectares, representing 29% of those surveyed, while the Communes with an area of over 10,000 hectares represents only 14% (Table 5).

Table 6. Representatives opinion structure of local government on the diversification of activities carried out by the villagers for raising living standards on the business activity of population

Consider diversifying activities by the inhabitants can contribute to raising living standards?					
After the activity of the population					
Specification	**U.M.**	**Yes**	**Not**	**Total**	
		No.	**No.**	**No.**	**%**
agriculture	No.	8	0	8	38%
other concerns	No.	4	0	4	19%
fishing	No.	5	0	5	24%
tourism and agrotourism	No.	1	3	4	19%
Total	No.	18	3	21	-
	%	86%	14%	-	100%
Standardized residue					
agriculture	No.	0.44	-1.07		
other concerns	No.	0.31	-0.76		
fishing	No.	0.35	-0.85		
tourism and agrotourism	No.	-1.31	**3.21**		
Chi Square Calculated =	**14.88*** **	**Critical value (Theoretical) =**	6.25	p > 0.1(*)	
			7.81	p > 0.05(**)	
Degrees of freedom (df) =	3		**11.34**	**p > 0.01(***)**	
Cramer's V =	**0,84**	**Pearson's C =**		**0,64**	

(Source: Data processing from the questionnaire)

By testing statistical opinion of representatives of local government (Chi-square = 14.88 ***; Critical value = 11.34 a probability of p> 0.01) on diversification activities carried out by the inhabitants to raise

their living standard depending by activity of the population of communes which respondents represent, it is observed that there is an association very significant developed between the representatives of local government and the business of the people communes on the issue under examination and analysis of (R) (residue standardized) observe significant differences in terms of responding negatively registered in the localities where many tourists and agro field of activity of the population, allowing us to formulate the conclusion that public opinion is influenced by government representatives concerns residents of cities analyzed.

Also by interpreting Pearson's C respectively Cramer's V, in this case it can be said that developed between the representatives of government and concerns residents of cities analyzed (Pearson's C = 0.64; Cramer's V = 0.84), no association among the aspects considered, local government representatives opinion is influenced by the concerns of the inhabitants of the localities analyzed

Table 7. Representatives opinion structure of local government on the possibility of accessing European funds in order to develop the area by number of inhabitants

Are you aware of the possibility of accessing European funds in order to develop your area?					
By Number of inhabitants					
Number of inhabitants	**U.M.**	**Yes**	**Not**	**Total**	
		No.	**No.**	**No.**	**%**
< 500 inhabitants	No.	4	9	13	62%
501 – 1,500 inhabitants	No.	2	3	5	24%
1,501 – 3,000 inhabitants	No.	0	3	3	14%
Total	No.	6	15	21	-
	%	29%	71%	-	100%
Standardized residue					
< 500 inhabitants	No.	0,15	-0,09		
501 – 1,500 inhabitants	No.	0,48	-0,30		
1,501 – 3,000 inhabitants	No.	-0,93	0,59		
Chi Square Calculated =	1.55	Critical value (Theoretical) =	4.61	p > 0.1(*)	
			5.99	p > 0.05(**)	
Degrees of freedom (df) =	2		9.21	p > 0.01(***)	
Cramer's V =	0,27	Pearson's C =		0,26	

(Source: Data processing from the questionnaire)

Poor promotion and distribution of development programs through European funds is reflected on local authorities where only 29% of respondents are aware of such programs aimed at local development they represent, while 71% of those asked I am not aware. An alarming 43% of those interviewed gave a negative answer to this question are representatives of local governments that have less than 500 inhabitants, while local government representatives who have between 501-1,501 people and 1,501-3,000 respectively recorded inhabitants a share of 14% each (Table 7).

In terms of area municipalities represented by the respondents, the percentage of those who say they are not aware of programs financed by European funds are meeting among representatives of municipalities which have an area of between 5,001 and 10,000 ha, representing 24% of all those who answered the questionnaire, and on the opposite side are representatives of localities with over 10 thousand hectares, accounting for a share of 10% of all respondents (Table 8).

Tabel 8. Representatives opinion structure of local government on the possibility of accessing European funds in order to develop the region, according to area villages

Are you aware of the possibility of accessing European funds in order to develop your area?					
After the commune's surface (ha)					
Surface (ha)	**U.M.**	**Yes**	**Not**	**Total**	
		No.	**No.**	**No.**	**%**
< 1,000 ha	No.	1	4	5	24%
1,001 – 5,000 ha	No.	4	4	8	38%
5,001 – 10,000 ha	No.	0	5	5	24%
> 10,001 ha	No.	1	2	3	14%
Total	No.	6	15	21	-
	%	29%	71%	-	100%
Standardized residue					
< 1,000 ha	No.	-0,36	0,23		
1,001 – 5,000 ha	No.	1,13	-0,72		
5,001 – 10,000 ha	No.	0.35	-0.85		
> 10,001 ha	No.	-1,20	0,76		
Chi Square Calculated =	4.01	Critical value (Theoretical) =	6.25	p > 0.1(*)	
			7.81	p > 0.05(**)	
Degrees of freedom (df) =	3		11.34	p > 0.01(***)	
Cramer's V =	0,44	Pearson's C =		0,40	

(Source: Data processing from the questionnaire)

Of those who are aware of accessing such funds are representatives of local governments that have an area of between 1,001 and 5,000 ha (19%) (Table 8).

Table 9. Representatives opinion structure of local government on the possibility of accessing European funds in order to develop the region, depending on the activity of population

Are you aware of the possibility of accessing European funds in order to develop your area?					
After the activity of the population					
Specification	**U.M.**	**Da**	**Nu**	**Total**	
		Nr.	**Nr.**	**Nr.**	**%**
agriculture	Nr.	3	5	8	38%
other concerns	Nr.	0	4	4	19%
fishing	Nr.	0	5	5	24%
tourism and agrotourism	Nr.	3	1	4	19%
Total	Nr.	6	15	21	-
	%	29%	71%	-	100%
Standardized residue					
agriculture	Nr.	0,47	-0,30		
other concerns	Nr.	-1,07	0,68		
fishing	Nr.	-1,20	0,76		
tourism and agrotourism	Nr.	1,74	-1,10		
Chi Square Calculated =	**8.14****	**Critical value (Theoretical) =**	6.25	p > 0.1(*)	
			7.81	**p > 0.05(**)**	
Degrees of freedom (df) =	3		11.34	p > 0.01(***)	
Cramer's V =	**0,62**	**Pearson's C =**		**0,53**	

(Source: Data processing from the questionnaire)

By testing statistical opinion of representatives of local government (Chi-square = 8.14 **; critical value = 7.81 with a probability of p> 0.05) on the possibility of accessing European funds by local governments to develop the area by field of activity people's communes which respondents represent, it is observed that there is a significant association between the opinion of the representatives of local and area of activity of the population communes on the issue under examination and analysis of (R) (residue

standardized) observe significant differences in regarding the negative response recorded for the areas where many tourists and agritourism, field of activity of the population, allowing us to formulate the conclusion that public opinion is influenced by government representatives concerns residents of cities analyzed.

Also by interpreting Pearson's C respectively Cramer's V, in this case it can be said that developed between the representatives of government and concerns residents of cities analyzed (Pearson's C = 0.62; Cramer's V = 0.53), there is a Association between the aspects considered, local government representatives opinion is influenced by the concerns of the inhabitants of the localities analyzed (Table no. 9).

Table 10. The structure of local government opinion regarding the region's development by European funds according to the number of inhabitants

If you access the European funds for regional development, for what objectives you direct this money?							
By Number of inhabitants							
Number of inhabitants	**U.M.**	**Railway infrastructure**	**Road infrastructure**	**Rehabilitation airport**	**Transport ship passengers**	**Total**	
		No.	**No.**	**No.**	**No.**	**No.**	**%**
< 500 inhabitants	No.	1	5	2	5	13	62%
501 – 1,500 inhabitants	No.	1	2	0	2	5	24%
1,501 – 3,000 inhabitants	No.	0	2	0	1	3	14%
Total	No.	2	9	2	8	21	-
	%	10%	43%	10%	38%	-	100 %
Standardized residue							
< 500 inhabitants	No.	-0,21	-0,24	0,68	0,02		
501 – 1,500 inhabitants	No.	0,76	-0,10	-0,69	0,07		
1,501 – 3,000 inhabitants	No.	-0,53	0,63	-0,53	-0,13		
Chi Square Calculated =	2.63	Critical value (Theoretical) =			10.64	p > 0.1(*)	
					12.59	p > 0.05(**)	
Degrees of freedom (df) =	6				16.81	p > 0.01(***)	
Cramer's V =	0,25	Pearson's C =			0,33		

(Source: Data processing from the questionnaire)

According to the questionnaire, where local authorities could access European funds they would direct the money toward the construction and modernization of road infrastructure in 43%, while 38% of respondents would invest in the purchase of passenger ships. At the opposite pole building and upgrading railways and airport rehabilitation (Tulcea), each at a rate of 10% (Table 10).

Referring to the number of inhabitants, government stakeholders that have less than 500 inhabitants opt for vessels transport passengers (24%) and construction / modernization of road infrastructure (24%), while local government representatives who have a number of inhabitants of between 1,501 and 3,000 opting mainly for the construction / modernization of road infrastructure.

Table 11. Representatives opinion structure of local government on how to develop the region through EU funds according to area of villages

If you access the European funds for regional development, for what objectives you direct this money?							
After the village area (ha)							
Surface (ha)	**U.M.**	**Railway infrastructure**	**Road infrastructure**	**Rehabilitation airport**	**Transport ship passengers**	**Total**	
		No.	**No.**	**No.**	**No.**	**No.**	**%**
< 1,000 ha	No.	1	2	0	2	5	24%
1,001 – 5,000 ha	No.	1	2	2	3	8	38%
5,001 – 10,000 ha	No.	0	4	0	1	5	24%
> 10,001 ha	No.	0	1	0	2	3	14%
Total	No.	2	9	2	8	21	-
	%	10%	43%	10%	38%	-	100%
Standardized residue							
< 1,000 ha	No.	0,76	-0,10	-0,69	0,07		
1,001 – 5,000 ha	No.	0,27	-0,77	1,42	-0,03		
5,001 – 10,000 ha	No.	-0,69	1,27	-0,69	-0,66		
> 10,001 ha		-0,53	-0,25	-0,53	0,80		
Chi Square Calculated =	8.02	Critical value (Theoretical) =			14.68	p > 0.1(*)	
					16.92	p > 0.05(**)	
Degrees of freedom (df) =	9				21.67	p > 0.01(***)	
Cramer's V =	0,36	Pearson's C =			0,53		

(Source: Data processing from the questionnaire)

Representatives of communities local to large areas between 5,001 and 10,000 ha, opting mostly for upgrading road infrastructure, while the average size of between 1,001 and 5,000 hectares, opting for the purchase of ships to transport passengers (table 11.).

Through statistical testing the opinion of representatives of local government (Chi-square = 16.52 *; breakpoint = 14.68 a probability p> 0.1) on how to develop the region through EU funds by local governments based on concerns prevailed known authorities, it appears that there is an association insignificant developed between the representatives of local public administration and the concerns of residents on the issue under examination and analysis of (R) (residue standardized) are significant differences in terms of investment in ships or passenger and fishing, enabling us to formulate the conclusion that local government representatives opinion is influenced by the concerns of the inhabitants of the localities surveyed (Table 12).

Table nr. 12. The structure of local government opinion on how the region's development by European funds according to the business activity of population

If you access the European funds for regional development, for what objectives you direct this money?							
After the activity of the population							
Specificare	**U.M.**	**Railway infrastructure**	**Road infrastructure**	**Rehabilitation airport**	**Transport ship passengers**	**Total**	
		No.	**No.**	**No.**	**No.**	**No.**	**%**
agricultură	No.	1	4	2	1	8	38%
alte preocupări	No.	1	3	0	0	4	19%
pescuit	No.	0	0	0	5	5	24%
turism și agroturism	No.	0	2	0	2	4	19%
Total	No.	2	9	2	8	21	-
	%	10%	43%	10%	38%	-	100%

Standardized residue						
agriculture	No.	0,27	0,31	1,42	-1,17	
other concerns	No.	1,00	0,98	-0,62	-1,23	
fishing	No.	-0,69	-1,46	-0,69	**2,24**	
tourism and agrotourism		-0,62	0,22	-0,62	0,39	
Chi Square Calculated =	**16.52***	**Critical value (Theoretical) =**			**14.68**	**p > 0.1(*)**
					16.92	p > 0.05(**)
Degrees of freedom (df) =	9				21.67	p > 0.01(***)
Cramer's V =	**0,51**	**Pearson's C =**			**0,66**	

(Source: Data processing from the questionnaire)

Also by interpreting Pearson's C respectively Cramer's V, in this case it can be said that developed between the local government representatives and concerns of the inhabitants of the localities surveyed (Pearson's C = 0.51 Cramer's V = 0.66), there Association between the aspects considered, government representatives opinion is influenced by concerns residents of cities analyzed (Table 12).

Conclusions

By applying this questionnaire representatives of local government, the number of 21 localities were classified according to the number of inhabitants according to the area that has the town, but also by the activity of the population in areas analyzed, we have seen a number of relevant factors for the development of this region of the Danube Delta Reservation.

Local administration representatives overwhelmingly believe in diversification activities that can contribute to raising the living standard of the locality represented. Unfortunately they are not aware of programs that can access European funds, most likely lack of interest, especially the poor promotion and distribution of information required by the central bodies responsible for this.

If they could access European funds, most of them would direct money towards the construction / modernization of road infrastructure and the purchase of passenger ships.

Representatives of local governments in most states that in the areas they represent are found in 10 units agro authorized. The same majority share is encountered if unauthorized boarding.

In the next period they are considering investments aimed mainly (57%) modernization of infrastructure (roads and utilities), the investment that they think is most needed in the area to facilitate the increasing number of tourists.

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Development of a new Educational Model for Virtual Measurement Machine

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Abstract

In this paper the model for the virtual CAD system measurement engine is introduced. Next, in the kinematics module a few simulation procedures were prepared, which enabled to present the parameters of the virtual measurement machine to serve for higher education field.

Keywords: virtual reality, coordinate measuring, CMM, CAD

1. Introduction

Coordinates type of measurement technique is one of the most important and intensively developed area of a contemporary metrology, which gives a possibility to be integrated with CAD/CAM systems as well as to be implicated in the computer analysis and automatic storage of the measurement data. This made it develop dynamically, however, not many students are familiar with it.

This is a technique which uses coordinates measurement type of machines enabling a full operational control in real time because there is no need for the change of the measurement probe (one measurement process facilitates the measurement points to be determined including discrepancies and the measurement of small and big elements of a complex geometry). Because of that these machines are used in aviation, motor car, machine production and even medical and catering industry.

In the first part of this paper the model of virtual measurement machine is discussed as well as the machine operating process.

In the second part the model of the virtual machine is introduced including some stimulations on the example of the measurement of a given 3D model.

2. Production engineering and the coordinates application technique of measurement

Coordinates type of measurement application technique is different from a standard method of measurement (Bosh, 1995, Estler 1996, Ratajczyk 2005). It is based on the technique where the measurement points are determined in relation to a certain space allocation of coordinates (spherical, cartesian or cylindrical) These points are determined during the process of measurement mostly using the contact surface of the object being measured with the spherical tip of the measurement probe.
There are two types of measurement (Ratajczyk 2005):

- Point type of measurement so called sampling due to the type of the model being proceeded, which this paper mostly refers to.
- Continuous measurement so called scanning.

Having done a certain correction the measurement points can be observed in form of the coordinates of the inner tip of the spherical probe, fig.1.

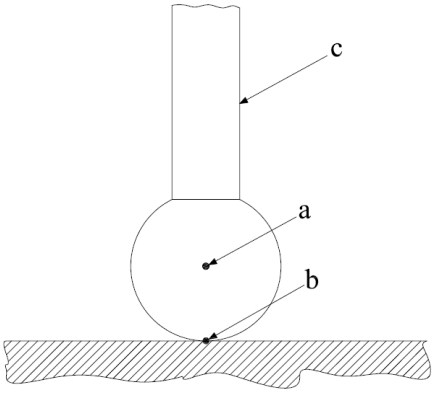


Fig.1. Graphical display of the tip of the probe with the object being measured: a- measurement point as observed, b: measurement point being corrected and a real contact point, c; measurement probe

Coordinate measurement strategy enables us to have high precision results in the time which is adjusted to the production process while the information data is being processed by the computer system (Ratajczyk 2005).

Thanks to the retrieved information the coordinates of the associated object are determined - the process is called *associated geometrical feature* , and is composed of the element being measured. Thus the computer program collects data and makes the calculations on the base of which it is possible to determine the accuracy of the measurement and the geometrical discrepancies of the object in relation to the standards included in the technical documentation.

The basic tool in the coordinate type of measurement is a coordinate measuring machine CCM. This device has mobile elements that move diagonally in three directions

The directions of the movements for these elements are determined by the axis of the coordinates (X_m, Y_m, Z_m) in this way the record is collected as far as the space location of the coordinates is concerned. The information about the movements of the machine elements along the axis is sent to the computer system and the electronic devices being determined by the appropriate formulas (Ratajczyk 2005).

It is very useful that by using this method the measurement procedures can be carried out with the object being in different positions, however it is recommended that the number of measuring points is higher than the minimal number of points for a given measurement proceeding. It is also recommended that the number of points should increase with the increase in the size of the sample measuring of the surface. It is very important when the accuracy of the measurement is to be achieved. The higher number of points than the minimal measurement standard is essential because it is conditioned by the algorithms being used. In addition when the choice of the measuring points is made it is also crucial to pay attention to their lay out, which must be balanced that is meeting the requirements such as; proximity, measuring points spacing and so on (Hocken 2011, Jakubiec 2004, Ratajczyk 2005).

In most cases, only proceeding the elements and the geometrical figures is not enough to determine the measurement of the object. In many cases a direct measurement done in the technical documentation is simply impossible that is why in the coordinate type of measurement both the technical documentation and the real object is taken into consideration. This creates a relation between the distances and angles. Each coordinates type of machine is connected to the computer system the programs of which calculates the values of these relations using the appropriate procedures.

The relations are as follows:

- distance between points e.g. between the centers of the spheres in space, fig. 2,
- the distance between the point and the axis or the surface, fig. 3.
- the angle between the axis, fig. 4,
- the angle between the surfaces, fig. 5.

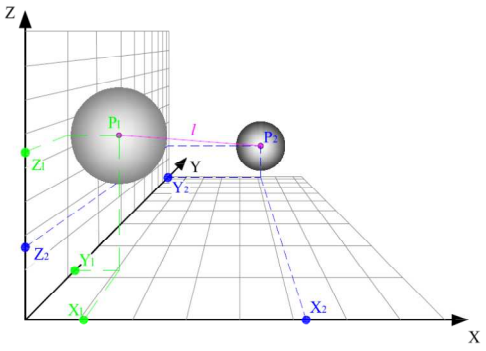


Fig.2. The distance l between the spheres centers (P1 i P2) in space

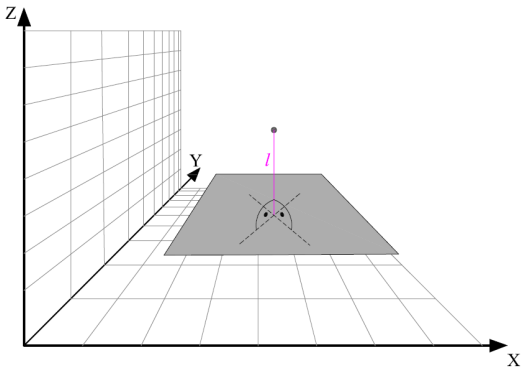


Fig. 3. Distance l between the point and the surface

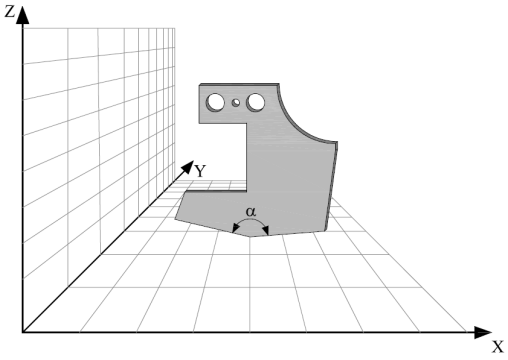


Fig. 4. Angle α between the two sides of the object

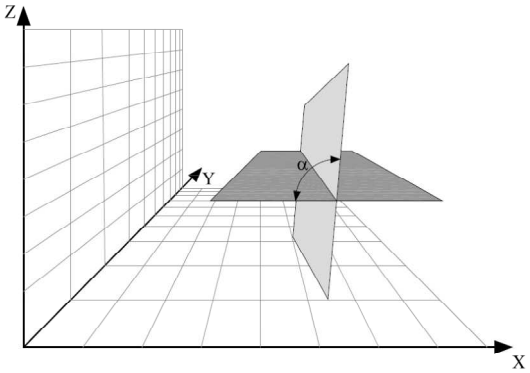


Fig. 5. Determining the angle α between two planes

The theoretical elements of the objects such as; the relation between the elements are determined using the calculations which are based on the pre defined parameters of the very object. These are certain constructions and reshaping enabling to determine the size the measurement of which is impossible to be carried out directly.

2.1. CNC measuring process programming

The proceedings for CNC measurement can be programmed by using 3 methods. The first method is so called *learning programming* where the measurement is performed in a manual mode. The machine saves every operation in its memory and converts them into a CNC programming language. It is important though for the operator to add the secondary points to the program memory, which determines the path of the machine movements.

Another way to carry out the measurement is so called *off-line programming* that is the programming without the machine being used. This program is made by using a special software that takes measurement based on the technical documentation. The whole process can be completed long before the actual production of an item starts. Modern programs enable us to simulate the process which gives a possibility to bring about some changes in case some errors appear (Bosh 1995).

The third way is also called *off-line programming* but it is based on the application of the CAD/CAM systems. This techniques allows for the process being generated in CAD/CAM system where the following operations are to be considered (Jakubiec 2004):

- pivot point system unit (using system reference libraries),
- object positioning (virtual project) on a measurement table,
- the movement programming by selecting the sample points, medium points, defining the depth of the pivot insertion, height of the retraction and the tolerance specifications. In this process the macro-construction is used which makes the measurement process much shorter and thanks to a transparent graphical visualization great many mistakes can be avoided as well.

The system makes it possible to simulate and analyze the program and in cases of any errors the correction can be made very quickly.

3. The concept of the measuring machine model set up

After the analysis had been made as far as the various design solutions were concerned the solution for a simple 3D printer was selected in conjunction with the application of standard printers available on the market. These modules are often used to build Cartesian robots.
The typical 3D "bridge" CMM is composed of three axes, X, Y and Z. These axes are orthogonal to each other in a typical three-dimensional coordinate system. Each axis has a scale system that indicates the location of that axis. The machine reads the input from the touch probe, as directed by the operator or programmer. The machine then uses the X,Y,Z coordinates of each of these points to determine size and position with micrometer precision typically.

A coordinate measuring machine (CMM) is also a device used in manufacturing and assembly processes to test a part or assembly against the design intent.

In order to increase the virtual model measurement capability the HH-A-M7.5 head, made by Hexagon Metrology, was selected. This solution enables us to generate more simulations and at the same time to increase the educational potential of the machine to be used in the future. Building this 3D model the technology of sequence assembly was used [Sąsiadek 2015, Shi-Jei 2013).

The virtual model of the measurement machine is composed of the linear modules Y (1), X (2) and Z (3), the set of measuring heads, (4), bridge, (5) and the measurement table (6) as seen in fig. 6

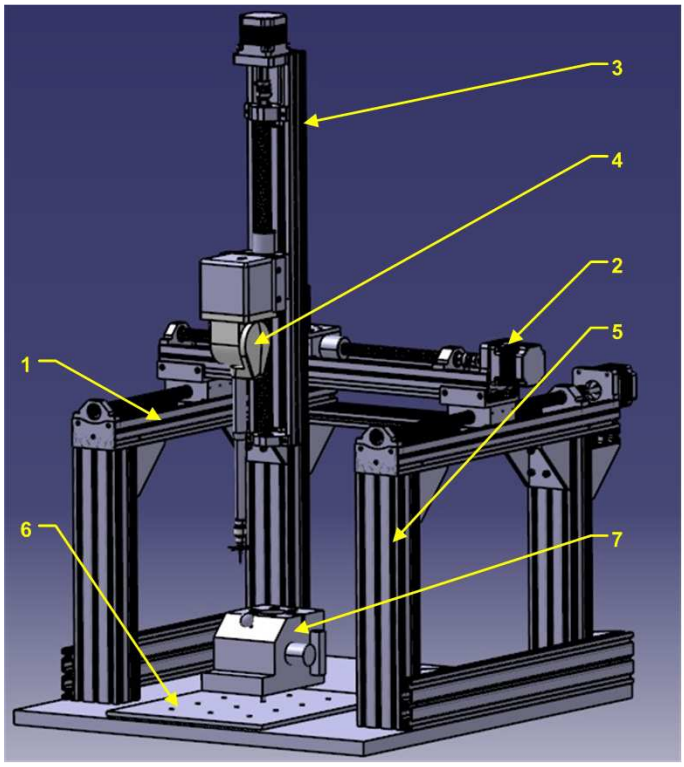
The size of the object was selected so that the machine could perform a sample measurement procedures

3.1. Measurement procedures simulation

The measurement procedures simulation was prepared using a Digital mock up kinematics module of the Catia V5 program. This module is not used for preparing the measuring procedures but for kinematic model verification, which means that every movement of the machine is conditioned by the values determined by the programmer. The movement range of the machine depends mainly on the construction and the solutions designed for a given element.

In order to prepare an educational measuring procedures some characteristic points of the model were selected and measured.

Next, the paths for the pivot run up were defined so that every movement could be as close to the movement of a actual measuring probe as possible. Having determined the measuring points, that is; the ultimate positions of the probe for the medium points determining the idle movement, the simulation was made. Each step of the simulation makes a path from one point to another where the starting and finishing points made always the starting point for the measuring probe (star type of the lower tip of the probe). This tip of the probe determines the starting point for the whole set of coordinates and was placed with the minimal deviation from every axis of the machine (Y=0, X=0, Z=0).



VCMM components:

1. *Y axis module,*
2. *X axis module,*
3. *Z axis module,*
4. *measuring heads unit,*
5. *bridge,*
6. *measurement tale,*
7. *object*

Fig.6. Model for the coordinates type of measuring machine

These are the following examples of the simulation (see table.1) , where :

- **start** - This is the point where the tip of the probe is placed at the beginning of the simulation.
- **approach** - this is the first step which determines an idle movement so as to make a contact of the probe with the measuring point - just before the measurement is actually made. In case when the probe cannot get closer to the point without collision another approach is performed but when the tip of the probe is close enough to the measuring point then this step is omitted. (e.g. in case of close proximity of the measuring points)
- **measurement** - this step is aimed at the target measuring point where the coordinates of the measuring point determine the contact of the probe with the object
- **retraction** - this step is opposite to the approach. The aim of this step is to remove the tip of the probe right after the measurement has been made. Like in the case of the approach when the probe cannot proceed in a straight line without collision another retraction is performed. During the proceeding of this sample procedure eight characteristic points were measured (see Fig. 7).

Table. 1. Stages of a sample measurement procedure (along with coordinates of the target points)

Steps	Points coordinates values		
	Y	X	Z
Start	0	0	0
Approach	139,436	36	267
Measurement I	139,436	36	271
Retraction I	139,436	36	267
Approach II	153	36	271
Measurement II	150,543	36	275,9
Retraction II	153	36	271
Approach III	159	36	287
Measurement III	155,436	36	287
Retraction III	159	36	287
Approach IV	155	36	304
Measurement IV	150,543	36	298,107
Retraction IV	155	36	304
Approach V	139,436	36	308
Measurement V	139,436	36	303
Retraction V	139,436	36	308
Approach VI	124	36	304
Measurement VI	128,329	36	298,107
Retraction VI	124	36	304
Approach VII	119	36	287
Measurement VII	123,436	36	287
Retraction VII	119	36	287
Approach VIII	124	36	271
Measurement VIII	128,329	36	275,9
Retraction VIII	124	36	271
Return	0	0	0

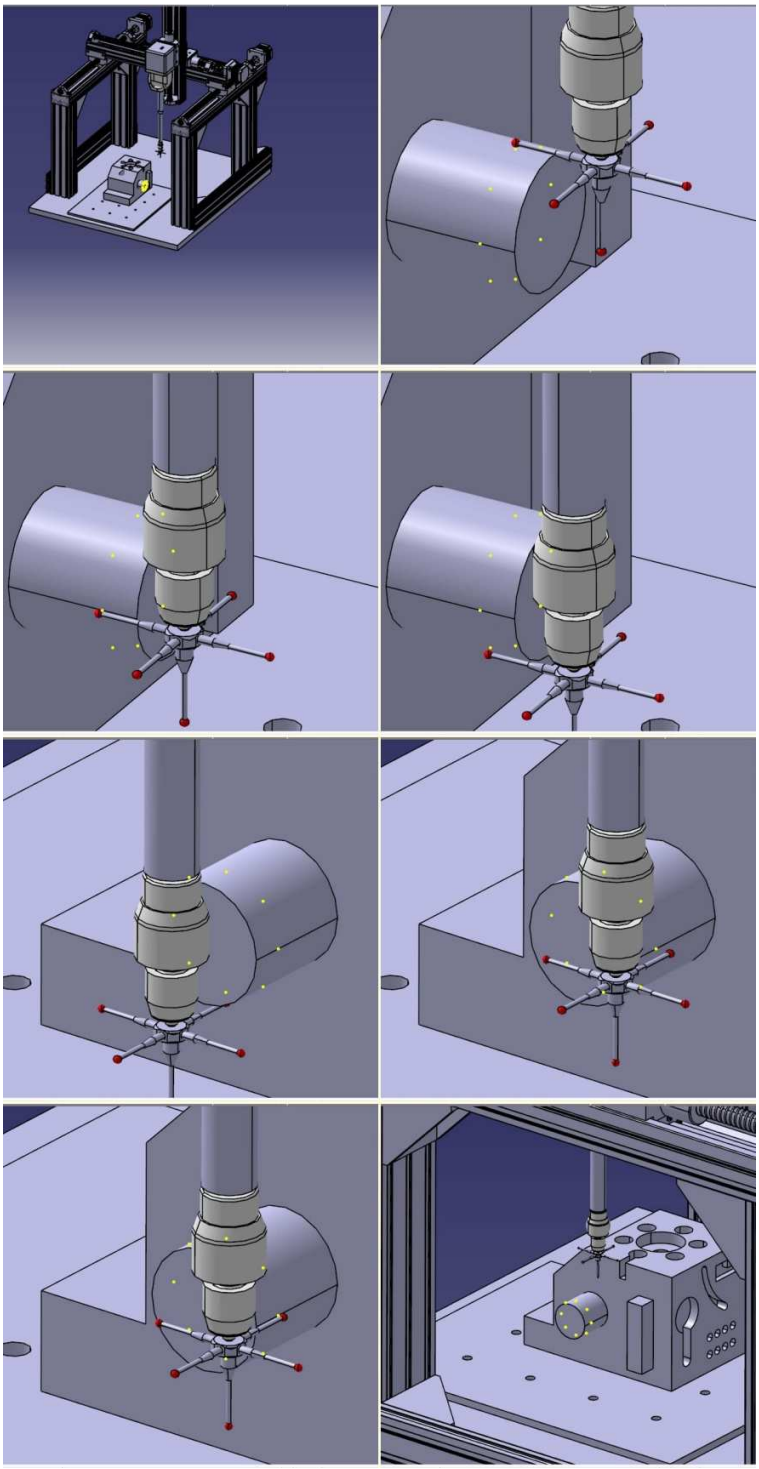


Fig. 7. Sample illustrations of the animation for the simulation process of the measuring procedure included in this text.

After the design had been made and the model uploaded into the CATIA V5 program a few simulation were performed, which showed the measuring process in a very transparent way. Using CATIA V5 program is educationally very useful as it is possible to examine every element at its measuring stage. Besides depending on the educational objectives it is possible to modify the model by adding some elements and thanks to the DMU Kinematics module we can prepare another simulations.

Even it is only virtual model and virtual presentation it occurs very useful in better understanding how CMM works. It's possible to prepare any 3D CAD model and then import it to virtual CMM model end prepare another simulation of measuring process.

Conclusion

The paper continues previous author works related with using 3D and virtual environment in engineering practice (Jakubowski, 2010, Jakubowski 2014).
At this stage the model is used for the educational purpose and because of this some issues which proves to be essential for the proper measurement model were omitted. For example, some construction elements, without which the actual model would not serve its function (e.g. divers – PC connection), were not included in the discussion. However all these elements do not affect the operation of the virtual machine.

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Higher Education Funding in Nigeria: Issues, Trends and Opportunities

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Abstract

Higher Education is viewed in Nigeria, as in many other developing nations, as a critical contributor to national development. This is because of the belief that economic and social developments are driven more by the advancement and the application of knowledge. This belief has therefore made the Federal Government in Nigeria to keep playing a prominent role in the development of education in terms of funding and even governance. A National policy on education was therefore designed to chart the course of educational development in the country and has been a major reference point to both the public and private education providers. Higher Education funding has been described as the process of procuring and disbursing financial resources to tertiary institutions, for the provision of education of a given standard.

Keyword: higher education, funding, funding formula

1. Introduction

Historically, due to its importance to national economic performance, Higher Education funding has been the exclusive preserve of national Governments nationwide (Albrecht & Ziderman, 1992). This is also the case in Nigeria as funding of the Federal Universities is the sole responsibility of the federal government. All public universities are financed by grants/ subventions provided by either the federal or the state governments with very little or insignificant contribution by the students in terms of fees. Although there are quite a number of models for funding higher education globally, Nigeria Like many other countries where tertiary education is being sponsored by the government, uses the incremental budgeting system to allocate funds to the Federal Universities (Akinsolu, 1990; Olayiwola, 2012; Wangenge-Ouma, 2011).

2. The Budgeting for Higher Education

Initially, budgeting for higher education revolves around the NUC due to its advisory role to the government (Omoregie & Hartnett, 1995). The commission is expected to collect all budget requests

from the Federal Universities and scrutinize them to ensure complete compliance with the provisions of the funding parameters as approved by the government. The reviewed proposals are then recommended and forwarded to the Federal Government for funding. A budget defense session, coordinated by the National Assembly, will require all the universities to defend their budgets and allocations will be done on that basis. Notification of allocations will be forwarded to the NUC by the Federal Ministry of Education and each university is expected to prepare its operating budget based on the actual allocations, using the parameters set by the NUC.

The Commission, as the supervisory agency responsible for the management of all the universities in Nigeria, is also saddled with the responsibility of distributing the Federal Government's block grant allocations to the federal universities. The approved grant is further divided into recurrent and capital allocations, and is expected to be distributed in the ratio provided by the NUC funding parameters. Based on the provisions of the funding parameters (as presented below), the universities will prepare their operational budgets for the approval of NUC, and subsequent fund allocation. Thus the entire budgeting process is guided by the NUC funding parameters.

Besides this, the commission stands between the universities and the federal government, thereby insulating them from direct political control. They also ensure that these universities are fully accountable to the government, especially with respect to national policy implementation. As such it acts as a control agent for the federal government and ensures that the ethics and the standards of higher education, as defined by the government, are fully maintained.

3. Funding Parameters

To carry out its statutory role of receiving block grants from the Federal Government of Nigeria, with a view to distributing same to the Federal Universities, the National Universities Commission devised a formula called "National Universities Commission Resource Allocation Parameters" which it uses to allocate funds across all the federal universities in Nigeria (Akinsolu, 1990). These parameters are as given below:

1.	Enrolment specifications		
	Science based disciplines (including engineering)	60%	
	Social Science disciplines	25%	
	Humanities		15%
2.	Student/ Academic staff ratios		
	Art based disciplines		15:1
	Science based disciplines	10:1	
	Medicine		7:1
	Education		24:1
3.	Academic staff structure		
	Professorial grades		15%
	Senior lecturers	25%	
	Other lecturers		60%
4.	Non-teaching support staff ratios to academic staff		
	Senior administrative support staff	1:12	
	Senior technical support staff		1:2 (in science) 1:4 (in other units)
	Junior Staff		
	Junior technical staff		1:3 (in science) 1:4 (in other units)

5. Allowances for direct teaching and services. This is based on the level of intensity of student teacher contact, facilities and other teaching equipment required.

Art and education based disciplines 15 - 20% of staff salaries in the discipline
Science based disciplines 25 – 35% of staff salaries in the discipline

6. Line items funding

Library to total operating costs	5%
Teaching and research equipment to total operating costs	5%
Research and development to total teaching costs	20%
Public service to teaching costs	10%

7. Administrative support cost for each university
   - Central administration. Calculated on the salaries and goods & services required by all non-academic staff located in academic departments and units. The number of such personnel shall be determined from the approved number of non-academic staff whose salaries have been established under academic departments.
   - Student services. This shall include the costs of students feeding; maintenance of student's hostels and cost of student's sporting facilities. Note: feeding has however been suspended since 1988.
8. Other services.
   This includes the provision of university health services and the maintenance of university grounds and properties and facilities. While the cost of university health services is calculated per annum per staff member and his family, the cost of physical facilities is estimated on the needs of the particular university, as well as the size of its physical plant and land area.
9. Non-academic expenditures (personal emoluments).
   This includes leave passages, housing allowances and transport allowances, the allowances are calculated based on nationally approved rates and the total number of staff approved for each university.
10. Retirement policy: 1% of the university's total operating expenditure, as approved by NUC.
11. Local Income (Internally Generated Revenue)
    This includes receipts from various student fees charged by each university (e.g. accommodation, ID Cards etc.), rents on university properties, interests on bank deposits, and external grants received by the universities. The recurrent grant for each university is the NUC recommended expenditure, less the amount of local income. The Commission has directed all universities to raise at least 10% of their approved recurrent expenditure as internally generated revenue.
12. Total Salaries:
    This is estimated by calculating the average salaries of the recommended mixes of staff, by rank, in particular university functions, i.e. teaching, research, technical, administration, maintenance etc. and the number of staff allowed in the particular functions. Non-salary emoluments are similarly obtained from the product of the current rates approved by regulation and the recommended number of staff in each category.

Expenditures at the Federal Universities are divided into

1. Direct teaching expenses (salaries and wages of academic staff and their supporting staff),
2. Non-academic expenses (laboratories, libraries, research etc.) and,
3. Administrative support.

Direct teaching expenses are expected to be the largest of these three, as the essence of the University system is the provision of teaching and learning. To this effect therefore, the NUC funding parameters, as explained above, has recommended that all the universities must at least allocate nothing less than 60 percent of their total expenditures for direct teaching and academic activities, as shown in the table below

Table 1: Parameters for line items in recurrent grants calculations

Heading	Description	As % of recurrent expenditure
Teaching and Learning	Direct Teaching	32.6%
	Teaching support	1.6%
	Teaching research and equipment	5%
	Staff development and training	2.3%
	General academic expenditure	1.2%
Research and Development	Research	10%

Source: Adapted from; Olayiwola (2012)

But despite the existence of the above elaborate parameters the commission has been incapacitated and has been forced into haphazard allocations due to insufficient funding by the federal government (Albrecht & Ziderman, 1992). Thus Okoroma (2007), believes that the NUC has lost its capacity and capability to adequately supervise all the universities in Nigeria.

4. Funding Trends

Grants for recurrent and capital expenses of the Federal Universities are obtained from the Federal Government, as university education is supposed to be free in Nigeria. Historically, funding for the Federal Universities have been fairly steady, with universities receiving almost the full value of what they requested from the government. The discovery of oil and the subsequent economic boom witnessed by the Nigerian economy in the early 1970s made the Federal Government to abolish school fees and took it upon itself to provide full funding for the Federal Universities (Okebukola, 2010). Prior to 1975, all the 6 federal universities in the country are fully and sufficiently funded. This led to an increase in the demand for higher education, which made the government to establish additional tertiary institutions, especially federal universities.

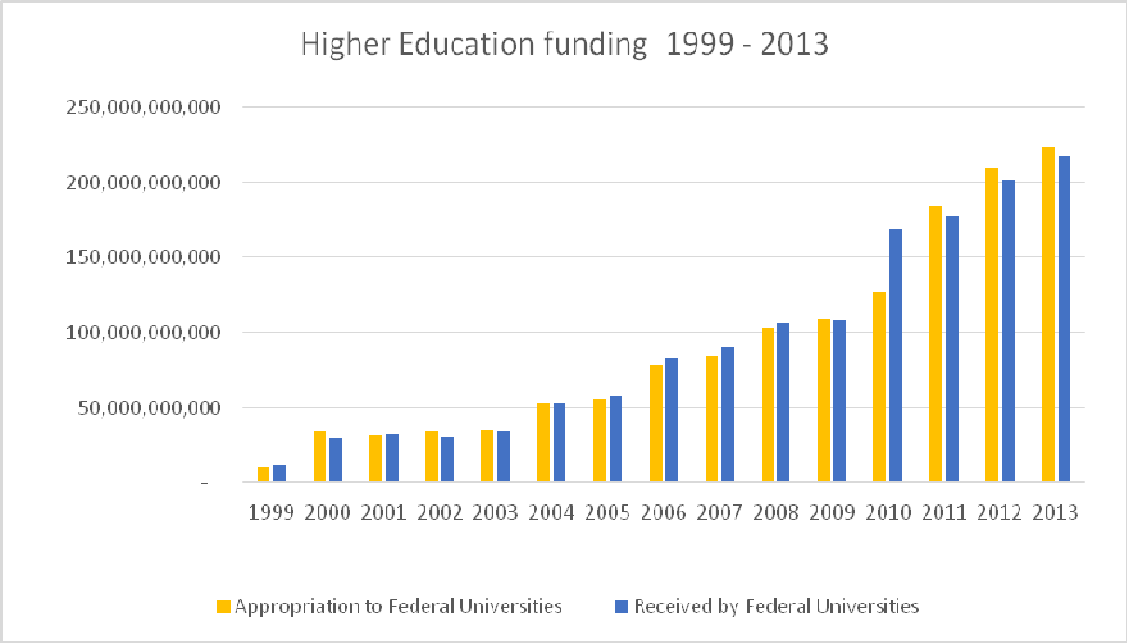
Table 2: Total Fund allocations to Federal Universities for the period 1999 – 2013

	Appropriation to Federal Universities	Received by Federal Universities	Number of Universities	Average per University	Exchange Rate N to $	$ Equivalent
1999	10,507,388,580	11,831,930,272	24	492,997,095	93	5,318,200
2000	33,788,940,312	30,143,004,498	24	1,255,958,521	102	12,301,259
2001	31,844,324,846	32,646,410,862	24	1,360,267,119	112	12,151,752
2002	33,778,450,500	30,351,483,193	26	1,167,364,738	121	9,650,035
2003	34,411,319,280	34,203,050,936	26	1,315,501,959	129	10,169,310
2004	53,024,557,483	53,466,287,486	26	2,056,395,673	134	15,403,713
2005	55,921,243,975	58,275,967,609	26	2,241,383,370	132	16,960,903
2006	78,066,798,858	82,376,684,290	26	3,168,334,011	129	24,627,548
2007	84,464,710,606	90,565,259,337	27	3,354,268,864	126	26,657,147
2008	103,858,443,524	106,633,620,745	27	3,949,393,361	119	33,308,538
2009	109,209,812,356	108,600,310,930	27	4,022,233,738	149	27,016,616
2010	127,465,208,169	168,955,649,920	27	6,257,616,664	150	41,634,176
2011	184,695,666,017	177,525,439,322	35	5,072,155,409	154	32,966,043
2012	209,498,125,598	200,768,495,246	36	5,576,902,646	158	35,408,906
2013	223,482,973,079	217,549,942,696	40	5,438,748,567	161	33,865,184
2014						

Source: National Universities Commission

However all this came to a sudden halt when the oil boom era was over. Government grants to not only the Federal Universities, but to the entire education sector came crashing. The government, after reducing the size of its grants to the Federal Universities, also attempted to increase the amount of fees payable by students, which was violently rejected by the students union (Okebukola, 2010). Although the funding pattern has seen some improvements from 1999, when a civilian government was sworn in, the increase was only nominal, as the purchasing powers of these grants has significantly dropped due to inflation, currency devaluation, economic and political turmoil and the impact of structural adjustment program (SAP). The number of universities was also increased from 24 in 1992 to 40 in 2013, which further stressed the financial stability of the Federal Universities. The annual grants to the education sector by the Federal Government from 1999 to 2013 is shown in Table 2. A comprehensive analysis of the table will be presented in the appropriate sections in this research.

Figure 1: Graphical representation of total fund allocation to Federal Universities in Nigeria 1999 – 2013

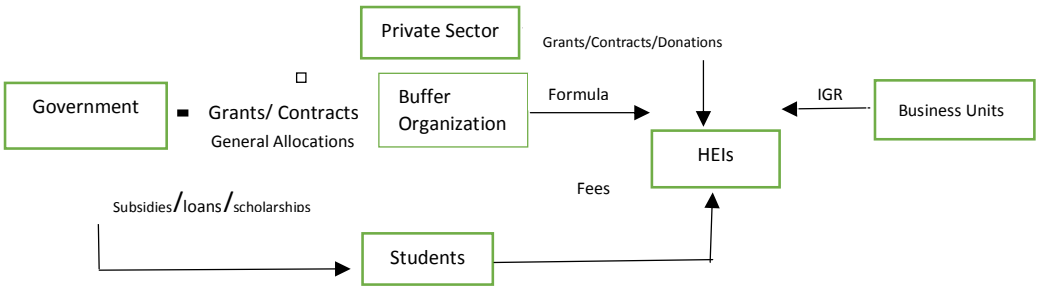


Source: National Universities Commission (NUC)

5. Sources of funds for Higher Education in Nigeria

HEI funding is a very serious issue for most national governments, as they form part of their major steering mechanisms through which they control the HEIs, and are as well linked to national policy issues (Barr, 2004; Jongbloed, 2004). Besides the level of resources allocated to the HEIs, what matter most is the funding mechanism as well as the criteria used for its allocation. The composition of funds, to a great extent, determines an Institution's level of freedom, and is likely to determine its internal governance (Lepori et al., 2007). The figure below depicts a simple representation of the main channels of funding higher education in the developed and as well as in the developing nations like Nigeria.

Figure 2: Sources of funds for HEIs



Source: Adapted from Lepori et al. (2007); Saint et al. (2003); and Jongbloed (2004).

Figure 2 above is a graphic representation of higher education funding channels in the developing and in most developed countries (Jongbloed, 2004), and is further explained thus;
Government allocations:

This is the major source of funds for the Federal Universities in Nigeria. Government grants and allocations constitute about 85 percent of the total income received by the universities (Akinyemi, 2013). The grants are contributed for the running of the HEIs by the Federal Government and are being channeled through the National Universities Commission.
Grants/ contracts from Government;

These are funds specifically allocated to the universities for particular projects or activities, for defined periods. They include research grants received from research funding agencies, grants from international bodies like the World Bank and UNICEF etc. In Nigeria for example, such funds are coming from the Tertiary Education Trust Fund (TETFund). The trust fund was established by the Federal Government to raise funds for tertiary education, thereby reducing their reliance on the Government. A 2% education tax on the profits of all corporate organizations registered in the country, was therefore charged by the Federal Government and is being collected by the agency for the development of tertiary education. The Fund is a major source of financing for capital projects for the tertiary education sector in Nigeria. Between 2008 to date, the fund has allocated over Six Billion Naira for the development of tertiary education (as is shown in Table 2.2). It should however be noted that the intervention provided by the Fund does not fund teaching and learning.

Table 3: Volume of funds allocated by TETFund for Tertiary Education in Nigeria for the period 2008 – 2014.

TOTAL INTERVENTIONS BY TERTIARY EDUCATION TRUST FUND (MILLIONS)								
	2008	2009	2010	2011	2012	2013	2014	TOTAL
Capital Projects	107.00	132.50	431.87	469.90	763.00	814.00	1,248.00	**3,966.27**
Research	15.00	12.50	20.00	30.00	24.00	40.00	60.00	**201.50**
Library Development	10.00	20.00	40.00	45.00	103.00	140.00	240.00	**598.00**
Staff Training and Development	70.24	90.00	110.00	150.00	249.00	300.00	330.00	**1,299.24**
Journal Publications	-	5.00	9.00	20.00	20.00	30.00	50.00	**134.00**
Production of Manuscripts	-	-	-	7.00	7.00	15.00	26.00	**55.00**
Conference Fees	-	-	30.00	40.00	75.00	100.00	150.00	**395.00**
Entreprenuership Centres	-	-	-	75.00	-	20.00	20.00	**115.00**
Equipment Fabrication	-	-	-	10.00	-	10.00	20.00	**40.00**
Teaching Practice	-	-	-	10.00	10.00	10.00	10.00	**40.00**
	-	-	-	-	-	-	-	**-**
Total	**202.24**	**260.00**	**640.87**	**856.90**	**1,251.00**	**1,479.00**	**2,154.00**	**6,844.01**

Source: Tertiary Education Trust Fund (TETFund).

Grants/ contracts /donations from private organizations

These represents grants or donations received by the HEIs from private business organizations, like corporate bodies. The funds could come in the form of charities or endowments to fund specific activities or projects within tertiary institutions. Some of the organizations that are currently supporting the HEIs in

Nigeria, according to Ogbogu (2011), includes John D. and Catherine T. MacArthur Foundation, The Ford Foundation, The World Health Organization (WHO) etc. Others, like Julius Berger PLC, CHEVRON and the Petroleum Trust Development Fund (PTDF) also contribute physical infrastructures for the development of tertiary education in Nigeria.

Student fees

These are fees collected from students either for tuition or for other educational charges by an institution. Tuition fees, by far, contribute the largest share of student fees received by the HEIs. These fees are classified into undergraduate and postgraduate fees. In most nations, especially in developing nations like Nigeria, undergraduate tuition fees are free and funding is provided by the government, and where charged, such fees are set by the government. Postgraduate tuition fees are however left at the discretion of the institutions to charge at their convenience, as majority of governments do not subsidize postgraduate education.

Internally Generated Revenues

These are funds mostly generated by the HEIs from their internal business and commercial activities to boost their income base and reduce their over reliance on government funds. They include incomes like; interest earned on bank deposits; charges for hostel accommodation and fees from consultancies and other related incomes. According to the NUC funding parameters, each university is expected to raise at least 10% of its operating expenditure internally (Omoregie & Hartnett, 1995).
It should be noted however that the choice of the funding mix for the institutions depends on the governments perception of the visions and missions of higher education in any given nation and the perceived role of education in national development (Omoregie & Hartnett, 1995)

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Country-of-Origin Brands from the Point of View of the Slovak and Czech Consumers

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Abstract

The paper is focusing on selected aspects of country-of-origin brands based on the results of primary representative researches conducted in Slovakia and the Czech Republic combined with additional information concerning the current practice. It highlights the brand importance within the frame of consumer preferences, opens the discussion concerning Slovak and Czech brands background and compares selected attitudes of the Slovak and Czech consumers toward brands.

Keywords: brand, consumer behavior, country of origin, Slovak brand, Czech brand.

Introduction

The issue of country of origin of the brand is a problem that has never been subject to systematic scientific research. It rarely appeared in marketing research focusing on customer preferences or in the monitoring of consumer behavior. Such studies are currently conducted in many countries according to Donvito and Tiziano (2015), including Slovakia and the Czech Republic (note: current examples in this field are represented by surveys conducted by TNS Slovakia – Lifestyle (2015), the CPS consumer panel by GfK Slovakia (2013a), or typology of Slovak and Czech consumers based on the MML – TGI by research agency MEDIAN (2015), concerning the Czech Republic it is also possible to mention surveys conducted by Stem/Mark (2015)). This paper aims to focus on consumer brand perception according to the results of two representative research studies taking place over the years of 2013 and 2014. Both research studies were conducted by institutions of higher education. The questions were formulated in order to compare the answers of both the Czech and Slovak consumers.

The first survey was conducted within the research project VEGA 1/1051/1 Analysis of strategic processes of brand building and brand management in the context of homogenization and individualization of consumer needs by the Department of Marketing at the Faculty of Management, Comenius University in Bratislava. Data were collected in the period of January to April 2013 and its primary objective was to analyze the attitudes and preferences of Slovak consumers towards brands and branded products with special attention to identify the impact of brands on purchasing behavior of the Slovaks. Primary research was conducted on a sample of 1067 respondents – consumers.

A similar research study was conducted by the Department of Marketing Communications, Faculty of Multimedia Communications, Tomas Bata University in Zlin. Data were collected from a sample of 1022 respondents in the period of October to November 2014. As we have already indicated above, the questions were semantically similar and formulated in a way that would enable us to compare the research results in the Czech Republic and Slovakia. In both cases the sample group reflected the composition of the population older than 16 years and the form of proportional stratified selection was applied. The youngest respondent in the Slovak research study was 16 and the oldest 81 years old. In the Czech Republic the youngest respondent was 16 years old too, however, the age range was set at

60 and more. Selected statistical methods were used for data processing. The purpose was processing of the obtained data into a form suitable for scientific work and economic practice.

The research method used in both surveys was questioning – respondents were supposed to answer three open questions and thirty-two closed questions in a form of Likert scale, one of the most used and most reliable techniques measuring attitudes. Respondents in both surveys could answer in a five-point Likert scale starting at "I totally agree" and ending at "I fully disagree", the median was the answer "I do not know".

In the case of open questions, we were looking for the answers to the question which brands respondents consider Slovak or Czech and why. Respondents' answers were compared but taking into consideration their diversity and the difficulty of their comparison, they, however, raised more questions than answers. Although respondents' replies raised new problems, at the same time they brought new ideas in the field of marketing research focusing on exploring brands. The process of assessing results of these studies brought many surprising answers – these make us think about what is and what is not a "domestic" brand.

Brands and consumer preferences

The issue of consumer preferences is a complex topic. What consumers prefer and why depends on a number of rational and emotional factors entering into the decision making process. The fact that the decision on the purchase of goods and services depends on preferences and experience of consumers has long been known. However, consumers do not always make decisions based on their own preferences. Their decision making is often determined by other attributes – these enter into the process and influence it. These include: the availability of goods and services, pricing, media communication (poor hypermarkets), own and other's experience – both positive and negative, lifestyle, preferred behavioral patterns, and a number of economic factors. Decision criteria vary, they depend on the fact whether durable products or fast moving consumer goods will be purchased (note: the GfK Slovakia Agency has been monitoring consumer behavior in Slovakia for several years. Its first results showed that for durable products, such as washing machines, refrigerators, or televisions, Slovak consumers prefer branded products to non-branded ones (2013b)). Nowadays, many Slovak companies want to build a brand. Customer preferences are in favor of branded goods and services; selection of non-branded goods and services is rather random. Brand-building is recommended to all entrepreneurs who are able to provide quality products and guarantee their quality by literary and other sources (according to: Aaker (2003), Cernatony (2009), Taylor (2007), Keller (2007), Hesková (2006), Smolková et al. (2013), Smolková and Štarchoň (2013) etc.). All authors point to the fact that this is a long term and resource intensive process, which, however, creates the desired effect.

Brand Slovakia and Slovak brands – Brand Czech Republic and Czech brands

Before we begin to think about what brands are considered Czech or Slovak and why we need to understand the brands of these two countries and to take into consideration their common history. Some brands named in the survey by consumers were established and used in the common state of the Czechs and Slovaks. Brand building applies to the country of origin and to the country where the brand comes from, and it may also apply to the country in which products, under certain brand, are produced. If we talk about customer preferences, we must take into account the real characteristics of the countries we are talking about. Without these, no realistic picture can be made concerning the sale of branded products on a specific market, what brands are offered on it and therefore it is not possible to talk about the specifics of the business environment or customer preferences. The European Union has paid a lot of attention to the fact that individual Member States have enough space to build their own

brand – e. g. changing EU Presidency and the possibility of supporting marketing activities. It named products that have a national characteristics and the trademark of the country. The types of trademarks in the EU include: protected designation of origin (PDO) – Paprika from Zitava or Saaz Hops (Žatecký chmel); protected geographical indication (PGI) – Slovenská bryndza cheese or Czech beer; traditional speciality guaranteed (TSG) guaranteeing the accuracy of the recipe not the brand of producers (Bratislavský rožok/Pressburger Kipfel/Pozsonyi kifli or Třeboň Carp) as mentioned in The industrial property office of the Slovak Republic (2015) and Eurostat (2015).

Through the support of regional development, the European Union prefers sales of traditional products – this goes hand in hand with the development of tourism and so it supports activities to promote a particular country. The Czech Republic and Slovakia were established in 1993 and it has to be said that recently the Czech Republic has been more successful in brand building of their country, particularly as a country of original products (Czech beer), a tourist destination (according to The state agricultural intervention fund (2015) in the polls Prague has performed as an attractive tourist destination in the long run). Unfortunately, despite numerous opportunities it can be stated that the brand Slovakia as a country of origin or as a tourist destination has so far been undistinguished and succeeded only in few branches, for example in the automotive industry. The Czech Republic and Slovakia are countries situated in Central Europe, both of them are EU Member States, and Slovakia is a member of the monetary union too. The population of the Czech Republic amounts to 10.5 million and the Slovak Republic to 5.5 million inhabitants. Both brands, due to their common history, can be considered specific in terms of consumer preferences, in relation to brands and to the behavior of business entities on both markets.

A number of companies, which had been met by consumers for decades, closed down and a large part of production considered traditional and hence domestic disappeared with them. This is particularly true of agricultural production, both plant as well as animal, footwear and textile industries. We can only assume whether these businesses had closed down if they had had invested in the systematic building and proper positioning of their brands in the past. Those businesses which owned a brand and were building it up had two basic options – to develop it or to deal with it as if it were business goods. A number of brands, originally created in Czechoslovakia, have become part of the portfolio of big foreign companies, however, even when the brand and production associated with this brand became part of the portfolio of multinational companies, most producers have kept production, or at least part of it, in their countries of origin. It is possible to identify those companies that transferred production abroad (examples include: Slovak Palma Tumys brand – its production moved abroad in 2012; the traditional Czech brand Zetor became part of the Slovak HTC holding company in 2010; the traditional Slovak producer of poultry Hyza has been in the hands of the Czech Agrofert holding company since 2006). Part of brands traditionally seen as Czech or Slovak became part of the portfolio of global holding companies, others are owned by Czech and Slovak owners. In both cases, however, the brand is built in relation to the place of production because the volume of domestic sales is a factor on which companies owning the brand count.

The growth of domestic sales is affected by the support of country of origin labels (even though it cannot be said that it is the support of domestic production as all the governments have preferred FDI inflows to the support of domestic producers). According to The state agricultural intervention fund (2015) in the Czech Republic, products fulfilling high-standard requirements are awarded by Klasa Awards “Top Quality Czech Product”, and as identified in Superbrands Czech Republic (2015) successful products are awarded within Czech Superbrands Awards. In Slovakia there has been a tendency to support domestic production for twenty years, since SK Quality Brand as it is published by Ministry of agriculture and rural development of the Slovak Republic (2015) is granted and the project by the Foundation Slovak Gold (2015) takes place. In addition, intensive media campaign to promote domestic sales has been run in Slovakia since 2013, in which Slovak products are labeled by Quality of

Our Regions published by INCOMA Slovakia (2015). Civic association of the same name, responsible for the initiative, does not grant quality certificates but it registers companies producing items in Slovakia and it aims to educate Slovak consumers. In the Czech Republic a similar campaign has taken place since 2014 and as published by Nadační fond Český výrobek (2015) it is recognizable by the logos "Genuine Czech" and as published by Ministry of agriculture of the Czech Republic (2015) „Regional food". The logo "Genuine Czech" aims to promote Czech producers not only on its own domestic market. One of their requirements is that the company must be Czech using only Czech capital. The logo "Genuine Czech" is granted by the Federation of the Food and Drink Industries of the Czech Republic (FFDI) and guarantees the maximum possible rate of Czech ingredients in food products. The logo "Genuine Czech" indicates that the product is made in the Czech Republic and the producer employs Czech employees. The logo "Local product" is granted to Czech products with regional tradition. These include local food and traditionally made products (jewelery, ceramics, product made of wood, glass or textile), and environmental factors are emphasized too.

Quality award in an international context is another important factor because it has an international impact and aims to promote Slovak and Czech brands worldwide. Philosophy to promote domestic production of both goods and services has been adopted by many foreign corporations and taking the advantage of domestic sales they have realized that many Slovak and Czech brands have a greater potential for growth in foreign markets but the existing owners and their managements have so far failed to take advantage of this potential.

The support of domestic producers has experienced unprecedented sales growth in domestic production and is still persisting. Czwitkovics (2013) mentioned that it is connected to the heavily promoted need to promote the domestic economy by own domestic consumers. Ethnocentrism of domestic consumers and country of origin brands are encouraged. Activities promoting the sales of domestic production are in relation to influencing customers so as to take note of the identification codes on the product packaging and "not to take a look at the price" because domestic production in smaller countries is not always the cheapest in the given segment. Should the price be not the critical factor in the process of decision making of the Slovak and Czech consumers, it is necessary to build brands but above all to increase the quality of domestic production.

What brands are Czech/Slovak?

The answer to this question should be simple, but in fact it is not. As we have indicated, we are unable to clearly say what a Czech or Slovak brand is. Criterion, as is clear from the title of this paper, is determined by the country of origin of the brand. A lot of specialists, however, think that this criterion is insufficient, others are not interested in the country of origin but tradition, and others would rather investigate ownership relationships. So what are the criteria? Three basic criteria will be outlined below.

The first criterion is tradition and it applies to a) typical products such as Czech beer or jewelry, Slovak sheep cheese, Moravian or Tokaj wine; b) brands, if established in the territory of the Czech Republic, respectively Slovakia or the former Czechoslovak Republic, no matter on which markets they now operate. One example of such a traditional brand is Bata, which appeared as Czech and Slovak in both surveys. Its founder, Tomas Bata, created it in the period between the two world wars in the former first Czechoslovak Republic and produced products in parallel in the territory of the Czech Republic (Zlin) and Slovakia (Svit). In the Slovak survey, 2% of respondents marked it as a Slovak brand; in the Czech survey, the number is even higher – 4% of respondents marked it as a Czech brand. After World War II, Bata transferred his business activities to Canada, where the Bata brand is currently perceived as their own brand.

The second criterion is the country of production or service provision. In the Czech survey, the question: What do you think of when you hear the expression "a Czech brand"? was answered by mentioning brands such as Skoda, Pilsner Urquell, and Kofola. In the Slovak survey, brands like Rajo, Jednota Coop, and Figaro were mentioned. Furthermore, part of Slovak respondents considered the Kia brand for Slovak. KIA Slovakia has positioned itself this way. A similar example can be seen in the Czech Republic where Hyundai does the same.

The third criterion presents ownership relationships. Brand is judged according to the country of origin or nationality of those who created it. Examples of Slovak brands were given by respondents, such as ESET, Hyza (which has meanwhile become part of the Czech Agrofert company), or Sedita; Czech respondents named Skoda, Kofola, and Opavia. This criterion, however, is the most difficult to grasp for both, respondents and researchers. Information on which brand belongs to the portfolio of which multinational corporations is not always communicated or publicly known. As shown by both studies, it may not be so important for consumers to look up data relating to the brand ownership and their decisions are not based on these data.

The problem is that none of the criteria mentioned above is comprehensive, and, in some cases, these criteria cannot be verified. The place where the brand was created does not need to be identical to the market on which it operates. On the European market, and this is also true of the Czech and Slovak market, we can see the presence of many different brands. Brands, local but also global, operate here – some have outsourced manufacturing activities wholly or partly to the territory of our countries, some focus their production and brand building on a single market. Therefore what is important – is the viewing angle and not a strict determination of the distinguishing criteria. If it is a macroeconomic view the information on where the products offered under a given brand are manufactured (or service is provided) is the most important factor. If marketing view dominates, the country of origin of the brand is important in terms of image perception of the country and the country as a brand as well as brand loyalty on a particular market.

Nowadays, some traditional Czech and Slovak brands, and it has to be said that this also applies to the most successful ones, are in the portfolio of foreign holding companies. Brand managers of big global companies either kept or rebranded the names of originally Czech or Slovak brands. They are aware of the importance of the country of origin of the brand because this plays a significant role in consumer preferences. The survey shows that consumers perceive brands historically created in the particular territory as domestic ones. This fact cannot be ignored, it is necessary to take it into consideration and to make the most of it. Therefore, in the Czech Republic and Slovakia, and many other countries, annual research is done on the following: what brands are most successful and why, moreover, rankings of successful brands on global, European, and national markets are made. The Superbrands Czech Republic (2015) project awarding the most successful brands in the Czech Republic and Slovakia as published by Superbrands Slovakia/CEE (2015) can be mentioned as an example.

The sales volume of branded products is increasing and there is a high level of probability that this trend will continue. As we have already mentioned above, the existing criteria for determining the country of origin of the brand vary a lot and a range of factors are taken into account. Surveys of customer preferences are always localized to a particular country or region. Legislative standards, cultural traditions, educational level and other economic and social factors can have a quite significant influence on how respondents will answer. Surveys summarize factors valid in other parts of the world if it is assumed that deviations are not statistically significant. Customer preferences depend also on other factors that have not been mentioned yet: purchasing power, regional distribution of wealth in the country, the possibility to make a choice among several branded and non-branded products, existing offer on particular markets, consumer ethnocentrism and many other factors influencing purchasing behavior. A question can be asked: How many people would prefer branded products if they could

afford it? In many regions in the Czech Republic and Slovakia, price is the determining factor in buying decisions – this fact has been proven not only by our surveys but also by surveys conducted by reputable agencies. Concepts supporting domestic production in both countries, the Czech Republic and Slovakia, affect customers and encourage them to buy domestic products. But the fact is that among EU Member Countries, the Slovak Republic has the second smallest offer of country of origin products. Although the Czech Republic is statistically doing better, the import volume is increasing at the expense of Czech production from year to year (note: published statistical data are mainly related to food products and assessed in terms of food self-sufficiency. Comprehensive data on total production are not available.). This is one of the main reasons why both the Czech and Slovak governments decided to influence customer preferences according to the country of origin. The objective of this policy is easy to read – it is economic development, employment growth and support of domestic entrepreneurs. A secondary consequence of such activities is to support processes linked to creating and positioning of brands. Without a brand – a fundamental distinguishing element – it is very difficult to identify goods or services. Therefore, in the Czech Republic and Slovakia, most companies work on brand building and those who have not done it yet think about it.

As it has already been indicated, the initiative to prefer domestic production is far away from being unique. Governments of many countries in the world support sales of domestic brands. They want to be sure that subsidies (if provided) are directed to companies having an impact on the growth of domestic economy. Governments initiate concepts to support domestic production for different reasons, but they also wish production to be "returned" to countries where brands were created and are operated. The reasons are mostly strategic and tactical; it can be lower transaction costs, failure of the strategic partner, increase of the bargaining power or an effort to attract companies that have transferred their headquarters back to the country of origin. One of initiatives of many governments, this particularly applies to the Slovak government, is intensive brand building, for example intensive brand building of the Slovakia brand in an international context in order to ensure sales of products offered under this brand on the global market. These activities of politicians will also take place in the future because multinational corporations regularly "threaten" to relocate their activities to other countries or to stop production of one of the brands created on that particular market and which in terms of sales volume do not fulfill the expectations of managers.

Selected attitudes of Slovak and Czech Consumers towards brands

Within the solved topic and the previous framework concerning Slovakia and the Czech Republic, brand background followed by the results of two representative researches it might be interesting to compare attitudes of the Slovak and Czech consumers towards brands. Due to limited space given by the paper size it is not possible to make a comparative study covering all the achieved results resulting from the particular questions and the descriptive approach concerning the comparisons prevails. Only few selected attitudes are discussed. The first comparison is concerning quality perception of the Slovak and Czech consumers that were involved into researches, followed by their willingness to do shopping with or without trusting and preferring domestic brands and finishing by their perception of availability of foreign brands. Finally particular results based on weighted arithmetic average of respondents' attitudes toward the importance and influence of country of origin on brand perception are outlined.

As can be seen in Fig 1, quality of Slovak and Czech brands exceeds the average value. Respondents' answers on a scale from I totally disagree to I fully agree relating to the statement "Czech/Slovak product are of high quality" indicate that from their point of view the quality of Czech and Slovak brands is not poor. It can also be stated that domestic producers are more trusted by the Slovaks than by the Czechs.

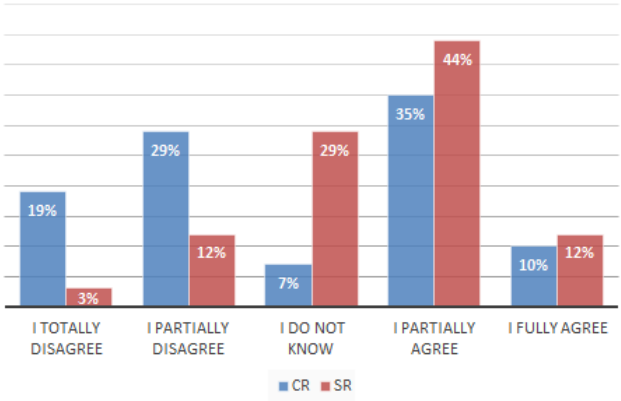

Fig 1. Quality perception of the Czech and Slovak brands – domestic products are of high quality (source: own)

According to the surveys containing the statement related to trust and willingness to do shopping, preferring Czech/Slovak brands it is necessary for domestic producers to build their brands because the willingness to buy branded products also depends on respondents' attitudes towards the Czech Republic, respectively Slovakia (Fig 2).

Most companies doing business in the Czech Republic or Slovakia and operating in these markets expect political and economic steps leading to creating a functioning system for supporting domestic entrepreneurial activities, and conditions for building country of origin brands should be created too. Such a system should favor domestic brands, make them more visible, and create space for their further development. However, it can be said that the system supporting domestic brands does not work sufficiently in either of the two countries. Although there are activities but as they have been introduced they do not motivate entrepreneurs to invest in intensive building of Czech or Slovak brands.

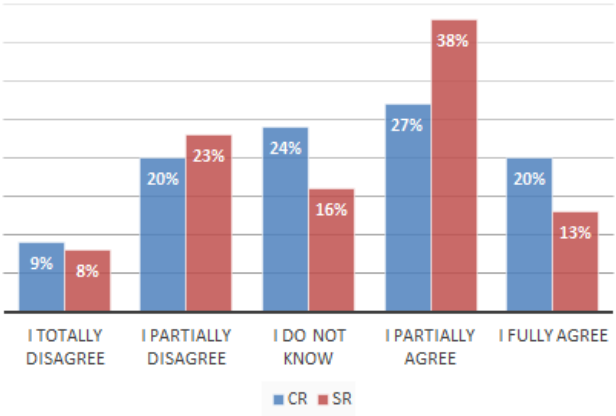

Fig 2. Are you more confident in Slovak/Czech brands than in foreign brands? (source: own)

This is different on the consumer side. They show confidence in domestic thus Czech/Slovak brands. Current Czech and Slovak consumers aged 16+ have experience with brands. They are targeted by campaigns promoting growth of the domestic economy and employment; they perceive the need for economic growth in the context of brand building of the country. But even when they try to prefer domestic brands when purchasing products, they do not always have such an opportunity because domestic production is either non-existent or limited, as can be seen particularly in the Czech survey, to certain regions. Moreover, the situation is worsened by problems related to the question of the accurate identification of the country of origin product.

As is shown by Fig 3 relating to the statement Foreign brands are more available than Czech/Slovak brands, consumers are frequently confused by the existing offer on these markets. Looking at Fig 3, it is obvious that in this case Czech consumers are more hesitant and undecided.

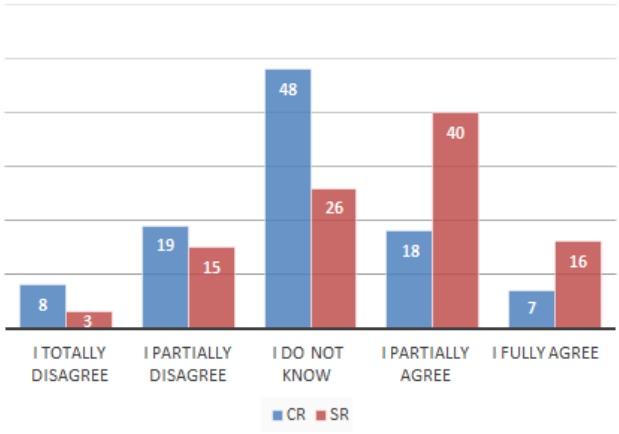

Fig 3. Foreign brands are more available (source: own)

Summary of results (weighted arithmetic average of respondents') importance and influence of country of origin on brand perception is illustrated in Fig 4.

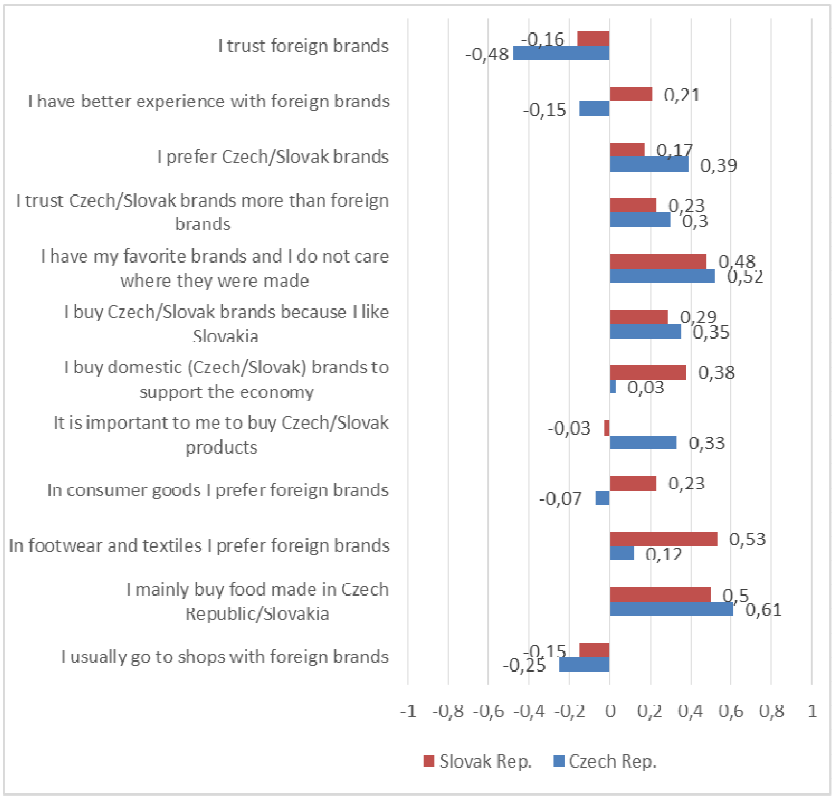

Fig 4. Attitudes of respondents' toward importance and influence of country of origin on brand perception (source: own)

From the results of two primary research it can be stated that the respondents are more focused primarily on domestic Czech and Slovak brands when buying food. This tendency is intensified among respondents from the Czech Republic, where it is in accordance with the result of higher orientation towards the domestic food and is generally less determined trust towards foreign brands than for respondents from Slovakia. The reason for the orientation to domestic brands among respondents in the Czech Republic and Slovakia is partly because they like their country. At the same time Slovak respondents prefer to buy Slovak brands to support the economy meanwhile respondents in the Czech Republic like to buy homemade products because it is very important for them. The orientation of Czech respondents to the Czech brands is in the footwear, textile and consumer goods, much lower among respondents in Slovakia.

Wider results concerning the Czech primary research are published by Štarchoň et al. (2015). Comprehensive results by Smolková et al. (2013) and partial results of the Slovak primary research were already presented and published by more scientific contributions, other papers and articles e. g. Olšavský (2013), Štarchoň and Weberová (2014) and Vilčeková (2014).

Conclusion

Representative surveys, whose results were analyzed in this paper, showed that customers in both markets prefer branded goods and services, and if they have the ability and opportunity, they will

prefer “domestic brands” to foreign ones. Of course, it depends on the fact whether they have such an opportunity. Perception of “domestic” brands may, however, be subject to a range of rational and emotional criteria. No unique criteria exist and research shows that it is impossible to consolidate them. The country of origin of the brand has always played and in the future it will play a role and it will be one of the important criteria in the selection of consumer products.

Recently, anyone presenting the results of research on customer preferences in relation to branded products has had to experience better orientation of consumers in the range of branded products and a fairly good knowledge of various brands of goods and services. Analysis dealing with when, at what consumers, in what segments and age groups a brand plays a role in the process of deciding on the purchase of goods and services vary a lot – in some analysis the country of origin plays a role, in others it can be the price or other factors entering into the decision making process. As it has been indicated above, customers do not necessarily select products of domestic manufacturers or service providers, in some cases offer of domestic production is insufficient or even completely non-existent. Therefore, the survey results have more or less only an indicative character and do not lead to clear conclusions, however, they are helpful in formulating recommendations.

Nevertheless, conclusions can be drawn from selected research results. As a result of the research studies, one of the conclusions claims that in the future, the Czech and Slovak markets will prefer brands representing value for customers and taking into account local customer requirements. Level of customers’ awareness is increasing from year to year and Slovak and Czech customers are more and more aware of the importance of the country of origin of the brand, especially in terms of product quality.

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The Scientific Testing: Progress and Perspectives

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Abstract

The scientific testing is a particular methodology within the field of management. In France, the term "scientific testing" is used to mark the distinction with the "legal testing". The scientific testing is a field experiment which allows an artificial reproduction of a potentially favorable situation in order to demonstrate unjustified preferences during a recruitment process. The objective of the testing is to reveal discriminatory hiring practices. However, and despite numerous testings, particularly in France, this method seems to suffer from an inaction in the managerial framework and weaknesses on the legal framework. In addition, this method tends to show its limits on the quantitative ground. Consequently, and to overcome these shortcomings, this paper pursues the dual objective of discussing managerial consequences of testing results and of a more complete approach of this method.

Keywords: testing, discrimination, recruitment, quantitative methodology.

Résumé

Le testing est une méthodologie particulière des sciences de gestion. En France, on distingue le testing scientifique du testing juridique. En effet, le testing scientifique est une méthode *field experiment* qui permet la reproduction factice d'une situation potentiellement opportune à générer des préférences injustifiées. L'objectif de sa mise en place, au moment du recrutement, est de révéler des pratiques d'embauche discriminatoires. En dépit des testings existants, et en particulier en France, la méthode semble pâtir d'une inaction sur le plan managérial et de faiblesses sur le plan juridique. De plus, cette méthode tend à montrer ses limites méthodologiques. Par conséquent et comme propositions à ces manquements, ce papier a pour double objectif de discuter des conséquences managériales des résultats issus des testings et de proposer une approche méthodologique plus complète.

Mots-clés : testing, discrimination, recrutement, méthodologie quantitative.

I. Le testing : généralités

Le testing ou test de correspondance est une méthodologie particulière des sciences de gestion. L'objectif initial est la mise en avant de pratiques discriminatoires au moment de la sélection des candidats sur CV. Aux États-Unis, la méthode est d'abord utilisée pour mesurer les discriminations raciales (Heckman et Siegelman, 1993). Il en va de même au Royaume-Unis où Hubbuck et Carter (1980) puis Brown et Gay (1985) s'intéressent à la discrimination à l'encontre des « indiens » et des « pakistanais »[1]. La discrimination à l'égard des personnes d'origine maghrébine est aussi l'une des variables la plus testée lors des testings (En Belgique : Smeeters et Nayers (1998) ; Aux Pays-Bas : Bovenkerk et al., (1995) ; En Espagne : Prada et al. (1996) ; En Allemagne : Goldberg et al., (1996). En

[1] Selon Moindrot (1965), l'immigration du subcontinent indien, et en particulier des indiens et des pakistanais, commence à la fin des années 1950.

France, il faut attendre les premiers travaux d'Amadieu (2005), en gestion des ressources humaines, et de Petit (2003), en économie, pour mesurer l'importance des testings. On entend par discrimination « *un traitement inégal fondé sur un critère illégitime. Il s'agit donc d'une action représentant un « désavantage » pour une personne ou un groupe de personnes en raison de critères non pertinents dans la poursuite de l'objectif sous-jacent à l'interaction, frappés du sceau de l'illégitimité, donc moralement et socialement non acceptables* » (Fibbi, 2005). En France et au sein des pays de l'organisation de coopération et de développement économiques (OCDE), les critères de la discrimination sont à quelques différences près identiques (discriminations fondées sur la « race », la couleur de peau, l'âge, le genre, etc.).

Ainsi, sur le plan théorique, nous discuterons des avancées en matière de testing (qu'est-ce qu'on mesure et quelles sont les objectifs) et des différences en matière de protection des victimes. Nous verrons notamment que les contentieux américains, en matière de discrimination, sont plus nombreux et les enjeux plus importants. Mais c'est sur le terrain empirique que les avancées sont les plus importantes où nous proposons une approche plus complète de la méthode du testing.

II. Discussions et voies futures de recherche

II.1. Apports managériaux du testing

Les cas constatés de discrimination en entreprise ne semblent pas s'estomper et l'environnement social et économique semblent favoriser les pratiques discriminatoires. Cette tendance se confirme avec le récent testing mené en France portant sur la discrimination religieuse (Valfort, 2015). Si l'objectif du testing est d'apporter des solutions managériales aux problèmes des discriminations, qu'en est-il en réalité ? Nous proposerons notamment une étude comparative des solutions managériales apportées par les testings.

II.2. Une méthodologie limitée ?

De plus, des limites peuvent être apportées à cette méthodologie de terrain (*field experiment*). En effet, selon Smeeters et Nayer (1998, p. 13), « *la méthode de recherche du test de situation met en œuvre une technique qui préserve la qualité de "**vie réelle**" de l'observation et évite la perspective anecdotique et subjective du récit privé d'acteur* ». Outre les limites inhérentes à la méthodologie (Heckman, 1998 ; Phelps, 1972 cité par Petit, 2003, p. 77 et 78), elle ne permet pas une approche compréhensive du problème et se contente d'analyser de manière quantitative la discrimination et ce à un stade initial (Piguet, 2001). Ces limites méthodologiques vont de paires avec les limites d'actions du testing et on peut se poser la question générale de savoir comment évaluer la perception des recruteurs avec la méthodologie du testing. Ainsi, nous proposerons une méthodologie complémentaire à la méthodologie quantitative du testing.

Conclusion

Ce papier a pour objectif de mettre en perspective les testings réalisés à un niveau international pour faire ressortir deux constats. Le premier concerne l'apport managérial issu du testing. En effet, nous proposons de nous interroger sur les actions qui sont menées à la suite de la constatation des discriminations. Le deuxième constat met en avant les limites liées à la méthode du testing. Nous avons rappelé que cette méthodologie reposait exclusivement sur une technique quantitative. Par conséquent, nous souhaitons proposer une méthodologie complémentaire qui puisse renforcer la compréhension des traitements différenciés.

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Economic, Social and Political Features of Workforce Migration. Case Study – Romania

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Abstract

The aim of this paper is to analyse the migratory phenomenon, a case study for Romania, the causes underlying the population migration, the size of this phenomenon in Romania, as well as the economic, political, social and physiological effects generated both in the country of origin, and in the countries of destination and influencing with different degrees and on varied temporal intervals the local labour markets, resulting in adapting reactions.

Keywords: *migration, labour market, remittances, education market, business environment*

Introduction

In the last years, migration has become an important phenomenon influencing the decisions made in any country, due to the economic, demographic, social and psychological consequences it generates. In the last years, the migratory phenomenon has increased due to the social and economic problems generated by the economic crisis that had a higher impact on migrants and vulnerable categories both in the countries of origin and in the countries of destination. If, until now, in Europe, the migratory phenomenon was caused mainly by border liberalization for the Eastern countries, as new EU members, in 2015, it was also caused by the mass exodus of refugees, especially from Syria.

As regards Romania, the migratory phenomenon has started with the opening of borders in the 90's when a definitive migration, especially of the German population, but also of Romanian ethnics was seen. They were highly qualified people and they went to countries such as America, Canada, Great Britain, Austria, or medium qualified people who went to countries such as France or Germany (Suditu B.A et al, 2013).

Subsequently, the phenomenon has become more and more extensive starting with the Romania's accession to the European Union that allowed the free movement of labour. During this period, the migration to the Western European countries has intensified, especially to Mediterranean countries, such as Italy, Spain, Portugal or Greece (Dănăcică D. Et al,2010).

Material and methods

In order to meet the need of information to be used for presenting the subject to be discussed, a bibliographical research and a statistical research have been performed, through which data for the conclusions regarding the performed study were collected, processed and analysed. Statistical tables have been used by which data were presented in a tabular way. This is a method which allows the description of indicators on which the performed analysis is based, and the establishing of the existing connections between its component elements. Graphical representations have been used to emphasize the extent and/or variation of data subject to the statistical research in view of showing their evolution in time

Results and discussions

In a study performed in 2011 by Ambrosini et al., a profile of the Romanian emigrant is made. Thus, the Romanians that took the path to the Southern European countries have the profile of a low-qualified migrant (negative selection as regards the level of education), the migrant that went to USA or Australia has, mainly high qualification (positive selection), and the migrants to the Western European countries belong to all the categories (neutral selection).

The flows of low-qualified migrants have decreased as level and intensity, and their medium and long-term demand is also decreasing, being more restrictive as regards the types of professions and occupations of interest for the countries with stronger economies (Vasile Valentina et al, 2014).

By analysing the situation of migrants between 2008 and 2013, it is found that the number of Romanian citizens living in a foreign country for at least 12 months has increased from 1,922,805 persons in 2008 to 2,344,183 persons in 2013.

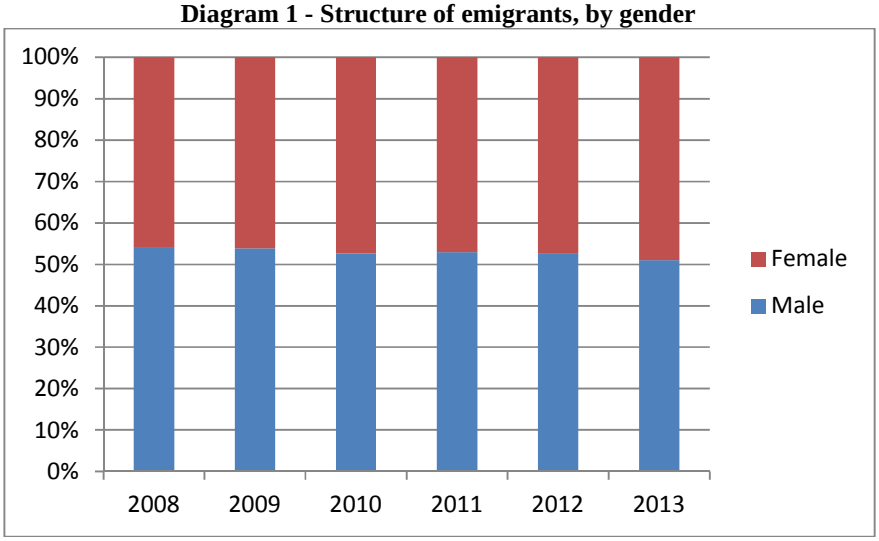
Table 1 - Situation of emigrants, 2008 – 2013

	2008	**2009**	**2010**	**2011**	**2012**	**2013**
Total	**1,922,805**	**2,135,691**	**2,234,155**	**2,288,531**	**2,341,263**	**2,344,183**
Male	1,041,256	1,149,822	1,192,763	1,213,082	1,232,536	1,196,324
Female	881,549	985,869	1,075,449	1,075,449	1,108,727	1,147,859

Source: AMIGO, 2012

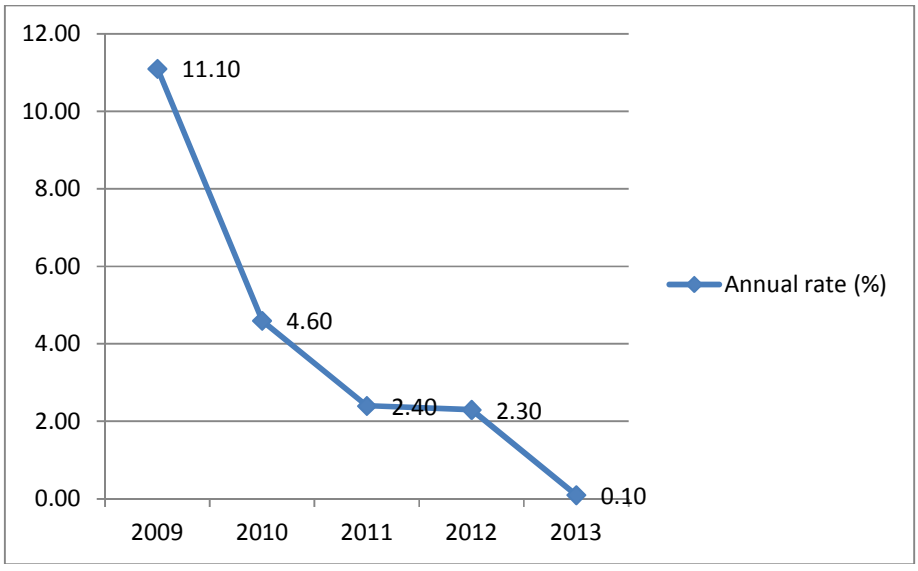
The structure of emigrants by gender indicates that male population has represented a little over 50 % of the total for the entire analysed period.

Diagram 1 - Structure of emigrants, by gender



Although the number of emigrants has increased year after year, the annual increase rate was, however, decreasing. One of the causes was the economic crisis and the unemployment rate also affecting the countries of destination and representing an obstacle in finding a job. Another issue is the fact that free movement of persons inside the EU has increased the workers' mobility, and the reason to change the domicile definitively has decreased significantly and the definitive migration has strengthen.

Diagram 2- Evolution of annual increase rate for the number of immigrants



As it can be noticed, the long term (12 months and more) migration has a higher share, compared to the short term migration (6 - 12 months) - Table 2.

Table 2 - Structure of emigrants, by the presence in the household, 2007 – 2012

	2007	2008	2009	2010	2011	2012
Absent for 6 - 12 months	8.0	4.3	7.8	19.6	21.2	24.7
Absent for more than 12 months	92.0	95.7	92.2	80.4	78.8	75.3

Source: AMIGO, 2012

As regards the structure of the emigrants for 6 - 12 months, by gender, as regards the participation in the economic activity, it indicates that the share of active population ranged between 78.3 % in 2009 and 88.7 % in 2011.

Table 3 - Structure of emigrants (6 - 12 months) according to the participation in the economic activity, by gender, 2007 – 2012

		2007	2008	2009	2010	2011	2012
Active population	**Total**	**81.9**	**81.5**	**78.3**	**85.8**	**88.7**	**88.0**
	Male	61.2	67.4	66.6	65.6	60.4	62.9
	Female	24.538.8	32.6	33.5	34.4	39.6	37.1
Inactive population	**Total**	**18.1**	**18.5**	**21.7**	**14.2**	**11.3**	**12.0**
	Male	45.1	50.7	47.9	51.9	62.5	64.2
	Female	54.9	49.3	52.1	48.1	37.5	35.8

Source: AMIGO, 2012

As regards the structure of the emigrants by age, it is noted that the highest share is of those between 25 and 29 years, followed by those of 30 - 34 years and by those of 35 - 39 years, meaning the active population (table 4).

Diagram 3 - Structure of emigrants by age categories, 2007 – 2012

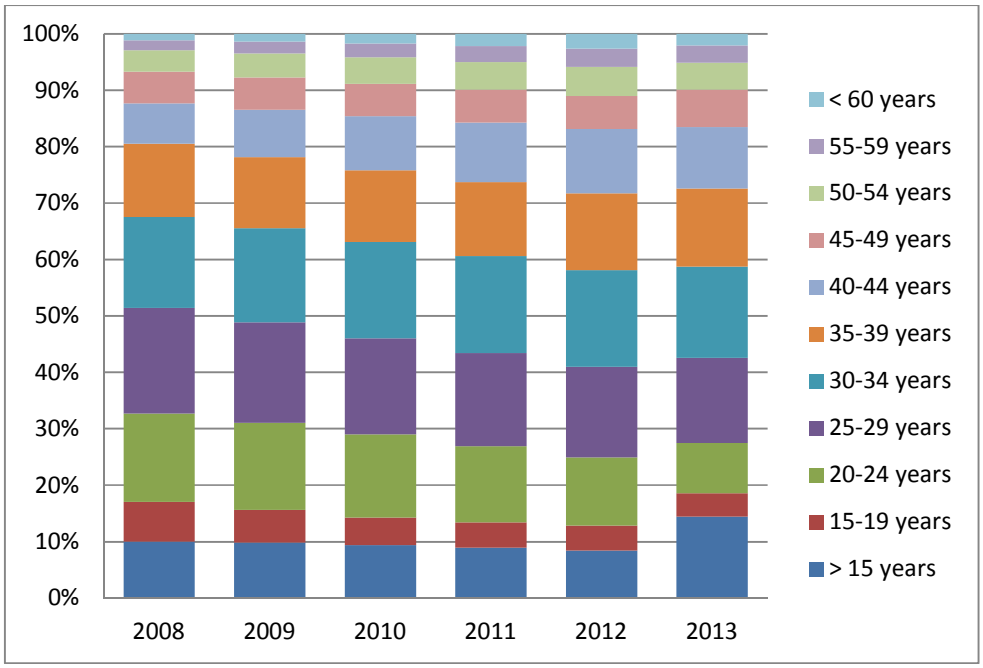


Table 4 - Structure of emigrants by age categories

	2008	2009	2010	2011	2012	2013
Total	**1,922,805**	**2,135,691**	**2,234,155**	**2,288,531**	**2,341,263**	**2,344,183**
> 15 years	193,188	210,608	208,870	203,844	198,075	338,874
15-19 years	134,381	123,060	110,854	103,480	102,996	96,728
20-24 years	301,696	330,252	328,348	309,334	283,380	208,193
25-29 years	359,595	379,433	380,482	377,780	375,133	354,192
30-34 years	308,984	356,349	381,021	392,938	401,346	378,659
35-39 years	250,966	268,361	283,291	298,926	317,787	324,892
40-44 years	136,657	180,768	214,724	241,658	267,516	255,432
45-49 years	108,163	121,711	128,761	133,407	137,208	154,832
50-54 years	73,032	90,843	104,389	112,435	120,251	112,400
55-59 years	33,687	44,327	54,350	65,365	76,656	72,094
< 60 years	22,456	29,979	39,065	49,364	60,915	47,889

By analysing the distribution of the Romanian emigrants in 2013, according to the INS data, we have found that in 2013, 46 % of them were in Italy, 34 % in Spain, 7 % in Germany, 4 % in the Great Britain, 3 % in Hungary and 6 % in other countries.

In 2008, the distribution of immigrants shows that the largest share was in Italy – 38 %, 33 % in Spain, 5 % in Germany, 3 % in Hungary and 17 % in other countries.

Eurostat data show that the standard of living of the main states that were chosen by the Romanian emigrants is higher than the one in the country of origin, but the economies of the respective states have had lower performances in the last years. In Spain, for example, in 2013, the unemployment rate increased to 26.4 %.

The migration is influenced by the level of GDP and of the economic growth (Mărcuță A. Et al, 2014). Thus, in the main countries of destination, in 2012, in Spain, the GDP level was of EUR 22,300/capita, and in 2013, the economic growth was of -1.3 % of GDP. In Italy, GDP was of EUR 25,700/capita, and the economic growth, -1.9 %, and in Germany, GDP was of EUR 32,600/capita, and the economic growth, 0.4 %. In Romania, even if the economic growth was of 2.2 %, the GDP was only EUR 6,500/capita. Hence, in Romania, GDP/capita is 50 % of the EU average, while in Spain, it reaches 96 % of the European average, and in Germany, 123 % of the European average.

In the main countries of destination of the Romanian emigrants, in 2013, the unemployment rate was of 26.4 % in Spain, 12.2 % in Italy and 5.3 % in Germany. In the same year, in Romania, the unemployment rate was of 7.3 %.

The fact that the Romanian emigrants leave the country in search of higher incomes is also demonstrated by the annual net incomes in these countries that were of EUR 26,485 in Germany, EUR 19,359 in Italy and EUR 16,818 in Spain, while in Romania, it was of only EUR 3,606.

The effects of migration on the labour market of the countries of destination are indicated by their influence on the wages, unemployment rate and participation. The same effects also exist in the countries of origin. The departure of workforce abroad may have a favourable effect on the economy, in case that there is a high rate of unemployment and, by leaving abroad, its pressure on the labour market and the budget of social charges decreases. As regards Romania, the effect of migration on the unemployment cannot be quantified because the number of migrants in the statistical data is assimilated in the non-participation rate.

The migratory phenomenon influences the labour market, in a positive or negative way. Thus, when returning home, the migrants have a lower participation in the labour market due to the savings they have and that provide income sources for a certain period of time.

The saved amounts of money are not intended to the development of enterprises, because the returning home phenomenon is sometimes more complicated than migration, and they have to readapt to the economic system or to adapt to jobs offering lower wages, in depopulated areas. Depopulation and

ageing population are other features related to the migratory phenomenon. If they have to choose between the low wages offered in the country and the higher wages abroad, the returned home migrants prefer to leave abroad again or to use their savings or the money sent by relatives abroad.

Another issue is connected to the loss of human capital, even if it is only temporary (Soare E. et al.). As regards the situation of highly educated migrants, their loss is almost in all cases for good. This is way an important issue is the one connected to the education.

The decision to migrate is influenced by the level of education obtained in the home country. Sometimes, the migration itself is related to education or to the obtaining of some professional qualifications abroad. The general level of education may increase and generate long-term positive externalities for the education system, because the remittances may have a positive effect on the education of the children left home.

However, emigration does not have only negative effects on the economy of a country, it also has positive effects, such as the financial transfers from the migrants (remittances), the economic potential of the migrants who invest in businesses when they return home, the increased interest in education in view of finding better job offers.

The remittances may be defined as sums of money forwarded to the country of origin. They increase the incomes of the country from external sources, resulting in the increase of the standard of living of those receiving them, in the development of local economy by increasing the consumption and investments and by reducing the Government's pressure for implementing economic and social reforms.

The studies indicate that the largest share of remittances (80 %) is used for the basic consumption of the families and a rather small share is used for investments in human capital (education, health, nutrition). Another share (5-10 %) is used to buy land, residences etc., being seen often as assets by the emigrants. The rest is used for social and cultural events, for paying debts, for savings. In general, a very small part of these remittances is used to create productive activities. There is no consensus yet as regards the contribution of remittances to the economic growth and the creation of new jobs.

The negative effects of remittances are represented by the increase of inequalities at the level of community, the decrease of the intention to be employed in productive activities on the domestic market, the dependence upon remittances, the inflationary pressure, because the excessive demand of land and residences leads to the artificial increase of their price and, last but not least, the existence of brain drain phenomenon and the migration of trained workers. The remittances do not counterbalance the losses and they distribute investment flows to individual objectives, not local or society objectives.

Because the migration has an impact on the welfare of the entire society, it represents an important factor in designing a policy in this field, that needs the designing of some important aspects regarding the consequences of migration on the labour market, adaptation and integration of migrants to the host-countries. The countries of origin have few instruments in influencing the intention of migrants and they are not directly connected to the migration, but to the credibility of reforms in other fields. The attempts of the state to limit or influence directly the migration decisions will usually have adverse effects.

Migration is a reaction to the inefficiency of demographic and educational policies as regards the demands of the business environment, even if the discrimination and disadvantages compared to the local population are maintained, because the relative advantages compared to the conditions of the labour market of the country of origin always remain strongly positive. Thus, the migration of trained personnel remains an opportunity for the areas of destination and a net loss for the countries of origin.

For the country of destination, the effects are mainly positive and are connected to the fact that migration contributes to the diminishing of the deficit in number and structure of the workforce, for highly qualified professions, strictly specialised workforce or for low qualified or unskilled jobs in connection to which the domestic workforce has reserves. For these jobs, the related costs are much lower.

Because of the migratory phenomenon, the process of population ageing and the stress on the labour market or the budget are diminished, taking into account the fact that immigrants are net contributors to the local budget with their taxes.

The business environments are always positively impacted by the cost advantages and the supplementary consumption generated by mobile workers who remain mobile for a longer period of time.

On the other hand, there are also a series of negative effects connected to the reaction of community to the immigrants who are seen as a social threat due to the problems related to social integration, acceptance of customs and cultural tradition, development in a multicultural environment, due to the social pressure generated by the illegal immigration and the social behaviours related to some categories of populations that are permanently moving. In the same time, the labour market is affected if employers use illegal employment and allow such categories of workers.

Conclusions

One of the reasons of the migration of young Romanians was the weak connection between the education market and the business environment that leaves an important segment of graduates, especially of higher education institutions, outside the labour market.

On the other hand, the poor performance of the labour market institutions and of the local authorities in attracting and employment of the workforce, as employees or entrepreneurs, contributes to the increase of the migratory phenomenon**.**

Even if the largest share of remittances is spent on consumption of goods and services by the family that is left home, there is, however, a multiplied effect of consumption by stimulating the offer and reducing the risk of poverty, with all its effects of driving the social security and assistance system.

Nevertheless, the advantages offered by remittances are only short-term safety valves, strongly connected to the duration of mobility and not enough to compensate the medium and long-term demand for qualified workforce of the Romanian economy.

The loss of human capital is accompanied by the failure to recover the public investments in the education and training of emigrants. Indirectly, the loss of human capital due to the long term or definitive mobility results in lowering the quality of the active workforce on the market.

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Influence of the Economic Crisis on the Evolution of Earnings and Labour Costs in Romania

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Abstract

This paper is aimed to analyse the relation between the earnings and the labour costs during the period of 2010-2014 and the way in which the economic crisis has influenced these indicators. The statistical research of the labour cost offers data on which the analysis of its evolution, of its components, as well as of the correlation between these components is based, thus offering the necessary elements for the calculation of the net and gross size, per hour and per month, of the earnings per category of activities of the national economy, type of property, legal type, categories of employees, gender, development region etc.

Keywords: *economic crisis, earnings cost, labour costs,*

Introduction

The structure and evolution of the labour cost and earnings are important elements of the labour market, indicating, on the one hand, the workforce offer, and, on the other hand, the workforce demand.

Workforce represents a cost that includes not only remunerations and wages paid to the employees, but also the non-wage costs (social contributions payable by the employer, plus the costs of training, recruiting, occupational clothing and labour taxes, considered as labour costs minus subsidies). Currently, in Romania, the social contributions amount for more than 30 % of the total labour costs, representing quite a high pressure on the small and medium-sized enterprises.

Material and methods

In this paper were used research methods as: analysis, bibliographical research and statistic research as well as other methods and procedures that allowed revealing the essence of the investigated problem.

Results and discussions

Economic crisis has had a negative impact both on employment and on population' incomes, the most affected being the low and middle-income segments of population. The first effects on incomes have been seen in 2008, and, the next year, the consequences on the economic growth.

In Romania, incomes from labour taxes relative to GDP are much lower than the EU average, but relative to labour income, they are rather high. This shows the high tax burden existent in Romania as regards the labour taxes.

Taking into account the statistical data published periodically by the National Institute of Statistics, and data supplied by specialised European institutions, we have studied the trend of labour costs during the period of economic crisis. The labour tax wedge is given by the percentage of all reductions, social contributions and taxes borne by the employee and the employer in the total labour cost.

The trend of tax burden on the labour cost from 2008 to 2015 indicates that starting with 2008, the tax ratio on the labour cost has increased, and the employees have started to avoid the increase of workload. This is explained by the "low wage trap". The implementation of the flat tax rate starting with 2005 and the lack of indexation of the personal exemption, provided for in the Tax Code for the low and middle wage earners, or the ones with dependents led to the increase of tax burden on the labour cost.

Following an increase in 2009 of the tax burden of 3 percentage points, the growth was constant, being of 43.1 % in 2009, 43 % in 2010 and 2011, 43.5 % in 2012.

In 2013, the tax burden for the high earners was low, because the tax on personal income was fixed, and the social security contributions were capped, but, in comparison, the tax burden remained high for the lower income earners. The decrease of social security contributions with 5 percentage points at all levels, starting with October 1, 2014, has diminished the labour tax wedge for singles, for example, from 42.3 % to 40 %. On the medium to long term, the social security contributions have had a positive impact on the economy and labour market due to the diminishing of labour force costs. Because the diminishing of labour tax wedge was not aimed at the low and middle-income earners, it led to a significant loss of incomes.

Another issue is the high level of hidden earnings on the one hand, and of undeclared employment, on the other. This is explained by the gap between the high tax wedge on labour and the implicit diminished rate of labour taxation. In 2012, according to a Report of the European Commission (Study to quantify and analyse the VAT Gap in the EU-27), approximately 1.57 million persons worked without a legal employment contract, and this had a negative impact not only on tax incomes, but also on the work productivity, labour standards and investments in human capital.

According to the same report, in 2013, the amount of tax avoidance resulted from the undeclared employment and the informal sector was of 3.2 % of GDP. It was a result of the uncollected social security contributions and income taxes.

In addition to the high level of taxation, the number of its components is also high, in Romania, there are ten individually applied taxes, starting with the income tax, social security contributions, health insurances, unemployment fund, applied separately for the employee and the employer, and ending with the contribution to the outstanding claim fund, fund for the occupational risks and accidents, contribution to the leave of absence and indemnities in relation with the health insurances (FNUASS).

In order to analyse the relation between the labour cost and the earnings, we will start with the workforce and the average number of employees existent in Romania.

In 2007 the average number of employees was 4885,3 thousand employees, an increase of up to 5046,3 thousand employees in 2008, followed by a strong decline until 2010. Thus, during the period 2010-2014, the average number of employees had a relatively increasing trend, except 2011, when the average number of employees was of 4348.7 thousand persons. The workforce also had an increasing trend, from 4.581 thousand employees in 2010, to 4.900 employees (Diagram 1).

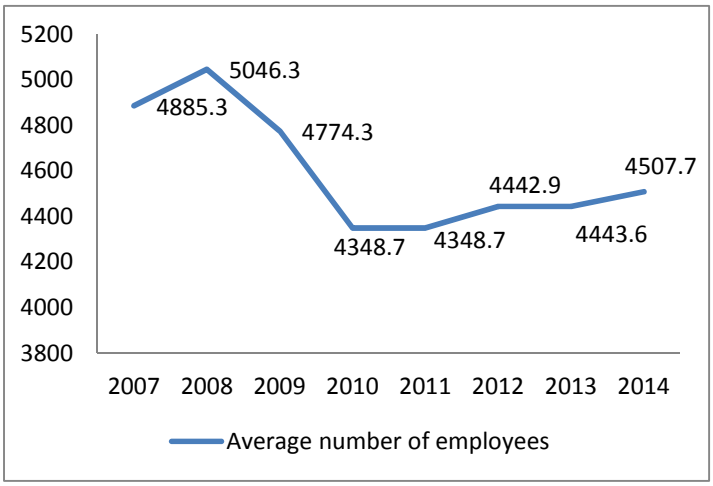


Diagram 1 - The evolution of the average number and of the number of employees

Also labor cost is analyzed and compared to earnings. Thus in 2007 the monthly average gross earnings was of Lei 949,5, in 2008 and 2009 with an increase of 13,5%, respectively 14,5%. In 2010, the monthly average gross earnings was of Lei 1,902, with an increase of 4.1 % in 2012 (Lei 1,980), of 4.2 % in 2013 (Lei 2,063), of 4.8 % in 2013 (Lei 2,163) and of 7.6 % in 2015 (Lei 2,328). To this financial effort, other costs that are borne by employers are added, reaching monthly average expenses of Lei 2,477/employee in 2010, Lei 2,569/employee in 2011, Lei 2,675/employee in 2012, Lei 2,813/employee in 2013 and Lei 2,988/employee in 2014.

In 2010, the real wage index, as the ratio between the net wage index and the consumer price index for the population was of 123.6 % compared to 1990 and with 4.7 % higher than in 2009. In 2011, it increased with 2.3 % compared to the previous year, in 2012, the increase was of 1.2 %, in 2013 of 0.9 %, and in 2014 of 7.8 % in each case, compared to the previous year.

The evolution of the average gross and net earnings per business activity highlights that in 2010, women earned, in average, Lei 221 less than men, the highest differences being in the field of services (+33 %), insurances and financial intermediations (+32.3 %) or in services (+31.2 %). At the territorial level, the monthly average earnings were below average in 37 of the 41 counties plus the Municipality of Bucharest.

In 2011, the earnings of women were with Lei 250 lower than of men, and at territorial level, in 36 counties, the average net earnings were below the average per economy.

In 2012, men earned Lei 215 more than women, and at territorial level, 35 counties had monthly average earnings below the average per economy.

This trend has maintained in 2013 and 2014 also, when the earnings of men were with Lei 176 and Lei 178 respectively higher than of women.

At territorial level, the monthly average earnings were below the earnings per economy in 36 counties, in 2013 and in 2014.

The following are among the factors influencing the labour cost: labour productivity, GDP distribution to the employees, level of unemployment, level of training etc (Mărcuță L. et al., 2013).

By analysing the labour productivity, we found that, in 2013, for Romania, it is the second lowest in EU. During the period 2010-2014, the productivity/employed person has decreased with 0.5 % in 2010, and then, it has increased with 1.9 %, 5.7 % and 4 % in the following years, then it has decreased with 2.8 % in 2014, showing a low level of adjusting capacity of the economy.

Table 1 - Labour productivity in 2013

Country	Productivity/ hour (EUR)	Country	Productivity/ hour (EUR)	Country	Productivity/ hour (EUR)
Austria	31.4	Germany	39.7	Poland	10.6
Belgium	38.0	Greece	20.2	Portugal	17.1
Bulgaria	4.9	Ireland	29.0	Romania	5.6

Czech Republic	13.1	Italy	28.1	Slovakia	13.2
Cyprus	17.2	Latvia	8.4	Slovenia	21.4
Croatia	N/A	Lithuania	10.6	Spain	21.1
Denmark	53.5	Luxembourg	35.7	Sweden	45.5
Estonia	11.1	Malta	N/A	Hungary	11.5
Finland	31.4	Great Britain	30.9		
France	34.3	the Netherlands	33.2		

Source: Eurostat

The labour productivity per hour in Romania is of approximately 9.5 times lower than in Denmark, 8 times lower than in Belgium and Germany, 6 times lower than in Italy, 4 times lower than in Greece and 2 times lower than in Lithuania. If we take into account that the general level of prices in Romania is approximately 2 times lower than is EU, then the productivity per hour adjusted with the Purchasing Power Parity is 4.75 times lower than in Denmark, 4 times lower than in Belgium and Germany etc. Another issue is connected to the low added value included in the Romanian products and services. If we analyse the labour cost per hour in 2013, according to Eurostat data, we find out that, in Romania, it is of EUR 4.6/hour, figure that places us on the last but one place in Europe, the variance between us and the countries with the highest cost per hour being higher than 1 to 10.

Table 2 - Labour cost per hour in 2013

Country	Labour cost per hour (EUR)	Country	Labour cost per hour (EUR)	Country	Labour cost per hour (EUR)
Austria	31.4	Germany	31.3	Poland	7.6
Belgium	38.0	Greece	13.6	Portugal	11.6
Bulgaria	3.7	Ireland	29.0	Romania	4.6
Czech Republic	10.3	Italy	28.1	Slovakia	8.5
Cyprus	17.2	Latvia	6.3	Slovenia	14.6
Croatia	8.8	Lithuania	6.2	Spain	21.1
Denmark	38.4	Luxembourg	35.7	Sweden	40.1
Estonia	9.0	Malta	12.8	Hungary	7.4
Finland	31.4	Great Britain	20.9		
France	34.3	the Netherlands	33.2		

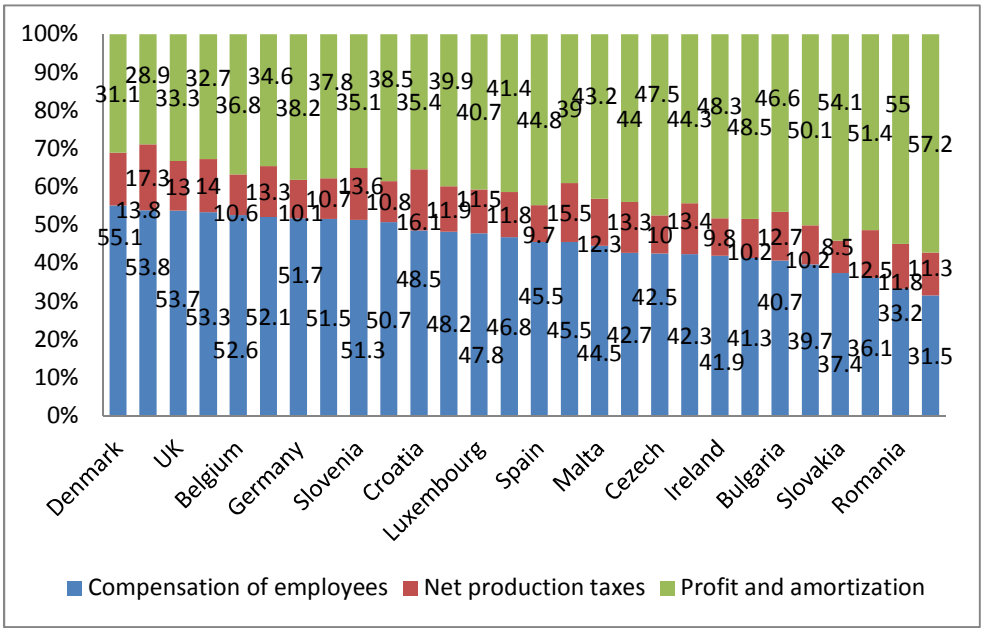
Source: Eurostat

In 2014, the average labour cost per hour was of EUR 24.6 in the European Union and EUR 29.2 for the Eurozone. However, there are large differences between the member states, where costs are ranging from EUR 3.8/hour to EUR 40.3/hour. Romania has the last but one place, with only EUR 4.2 per worked hour (out of which, 22.9 % are non-wage costs).

Another element that influences the labour cost is represented by the way in which the GDP is distributed between the employees, employers and the state.

Eurostat data for 2013 indicate that in Romania there is an imbalance between the remuneration of employees, because they receive approximately 33 % of GDP, the employers receive 55 % of GDP, its aim being to cover the depreciation and the profit, and 12 % of GDP for the state. This imbalance might be a result of the low level of training of the workforce, the lack of interest of the employers for their employees, and their weak reaction towards their own interests.

Diagram 2 - Components of GDP



Source: Eurostat

The labour cost is also influenced by the relation between the wages and the unemployment rate and they are inverse proportional (Dobrescu Monica et al.). In Romania, where, on January 1, 2015, the unemployment rate was of 6.5 %, this relation does not exist, because the wages and the rate of unemployment are lower in comparison with the European average, and this can be justified by the high level of workforce migration, the weak social protection system, the over-employment in agriculture.

Another aspect that was emphasized earlier is related to the training level of the employees, because the level of wages and the level of labour cost both depend on it.

In Romania, the most of the low-trained workers are in the agricultural sector, and in construction sector. The workers of the service and trade sector have completed university and postgraduate studies. Thus, the share of low level of education is of 9 % in trade, 10 % in the extractive industry, 11 % in services, 17 % in the manufacturing industry, 22 % in constructions and 28 % in agriculture. The employers with an average level of training represent 67 % in the manufacturing industry, 66 % in the extractive industry, 62 % in trade, 59 % in services, 58 % in constructions and 50 % in agriculture. The employees with a high level of training represent 30 % of those working in services, 29 % in trade, 25 % in the extractive industry, 22 % in agriculture and 16 % in the manufacturing industry.

According to the INS data, in 2013, the average gross earnings were of Lei 1,945, the lowest wage being registered in agriculture, of Lei 1,675 and the highest, in the extractive industry, of Lei 4,227.

As regards the system for changing the wages, it is influenced by the inflation rate. Compared to prices, wages are more rigid in Romania.

Conclusions

The frequent amendment of the tax policy is one of the causes affecting the business environment.

The relative high tax burden in Romania, especially for low-income earners, undermines the supply and demand on the formal labour market, resulting in low participation rates and a significant shadow economy.

The tax treatment of implementing the flat rate has led to the inhibition of the intention to work more for the low-income earners.

Although it was known from the beginning that the diminishing of social security contributions will have a negative impact on the budget, it was considered that the impact would be positive on the business environment. It was considered that the measure would lead to the increase of the funds at the disposal of the employer, sources that could be used to create new jobs, contributing to the increase of the basis for social contribution.

It was also considered that this measure could lead to the increase of the number of taxpayers and, implicitly, to the efficiency of the contributions/beneficiary ratio, as well as of the taxable incomes, meaning, the increase of incomes to which the contribution is applied. However, the tax easing measures did not have the anticipated effect.

It is noted that the elasticities of labour market supply and demand continue to be relatively high for the low skilled, low-income earners. This is why by reducing the tax burden for this category, it could lead to an increase of the employment rate.

Another important issue to be considered is the fight against the undeclared employment. In addition, solutions have to be found to diminish the tax burden borne by the low and middle-income earners, but without affecting the budget.

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Managing Attitudes of Consumers towards Brands and Quality

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Abstract

The purpose of this article is to evaluate attitudes and preferences of consumers in the Czech Republic in relation to quality perception of domestic and foreign brands. Results presented are compared to the outcomes of a similar research study carried out in the Slovak Republic. In this article, partial outcomes of primary research focused on attitudes and preferences of Czech consumers in relation to attributes, such as price, quality, product information, and preferences of domestic products, are presented. This primary research was conducted in the Czech Republic in the period of October and November of 2014 and respondents were approached via an electronic questionnaire and personal interviews. This article presents a more detailed with respect to specific structures of consumers in the Czech Republic.

Keywords: consumer behavior, consumer, brand, brand perception, quality

Introduction

Research questions asked in the questionnaires in both countries, the Czech Republic and Slovakia, reflect the assumption that perception of brand quality and brand trust affect consumer behavior (Nadanyiova, 2015) including consumers' purchasing decisions (Mooij, 2011; Vysekalova et. al, 2011; Kampf et. al, 2012). Research results presented in this article confirm that perceived quality makes the brand look special in the eyes of consumers and lead to brand trust and thus increased brand loyalty. Moreover, delivering exceptional quality across products and individual attributes brings a price premium (Aaker & McLoughlin, 2010, p162). As research outcomes suggest, consumers are willing to pay more for branded products (Krizanova et. al, 2013; Slaba, 2015) of higher quality regardless of their origin. Thus, it is recommended that businesses consider (Rebetak & Farkasova, 2013) the perceived quality as one of the most important parts of their business strategy (Aaker et. al, 2007). Furthermore, businesses should realize that it is consumers who define superiority. So it is vital for businesses to understand what drives perceived quality and actively to manage it (Aaker & McLoughlin, 2010, p163). Moreover, it is recommended that businesses focus on visible aspects affecting quality perception (Aaker & McLoughlin, 2010; Stopka et. al, 2015). Otherwise a decrease in quality brings disappointment for consumers. A higher level of quality perception means higher potential for disappointment if consumers' expectations are not met. Building trust creates expectations (Aaker & McLoughlin, 2010, p167), therefore it is important for businesses to minimize the number of problems (Potkany & Stachova, 2015) associated with a particular brand (Schiffman & Kanuk, 2004) and if any arise, businesses should do their best to eliminate them as quickly as possible (ALraja & Chikhi, 2015; Vetrakova et. al, 2013)

Materials and Methods

The main objective of this article is to evaluate attitudes and consumer preferences in relation to brand perception and trust in domestic and foreign brands. Research results are compared with the data available from a similar research conducted in Slovakia (Smolkova, 2013; Smolkova et al., 2013). Findings presented in this article are partly based on the outcomes of primary research carried out in the Czech Republic in the period of October and November of 2014 by the Department of Marketing Communications, Faculty of Multimedia Communications, Tomas Bata University in Zlin. This research study was focused on brand perception among Czech consumers according to selected criteria, such as price, quality, information, and domestic brands. The sample of respondents was comprised of residents of the Czech Republic older than 18 years. The sample was determined on the

basis of quota sampling based on the principle of division of the same proportion of selected properties of the elements according to population (Kotler and Keller, 2006; Aaker et. al, 2007). Quotas based on age, gender, income, size of municipality and districts in the Czech Republics (Starchon & Weberová, 2014) "were determined for the purpose of this research. Quota distribution of these socio-demographic data is based on parameters obtained from the Czech Statistical Office (2014). The sample included 1028 respondents. Respondents were approached via an electronic questionnaire and personal interviews. Within this research, respondents were asked a total of 38 questions, of which the first three were open and investigated the spontaneous brand awareness and associations with the Czech brands. Then a series of 28 Likert scales followed – these were designed to detect consumer preferences and their attitudes towards domestic and foreign brands in terms of their price, quality, information, and preferences. Scales had a form of statements and respondents had the opportunity to express themselves in the range of five points*: I fully agree – I partly agree – I do not know – I partly disagree – I fully disagree*. In addition, three open questions were asked to investigate spontaneous brand awareness of consumers.

Research evaluation followed on the basis of respondents' division (seven remaining questions in the questionnaire) – they were classified according to socio-demographic characteristics, such as age, education, gender, territorial jurisdiction, municipality size, net household income, and the number of employed household members. The obtained data were processed by using statistical characteristics and all the chi-square tests were calculated with a confidence level of 0.05 and the accepted tolerance of 3% accuracy. In this paper, partial outcomes of the research dealing with attitudes and perception of Czech consumers toward quality of branded products are presented. Data were processed with the help of the SPSS Statistics Program by IBM (IBM Corporation, 2015). The results presented in this paper are obtained by cross-analysis in the form of a weighted arithmetic mean of statements.

Table 1: Structure of the Czech and Slovak respondents according to selected criteria

Criteria	Czech Republic	Slovak Republic
Gender	**Number**	**Number**
Male	505	504
Female	523	518
Age	**Number**	**Number**
18-29 years old	208	278
30 - 39 years old	273	228
40 - 49 years old	185	189
50- 59 years old	160	245
over 60 years old	130	87
Education	**Number**	**Number**
Primary education	113	75
Secondary education without GCSE	284	61
Secondary education with GCSE	423	497
Higher education	208	371
Municipality size	**Number**	**Number**
up to 2 thousand inhabitants	160	169
2 - 5 thousand inhabitants	103	138
5 - 10 thousand inhabitants	71	73
10 - 20 thousand inhabitants	95	119
20 - 50 thousand inhabitants	169	152
50 -100 thousand inhabitants	142	191
over 100 thousand inhabitants	286	187

Note: GCSE means General Certificate of Secondary Education.

Then, these partial outcomes are compared with the results of primary research carried out by Smolkova et al at the Faculty of management, Comenius University in Bratislava in 2013. Data were gathered in the period of January to April 2013 by means of personal interviews and an online questionnaire available on the Internet. This sample consisted of 1067 respondents. Quota

distribution of socio-demographic data – residents older than 16 years old - is based on parameters obtained from the Slovak Statistical Office. The questionnaire in Slovakia had a similar form as in the Czech Republic thus it is possible to compare the results obtained from both research studies. The Slovak questionnaire consisted of 35 questions, 27 of them were focused on consumer attitudes towards brands according to specific attributes, and three open questions investigated spontaneous brand awareness. Only five questions dealt with respondents' socio-demographic characteristics. Data from research conducted in Slovakia were processed in the Statgraphic Program (Statpoint Technologies, 2015) and in the R statistical software (The R Core Team, 2015).

Table 1 provides an overview of the samples of both primary researches conducted in the Czech Republic and Slovakia. Based on the structure of respondents, this paper investigated consumer attitudes with respect to the trust and quality of the brands. Therefore, within primary research, the following six statements were used:

- „Czech products are of higher quality."
- „I trust Czech brands over foreign brands."
- „I have better experience with foreign brands."
- „I buy foreign brands because of higher quality."
- „I trust foreign brands more."
- „ Foreign brands are of higher quality."

Respondents' attitudes towards the statements are evaluated by assigning numerical values to particular answers in the rating scale as follows: *I fully disagree* (-2), *I partly disagree* (-1), *I do not know* (0), *I partly agree* (1), and *I fully agree* (2). In order to provide a clear overview of respondents' attitudes, results are processed with the help of cross tables in the form of a weighted arithmetic mean of respondents' answers.

Results and discussion

This article presents partial outcomes of primary research concentrating on evaluating consumer attitudes and preferences in the Czech Republic in relation to quality perception and trust in domestic and foreign brands. These results are obtained by evaluating six questions with the help of a weighted arithmetic mean of respondents' answers in the following rating scale: *I fully disagree* (-2), *I partly disagree* (-1), *I do not know* (0), *I partly agree* (1), and *I fully agree* (2). The results based on specific attributes (gender, age, educational attainment, municipality size, and net household income) of the sample will be presented.

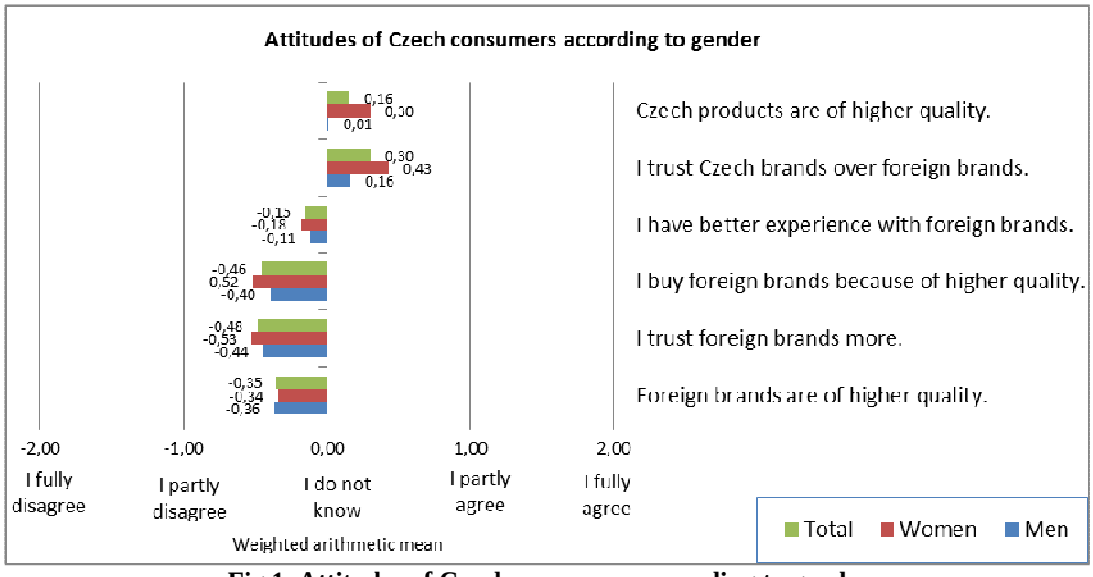

Fig 1. Attitudes of Czech consumers according to gender

Source: Own (based on research)

Figure 1 presents the attitudes of respondents according to gender. The results show that women, compared to men, tend to trust Czech brands (51.82%), and many of them, almost one half, thinks that Czech products are of higher quality (46.27%). Men show a rather indecisive attitude toward this fact (32.87% agree, and 35.44% of them do not know).

Furthermore, 42.77% of men trust more Czech brands than foreign ones – this is less by 9.04% than at women. The attitude of female respondents is clearly reflected also in reverse formulated statements favoring foreign brands. More than a half of women do not buy foreign brands because of higher quality (56.21%) nor because they would trust them (55.07%). In terms of quality and trust in foreign brands, men more or less share the position of women.

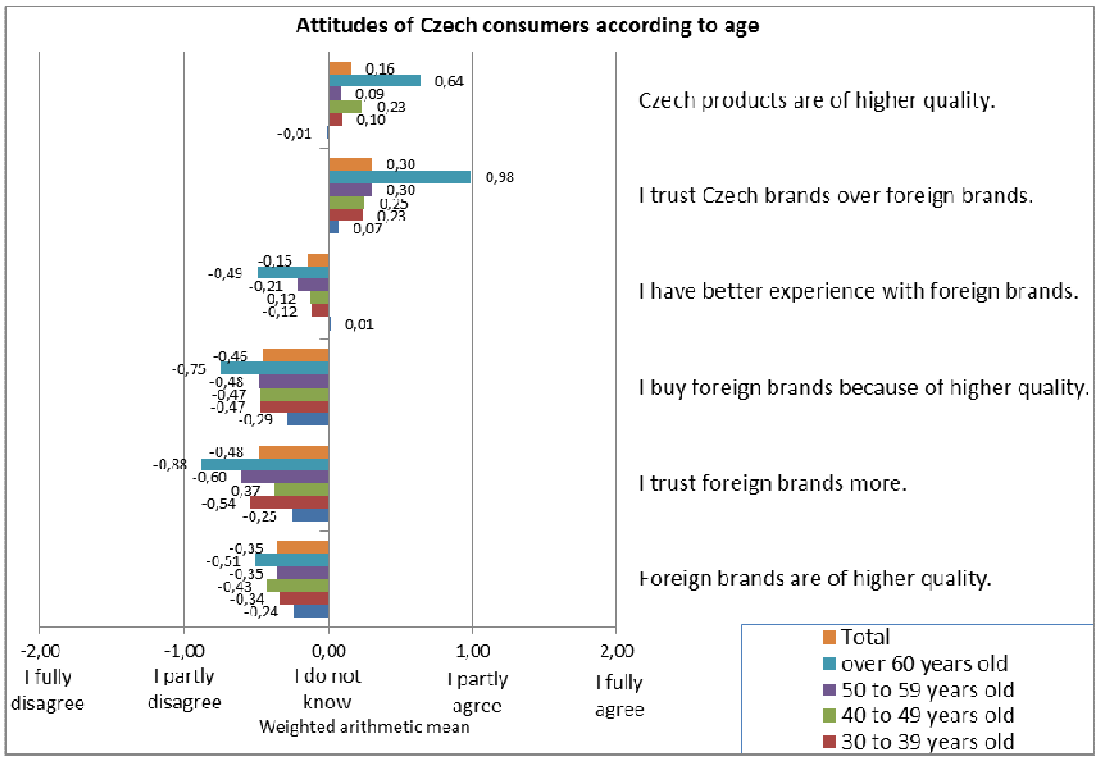

Fig 2. Attitudes of Czech consumers according to age

Source: Own (based on research)

Respondents' attitudes to quality and trust in brands based on the age structure of Czech consumers are presented in Figure 2. In general, it can be stated that higher consumer trust in domestic brands over foreign ones is seen with increasing age. This tendency can be observed in a much stronger way at consumers over 60 years (70.77%) than at other age categories (respondents in the youngest age category up to 29 years trust domestic brands less by 35.05%). Trust in Czech brands tends to be rather indecisive at young generation (35.71% of these respondents trust them and 34.29% of them do not know). Quality perception of Czech products provided similar results – only 28.92% of these respondents consider them for quality products and 43.21% of them do not know. But at the same time, they rather disagree (45%) with the fact that they would buy foreign products because of higher quality and better experience with them (30%). Other older generations also fail to show clear attitudes towards quality perception of Czech brands. Research results suggest that even if consumers do not show a clear view on higher quality of Czech products, compared to the quality of foreign brands, a clearer view on trust can be observed. All in all, it can be stated that Czech consumers do not buy foreign brands because of their higher quality. If consumers buy them, there are also other reasons why they do so.

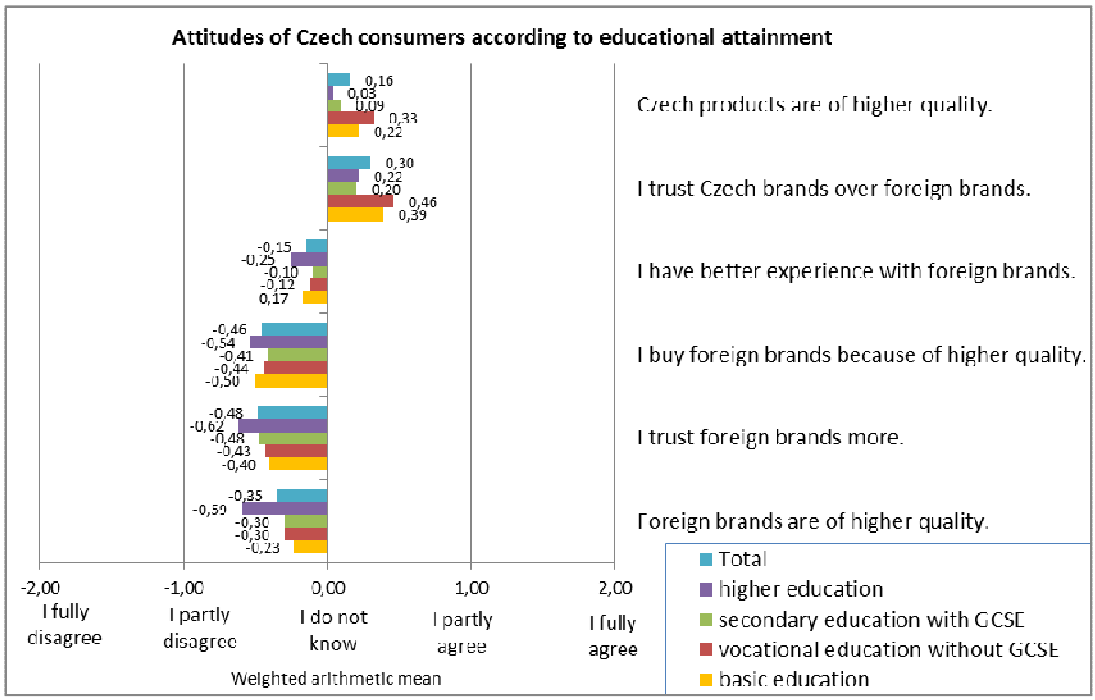

Fig 3. Attitudes of Czech consumers according to educational attainment

Source: Own (based on research)

Note: GCSE means General Certificate of Secondary Education.

Within this research study, respondents were divided, based on their level of their educational attainment, into four groups – basic education, secondary vocational education without GCSE, secondary education with GCSE, and higher education. Results based on the level of respondents' educational attainment are shown in Figure 3. Based on the weighted arithmetic mean, Czech respondents with secondary vocational education without GCSE (52.47%) and with basic education (50.44%) show the highest level of trust in domestic brands. Consumers with a higher level of educational attainment (44.03% with secondary education with GCSE and 47.6% with higher education) tend to trust more domestic brands than foreign brands but their attitude toward higher quality of Czech products compared to foreign ones is rather indecisive (36.77% of them agree, 31.85% of them do not know and 31.38% of them disagree). At the same time, consumers with higher education (57.21%) most disagree with the statement that foreign products would be of higher quality and they (59.62%) trust them less than other groups of respondents.

The group of consumers with a lower level of educational attainment has more positive attitude toward the quality of Czech products (39.82% with basic education, and 46.13% with secondary vocational education without GCSE). At the same time these respondents do not think foreign brands would be of higher quality (35.4% with basic education and 42.25% with secondary vocational education without GCSE) but this opinion is shared by fewer respondents (the difference makes 21.81%) than by respondents with higher education.

According to their net household income, Czech consumers are divided into 12 categories. Their attitudes to the statements are shown in Figure 4. A vast majority (61.11%) in the category of respondents with net household income less than CZK 9,000 shows trust in Czech brands and considers them of higher quality compered to foreign products. The same tendency can be observed in the attitude of disagreement – 77.8% of these respondents disagree with the statement that foreign brands would be of higher quality. Many of them (61.11%) lack trust in foreign brands and they do not buy these products for other reasons including the fact that they do not think these products would be of higher quality (64.7%). In general, trust in Czech brands with increasing income of respondents decreases, the income category of 57 to 69 thousand crowns demonstrates a very ambiguous attitude while the category of respondents with net household income over 69 thousand crowns holds rather

negative attitude – 48.65% do not consider Czech products of higher quality and state that have even a better experience with foreign brands (51.35%).

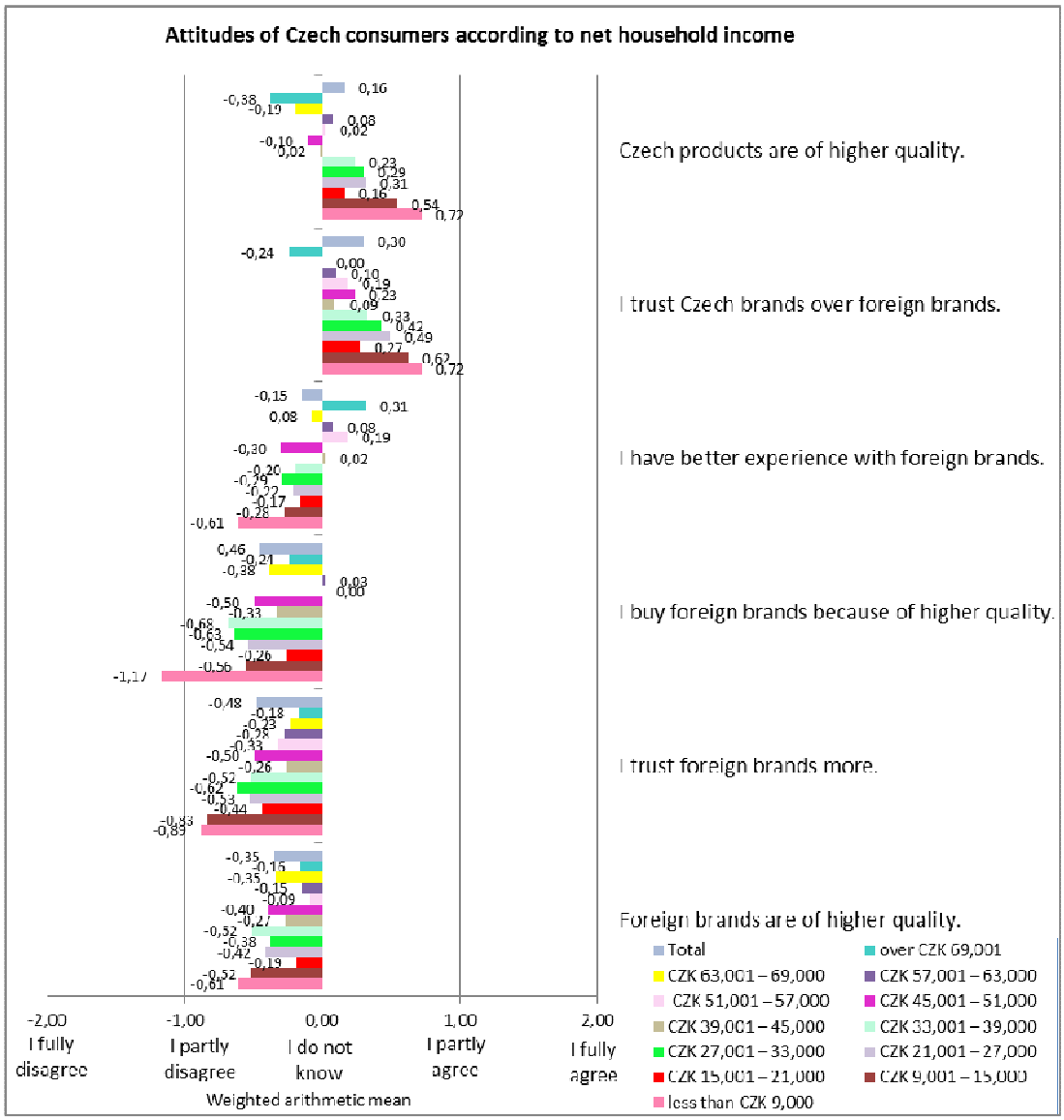

Fig 4. Attitudes of Czech consumers towards brands according to price and net household income

Source: Own (based on research)

On the other side, households with incomes up to CZK 39,000 perceive Czech products as of higher quality (44.85%) and trust them more than foreign brands (51.82%). All in all, consumers hold negative attitude to the statements claiming that foreign brands are of higher quality and that they would trust foreign brands more.

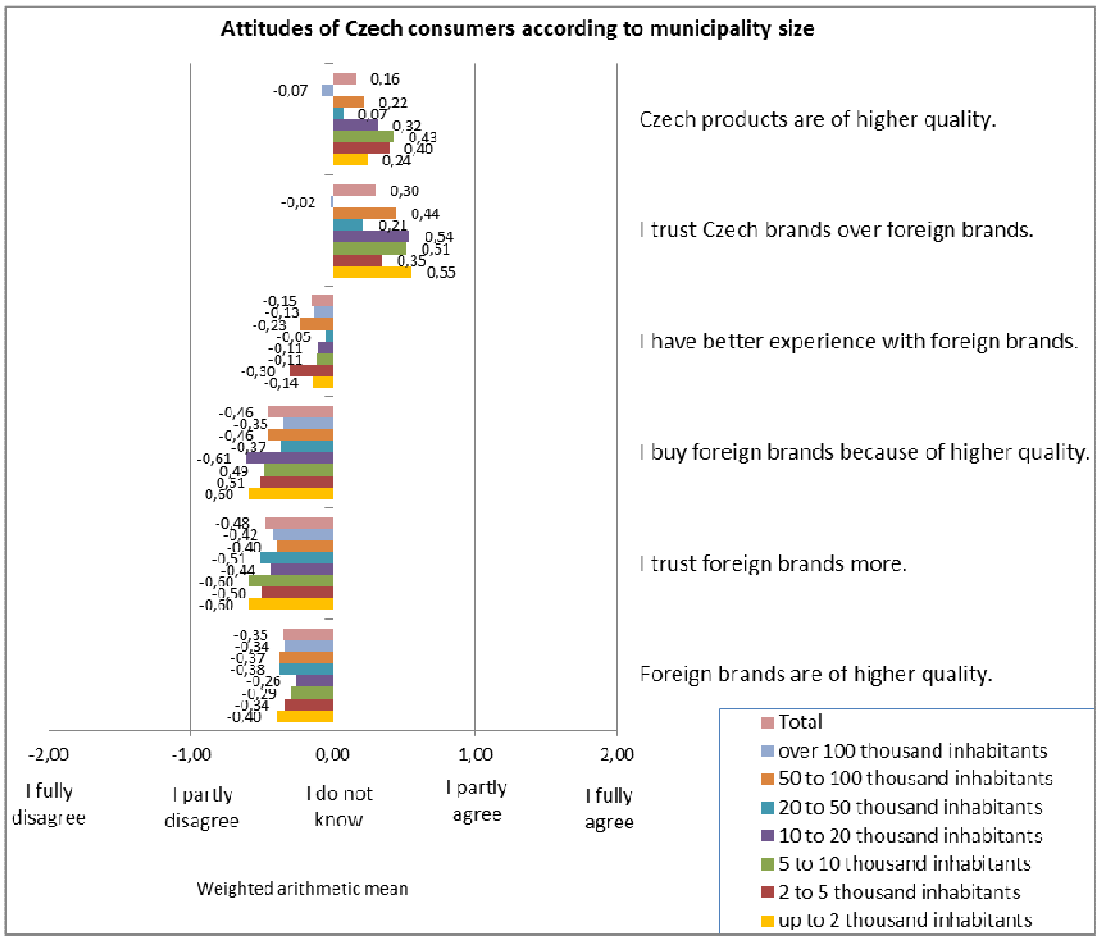

Figure 5: Attitudes of Czech consumers towards brands and price according to the municipality size

Source: Own (based on research)

Evaluating attitudes of respondents according to their municipality size (Figure 5) it can be stated that the bigger the municipalities size the less trust in Czech products. The only exception is the category of 50 to 100 thousand inhabitants where a higher level of trust in Czech brands (52.11%) can be observed, and these respondents also consider them to be of higher quality (45.07%) compared to municipalities of 20 to 50 thousand inhabitants (38.43%). In general, it can be said that Czech consumers, without a significant difference, do not hold higher trust in foreign brands (54.28% of all categories) and they do not consider them of higher quality (45.23%). More hesitant or even negative attitude can be seen when evaluating the statement that respondents have better experience with foreign brands – only respondents living in municipalities of 2 to 5 thousand inhabitants (40.37%) and 50 to 100 thousand inhabitants strongly disagree with this statement.

Conclusion

Looking at the results presented in this paper it can be summarized that Czech products and brands are in terms of quality not perceived negatively and Czech consumers rather trust them. This tendency is much higher among women, older age categories, the categories with lower educational attainment, at households with lower net income, and among respondents from smaller municipalities. On the other side, foreign brands are not perceived as better or of higher quality. In general, Czech consumers do not have any better experience with them, and they have no greater trust in them. Respondents in households with net income over CZK 69,001 have, concerning trust (35.14% trust them, and 21.62% do not know) and quality of foreign brands (32.43% agree with the statement that foreign brands are of higher quality, and 43.24% disagree with it), ambiguous attitude,

and 51.35% of them claim to have better experience, 48.65% do not consider domestic products to be of higher quality, and 42.3% have no trust in them. Looking at the results based on age it can be stated that the youngest generation of 18 to 29 years old shows the lowest inclination to quality and trust in Czech brands. These results are compared with a similar research carried out in the Slovak Republic (see Figure 6).

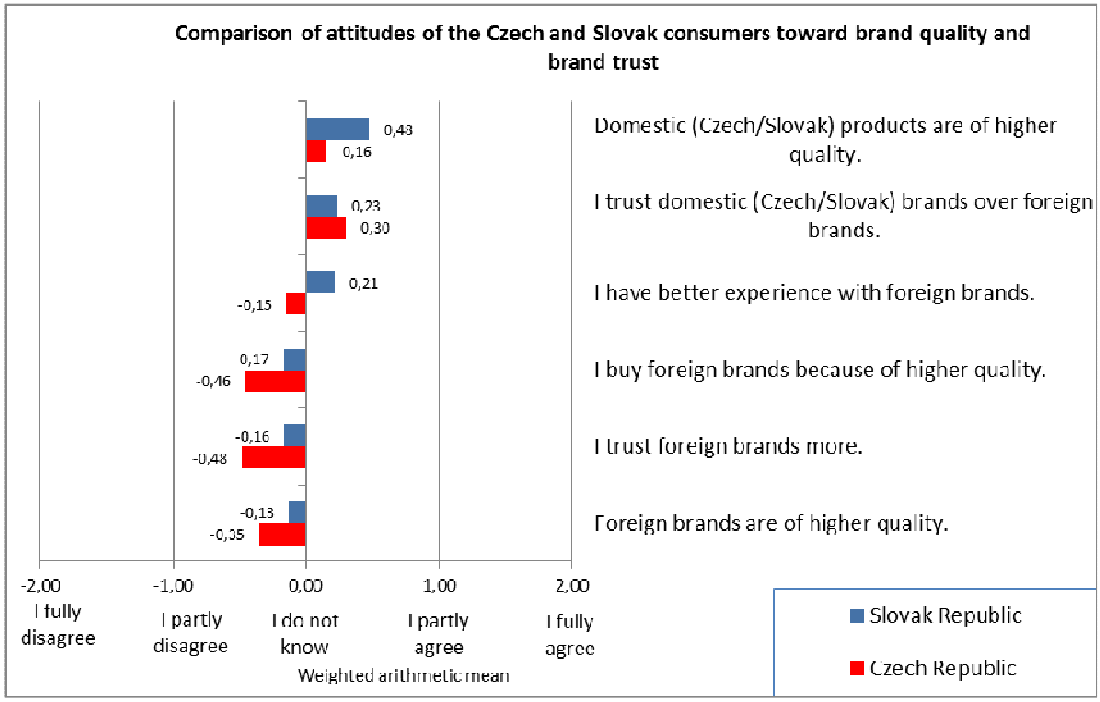

Fig 6. Comparison of attitudes of the Czech and Slovak consumers toward quality and trust in brands

Source: Own (based on research)

The comparison of the results shows that 55.45% of Slovak respondents trust the quality of domestic products (while 32% do not know). This is more by 15.76% than among the Czech consumers (39.69% while 27.78% do not know). On the other side, the question of trust in domestic products was slightly more positive among Czech consumers; approximately 47% of respondents in both countries agreed with the statement, only 28.5% of the Czech respondents disagreed with the statement – this is less by 2.01% compared to the Slovak consumers. It can be stated that in both countries, domestic products are, in terms of trust and quality, perceived in a rather positive way.

Investigating respondents' experience with foreign brands, different attitudes can be observed between the Czech and Slovak respondents. Slovak consumers claim to have rather better experience with foreign brands (42.29%) while the attitude of Czech consumers (29.6% agree) is more negative (39.1% disagree and 31.32% do not know) because in Slovakia 29.6% disagree which is less by 9.5%. This attitude is confirmed by the results of the statement that foreign brands are of higher quality, consumers trust them more and buy them because they are of higher quality. Slovak consumers show a slightly negative attitude (46.7% disagree with the statement) compared to 48.5% of Czech respondents who disagree with the statement too.

The results of the research focused on the attitudes of Czech and Slovak consumers are, in terms of trust and quality, encouraging and positive for domestic producers placing their products in the domestic market. Consumer behavior is naturally affected by other attributes, of which price can be considered as the most influential. This was investigated within both research surveys and it was found out that in both countries, respondents do not focus only on the cheapest products and this tendency is stronger with increasing net household income - this fact can be seen as an opportunity (Farkasova, 2013; Jurikova, 2014) for companies to attract consumers (Lorincova & Balazova, 2014) with different qualities but the price.

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Supply Chain Management as a Source for Competitive Advantages of Small and Medium Sized Manufacturing Enterprises

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Abstract

Understanding and implementing supply chain management is a necessary condition to remain competitive in the global competition and improve profitability and consequently of supply chain management (SCM), which is a relatively recent thinking in the management literature. Although many researches highlight increasingly the importance of SCM, as well as scholarly materials remain scattered and disjointed. Moreover, none of research has been directed towards a systematic identification of the core initiatives and constructs involved in SCM. This research is both descriptive and applied research focuses on manufacturing companies of Romanian is considered as a statistical population. Thus, the purpose of this study is to develop a research framework that improves understanding of SCM and stimulates and facilitates researchers to undertake both theoretical and empirical investigation on the critical constructs of SCM. Additionally, this research attempts to study the impact of supply chain practices on competitive position of small and medium sized manufacturing enterprises. The result has showed that there is a relationship between supply chain management practices and competitive advantage in small and medium sized manufacturing enterprises. Also results showed that efforts in: (1) improving customer satisfaction, (2) Strategic supplier partnership (SSP), (3) Customer Relationship (4) Level & Quality of information sharing has significant impact on the competitive position of the company..

Keywords: supply chain management, competitive advantage , small and medium sized manufacturing..

Introduction

The history of small manufacturing has been one of the most controversial stories in economic development in the world. The role of small manufacturing in an economy has frequently been undermined and even misinterpreted. In the past, small businesses were believed to impede economic growth by attracting scarce resources from their larger counterparts (Audretsch, et al., 2000) small manufacturing contribute significantly to both local and global economic development. They are a crucial business sector for all nations' economies. In developed countries, SMEs typically account for 60 per cent of employment, and the figure is even higher in developing countries.(Audretsch et al., 2000).

From the onset of the industrial revolution until the 1960s large corporations capitalizing on economies of scale were considered as the deriving force of growth and development (US Small Business Administration (SBA), 1998). The emergence of computer-based technology in production, administration and logistics and information has, however, reduced the role of economies of scale in many sectors. Many studies (Loveman and Sengenberger, 1991; Acs and Audretch, 1993) have shown a shift in industry structure away from greater concentration and centralization towards less concentration and decentralization – a shift towards an increased role for small firms. This was mainly due to changes in production technology, supply chain managment, just in time, in consumer demand, labor supply, the pursuit of flexibility and efficiency. These factors, in turn, led to the restructuring and downsizing of large enterprises and the entry of new firms. More and more evidence became available to indicate that economic activity moved away from large firms to small, predominantly young firms. (Brock and Evans 1989) .

In today's dynamic business environment coupled with globalization, the survival of Small to Medium Size Enterprises (SMEs) will be determined by their ability to produce more, at a lower cost, in less time, and with few defects. Essentially, these enterprises need to improve their efficiency. SMEs form the largest group of manufacturing firms which provide manufacturing and support services to Large Enterprises (LEs) in many supply chains. (Meehan, J., and Muir, L., 2008) .

During the last fifteen years the Romanian manufacturing sector has evolved and modernised considerably . There has been a growth in the implementation of new technologies (such as SCM -lean manufacturing- and EDI -Electronic Data Interchange-) and the development of new manufacturing formats (such as automotive and metal industry and construction) . The most important characteristics of this sector are: its high concentration level (in 2000, the first five groups had a market share of 50% approximately) . In the context of an economy in full uptrend, the Romanian industry is characterized by an effervescence generated on one side of the infusion of foreign capital attracted by cheap labor force, well qualified, low costs, Romanians experience and on the other hand by the Romanian automotive manufacturers. (A . Hagiu 2012) .

The highly competitive environment of the small manufacturing sector has made companies look for a competitive advantage. Logistics management has the potential to assist the organisation in the achievement of both a cost / productivity advantage and a value advantage (Christopher, 1998) . But, the logistics perspective that considers the company itself without considering its supply chain members is not sufficient . To gain this competitive advantage, there is the need to adopt the Supply Chain Management (SCM) approach and consider the supply chain as a whole.

Compete in global markets will expand in 1990s, challenges creates related to product and service offerings to the right place, at the right time, with the lowest cost and highest quality. Studies showed that approach of supply chain management (SCM) used increasingly as an opportunity to achieve these goals by many organizations . Therefore, understanding and implementation of supply chain management is a necessary condition to remain competitive in the global competition and improving profitability (Moslem, G et al 2013) and improving organizational performance . However, the understanding why and how SCM affects firm performance . Business enterprises are responsible to manage a network of upstream firms (suppliers) that provide inputs and a network of downstream firms (customers) that deliver products and services . Serving the right customers, finding the right suppliers, and fostering trust with the right partners have a great impact on current as well as future business performances. Traditional organizational boundaries are a topic of the past . Business enterprises today focus on their Supply Chain Management (SCM) in order to improve product quality and lead time due to stiff competition from global markets and increased levels of customer's expectation (Murali, S. and George ,J 2008). SCM can play a proactive role in enhancing competitiveness and profitability (Tracey, Lim, & Vonderembse, 2005). By addressing supply chain management practices that can lead responsiveness, will make better

understanding the scope and activities related with supply chain management practices that create enhanced level of supply chain responsiveness in today's competitive market place.

Therefore the purpose of this studies is to empirically test a framework identifying the relationships among SCM practices, competitive advantage and organizational performance . SCM is defined as a process for designing, developing, optimizing, and managing the internal and external components of the supply system in a manner that is consistent with the overall objectives and strategies (Spekman, Spear, & Kamauff, 2002). Globalization and worldwide competition are facilitating innovation in the ways businesses are being conducted and thus changing business strategies. SCM practices are defined as the set of activities undertaken by an organization to promote effective management of its supply chain . In this paper , we have identified the SCM practices that impact the competitive position of a company. The practices of SCM are proposed to be a multi-dimensional concept, including the downstream and upstream sides of the supply chain. The ultimate goal of SCM is to integrate various members of the supply chain in a seamless manner to achieve a high level of customer satisfaction, and thus a longterm competitive advantage (Ebrahim, K. and Mahmoud, R 2014) .

The aim of this study is to find out the effect of supply chain management practices such as strategic supplier partnership, customer relationship, information sharing and supply chain responsiveness of on competitive advantage . So that main question is: Which has practices of supply chain management (SCM) impact the competitive advantage in Romanian manufacturing companies? This study also assess the effect of supply chain integration in term of internal firm integration, integration with suppliers and integration with customer on firm competitive advantage. The paper is organized as follows: relevant literature is reviewed and synthesized first to develop a conceptual model , followed by research methodology . The results are then presented along with discussions. of the study and highlight research motivation.

2. Literature review

2.1. The Supply Chain management

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The concept of "supply chain" is well established in the literature and is generally referred to as the alignment of firms that bring products or services to market (Mihai, F and Irina, A ,2013) . Supply chain management (SCM) is a cross-functional interenterprise system that uses information technology to help support and manage the links between some of a company's key business processes and those of its suppliers, customers, and business partners. The goal of SCM is to create a fast, efficient, and low-cost network of business relationships, or supply chain, to get a company's products from concept to market.
SCM coordinates and integrates all of these activities into a seamless process to server as an opportunity and profit for customers .It links all of the stakeholders in the chain including parties within an organization and the external partners including suppliers, carriers, third party companies, and information systems providers (Habib, M.M. 2011) . In this research, the variables are : strategic supplier partnership , customer relationship , level of information sharing , information sharing quality and internal lean

2.2. SCM practices.

SMC practices have been defined as a set of activities undertaken in an organization to promote effective management of its supply chain (Li et al., 2006) . SCM practices involve suppliers in strategic and operational decision making, encouraging information sharing and searching for new ways to integrate upstream activities.It also involves developing customer contacts through the use of customer feedback to integrate the downstream activities and delivering orders directly to customers at point of use. To effectively achieve these goals, it is necessary to locate closer to the market, help suppliers and vendors

develop JIT capability, create a compatible information platform and create SCM teams for quality and operational efficiency (Diana, B. 2011). Supply chain practices are related to supply and materials management issues, operations, information technology and sharing (ICT) and customer service (Tan, 2002) . Supply chain practice also includes: technology, cost competitiveness, inventory management and external regulation (McMullan, 1996). All those have to be managed effectively to realize supply chain's strategic position which allows competitive advantage.

Some identify the concept SCM as including agreed vision and goals, information sharing, risk and award sharing, cooperation, process integration, long-term relationship and agreed supply chain leadership. Thus the literature portrays SCM practices from a variety of different perspectives with a common goal of ultimately improving organizational performance. SCM practice depends on business strategy and collaboration in the organization, plan and execution, logistic performance and information technology and its implementation in the organization and including five distinctive dimensions: strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing and postponement (Li et al., 2006). Researchers have identified a number of constructs pertaining to SCM, which is shown in

Table 1: SCM constructs identified by the researchers

SCM constructs	**Researchers**
Strategic supplier partnership	Gunasekaran et al., 2001; Tan et al., 2002; Li et ,2005
Customer relationship	Aggarwal, 1997; Tan et al., 2002; Li et al., 2005; 2006
Level of information sharing	Li & Lin, 2006; Li et al., 2005; 2006
Quality of information sharing	Li & Lin, 2006; Li et al., 2005; 2006
Internal lean practices	Handfield & Nichols, 1999; Mason-Jones & Towill, 1997

2.2.1 Strategic supplier partnership (SSP)

Nowadays organizations have found that if they worked together , total interest income is over the situation that they work without coordinating with related agencies (Moslem, G 2013). This term is defined as a long term strategic coalition of two or more firms in a supply chain to facilitate joint effort and collaboration in one or more core value creating activities such as research, product development, manufacturing, marketing, sales, and distribution, with the objective of increasing benefits to all partners by reducing total cost of acquisition, possession, and disposal of goods and services (Maheshwari et al., 2006, Li et al., 2006) .

Strategic partnership with suppliers enables organizations to work more effectively with a few important suppliers who are willing to share responsibility for the success of the products. Strategic partnership emphasizes direct relationship and long-term and encourages mutual planning and efforts to resolve problem. Supplier organizations can work together more closely and eliminate useless time and effort. Effective partnerships with suppliers can be critical factor to guide supply chain management (Li et.al,

2oo6, p110). The main objective of strategic partnerships with suppliers is increasing the functional capability desired supplier (Rosenzweig , 2003).

2.2.2 Customer Relationship

Comprises the entire array of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers, and improving customer satisfaction ,according to Claycomb Tan et al. . CRM is a strategic approach concerned with creating improved shareholder value through the development of appropriate relationships with key customers and customer segments. CRM unites the potential of relationship marketing strategies and IT [information technology] to create profitable, long-term relationships with customers and other key stakeholders. Tan et al. consider customer relationship management as an important component of SCM practices. The growth of mass customization and personalized service is leading to an era in which relationship management with customers is becoming crucial for corporate survival. Close customer relationship allows an organization to differentiate its product from competitors, sustain customer loyalty, and dramatically extend the value it provides to its customers. Good relationships with supply chain members, including customers, are needed for successful implementation of SCM programs. Customer relationship goals can be mentioned as follows (Niknia, 2007, p53) :

- Identifying new business opportunities
- Reduce missed opportunities
- Reducing customer defection
- creating customer loyalty
- Improve customer service
- Improve organization appearance
- Reduce costs

2.2.3. Level & Quality of information sharing

Information sharing has two aspects: quantity and quality and is a key ingredient for any SCM system. Both aspects are important for the practices of SCM and have been treated as independent constructs in the past SCM studies.(Ebrahim and Mahmoud, 2014). Many researchers have suggested that the key to the seamless supply chain is making available undistorted and up-to-date marketing data at every node within the supply chain . By taking the data available and sharing it with other parties within the supply chain, an organization can speed up the information flow in the supply chain, improve the efficiency and effectiveness of the supply chain, and respond to customer changing needs quicker. Therefore, information can be used as a source of competitive advantage.

The information in a supply chain can be classified in different ways e.g. : strategic or tactical; logistical; or pertaining to consumers (Mentzer 2004). Lee and Whang (2000) discuss various types of shared information and their potential benefits . Information sharing leads to high levels of supply chain integration(Choi,. T.Y,.and Hartley,.J.L. 1996) by enabling organizations to make dependable delivery and introduce products to the market quickly. Quality information sharing contributes positively to customer satisfaction and partnership quality . Information sharing impacts the supply chain performance in terms of both total cost and service level (Suhong, L. and Binshan 2006). According to Lin et al. , the higher level of information sharing is associated with the lower total cost, the higher order fulfillment rate and the shorter order cycle time. While information sharing is important, the significance of its impact on SCM depends on what information is shared, when and how it is shared, and with whom. Literature is replete with example of the dysfunctional effects of inaccurate/delayed information, as information moves along the supply chain (Lee,.H.and Billington,.C.1992). Divergent interests and opportunistic behavior of supply chain partners, and informational asymmetries across supply chain affect the quality of information(Lee, J. and. Kim,Y 2000). It has been suggested that organizations will deliberately distort information that can potentially reach not only their competitors, but also their own suppliers and

customers. It appears that there is a built in reluctance within organizations to give away more than minimal information since information disclosure is perceived as a loss of power. and companies fear that information may leak to potential rivals. Given these predispositions, ensuring the quality of the shared information becomes a critical aspect of effective SCM (Zeinab,. S 2014). Organizations need to view their information as a strategic asset and ensure that it flows with minimum delay and distortion and companies fear that information may leak to potential rivals.

2.2.4. Internal Lean Practices

The term "lean" refers to a production system , which focuses on the elimination of all forms of waste and non-value added activities (Womack et al., 1990). This attitude for the first time in 1950 in Toyota plant by Ohno (Technical Deputy of Factory) was designed and implemented (White, 1993) .
While Internal Lean Practices have enhanced the efficiency of individual organizations, greater benefits can be obtained when considering its implementation in a supply chain context (Hines et al., 2004; Shah and Ward, 2007) . Another supply chain management practices is the use of internal lean practices. Internal lean practices refer to consume less system resources uses with the same speed mass production and offers greater variety to customers. One of the fundamental ideas in internal lean practices is removed surplus (Hassanzadeh & et al, 2010).
There are some studies that have investigated the role of internal lean operations together with external SCM practices (e.g. Tan, 2002; Li et al., 2005, 2006; Wong et al., 2005; Zhou and Benton, 2007). For instance, Li et al. (2005) conceptualized, developed and validated a set of SCM practices, which included ILP, strategic supplier partnership, customer relationship, information sharing, information quality and postponement.
The most famous of internal lean practices can be mentioned timely and lean produce. Production of lean and timely is production system that its aims are to optimize processes and production process by reducing waste and other inefficient factors. This attitude for the first time in 1950 in Toyota plant by Ohno (Technical Deputy of Factory) was designed and implemented (White, 1993, p40) .

2.3. Competitive advantage

Competitive advantage is the extent to which an organization is able to create a defensible position over its competitors . It comprises capabilities that allow an organization to differentiate itself from its competitors and is an outcome of critical management decisions . (Ferry, J. et al 2007) .
In today's global competition environment, facing the rapid technology progress and high customer expectations, companies find it hard to win the competition only depending one's own capacity (Su et al., 2008) . In this situation, the establishment of the supply chain partnership among companies and the coordination of the partners are highly valued.
On the basis of prior literature , are define the following five dimensions for competitive advantage : competitive pricing, premium pricing , value-to-customer quality, dependable delivery, and production innovation (Suhong, L. and Binshan 2006) . Based on the above, the dimensions of the competitive advantage constructs used in this study are price/cost, quality, delivery dependability , product innovation and time to market.

3 . Research

3.1. Research hypotheses

That is why we started to develop a framework of SCM practice , collecting and using knowledge from related literature. The framework developed in this SCM proposed that the practices of SCM has and direct impact on the overall performance of the organization.(Shin, Collier, & Wilson, 2000; Prasad & Tata, 2000) . Practices of SCM are supposed to increase the market share of an organization, return made on investment (Shin, Collier, & Wilson, 2000; Prasad & Tata, 2000) and also help the organization to improve the competitive position in the market (Carr & Person, 1999; Stanely & Wisner, 2001). The

objective of strategic partnership with the supplier is increasing benefits to all partners by reducing total cost of acquisition, possession, and disposal of goods and services (Maheshwari et al., 2006; Li et al., 2006). Relationship with the customer acording to greenberg (2001) below are objectives and strategies for an organization that implement CRM increse revenue and reduction of cost of sales and sales representative retention and increse sales representative productivity. The level of information sharing, related with lowering the total cost, the rapid and higher rate of fulfilling the orders of the customers, and shortening the time of order cycle(Lin, Huang, & Lin, 2002). A recent survey had concluded, organizations that are good in implementation of SCM, hold advantage of 40%-65% in cash-to-cash cycle time on the other organizations and the top organizations are carrying from 50% - 85% than their competitors (Sheridan, 1998) .

Moslem et al (2013) in their study on Khuzestan province's manufacturing companies found that SCM practices have a direct and significant impact on Khuzestan province's manufacturing companies and there is relationship between supply chain management practices and competitive advantage in Khuzestan province's manufacturing companies.

Therefore the following hypothesis are proposed:

- First hypothesis: there is relationship between strategic supplier partnerships (SSP) with competitive advantage in small and medium sized manufacturing enterprises Romanian .
- Second hypothesis: there is relationship between Customer Relationship (CR) with competitive advantage in small and medium sized manufacturing enterprises Romanian.
- Third hypothesis: there is relationship between level of information sharing (LIS) with competitive advantage small and medium sized manufacturing enterprises Romanian
- Fourth hypothesis: there is relationship between internal lean practices (ILP) with competitive advantage in small and medium sized manufacturing enterprises Romanian
- Fifth hypothesis: Small and medium sized manufacturing enterprises Romanian with high levels of SCM practices will have high levels of competitive advantage.

3.2 Research methodology and data collection

Research methodology is developed by (Li et al., 2002), and instruments that measure competitive advantage were adopted from (Diana, B. 2011). The items for these instruments are listed in Appendix . The research population is small and medium sized manufacturing enterprises in Romania and sampling method is stratified random sampling .

The empiric research has been conducted on defined sample of 25 Romanian small and medium sized manufacturing in a period from October 2015 to februarie 2016. The questionnaires have been collected by e-mails. The companies in sample are this list of the manufacturing firms consists of materials of construction, automotive, metal, plastic, rubber and other industry components. The manufacturing firms concerned in this study were ranged from medium to small companies, with more than 10 employees and less then 50 employees . According to SME Corp , medium companies are those with full time workers between 51-250 while large companies have full time workers over 251. The decision made in this study is derived from the studies done by (Lila, 2012).

A majority of the respondents belong to middle and upper management were those from managing directors, manufacturing and/or production managers and executives, and also quality managers and executives. The main inquiry of study was to find out the attitude employees and level of understanding of manufacturers whose production processes related to SMEs manufacturing, located in Timisoara and have average 8.5 years of experience.

In present research, questionnaire was used to survey managers and experts views in small and medium sized manufacturing enterprises in Romania . For validity of questionnaire is used content validity and for

reliability of questionnaire is used Cronbach's alpha coefficient. Cronbach's alpha coefficients for the variables in the questionnaire is obtained higher than 70%, thus questionnaire is reliable
The examinee was able to answer using a 5-point Likert scale between the endpoints : not at all, To a small extent, To a moderate extent, To a considerable extent, complete applicable, demographic data for the respondents is given. For data analysis is used Pearson's correlation coefficient.

The collection of data was completed in februarie 2016, followed by data processing. The final sample included 125 questionnaires. The questionnaire return rate was 80 %

4. Results and Discussion

The empirical research took three months starting from October 2015 until februarie 2016. Collecting data was used from 25 industry firms the data was captured through meticulous survey questionnaires undertaken in various small and medium sized manufacturing enterprises established in Romania whose production processes related to automotive and plastic and metal and construction manufacturing . Responses from participants were collected, coded , and entered into a Microsoft Excel spreadsheet (Microsoft 2010). The data was coded according to the tracking number, the date received, definite, and open-ended answers. 125 respondents were lastly retrieved, 26 each from the management team, engineer or supervising team and operating teams. Result form part I of the survey is as shown in Table (2)

Table 2: table title here

Years of employement	**Total respondents**	**Percentage**
Under 1 year	10	8%
1-2	20	16%
2-5	60	48%
More than 5 years	35	28%
The number of company workers		
From 1-9		12%
From 10-49		32%
From 50-250		56%
Position in the company		
production Management		32%
Administrative		68%
Types of product produced		
Plastic parts		16%
Metal parts		12%
Construction parts		20%
Electronic parts		28%
automotive		24%

The general background of the respondents such as years of employement and the number of company workers and types of product produced are presented in Table (2). Results showed that the respondents were (48%) from workers have a level hold bachelor degree, workers in administrative team (68%), and (48%) workers have 2-5 years of working experiences. The factors studied were the types of produce and firm period. Most of the respondent were from firms which manufacture electronic parts for industries were (28 %). the companies involved in this study medium entreprises are categorised as intermediate was (56%) and (32%) medium companies .
The small and medium enterprises were measured those enterprises whose whole number of workers is less than 250 people, with the following sectors, micro-enterprises (1-9 employees), small enterprises

(10-49 employees), and medium enterprises (50-250employees). The type of definition established, firmly on a single principle the number of people employed in enterprises determined the extention of its use in the current statistics of the European Union.

The mean and standard deviation (SD) of perceptions of respondents about relationship between SCM practice concepts Strategic supplier partnership (SSP), Customer Relationship, Level & Quality of information sharing, Internal Lean Practices and competitive advantage and efficiency are presented in (Table 3).

Table 3 : Means, standard deviations, correlations and reliability of SCM practice, competitive advantage

Perception	Mean	SD	Meaning
Strategic supplier partnership	3.72	0.71	significant
Customer Relationship	3.89	0.67	significant
Level & Quality of information sharing	3.35	0.66	significant
Internal Lean Practices	3.34	0.64	significant

The mean and standard deviation (SD) of perceptions of respondents correlations and reliability of SCM practice, competitive advantage.

According to the obtained results was observed that is a significant correlation coefficient between strategic supplier partnership and competitive advantage, ($p<0.05$) . It shows the positive correlation among these variable. So this is best fit for regression model. Thus research hypothesis is confirmed and there is relationship between strategic supplier partnerships with competitive advantage in small and medium sized manufacturing enterprises Romanian. According to the obtained results was observe that is a significant correlation coefficient between CR and competitive advantage and given the level of significance in this test ($p < 0.05$) , thus research hypothesis is confirmed and there is relationship between CR with competitive advantage in small and medium sized manufacturing enterprises Romanian. According to the obtained results was observed that is a significant correlation coefficient between LIS and competitive advantage. ($p<0.05$). It shows the positive correlation among these variable. So this is best fit for regression model , thus research hypothesis is confirmed and there is relationship between LIS with competitive advantage in small and medium sized manufacturing enterprises Romanian.

According to the obtained results was observed that is a significant correlation coefficient between ILP and competitive advantage, ($p<0.05$). It shows the positive correlation among these variable. So this is best fit for regression model , thus research hypothesis is confirmed and there is relationship between ILP with competitive advantage in small and medium sized manufacturing enterprises Romanian.

5. Conclusions

This study provides an empirical justification for a framework that identifies five key dimensions of SCM practices and describes the relationship between SCM practices and competitive advantage .It looks at 5 investigation queries: (1) strategic partnerships with suppliers can impact on competitive advantage; (2) Customer Relationship has impact on competitive advantage; (3) level of information sharing has an impact on the competitive advantage; (4) internal lean practices affects the competitive advantage ; (5) Small and medium sized manufacturing enterprises Romanian with high levels of SCM practices will have high levels of competitive advantage. Test results indicate that strategic partnerships with suppliers, CR, LI S ,and ILP have an impact on a competitive advantage. This study offers a number of managerial implications. First, by developing and validating a multi-dimensional construct of SCM practices and by exhibiting its value in improving performance of Small and medium sized manufacturing enterprises

Romanian; it provides SCM managers with a useful tool for evaluating the efficiency of their current SCM practices. Second, the analysis of the relationship between SCM practices and competitive advantage indicates that SCM practices might directly influence competitive advantage of SMEs manufacturing Romanian. Third, the findings of this study tend to support the view that implementation of SCM practices has a significant impact on the competitive advantage of SMEs manufacturing in an emerging country. Finally, we find that the small and medium sized manufacturing enterprises Romanian with high levels of SCM practices have high levels of competitive advantage

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Methods of Knowledge Representation in Knowledge Management Systems for Technological Preparation of Production

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Abstract

The article presents a method of knowledge representation developed for the construction of a knowledge management system (KMS). The starting point of the research is to analyse the stages and decision problems in the technological preparation of production of selected machine elements. In the system there is a symbolic information processing and therefore it has been assumed that knowledge is going to be expressed with the use of symbols. The way of building the symbolic knowledge representation about the structure, based on the identification of geometric features has been characterized. The construction of the technological symbol in knowledge representation about the structure of the technological process of machine parts has been inserted. Associations between these representations in the form of decision rules, which will be stored in the system knowledge base, have been proved. A diagram of building a framework of knowledge representation and an example of record of the decision rules in the structure of the frame.

Keywords: knowledge representation, knowledge management system (KMS), technological knowledge, decision rules.

Introduction

Modern economy should be based on knowledge, which resources and proper management of these resources are seen as the most important source of enterprise's competitive advantage. This applies not only to organizations where employees intellectual capital is a key resource to be transformed into products such as: expertises, designs, software (Awad, Ghaziri, 2008; Dalkir, 2005; Mertins, Heisig, Vorbeck, 2003). Knowledge is an important resource in the development of manufacturing enterprises, which is the main source of innovation (Baruk, 2006; De la Mothe, Foray, 2001). Knowledge management is understood as a set of actions fitting a proper form and the processes direction taking place in the company's knowledge resources. The strategic goal of knowledge management is the multiplication of intellectual capital and the enlargement of the organization's efficiency. In the case of the knowledge management, key processes are discerned, such as: locating, acquiring, development, distribution, use and preservation of knowledge (Davenport, Probst, 2002; Frappaolo, 2006; Wong, Aspinwall, 2004).

Research carried out on artificial intelligence in the range of processing tools of the knowledge determined the emergence of new opportunities (Negnevitsky, 2002; Rutkowski 2008). Attempts are being made to implement the elements of artificial intelligence in the knowledge management systems, but they are most often aimed at the knowledge codification strategy and its proper storage in the system (Giarratano, Riley, 2005; Madanmohan, 2005). This approach is too general to make knowledge management practitioners proceed directly to implementation. In this regard, one can feel a distinct lack of a strict methodology for applying elements of artificial intelligence in knowledge management systems in manufacturing companies.

The primary purpose of technological production preparation is a choice of the right technological option due to the adopted the decision criteria. A typical task is to analyse the following problem: what operations, in what order and by what technological means must be performed to receive the finished product fulfilling the conditions relating to the net-shape precision, surface quality and minimization of production costs (Chryssolouris, 1992). Technological preparation of production in the enterprise bases on technological expertise. This knowledge includes the collection of information about the production process carried out in the specific realities of the company. Technological knowledge is a dynamic collection, because in the companies there are frequent changes in processes, e.g. production parameters, machinery, tools, etc. (Trajer, Paszek, Iwan, 2012). Knowledge determine the ability of companies to react quickly to the market and constitute an information database to generate new products, technologies and organizational solutions (Knosala, 2002; Paszek, Wittbrodt, 2015).Stages of production preparation require the right knowledge, describing the possible solutions for the decision-making problems. It is required to develop a knowledge representation, thanks to which a computer system for knowledge management in the enterprise may be elaborated.

Analysis of Decision Problems in the Technological Preparation of Production

The elaboration of a knowledge management system in the enterprise starts with an analysis of the production preparation processes of selected machine elements. This analysis results in the determination of decision-making problems, the solution of which requires specific sets of technological knowledge accumulated in the system. Regarding the elaboration of the knowledge analysis involves:

- construction of machine elements, e.g. the type of material, geometric dimensions, surface net-shape precision, surface roughness, heat treatment, surface hardness, kind of electroplating, etc.,
- technological characteristics of the production system, it means the analysis of the production capacity of the considered company, technical tools, tasks to be performed at a given technological position, the cutting tools base and technological hardware, etc.,
- relationships between the element construction and the process structure, it means determination of technological and technical resources that need to be applied to obtain the required characteristics of the element,
- the ability to create new constructional solutions of elements and their respective processes, it means identification of possible sets of the item's distinguished features, which can be obtained in a real production system on particular machines and technological hardware.

Preparing of the knowledge sets is based on a multi-stage structure of the technological process of machine parts. The sequence of distinguished decision steps results from the choice of manufacturing operations, in order to increase the net-shape precision and fit desired properties to the treated objects, until the finished product is achieved. In various stages of the design, partial decision problems were picked out, what allowed to organize them according to assumed knowledge sets. Below, distinguished stages and decision-making problems are highlighted:

- *Stage of blank selection:*
  - determination of the basic material type (e.g. rolled bar, forging),
  - selection of the input material characteristics (e.g. characteristic parameters).
- *Stage of pre-treatment selection:*
  - selection of input operations (e.g. straightening, cutting, initial turning),
  - preparation of basic machining bases,
  - selection of the initial heat treatment.
- *Stage of basic processing selection:*
  - specification of the required basic methods of the element processing (e.g. turning, milling),
  - the division of machining into roughing and shaping,
  - selection of technological operations (structure and order),
  - selection of technological processes for the considered operation,
  - selection of the machine tools and tooling,

- determination of cutting conditions.
- *Stage of the after-treatment selection :*
- selection of the type of coating and the electroplating line,
- selection of surface treatments within special technical requirements (e.g. polishing).

Troubleshooting process of decision-making requires the creation of acceptable alternative solutions from the point of view of the technological capacity of the production system and production profitability in terms of the production costs minimization and the processing cycle time. Taking into account the level of description precision to describe the technological process structure, variants are created at different levels, e.g.:
- variants of technological processes,
- variants of technological operations,
- variants of technological tooling.

The number and complexity of options at each level depends frequently on the size of production of machine parts and the company's manufacturing capabilities. It should be noted that while increasing levels of creating variants there is a simultaneous increase of the level of description precision of the technological process.

Elaboration of the Method of Knowledge Representation about Structure of Machine Parts

In the knowledge management system there is a symbolic processing of information, and therefore the construction description should be expressed using symbols. Symbols in the form of alphanumeric character strings, are built on the basis of assumed semantics and a language syntax of design element description. The method of the symbolic knowledge representation is based on the identification of geometric construction features of the machine parts.

The process of creation of the knowledge symbolic representation about the structure of machine parts runs in stages. At the first stage, characteristic dimensions are determined assigning appropriate symbols to them. Characteristic dimensions are the element's overall dimensions as well as the dimensions of the element's relevant functional surface, interacting with the other elements surfaces. At the next stage of the construction, a construction division into elementary objects takes place, recording them using symbols. Elementary objects describe surface groups or an element's individual surfaces. They have been characterized by construction geometrical features. It was assumed that these traits can be permanent and variable. Permanent characteristics are closely associated with the elementary object, and their value is determined in advance and is not changed during the production preparation. While the variable features are determined during consultations with the knowledge management system.

The starting point of the elaboration of an exemplary knowledge representation about the structure of machine parts is the design documentation analysis of hydraulic actuators. Analysed hydraulic cylinders are double-acting. They consist of a cylinder tube with power supply terminals, the withdrawable piston rod, the sleeve gland which closes cylinder and a set of rings and gaskets. The end of the piston rod and the cylinder tube are equipped with brackets for mounting the cylinder.

From the distinguished group of actuators elements, an exemplary group of piston rods was selected for the presentation purposes, for which a symbolic knowledge representation has been elaborated. Fig. 1 shows the structure of the piston rod, in which features elaborated according to the adopted representation method have been marked. Characteristic dimensions of the piston rods have been determined that are assigned to the symbols, namely: the total rod length (L), the maximum transverse dimension of the rod (d1) and the diameter of the cylindrical finishing (d). The next step is the construction of the elementary objects. The elementary object has been adopted concerning cylindrical finishing of the piston rod (GC)

and a group of elementary objects linked with the hydraulic actuator's elements interacting with the piston rod, such as:

- the end of the piston rod from the side of the press - KT,
- the end of the piston rod from the side of the bracket - KU.

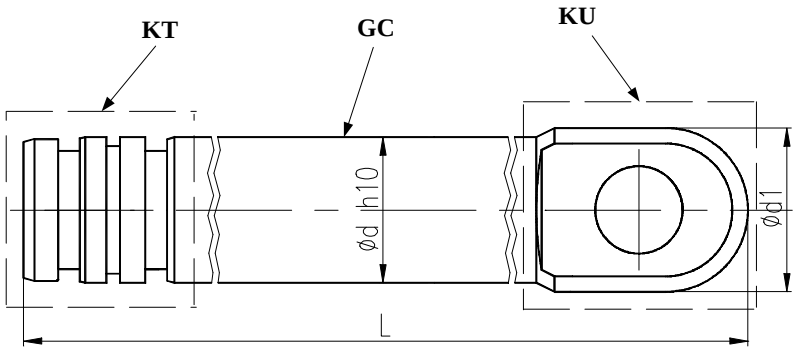

Fig 1. The structure of the hydraulic piston rod

KT group includes elementary objects, for which permanent and variable dimensions have been selected, as shown in Fig. 2 and described in Table 1.

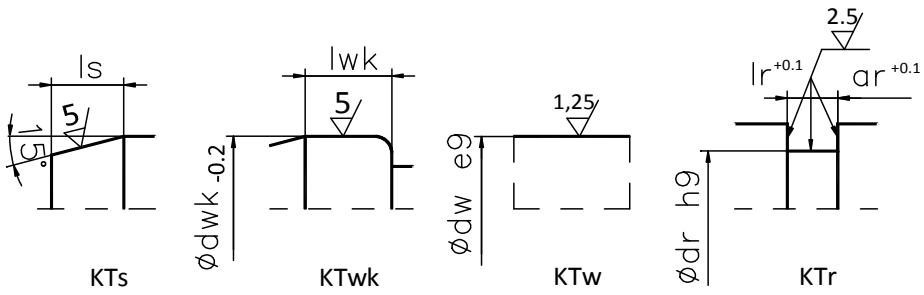

Fig 2. Geometric construction features of the elementary objects of the KT group

Table 1: Description of the construction features of the KT elementary objects and of the GC piston rods

Object symbol	Geometric construction features			
	variable		permanent	
	name	nbol	name	symbol
C	diameter cylindrical finishing	d	y class	10
			ss	,63[µm]
Ts	the length of the conical surface	ls	angle of the cone surface	f = 15°
			roughness	Rkts = 5 [µm]
KTwk	the length of the cylindrical surface	wk	roughness	Rktwk = 5 [µm]
	the diameter of the cylindrical surface	wk	value of the diameter tolerance	Tdwk= -0,2[mm]
KTw	ameter	dw	y class	ITdw = e9
			roughness	Rktw =1,25 [µm]

cont. Table 1.

Object symbol	Geometric construction features			
	variable		permanent	
	name	nbol	name	symbol
KTr	of grooves	n	value of the width tolerance	Tlr = +0,1 [mm]
	the diameter of the groove bottom	dr	accuracy class	ITdr = h9
	h of the groove	lr	roughness	Rktr = 2,5 [μm]
	distance from the cylindrical finishing	ar	value of the distance from the cylindrical finishing	Tar = +0,1 [mm]

Fig. 3 shows variants of elementary objects KU, and Table 2 describes the permanent and variable characteristics.

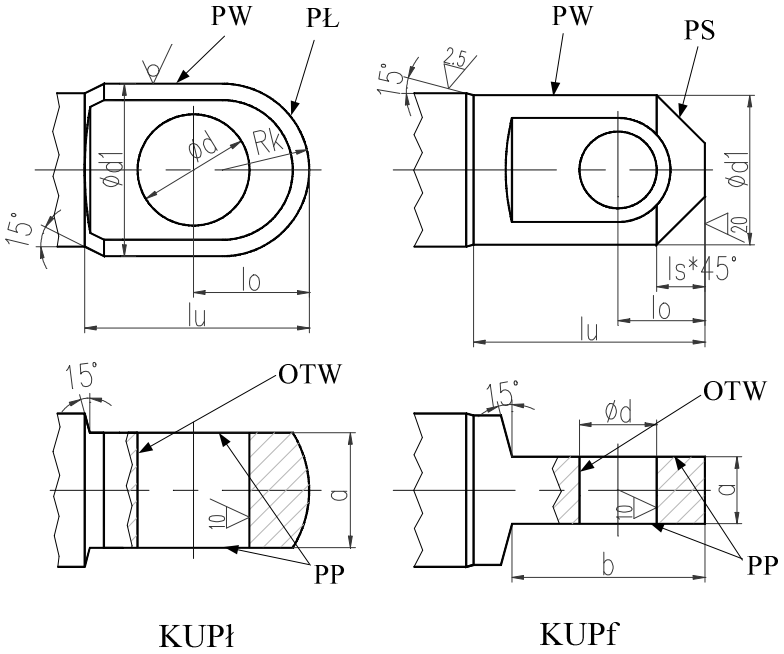

Fig 3. Geometric construction features of the KU elementary objects

Table 2: A description of the construction features of the KU elementary objects of the piston rods

Group symbol	Object symbol	Geometric construction features			
		variable		permanent	
		name	nbol	name	symbol
KUPł		tip length	lu	angle of the cone surface	f = 15°
	PW	diameter	d1	-	-
	PŁ	radius of the sphere	Rk	-	-
	PP	the thickness of the bracket	a	-	-
	OTW	the hole diameter	d	roughness	Rotw =10[μm]
		the distance of the hole axis	lo		

cont. Table 2.

Group symbol	Object symbol	Geometric construction features			
		variable		permanent	
		name	nbol	name	symbol
UPf		tip length	lu	angle of the cone surface	f = 15°
				roughness	Rf = 2,5 [μm]
	PW	diameter	d1	-	-
	PS	the length of the conical surface	ls	roughness	Rps =20[μm]
				angle of the cone surface	fs = 45°
	PP	width of the handle	a	-	-
		length of the handle	b		
	OTW	the hole diameter	d	roughness	Rotw =10[μm]
		the distance of the hole axis	lo		

A procedure of assigning values to the variable features in the knowledge management system is introduced, which results in obtaining knowledge about the structure of the selected machine part.

Method of the knowledge representation about the structure of the technological process

A symbolic knowledge representation about the technological structure in the construction of the knowledge management system should be elaborated. Such representation is constituted by appropriate symbols, which in conjunction with symbols representing the input data and the construction of the machine part allow to generate the technological process for the machine part. The basis for the construction of the representation is to analyse the construction and technological documentation of selected machine elements. This analysis is conducted in order to determine the relationship between construction and the technological process.

In the initial stage, sets of symbols based on the use of the particular variants in technological process designs have been created. Then a method of recording of the symbolic knowledge representation basing on the description of required technological operations in the process has been assumed. The construction scheme and the forming method of the technological symbol has been shown in Fig. 4.

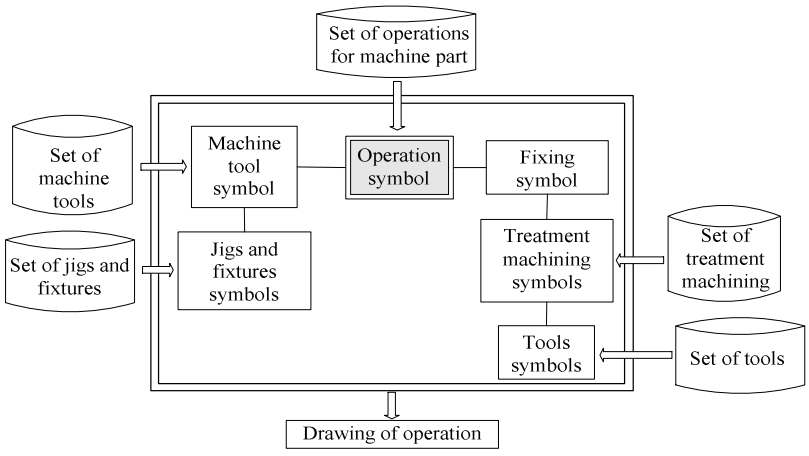

Fig 4. The structure of the technological symbol in the knowledge representation

Recording of the technological symbol is based on the following format:

{<OPERATION>, <MACHINE TOOL>, <FIXING>, <TREATMENT MACHINING>, <JIGS AND FIXTURES>, <TOOLS>}

On the basis of the symbol structure of the technological process, information is obtained which is represented in a form of a description and operations drawings, which occur in the technical documentation of the knowledge management system.

An exemplary technological symbol in a description of the selected structure of the technological process for machine parts such as sleeve, looks as follows:

{Turning, EMAG MSC-22, Z1, TCz(L1), WZ(Dwz), WK(Dw), Z2, TCz(L), TZ(Dzz), TK(Dz), (A243/52, A259/25), (hR117.26_3225-TNMG160408, hR123.26_3225-CNMG2204, MAUb-150, MMZb/1)}

This symbol represents the name of the machine tool (EMAG MSC-22) on which there is the machined sleeve in the enterprise, the symbols of used jigs and fixtures (A243 / 52 A259 / 25), as well as cutting tools and measuring equipment (e.g. hR117.26_3225-TNMG160408 , MAUb-150). Fig. 5 is also associated with this symbol, shows a method of the sleeve processing.

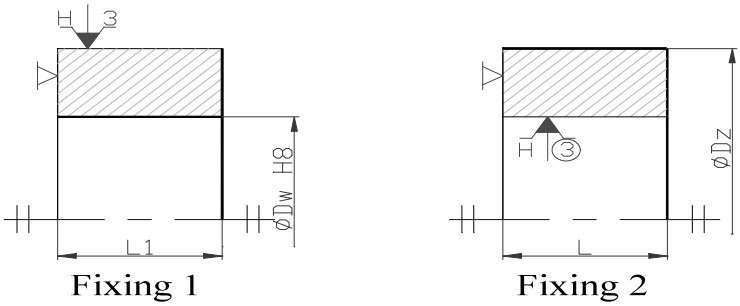

Fig 5. An exemplary schedule of the sleeve processing

The Use of the Decision-Making Rules in the Designing of Technological Processes

On the essence of the technological processes of machine parts, a close dependence derives between the construction and the structure of the technological process. This dependence is the result of the analysis of the production's technological preparation of machine parts and research on the selection of technological processes and technical resources required for their implementation. On this basis, a diagram of the design process using the symbolic knowledge representation about the construction and the technological process structure of machine parts has been elaborated, as shown in Fig. 6.

A key element of the designing process (Fig. 6) are decision rules. These rules constitute an elementary part of the knowledge base system, and on their basis, the decision problems are solved. The primary objective of the application of the rules is as follows:

- presentation of the dependences between the input information about the decision-making problems, and the knowledge that describes the solutions to these problems,
- record of relationships appearing in the description of the construction element - the rules usually show the arrangement of the description (characteristic dimensions and elementary objects) and the order of assigning values to the variable dimensions,
- the creation of knowledge characterizing the structure of the designed technological process - starting with the record of the highlighted symbol of the structure based on rules describing a symbolic representation of the process structure, it is possible to obtain information about the process according to the assumed level of precision of the description.

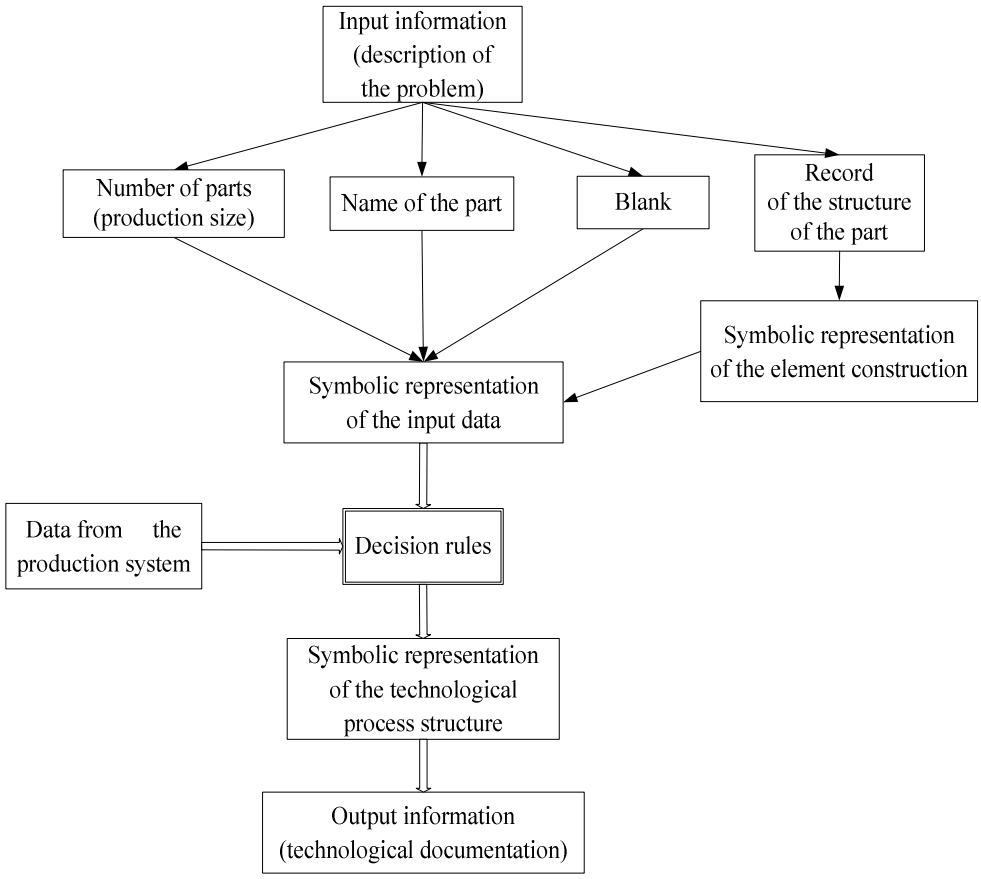

Fig 6. A scheme of the designing process using the symbolic knowledge representation

The general structure of decision rules are as follows:

If <*construction*> **then** <*structure of the technological process*>

The conditional part of the rule include a description of the distinguished components of the machine element, while the activity part includes corresponding description of the technological process structure (operations, treatment machining, etc.) according to a predetermined level of precision.

In the construction of the decision rules, the elaborated symbolic knowledge representations concerning the construction and the structure of the technological process of machine parts have been used. In the conditional and action part, corresponding symbols have been introduced, and the construction of these rules takes the following form:

If <*the symbol of the construction representation*>
then <*the symbol of the technological process structure*>

It can be generally stated that the elaboration of the decision rules constitutes the basic knowledge representation in the construction of knowledge management systems in a manufacturing company and will be used in the computer record of the technological knowledge base.

An example of the construction of decision rules will be presented for the problems of production's technological preparation in the type of piston rod of hydraulic cylinders. The research of the impact of

the elements characteristic dimensions on the selection of the blank and operations in the technological process lead to the creation of examples of decision rules for the following decision problems:

- *for the selection of the blank*

R1: **If** the maximum transverse dimension d1 is greater than or equals 40% of the diameter of the cylindrical finishing, that is d1> = 1.4d **then** the input material should be the forging matrix

R2: **If** the maximum transverse dimension d1 is smaller than 40% of the diameter of the cylindrical finishing, that is d1< 1.4d **then** *the the input material should be the rolled bar*

- *for the selection of the initial operation*

R3: **If** the input material should be the rolled bar **then** perform the operation of the material cutting **and** milling operation and centring

R4: **If** the input material should be the forging matrix **then** perform milling of faceplate and two-sided centring

Further examples of the decision rules construction related to the research of the impact of the type of piston rod's elementary objects on the type and sequence of technological processes in the prime machining. A given object, of a specific net-shape precision corresponds to a set of procedures, arising from the allocation of processing into: roughing, shaping and finishing (Table 3). For the object's variable construction features, based on the norms of technological allowances, intermediate dimension values, characterizing a particular treatment, are assigned.

Table 3: Examples of the dependences between the type of the elementary object and technological treatments

Object symbols	Description of the technological treatments	Technological treatment symbols
GC	Rough turning to the diameter d on the length Ldz Turning to the diameter dk on the length Ldk Burnishing to the diameter d h10 on the length Lgc	TZGC(dz, Ldz) TKGC(dk, Ldk) DGC(d, Lgc)
KTs	Turning the conic area 15□ □on the length ls	TKKTs(ls)
KTwk	Turning to the diameter dwk on the length lwkk	TKKTwk(dwk, lwkk)
KTw	Turning to the diameter dw on the length lw	TKKTw(dw, lw)
KTr	Turning a groove lr to the diameter dr in the distance ar	TKKTr(lr, dr, ar)
PW	Rough turning to the diameter d1z on the length lu Turning to the diameter d1 on the length lu	TZPW(d1z, lu) TKPW(d1, lu)
PŁ	Rough turning a sphere of the radius Rk Turning a sphere of the radius Rk	TZPŁ(Rk) TKPŁ(Rk)
PS	Rough turning the conic area on the length ls Turning the conic area on the length ls	TZPS(ls) TKPS(ls)
PP	Milling the first side of the bracket to the width a1 on the length b Milling the second side of the bracket to the width a on the length b	F1PP(a1, b) F2PP(a, b)
OTW	Rough drilling a hole d0 in the distance lo Drilling a hole d in the distance lo	Ww(do, lo) Pw(d, lo)

Basing on Table 3 one can generate the following examples of decision rules:

R1: **If** GC(d) **then** TZGC(dz, Ld) **and** TKGC(dk, Ld) **and** DGC(d, Lgc)

R2: **If** KTs(ls) **then** TKKTs(ls)

R3: **If** KTwk(dwk, lwk) **then** TKKTwk(dwk, lwkk)

Introduced symbols of knowledge representation in the conditional and action part of the decision rules are described by information collected in the knowledge management system. Thanks to this, the system supports technological preparation of production by generating proposals for solutions to the decision-making problems in the process designing.

The Construction of a Framework Representation of the Technological Knowledge

Decision-making problems in the area of technological processes may be very complex and therefore it is often required to elaborate a numerous set of rules in the knowledge management system. It is therefore deliberate to appropriately group rules according to the existent stages of designing. It is required that all rules are recorded in the knowledge system base, which in this case has a modular design. From various methods of knowledge representation, the framework representation has been chosen as the most appropriate method of meeting the requirements of the knowledge base recording.

The base of the presented representation are the frames. Frames allow to organize the knowledge base in such a way that the rules which are representative of the knowledge in the area are clearly separated from the rules necessary for the proper operation of the system. The frame is a structure describing the considered object and allows declarative and procedural knowledge representation. It consists of a so called substructures - slots, depicting some properties or characteristics of the object. Slots are divided into even smaller knowledge pieces, which are called facets. All frame components have unique names, making them easy to identify and record in the knowledge base. A characteristic feature of the knowledge framework representation is the ability to divide the acquired knowledge into information sets, responding to the stages and decision-making problems in the process design. The advantage of this representation is the possibility to group information concerning selected portion of knowledge in the form of a frame, which facilitates verification and modification of the system's knowledge base.

The scheme of construction of a framework knowledge representation has been shown in Fig. 7. The presented knowledge representation has a procedural and declarative character. The declarative nature of the representation results from the elaborated sets of rules, in which the information needed to solve the decision-making problems has been declared. On the other hand, the procedural representation is based on the frame structure, in which the rules are recorded according to the established procedure of the order of their use. Elaborated frames can be combined and a hierarchical structure of the framework is formed. In such a structure, it is possible to inherit knowledge from the parent frame to the sub frame by means of respective sub-facets. Parent frame has a fixed set of facets, whereas in sub frames besides facets, which are permanently placed in the structure, there are still facets transferred from the parent frame.

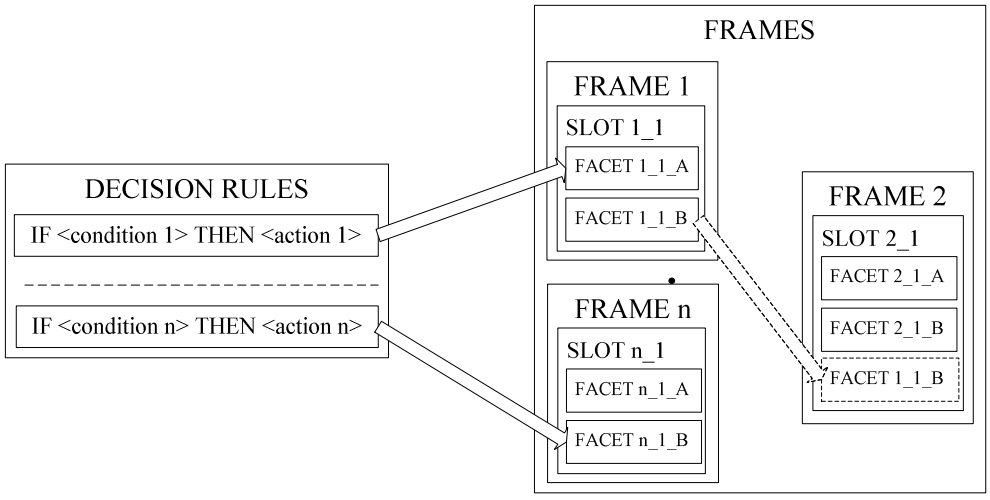

Fig 7. The scheme of construction of a framework knowledge representation

An example of a framework knowledge representation concerns the selection of the type of primary operations in the technological preparation of production of selected machine elements. An elaborated frames with decision rules has been shown in Fig. 8.

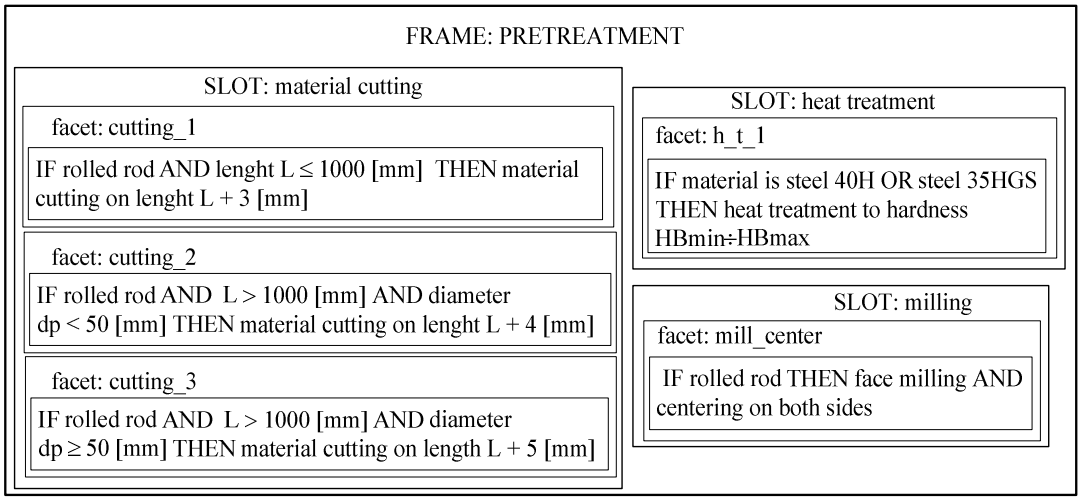

Fig 8. An example of a frame for the primary operations selection

The presented frame contains slots, which correspond to the following preliminary operations: the material cutting, heat treatment and milling. The particular slots contain facets, in which decision rules for the selection of the appropriate operation have been introduced. These rules have been filled with input and output information for making decisions in the technological processes designing.

Conclusion

Elaborated methods of knowledge representation have been aimed at the construction of knowledge management systems. It is associated with the processes of knowledge elaboration, from the knowledge acquisition for the sake of the system through the construction of the knowledge representation and recording of the knowledge base system. Presented knowledge structure is introduced to the knowledge management system in the enterprise. This requires the use of an appropriate software tool.

The research related to the elaboration of the construction of the symbolic technological knowledge representation have been based on expert methods. To substantiate the choice of such methods is the nature of the knowledge itself, which is embedded in the realities of the company and includes a set of information about products, processes and production systems. The elaborated method of knowledge representation supports key processes of knowledge management in the production company, hence it is necessary to use in this case, the knowledge of specialists-experts in the preparation and execution of production processes. This allows mapping of the experts' reasoning, who solve particular decision problems, which require detailed knowledge resources. Elaborated methods facilitate decision making related to the technological preparation of the machine parts production.

Taking into account the specifics of the knowledge management system one may link the effects of their work with the following basic benefits for the company:

- honing of processes and products,
- improvement of the information flow in the process.

By establishing a common knowledge base it is also possible to integrate it with the enterprise's management system. It is a condition for the proper functioning of computer systems in manufacturing companies.

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Adoption of Emerging Technologies established on Comprehensive Capability Maturity Model Framework: A new practical model

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Abstract

Organizations have adopted information communications technologies (ICT) at various time lines driven by business needs or due to technologies evolution. This has given raise to disparate systems based on various technologies and spaghetti architecture.

This paper discusses why it's critical for organization to adopt the emerging technologies. The reasons behind the current state of the architecture. Suggests how organizations can make use of, The open group architecture framework (TOGAF) to develop enterprise architecture.

Then they paper emphasis on the importance of Capability Maturity Assessment. The current practice of Capability Maturity Assessment by TOGAF, its drawbacks. Then based on the practical experiences, proposes Comprehensive Capability Maturity Model Assessment (CCMM) that covers across the phases of Architecture development method that provides the assessment of maturity to be more realistic.

Keywords: Emerging Technologies, Enterprise Architecture, TOGAF, The Open Group Architecture Framework, Capability Maturity Model. CMM, Architecture Development Method, ADM

Introduction

It's critical for Enterprises to embrace the emerging technologies such as cloud, big data, social media, Internet of Things, analytics etc. for the following purposes:

- to improve the quality of service or products
- to reduce the cost of the services or products
- to reduce the operational cost of technologies services
- to innovate and enhance the services or products offered

Taking by examples the organizations such as Motorola, Nokia, Kodak (Lucas & Goh 2009), It has been proven that organizations have lost their market leadership or perished if they do not adopt technologies for betterment of services or products offered. Thereby it's critical for organizations to adopt technologies for their survival.

Purpose

The purpose of this paper is to propose a Comprehensive Capability Maturity Model (CCMM) that will guide adoption of emerging technologies to meet the organization strategy. The CCMM also helps to

enable the business objectives in a cost effective and manage future proofing of technologies stack as far as possible.

Background

Enterprises have adopted information communications technologies (ICT) at various time lines driven by business needs or due to technologies evolution. ICT have evolved from standalone main frames to multi-tier systems to current virtualized environment where the infrastructure stack is a software code (Nelson-Smith 2013) rather than a physical hardware. To manage the information communications technologies effectively and efficiently various frameworks and methodologies have evolved.

The new buzz word 'digital transformation' refers to the changes associated with the application of digital technologies in all aspects of human society achieved through adoption of emerging technologies. With the hyper connected world, it's critical for the enterprises survival to take the path of digital transformation through adoption of emerging technologies.

Technologies evolution has made it affordable by large and small enterprises and common man, hyper connected world that enables social media as part of day to day life enabling its acceptance for personnel and commercial usage. Big data and analytics enable to get new insights of human behavior. Organizations need to reinvent itself in the Digital Age to be competitive or to exist.

Emerging technologies are going through a massive transformation causing technological shifts:

- Mobile networks becoming faster.
- Mobile phones computing capacity similar to computers
- Cloud computing with its unlimited computing power that is affordable by small organizations.
- Infrastructure or Platform or Software-as-a-service compliant with the standard industry certification has created credibility on the security stack. Due to this organizations are replacing on-premises hardware and software with service stack. Social media acceptance by private organization for business and work
- Bring your own device being a norm in organizations
- Employees being more tech savvy and acceptance of technologies for conducting day to day task in office.

Emerging technologies adoption brings in its own challenges such as technical skills, managing risk in embracing new technologies, resistance from the business to learn new way of using the systems, organization culture & risk appetite of organizations and vendor support available, in summary it's art and science to embrace cutting edge technologies. With the emerging technologies that is disruptive in nature organizations need to change the traditional business model across the organization to be successful.

Moving forward to embrace emerging technologies it's critical for the enterprise to assess the current state of the technologies stack, identify the desired future technologies stack (Group 2011). We can give an analogy as doctor assessing the health of the patient before the treatment can be prescribed. Depending on the ailment of the patient the doctor may prescribe ad hoc check or complete end to end health check of the patient

Problem

Digital Technologies that is pervasive and affordable is been used by humans to manage the day to day chores. Humans are becoming dependent on the technologies for day to day chores. Mobile, Social media and globalization has created transparency where humans are able to compare the cost of

products or services offered by private or government organization. This has given rise to adopt technologies more efficiently by government or private agencies to improve the quality of service or product.

In the last few decades enterprises have invested millions and billions of dollars on the Technologies. For many organizations, though technologies adoption was inevitable, it has not given the desired benefit. The technologies stack of typical enterprises adopted in the last few years are all based on proprietary (Gunasekaran & Ngai 2004) and hard coded. This has given rise to high operational cost, lock in with the vendor and limiting the innovation that can be achieved with adoption of technologies

In the recent years technologies evolution has given rise to new business model that is utility model pay per usage. This resulted in technologies being seen as commodity, meaning the enterprise can buy both hardware and software technologies on the need basis rather than upfront investment to buy and own the hardware and software. This changed business model of upfront investment the Capital expenditure to Operation expenditure that pay per usage is disrupting the business model. The above factors influences the enterprise to change the existing technologies to adopt the cutting edge technologies with minimal budget and reduced risk.

Impact on the organizations due to ever evolving technologies changes:

- How to identify the technologies that is right and relevant to an organization?
- How to future proof technologies? (A million dollar question)
- How to choose the technologies stack that meets the objectives of the business needs?

In this paper we first discuss the emerging technologies, the current technologies stack of typical enterprise, next the factors that contributed to the current technologies stack. Further the paper briefly describes the concepts of enterprise architecture, capability maturity model, the current practices utilized for capability maturity assessment, the proposed approach goes beyond the current practice of maturity assessment, comparison of the current maturity model assessment with proposed maturity model assessment, further research work that needs to do based on the new approach of Comprehensive Maturity Model Assessment (CCMM) and finally the conclusion.

Research Methodology

The research is based on literature review and experience gained through involvement in enterprise architecture projects done in Australia, Brunei, Mongolia, Philippines and Vietnam

Emerging Technologies

Organizations always prefer to embrace cutting edge technologies either that are matured or evolving. This cutting edge technologies also known as Emerging technologies lack key foundational elements, namely a consensus on what classifies a technologies as ‘emergent’. The five key attributes of emerging technologies are: radical novelty, relatively fast growth, coherence, prominent impact, and uncertainty and ambiguity (Rotolo, Hicks & Martin 2015).

Technologies that exist, that will evolve in next five to ten years capable of disrupting the existing model and changes the way we communicate in the social fabric of society also known as emerging technologies. This may include cloud computing environment, social media, big data, analytics, Internet of Things and many more.

Emerging technologies affects:

- Lead to the rapid development of new capabilities;
- Are projected to have significant systemic and long-lasting economic, social and political impacts;
- Create new opportunities for and challenges to addressing global issues;
- Have the potential to disrupt or create entire industries

Open Platform 3.0

The Open Platform 3.0(Group 2016) (Group 2016) (Group 2016) (Open Platform 3.0 2016) focuses on new and emerging technologies trends converging with each other and leading to new business models and system designs. The emerging technologies can be broadly classified as the following categories:

- Mobility
- Social networks and social enterprise
- Big data analytics
- Cloud computing
- The Internet of Things (networked sensors and controls)
- Other technologies may be taken on board as the Platform develops.

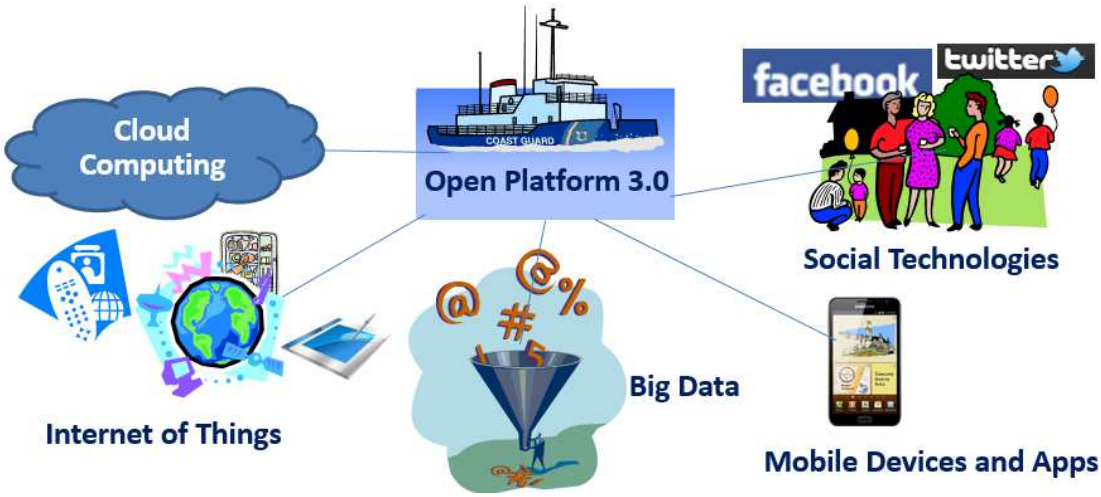
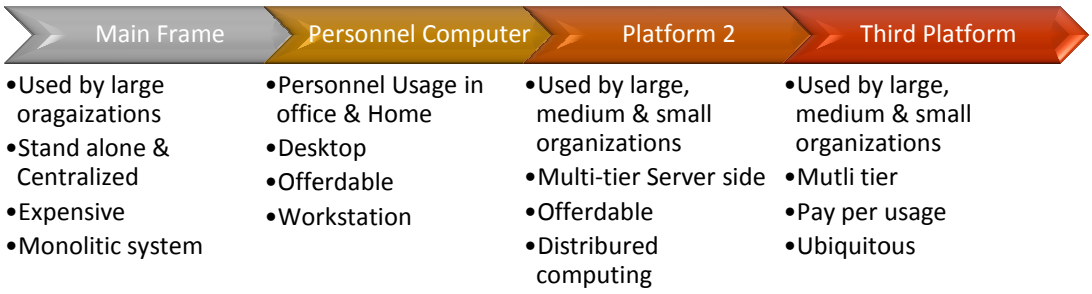


Fig 1. Open Platform 3.0

Open Platform 3.0 advances The Open Group vision of Boundary less Information Flow achieved through global interoperability in a secure, reliable, and timely manner(Group 2016); there by helping enterprises to use these technologies and reap their business benefits. The Open Platform 3.0 describes the business and technical environment and identifies the fundamental requirements for the platform.

Technologies has evolved from main frame stand alone, personal computers used for day to day, distributed layer to current open platform 3.0 (Museum 1996),



Gartner Emerging Technologies Hype Cycle

Gartner's (Walker 2015) (Walker 2015) releases Emerging Technologies Hype Cycle that brings together the most significant technologies. This provides insight into emerging technologies trends that may disrupt an organization business model. This Hype Cycle provides Market Excitement, Maturity and Benefit of Technologies, so organizations needs to monitor this cycle

Current technologies stack of typical enterprise

Technologies usage in organizations has started since early 1950's from the main frame to current open platform 3.0. Organizations that are large and Government agencies have adopted technologies from last few decades. They have adopted technologies as they evolved and to meet the business needs. This resulted in spaghetti of disparate system connected that is based on various technologies, some technologies are proprietary and some are open standard. The resulting architecture is as below

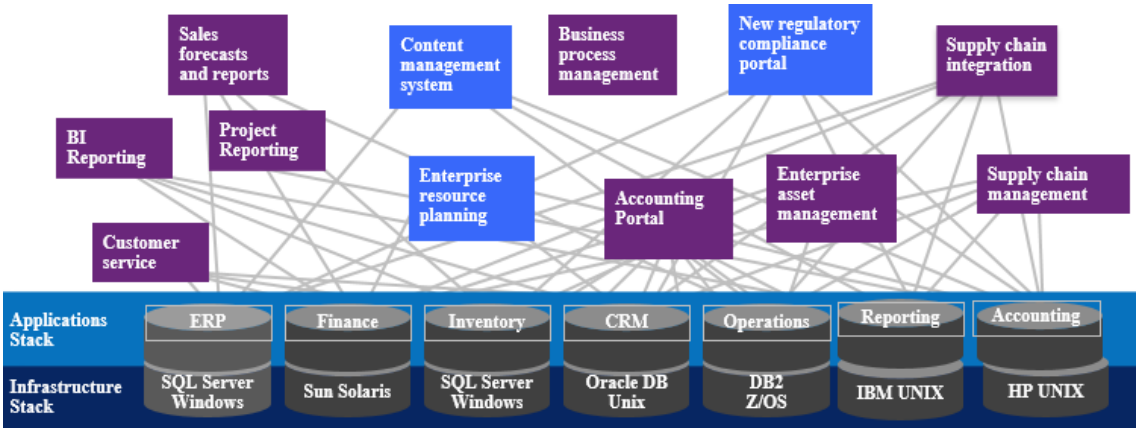


Fig 2 Spaghetti Architecture due to technology adoption at various timeline

The current architecture of typical organization

Architecture is man-made building or structure; a carefully designed object such as a chair, a spoon; a design for a city, town, park, or landscape; a well-designed website, student management system, e-commerce website such as ebay.

The architect models the stakeholders' vision (an individual or organization that has with an interest in the enterprise) and creates an architecture definition that will be the basis of developing an information system (Osvalds 2001).

All the information systems either stand alone or grouped together has followed an Architecture. As technologies has evolved at various time line and the systems are commissioned based on technologies

evolution has resulted in an architecture that is rigid. We can relate to massive urbanization, accompanied by the rapid expansion of cities and metropolitan regions that resulted in explosive growth giving raise to unplanned cities (Angel et al. 2012).

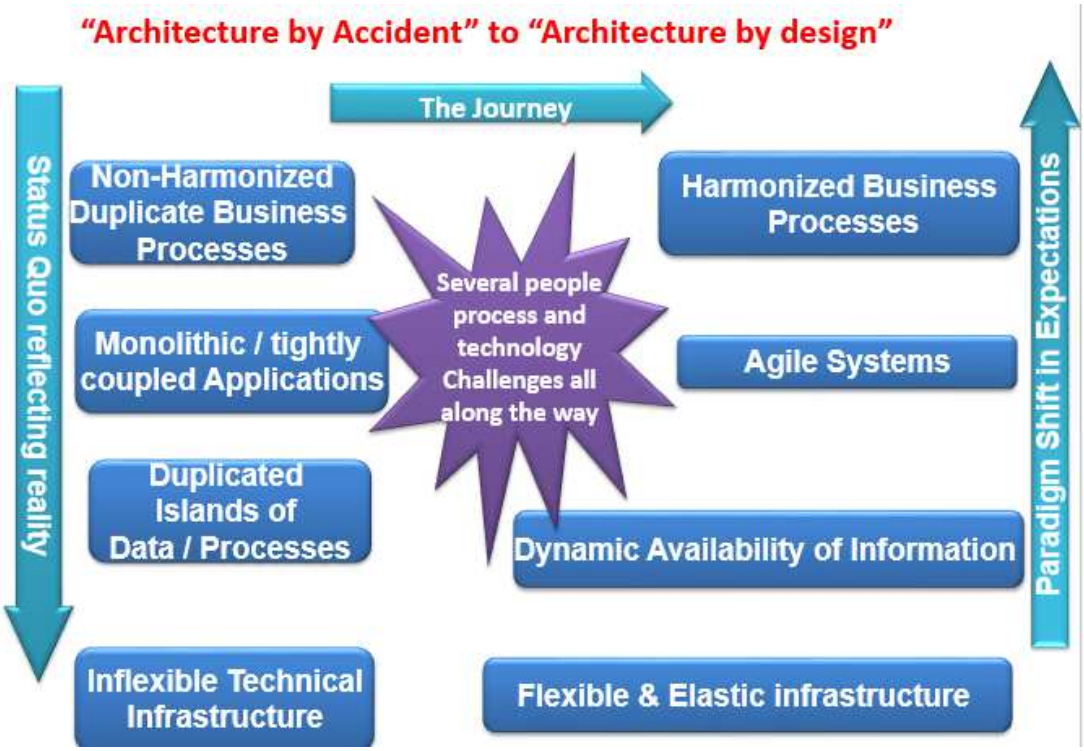


Fig 3. AS IS Current Architecture to TO BE Dynamic Architecture

Enterprise architecture

Enterprise as per The Open Group (Group 2011) is a collection of organizations that has a common set of goals. For example, a government agency, a whole corporation, a division of a corporation, a single department, or a chain of geographically distant organizations linked together by common ownership.

Enterprise in the context of ''enterprise architecture'' denote an organization information and technologies services, processes, and infrastructure and the architecture that cut across the multiple systems, functional groups within the enterprise.

According to Gartner (Gartner 2008) Enterprise architecture is the process of translating business vision and strategy into effective enterprise change by creating, communicating and improving the key requirements, principles and models that describe the enterprise's future state and enable its evolution.

The scope of the enterprise architecture includes the people, processes, information and technologies of the enterprise, and their relationships to one another and to the external environment. Enterprise architects compose holistic solutions that address the business challenges of the enterprise and support the governance needed to implement them.

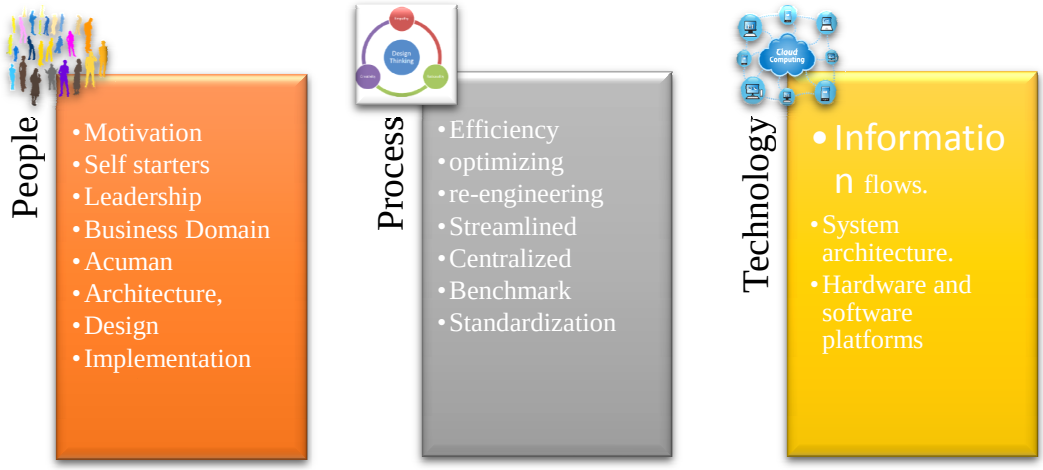


Fig 4. People, Process and Technology

According oxford dictionary an framework is a basic structure underlying a system, concept, or text: To implement enterprise architecture we need an framework based on open standards well accepted in the industry as they are seventy seven enterprise architecture frameworks (Takahiro Yamada 2016).

Benefits of Enterprise Architecture

Organizations tremendously benefit with incorporation of enterprise architecture practice

- A more efficient business operation:
  - Lower business operation costs
  - More agile organization
  - Business capabilities shared across the organization
  - Lower change management costs
  - More flexible workforce
  - Improved business productivity
- A more efficient IT operation:
  - Lower software development, support, and maintenance costs
  - Increased portability of applications
  - Improved interoperability and easier system and network management
  - Improved ability to address critical enterprise-wide issues like security
  - Easier upgrade and exchange of system components
- without sacrificing architectural coherence

- The ability to procure heterogeneous, multi-vendor open systems
- The ability to secure more economic capabilities(Group 2011)

What is The Open Group Architecture Framework (TOGAF)

TOGAF is an architecture framework - The Open Group Architecture Framework. TOGAF provides the methods and tools for assisting in the acceptance, production, use, and maintenance of an enterprise architecture. It is based on an iterative process model supported by best practices and a re-usable set of existing architecture assets. TOGAF embraces ISO/IEC 42010:2007 terminology though not completely (Group 2011).

Irrespective of any domain there are four layers called as core architecture and two layers cross cutting across the core layers accepted in overall enterprise architecture that TOGAF supports:

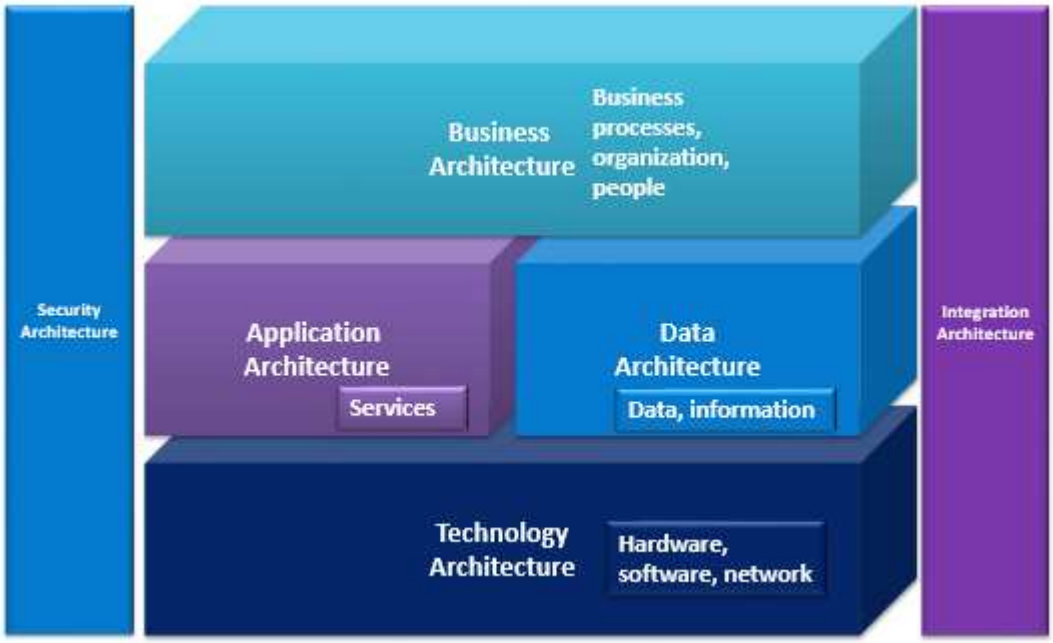


Fig 5. Core Architecture Stack

- The Business Architecture defines the business strategy, governance, organization, and key business processes and functions.
- The Data Architecture describes the structure of an organization's logical and physical data assets and data management resources. It identifies for structured, unstructured and hybrid data.
- The Application Architecture provides a blueprint of application systems to be deployed, their interactions, and their relationships to the core business processes of the organization.
- The Technology Architecture describes the logical software and hardware capabilities that are required to support the deployment of business, data, and application services.

The two cross cutting architecture layer cutting across the core layers are:

- Security Architecture: Security concerns are pervasive throughout the architecture domains and in all phases of the architecture development. Security Architecture is a set of design artefacts that are relevant for describing an object such that it can be produced to requirements as well as maintained over the period of its useful life. The design artefact describe the structure of components, their inter-relationships, and the principles and guidelines governing their design and evolution over time (Architecture 2016).

- Integration Architecture: Integration of core architectures, in business architecture its function / process; in information architecture its disparate applications / data and in technology architecture its diverse technology stack

Architecture Development Method (ADM) Phases:

The ADM describes a method for developing and managing the lifecycle of an enterprise architecture, and it's the core of TOGAF. When an organization sets up EA practice first cycle is run to identify two to five year roadmap. Subsequently its run for every key initiatives that arises based on business needs or compliances requirements, organization merger or acquisitions. ADM is iterative and incremental process across the life cycle of Enterprise Architecture.

Architecture Development Method with identified frameworks

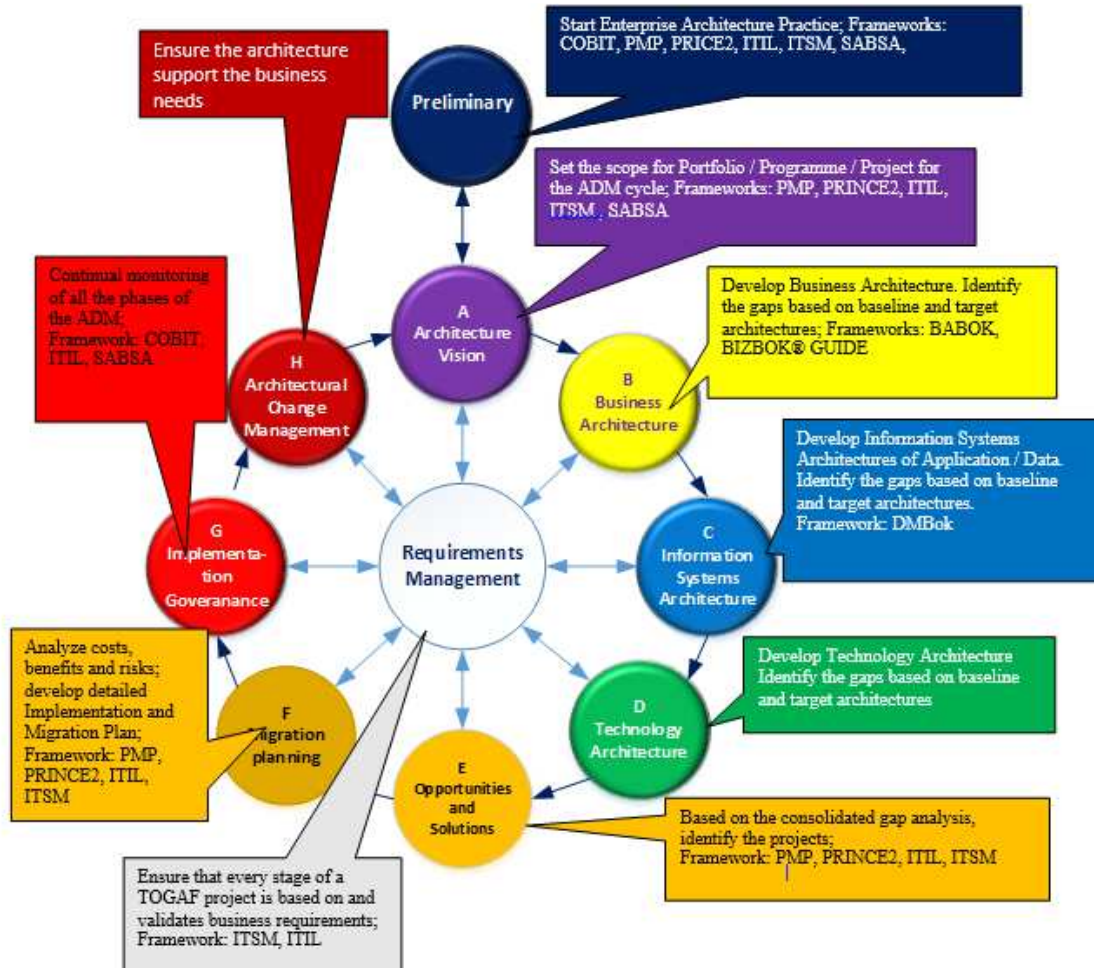


Fig 6. ADM cycle with the suggested methodologies

Methodologies or framework identified for success of Enterprise Architecture

Table 1: Identified Methodologies list

	Focus	**Comments**
PMBoK : Project Management Boo of Knowledge	Managing Projects	either one can be used depends on the organization
PRINCE2 : Project Management i controlled environment	Managing Projects	
BIZBOK® GUIDE: A Guide to th Business Architecture Body o Knowledge®	Business Architecture	either one can be used depends on the organization
BABOK® :A Guide to the Busines Analysis Body of Knowledge	Business Architecture	
DAMA DMBOK ®:Data Managemer Body of Knowledge	Data Architecture	
ITIL : Information Technolog Infrastructure Library	Change Management	
ITSM: Information Technolog Service Management	Service Management	
COBIT: Control Objectives fo Information and Related Technology	Governance: Corporate, Projec Architecture and Risk	
SABSA: Sherwood Applied Busines Security Architecture	Security and Risk	

Architecture without Enterprise Architecture Framework

Organizations without enterprise architecture focus have procured the information systems based on the business needs (Gunasekaran & Ngai 2004). As information technologies in last decade was still evolving, proprietary based and organizations being risk avert, they were procuring systems that offered product support. This has caused systems to be hard coded and stuck with a vendor, costing huge maintenance cost and also high cost for system enhancement to meet the changing business needs.

Architecture with Enterprise Architecture Framework practice

Organizations with enterprise architecture practice in place, will develop the architecture building blocks based on the business requirements. Then they will choose the information systems that meets the architecture building blocks. Due to this there is no vendor lock in and also less expensive on maintenance and enhancement of information systems to meet the business needs

Capability maturity model

What Is a Capability Maturity Model (CMM)?

CMM broadly refers to a process improvement approach that is based on a process model. A process model is a structured collection of practices that describe the characteristics of effective processes; the practices included are those proven by experience to be effective.

CMM can be used to assess an organization against a scale of process maturity levels. Each level ranks the organization according to its standardization of processes in the subject area being assessed. The subject areas can be as diverse as

- Enterprise Architecture Maturity Assessment
- The Strategic Management Maturity Model
- Business Transformation Readiness Assessment
- Business Process Maturity Model (BPMM)
- Business process capability maturity model
- Data Maturity model
- The Data Warehouse Capability Maturity Model
- Information technology (IT) services
- P3M3® Portfolio, Programme and Project Management Maturity Model
- Project management,
- Organizational Change Management Maturity
- Risk management,
- Software engineering,
- Systems engineering
- System acquisition,
- Personnel management.

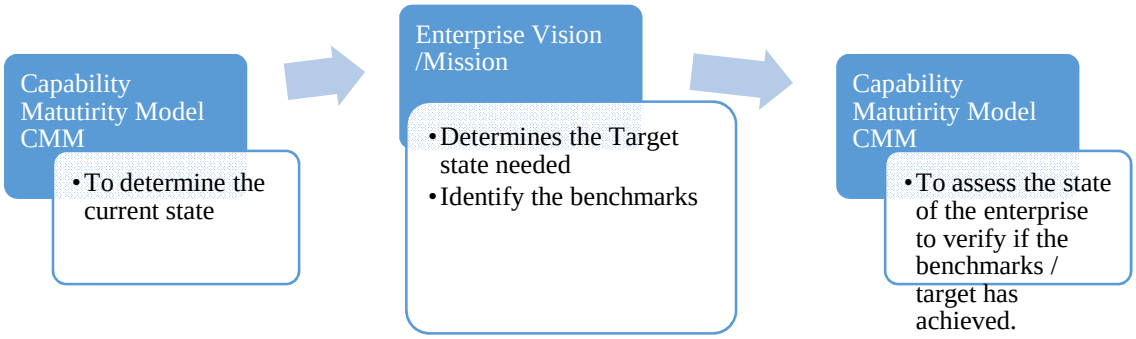


Fig 7. Capability Maturity Model overview

Maturity model provides

- a place to start
- the benefit of a community's experience and knowledge
- a common language and a shared vision
- a way to define what improvement and "maturity" mean for an organization
- a framework for prioritizing actions
- a way to define what improvement means for the Enterprise

Capability Maturity Models (CMMs) address this problem by providing an effective and proven method for an organization to gradually gain control over and improve its change processes.

IT strategy and roadmap development is most complex exercise for enterprise leaders due to the nature of diversified IT systems and architectures to address the adoption of emerging technologies. Therefore, it is important to assess the organization maturity before starting any major business transformation / periodically to identify the current maturity level which will help to define IT strategy to be realistic.

The current practices utilized for Enterprise Architecture Maturity assessment

The current Capability Maturity Model is based on US Department of Commerce (DoC) IT Architecture Capability Maturity Model (ACMM). This maturity model was developed in 2001 and lasted updated on December 2007(Commerce 2007). Information technologies as changed leaps and bounds, the maturity model has not been updated to keep in tune with the current requirement. The DoC ACMM has three sections, six levels and nine architecture characteristics.

The ACMM comprises three sections:

1. The IT architecture maturity model
2. IT architecture characteristics of operating units' processes at different maturity levels
3. The IT architecture capability maturity model scorecard

The six levels are:

- 0 : None
- 1 : Initial
- 2 : Under development
- 3 : Defined
- 4 : Managed
- 5 : Measured

The nine IT architecture characteristics are:

- IT architecture process
- IT architecture development
- Business linkage
- Senior management involvement
- Operating unit participation
- Architecture communication
- IT security
- Architecture governance
- IT investment and acquisition strategy

Why is Capability Maturity Model Assessment needed?

Before giving a treatment to a patient doctor diagnoses the patient health condition to assess the current health condition. Based on the results the treatment is prescribed to the patient.

Similarly the purpose of the assessment in an organization is to estimate the level of maturity of the enterprise IT architecture and tentatively identify various improvement areas.

We can relate to humans, those who take precautions pro-actively based on the age and condition, the other who are reactive take treatment based on the ailment. Irrespective it's necessary to do the health check on the entire system to suggest a proper treatment

Similarly it's necessary to do the maturity assessment in a holistic approach that covers the entire organization. Said that it's essential to identify the existing methods, methodologies, framework that are utilized. This gives an understanding of the current working style. Based on the target maturity model determined it's possible to recommend the appropriate framework or method or methodologies that are suitable for the enterprise.

The maturity model needed for an enterprise is based on the domain, industry vertical, type of enterprise public or private, Country, Culture, the Technologies used etc..

So each Capability Maturity Model is specially identified and tailored based on the above criteria

Capability Maturity Assessment Process

1. Define what to measure.
2. Define what can be measured.
3. Gather the data.
    a. Determine the department
    b. Group the Stakeholder

c. One to one interview

d. Organization audit reports

e. Anonymous online survey

4. Process the data.
5. Analyze the data.
6. Presenting and using the information.
7. Implementing corrective action.

Fig 8. Maturity Assessment Process

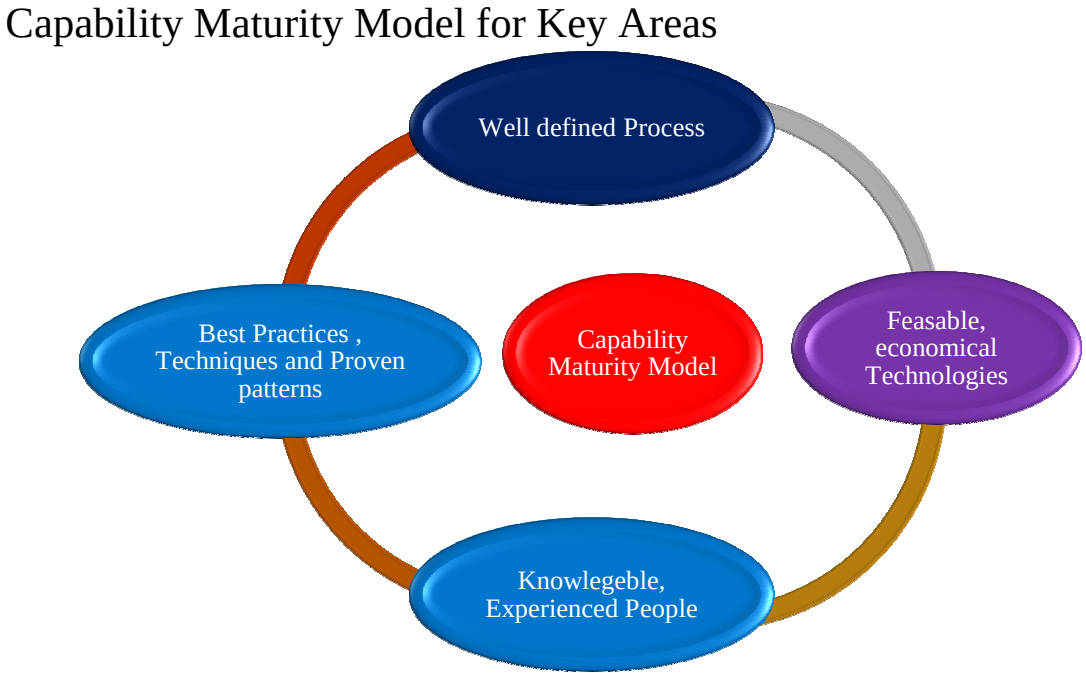


Fig 9. Capability Maturity Model Key Areas

Types of Capability maturity model

Maturity assessment has been developed at various time line based on technologies evolution. As organization relied more on technologies it was critical to assess the maturity of the organization to improve the capability of peopled, process and technologies.

From the inception of maturity model by the US Department of Defense Software Engineering Institute (SEI) began in 1986 as now they are more than fifty four maturity models (Wikipedia 2016). It's not possible to go through all the maturity model due to constraints as time, budget and resources, also it's not necessary.

Proposed Maturity Models identified based on TOGAF ADM phases

Organizations are implementing TOGAF framework for their enterprise architecture practice. Based on that we identified the key maturity models that are relevant for the phase of TOGAF Architecture development.

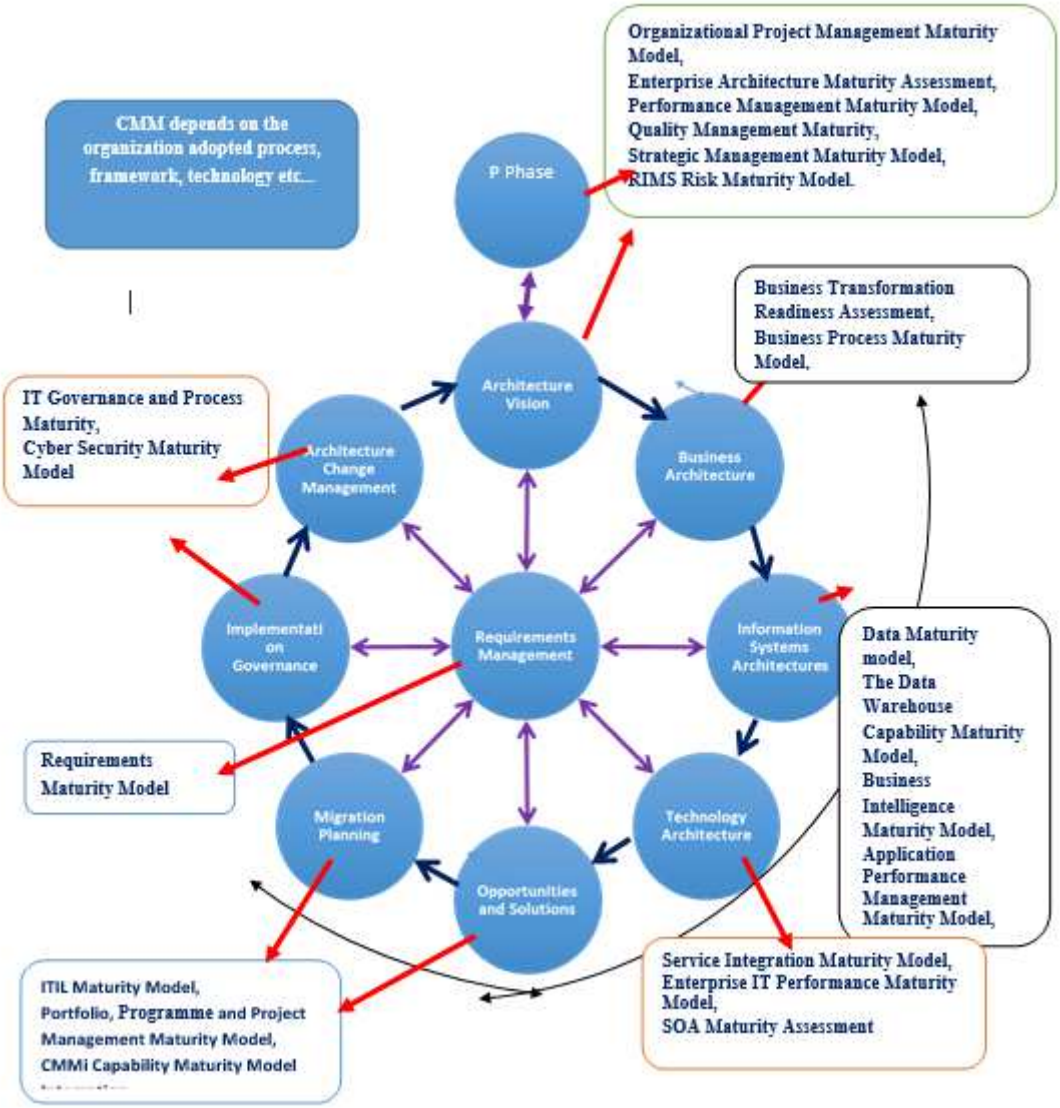


Fig 1. Suggested Maturity Models for the typical organization

Table 2 Maturity Models with purpose

ADM Phase	Maturity Model	Purpose
P:Preliminar Phase	Organizational Project Management Maturity Model,	Project Management
	Enterprise Architecture Maturity Assessment,	Enterprise Architecture
	Performance Management Maturity Model,	Performance
	Quality Management Maturity,	Quality
Phase A Architecture Visior	Strategic Management Maturity Model,	Strategy
	RIMS Risk Maturity Model	Risk
Phase B: Busines Architecture	Business Transformation Readiness Assessment,	Business Readiness
	Business Process Maturity Model,	Business process
	Business function capability maturity model,	Business function
Phase C Information Systems Architectures	Data Maturity model,	Data Model
	The Data Warehouse Capability Maturity Model,	Data ware house
Data & Applicatior	Business Intelligence Maturity Model	Business Intelligence
	Data Maturity model,	Data maturity
	Application Performance Management Maturity Model	Application Performanc
Phase D Technology Architecture	Service Integration Maturity Model,	Service Integration
	Enterprise IT Performance Maturity Model,	Information syster performance
	SOA Maturity Assessment	Service Orientatio Architecture
Phase E Opportunities & Solutions	ITIL Maturity Model,	Information Infrastructure
	Portfolio, Programme and Project Management Maturit Model,	Portfolio, Programme Project Management
Phase F: Migratio Planning	Capability Maturity Model Integration CMMI	Capability Maturit Model Integratio software development
Phase G Implementation Governance	IT Governance and Process Maturity,	Governance
Phase H	Cyber Security Maturity Model	Security

Architecture Change Management		
ADM Architectur Requirements Management	Requirements Maturity Model	Requirements

Comparison of the current maturity assessment with proposed

The current maturity model is based on outdated maturity model of US Department of Commerce (DoC) IT Architecture Capability Maturity Model (ACMM). The proposed Comprehensive Capability Maturity Model (CCMM) covers the Architecture Development Method (ADM) phases, as such the assessment is more realistic

Further research work carried on the proposed maturity model assessment

We have identified the maturity model specific to phases of the Architecture Development Method. We have utilized this technique based on our experiences learned from various enterprise architecture projects implemented. But we want to try with wider audience across the globe. As TOGAF is open standard and widely used across the world.

We will be conducting survey with enterprise architect practitioners across the world. We also conduct face to face interviews with the enterprise architect practitioners. Then we correlate the result to identify the key maturity models that are relevant based on TOGAF. Also the result produced might be applicable for certain period of time only as the maturity models changes based on the evolution of technologies

Conclusion

Organizations are utilizing The Open Group Architecture Framework (TOGAF) based on open standards to develop enterprise architecture, to help in their transformation to adopt emerging technologies.

The maturity assessment suggested by TOGAF is outdated US Department of Commerce (DoC) IT Architecture Capability Maturity Model (ACMM).

Based on project experience we have identified Comprehensive Capability Maturity Model (CCMM) assessment across the phases of Architecture development method that provides the assessment of maturity more realistic.

This maturity assessment will helps the organization to choose the right technologies stack that serves the business needs in alignment with organization strategy.

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An Algorithm for Assessment and Forecasting of Industrial Enterprise Economic Stability with Probabilistic and Statistical Methods

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Abstract:

The article examines main contemporary approaches to assessment and forecasting of industrial enterprise stability. It explores the main issues to which attention should be paid in the formation of methodological approaches to the assessment, forecasting and management of stability that appear with fluctuations in the external environment of the industrial enterprise functioning. On the basis of the analysis of modern scientific approaches to the quantitative assessment of the level of economic stability of the enterprise, the authors identify main requirements which are included in the methodology for the assessment of stability under conditions of variable economy.
Keywords: economic stability, financial stability, mini-economic system stability, probabilistic and statistical methods.

1. Introduction.

Management of industrial enterprise development is related primarily to the stability of its economic activity. Developing a long-term strategy aimed at achieving the set socio-economic indices should include the analysis of their dynamics and ensure the minimization of cost to perform the target. Objectively existing and essentially ineradicable uncertainty of an industrial enterprise environment causes disturbing effects in the process of moving toward the goal. The consequence of this is the need for companies to develop science-based algorithms that determine the order of assessment and forecasting of the enterprise economic stability with respect to the functioning or developing goals.

2. Latest research and publications analysis

As part of the task the scientific works of Russian and foreign scientists regarding the stability of the enterprise were considered. Among them are the works of R. Ackoff & Emeris F. (1974), G.I. Sycheva, E.B. Kolbachev & V.A. Sychev (2004), L. Howard (1960), A.V. Shmidt & T.A. Khudyakova (2015), N.S. Necheukhina (2010) and others.

However, it should be noted that currently stability is often seen as a deterministic category. At the same time, the present economic situation does not allow to identify clearly both input and output parameters of the mini-economic system. The model parameters both initial and final have a greater degree of variability, which is an especially characteristic feature of the global economic crisis. In this regard, the need to develop algorithms considering uncertainty of the enterprise environment upon its resulting indicator and ultimately the level of economic stability is growing.

3. Basic results.

The most acceptable method of forecasting the cost of the enterprise for the investor, according to many economists, is the income approach, under which the enterprise value is calculated on the basis of forward-looking indices of cash flows. However, it is important for investors not only what the gain will be and, consequently, what the expected value of the enterprise is, but also how stable such an income is. Business risks are the reason for the instability of the expected revenue from the business**.**

Further on, let us take the probability of achieving the goal as a measure of economic stability of the enterprise.

The results of forecasting the indices of economic stability of the enterprise should be used:

• when assessing the economic stability of the company and the development of measures to improve the economic stability of the enterprise;

• when optimizing production management strategies considering stability criteria;

• when planning the cost of maintenance for the economic stability of the enterprise.

According to the income approach, the value of the enterprise is determined by the cash flow, that is by the difference between all receivable and payable cash for a certain period of time:

$$C_T = \sum \frac{CF_i}{(1+r_i)^i} + \frac{CF_{n+1}}{r_{n+1} - q}, \quad (1)$$

where C_T – the value of the enterprise;
CF_i – expectation value of cash flow in the *i*-th time period (Cash Flow);
R_i – the rate of return (discount rate) in the *i*-th time period;
n – number of stages considered in the forecast period.

$$n = \frac{t_n}{t_1}, \quad (2)$$

where t_n – the time of the forecast period;
t_1 – time stage;
CF_{n+1} – the value of cash flow for the first year post-forecast period;
q – the rate of long-term cash flow growth.

Expectation of the economic stability of the enterprise is carried out in accordance with the block diagram (Fig. 1).

In the course of the enterprise functioning there may occur events (the perturbing effects of macro, meso and micro-level) $B_1, B_2, \ldots, B_k$, the probability of which are known or obtained in the determination of the initial information. B_i offensive event or several events bring the company in one of the states $S_1, S_2, \ldots, S_m$. Getting in any state is considered a random event.

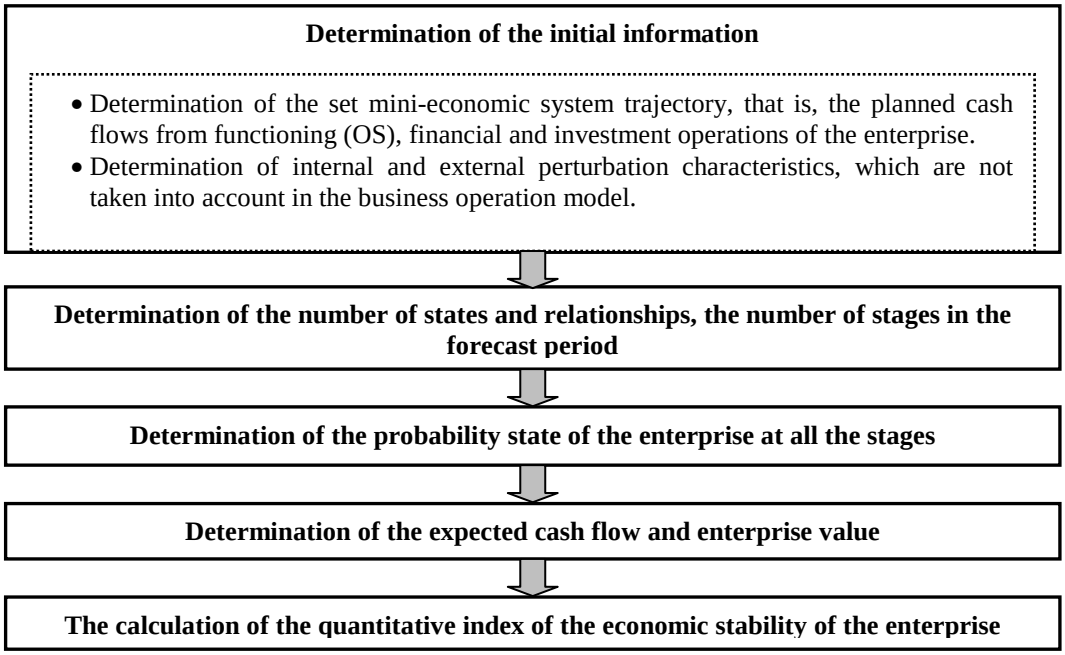

Fig. 1. Block diagram of the process of forecasting the economic stability of the enterprise

Let us set the number of companies' states and the focused weighed transition graph. The duration of stage *t* is set on the following conditions:

• cash flows of adjacent stages *CFi* and *CFi-1* must be independent;

• the probability of multiple implementations of an adverse disturbance *Bi* at the stage should be a small quantity, which can be neglected;
• the stage length must be equal or a multiple to the reporting period, adopted at the company.

The probability of the system states after the *k*-th stage is determined by the formula:

$$P_{<m>}(k) = P_{<m>}(k-1) * \Pi_{k-1,k}, \quad k=1, 2, \ldots, n, \tag{3}$$

where $P_{<m>}(k), P_{<m>}(k-1)$ – vectors of state probabilities at the *k* and *k*-1 stages;
$\Pi_{k-1,k}$ – transition probability matrix.

$$\Pi_{k-1,k} = \begin{bmatrix} p_{11} & p_{12} & \cdots & p_{1m} \\ p_{21} & p_{22} & \cdots & p_{2m} \\ \cdots & \cdots & \cdots & \cdots \\ p_{m1} & p_{m2} & \cdots & p_{mm} \end{bmatrix}. \tag{4}$$

Expected values of cash flow at the stages:

$$CF(i) = CF_1(i) + CF_2(i) + \ldots + CF_m(i) = CF_{<m>}(i). \tag{5}$$

$$CF_{<m>}(i) = P_{<m>}(i-1) * \begin{bmatrix} p_{11}d_{11} & p_{12}d_{12} & \cdots & p_{1m}d_{1m} \\ p_{21}d_{21} & p_{22}d_{22} & \cdots & p_{2m}d_{2m} \\ \cdots & \cdots & \cdots & \cdots \\ p_{m1}d_{m1} & p_{m2}d_{m2} & \cdots & p_{mm}d_{mm} \end{bmatrix}, \tag{6}$$

where $CF(i)$ – average value of cash flow in the *i*-th stage;
$CF_j(i)$ – the value of the cash flow for that *i*-th-stage in *j*-th-state considering probability based streams;
d_{ij} – cash flow value at a stage in the transition from state *i* to state *j*.

To determine the cash flow variance values at the stage we represent $CF_j(i)$ as:

$$CF_j(i) = Q_j(i) * P_j(i), \tag{7}$$

where $Q_j(i)$ –cash flow value, enterprise-generated on the *i*-th stage in the *j*-th state without taking into account the probability of the state;
$P_j(i)$ – the probability of finding the company on the i-th stage in the j-th state.

The obtained values of the random variable $Q_j(i)$, $i=1, 2, \ldots, m$ in different states of the enterprise S_j, $j=1, 2, \ldots, m$ and the corresponding probabilities of the enterprise in these states $P_j(i)$ can be represented as a series of distribution (Tab. 1) and distribution polygon (Fig. 2).

Table 1: Several cash flow distribution values $Q_j(i)$, $i=1, 2, \ldots, m$, i and the probability $P_j(i)$ of the enterprise being in S_i states

States	S_1	S_2	...	S_m
$Q_j(i)$	$Q_1(i)$	$Q_2(i)$	…	$Q_m(i)$
$P_j(i)$	$P_1(i)$	$P_2(i)$	…	$P_m(i)$

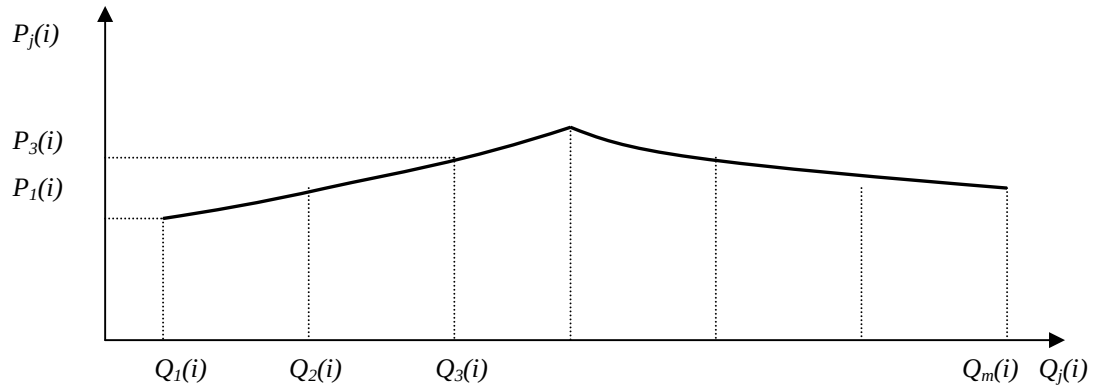

Fig. 2. Distribution of cash flow values, generated by the enterprise in step *i*

Cash flow variance values at the *i*-th stage is calculated as follows:

$$D[CF(i)] = \sum_{j=1}^{m} [Q_j(i) - CF(i)]^2 P_j(i). \quad (8)$$

Enterprise value is determined by the cash flow generated in the series of consistently considered stages. The expectation value of a company is determined by the sum of the mathematical expectations of cash flow values at n stages and post-forecast period:

$$M[C_T] = \sum_{i=1}^{n} \frac{CF(i)}{(1+r_i)^i} + \frac{CF(n+1)}{r_{n+1} - q}. \quad (9)$$

Enterprise variance value is equal to:

$$D[C_T] = \sum_{i=1}^{n} \frac{D[CF(i)]}{(1+r_i)^{2i}} + \frac{D[CF(n+1)]}{(r_{n+1} - q)^2}. \quad (10)$$

If the limit of the tolerance range value of the enterprise value is determined, then the probability of sustainability of the enterprise is:

$$P = \frac{1}{\sqrt{2\pi D[C_T]}} \int_{\Gamma_б}^{+\infty} e^{-\frac{(C_T - M[C_T])^2}{2D[C_T]}} dC_T. \quad (11)$$

If the limit of tolerance range goal is a random variable distributed by the normal law with expectation $M[\Gamma_б]$ and variance $D[\Gamma_б]$ (Fig. 3), then to determine the index of economic stability of the industrial enterprise let us introduce the random variable *G*:

$$G = C_T - \Gamma_б. \quad (12)$$

with expectation:

$$M[G] = M[C_T] - M[\Gamma_б]. \quad (13)$$

and variance:

$$D[G] = D[C_T] + D[\Gamma_б]. \quad (14)$$

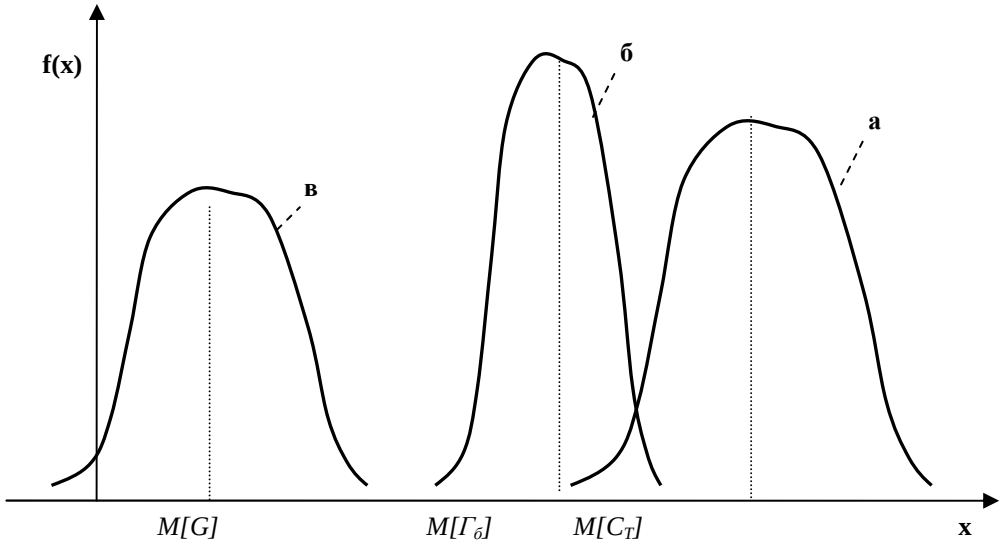

Fig. 3. Density distribution of enterprise value (a), the limits of permissible values of the target functioning (development) (b) and a random variable (c)

The probability of economic stability in this case equals:

$$P = \frac{1}{\sqrt{2\pi D[G]}} \int_0^{+\infty} e^{-\frac{(G-M[G])^2}{2D[G]}} dG. \quad (15)$$

4. Conclusions.

Thus, the task of analyzing the stability development of the industrial enterprise reduces to quantitative determination of the possibility to achieve its set cash flow increment. The proposed concept of the study of enterprise economic stability considers models of its development based on the identification of deviation risks from the trajectory. This handy research tool is a unit of Markov random processes. Its use for the analysis of the industrial enterprise discloses the possibility to determine the interdependence of the initial values of the considered risks and trajectory parameters of the target, which enables to predict the enterprise economic stability more accurately.

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The Genesis of the Concept of "Economic Stability" of a Socio-Economic System

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Abstract:

Management of socio-economic system development is associated with its stability maintenance. The elaboration of a long-term strategy should include the analysis of the dynamics of socio-economic indices and ensure the minimization of costs to achieve the goal. Objectively existing enterprise environmental uncertainty implies disturbing influences in the process of movement towards the goal. In the terms of theoretical methodology, the issues of economic criteria selection for assessment of the enterprise' stability become urgent. The conceptual category of "economic stability" of a socio-economic system is of particular significance. The main purpose of article is consideration of modern approaches to assessing the sustainability of enterprises, identifying the distinctive features of financial stability and economic sustainability in a dynamic environment, the formation of approaches to the assessment of sustainability from the perspective of the principle of goal-setting. The analysis in the article is necessary for further development of tools for assessing and forecasting sustainability of the enterprise in a dynamic environment.

Keywords: economic stability, sustainable economic development, the probability of achieving the goal, phase trajectory.

Introduction.

The analysis of the impact of disturbances on a mini-economic system, in our opinion, must be implemented with consideration of the company as an open socio-economic system, which can be treated as a particularly complex system in the terms of Bira's classification (Ilysheva & Ilmenskaya, 2009). The specifics of functioning and development, as well as the parameters of the internal environment of open social-economic systems are dependent on the state and dynamics of the external environment. An important feature of the establishments working as open systems is noted to be characterized by high uncertainty and poor predictability of the organizational relationships nature (Peregoudov & Tarasenko, 1989).

It should be mentioned that the study of the impact of disturbing factors on enterprise mini-economic system, considered as an open socio-economic system, on the one hand, makes it possible to use the concepts and principles of the various areas of system research, with the object of study to be the laws of functioning and development of particularly complex systems. On the other hand, such study requires the development of new economic indices and system techniques to determine the level of economic viability of the enterprise to these environmental factors.

Thus, the issues of improving the efficiency of business operation in dynamic and uncertain environments are dominant in modern research. This necessitates the elaboration of new concepts of sustainable economic development and functioning of establishments, based on the synthesis of traditional economic approaches as well as natural sciences and humanities research achievements.

2. Research and publications analysis.

As part of this work, we investigated scientific researches of Russian authors in two analysis areas. The first approach concerns the stability of the social-economic systems. The second approach, subject to scrutiny, considers the theory of technical systems.

Within the first field, we studied the works by Sokolov M.D. (2000), S.S. Starikov (1999), O.A. Eliseeva (2011), Roshchin V.I. (2000), E. Winston (2014), J.K. Persky, V. Lepikhina & E.V. Semenova (2015), V.A. Kozlov & L.A. Danchenok (2012) and others.
Scientific approaches to systems analysis were elaborated by F.I. Peregudova & F.P. Tarasenko (1989), V.D. Mogilev (1999), V.I. Zarubin & R.M. Hadzhirokova (2014), I.N. Haimovich & N.M. Kuzmina (2013), L.S. Zvyagin (2014) and others.
On the basis of the analyses we can state the fact that the theory of systems is not sufficiently used in the study of socio-economic systems. However, in our opinion, despite the fact that the socio-economic system, of course, has some significant differences from a technical system, it is the application of the system analysis that can greatly contribute to assessing, forecasting and management of sustainable socio-economic systems, including businesses. In this regard, our task is, firstly, to determine the meaning of the conceptual category of "stability of socio- economic systems"; secondly, to work out clear distinction between the concept of "financial stability" and "economic stability", as the discussed works often identify these concepts; thirdly, to evaluate the possibility of application of system analysis concepts to the socio-economic systems.

3. Materials and Methods. Table 1 lists the definitions of the concept "economic stability", found in various literary sources.

Table 1: The definitions of the concept enterprise economic stability

№ п/п	Definition
1	Economic stability of the enterprise is the adaptability of enterprises to occurring or expected changes in the future (Mogilevsky, 1999).
2	Stability is the intent to equilibrium in conditions of the complete absence of vibrations or in an environment of damped oscillations (Sokolov, 2000).
3	Organizational and economic stability is understood as the company's ability to maintain financial stability in a constantly changing market conditions by improving and targeted development of its production technology and organization methods of logistics-oriented management (Alekseeva, 1997).
4	Economic stability of the enterprise is defined as a system having an internal resistance, depending on the influence of external and internal factors (Omelchenko & etc., 1999).
5	Economic stability is a state of dynamic development of the economic entity when its peculiar socio-economic parameters under any disturbances of external and internal environment preserve economic equilibrium at a particular level (Starikova, 1999).
6	Enterprise economic stability is a permanent state of the enterprise, in which its activity provides in the existing variable conditions the fulfillment of all its obligations to employees, partners and the state thanks to the balance of assets and liabilities, the creation of adequate reserves, the reduction of the risk of loss (Roshchin, 2000).
7	Economic stability is a combination of the most important elements of a business entity: industrial activity, organizational work, financial and monetary, material and technical base, resource support, human and intellectual potential, which determines the attitude of a business entity to an external environment, its interaction with economic actors of various levels, and allows to establish dynamic equilibrium comprehensive system, which independently ensures purposeful movement at present and the foreseeable future (Korshunov, 2000).
8	Economic stability is the dynamic compliance of the enterprise state parameters to external and internal environment, which ensures its operation under conditions of disturbances with maximum efficiency (Korchagina, 1981).
9	Stability is an enterprise state, in which it is able to keep the balance of its internal structure in every period of time (Okladsky, 2000).

10	Industrial enterprise economic stability is a business entity state, when its characterizing socio-economic parameters under any disturbances of external and internal environments, maintaining the original balance, are in a particular area of economic stability, the bounds of which are approved for a given period of time, while the dynamically developing (Sergeev, 2000).
11	Stability of the enterprise functioning presupposes its structural transparency and reliability, the ability to adapt to a rapidly changing economic conditions, susceptibility to innovations and is mainly achieved through the effective use of all available resources of the enterprise (Lotov 1984).

12	Economic stability of complex systems is such a state, when their cost-effective operation and sustainable development within the prescribed limits at self-financing in a dynamic environment is provided (Malinin, 1997).
13	Economic stability is a state of the construction company, with the most important organization management subsystem, adjusting the factors that determine economic growth, and return the system to a state of relative equilibrium in the new risk conditions (Kammaev, 2000).
14	Stability of the system is defined as its ability to maintain the values of essential variables within acceptable limits under various states of the environment (Mityushin, 1981).
15	Economic stability is the ability of the enterprise in a relatively long period of time to maintain and increase its own production capacity in order to keep and expand the market segment occupied (Kharchenko, 1999).
16	Stability of the system is its ability not to be subjected to fluctuations (changes) under the influence of external factors (Shevrina, 2000).
17	Economic stability of the agricultural firm is characterized by a stable growth of the final product added value, a stable position on the market, profitability of production over the industry average level, the absence of overdue debt and the size of current revenues, providing timely current payments (Mosin, 1997).
18	Economic stability is the ability of the economic system to maintain proportionality in reproductive development in order to reduce the negative effects of exposing adverse factors (Labaznova, 2000).
19	Economic stability is the ability of production and economic system to return to a stability position when there are changes in the conditions of doing business. Thus, the economic stability refers to the preservation of positive trends in the level of use of the organization production capacity, taking into account prevailing balance between supply and demand in selected strategic areas of management (Inzhinova, 1999).

The analysis of the definitions can highlight shortcomings inherent in them.

Definitions 2, 5, 7, 9 and 13 seem one-sided, based primarily on the concept of social equilibrium of the economic system, at the same time do not explain the concept itself.

Since there is no conventional economic entity balance criterion, the understanding of the concept of economic stability seems complicated. Moreover, the quoted definitions do not differentiate between the concepts of economic stability and equilibrium of the enterprise.

Similar shortcomings may characterize definitions 1 and 11, which reveal the essence of economic stability, mainly through the concept of adaptability. This concept is vague and uncertain to be quantified, which does not contribute to an adequate understanding of the economic stability phenomenon.

Definition 3 identifies the concepts of economic and financial stability. However, financial stability is only one component of overall economic stability and therefore is considered a narrower concept.

Definitions 6 and 17 reveal the economic stability in a similar way through the financial stability.

Definition 12 elucidates the concept of economic stability through the enterprise cost-effective functioning, i.e. through economic efficiency. It is obvious that the company activities can be profitable even with a decline in a market share, decrease in capacity utilization, loss of skills, etc. Such a situation is not a sign of the economic entity stability, however, it relates to definition 12. The sustainable development criterion, involved in this definition, does not imply the fact of the economic stability due to the lack of a clear quantitative index of this development.

The common failure of definitions 4, 8, 10, 14, 16 and 18 is their incompleteness to encompass the essential features of the economic stability.

Definitions 15 and 19 reveal the essence of the economic stability through the concept of the organization production capacity. As a rule, it is understood as the company's ability to manufacture products with a certain composition and technical characteristics to the maximum extent. However, even a high capacity utilization rate can not unambiguously indicate the economic stability of the company, as it is not an obstacle for the company to have a higher level of accounts payable, low levels of sales, other negative trends.

Thus, modern economic science distinguishes two significant approaches to the study of the stability of socio-economic systems: static and dynamic. The static method, which has already become traditional, examines the financial stability of enterprises as a result of financial and economic activity. The dynamic approach defines the stability of the enterprise from the standpoint of the dynamics in internal and external economic processes.

When considering the static approach, on the basis of financial and economic analysis stability is treated as a certain state of enterprise accounts, guaranteeing its solvency, i.e. the implementation of all its commitments to employees, partners and the state. Financial stability of the company is analyzed not dynamically, but at any given time. This static approach is rather objective, since the study is based on financial statements: the cash flow statement, the statement of profit and loss account, the balance sheet.

As we see it, the definition of the enterprise "financial stability" concept implies some inconsistency, which leads to its discrepancy with the traditional, conventional elucidation of the "stability" category, interpreted by the general theory of systems. Taking into account the financial and economic analysis, stability denotes mainly the company's ability to fulfill its obligations. At the same time, when considering the dynamic approach, stability, seen on the basis of system analysis (by Lyapunov), refers to the system ability to return to equilibrium under the influence of disturbing factors of the environment.

Furthermore, when considering the "economic stability" concept, it is worth mentioning that the main feature of socio-economic systems consists in the fact that they operate in accordance with the set goal. Hence, such systems can be treated as goal-oriented systems.

It should be clear that the goal is the desired state of the economic system that reflects the will of the system managing entity and has a well-defined period of existence. Firstly, the economic systems goal changes depending on the specific situation. Secondly, as the goal is characterized by some subjectivity (the goal does not appear automatically from the system operation mechanism), the system state, in which it achieves the goal, is not necessarily the optimal or at least typical of it, which is not the case with technical systems.

Thus, the special feature of economic systems is manifested primarily in the fact that they are goal-oriented, with the goals of their development not always stipulated by technological properties of technical systems, which are their constituents.

Let us call the process of setting targets “goal-setting”. Goal setting is perhaps the most important process for the economic systems. "Incorrect choice of goals in creating a system leads to the fact that the wrong problems are solved. This can lead to more serious detriment than the inefficient use of the system to achieve the set goals." Goal-setting is so important in the management of economic systems that it can be considered together with monitoring goals to be the content of process control systems.

Goal-setting provides for mandatory consideration of the studied system (organization) possibilities, as otherwise the goals will be unrealistic and look like a dream. It is due to the

comparison of the desired goals of the organization and its capabilities, companies are able to set realistic goals. In the process of goal-setting, according to American scientists, the economic systems are characterized by conservatism and inertia behavior. As a result, goals are set with great caution, taking into account the whole range of environmental conditions and experience.

Such understanding of the goal-setting mechanism is reflected in the following relationship:

$$M_i^t = f_i(M_{t-1}; U_{t-1}; N_{t-1}), \quad (1)$$

where M_i^t – the level of claims for the goal characteristic *i* in period *t*;

f_i – the goal function;

M_{t-1} – the actual level achieved in the previous period;

U_{t-1} – the level of achievement, deduced from the previous organizational experience;

N_{t-1} – the level, achieved by other economic systems in similar situations.

The information nature of the economic systems management should be considered, when goal-setting. In this connection, the correlation of the objective and the subjective in the process of administrative problems solution is of major importance. Objective reality influences the economic entity via an information system. The business entity generates incentives for targeted action to transform the goal system to the desired state (Figure 1).

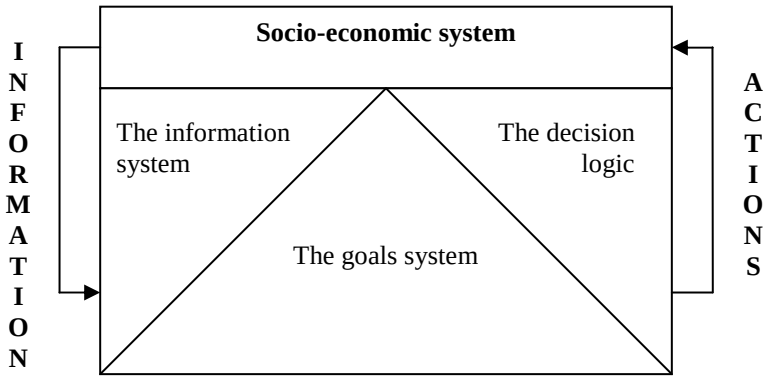

Fig. 1. The correlation of the objective and the subjective in the socio-economic systems analysis

(Source: own)

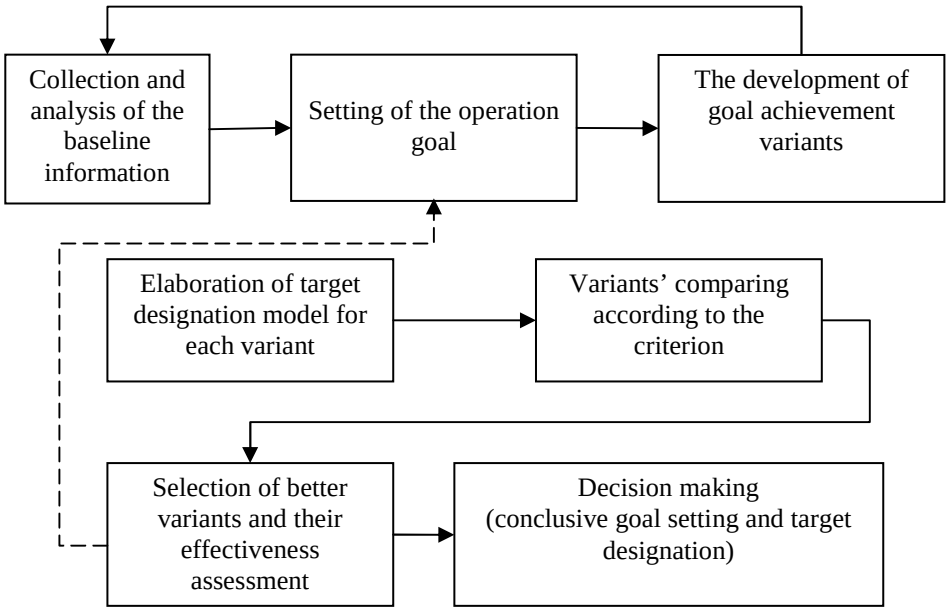

Fig. 2. Formulation of the operation goal based on the analysis of economic and mathematical model

(Source: own)

In general, you can single out the following principles of goal-setting:

• economic systems goals are based on the hypothesis of their would be development, but are determined by the present state of the economic system;

• the success of the goals system formation depends on the person responsible for the goal-setting process (in particular, his intellectual abilities); material and organizational resources allocated to achieve this goal; and the organization of the information system that supports the decision of economic systems subjects;

• valid and comprehensive information on the state of the entity and the environment contributes to the development of the proper business strategy and is critical to the successful implementation of the goals.

In reality goal setting is accompanied by target designation. Target designation is the process of formalizing the goal, presenting it through the relationship between different parameters of the system. In the process of target designation the results of goal-setting are brought to the attention of the system actuator. In contrast to the goal setting, target designation occurs in all kinds of systems (natural, technological, economic). Target designation is necessary to justify the perception peculiarities of the functional elements of the system of targets, for which the goal must necessarily be described by any parameters they can influence.

Thus, as we see it, the economic stability of an industrial enterprise, as an open goal-oriented system, is defined as the ability to achieve planned results with the specified characteristics of possible deviations that determine efficient use of resources.

It appears that stability is a fundamental feature of systems (including economic), that distinguish them from a random set of components. Stability is the ability to preserve the system features with external and internal factors changes, the ability to exist.

So, in our opinion, in the current circumstances it is necessary to examine not only the state of enterprise accounts (financial stability), but also to determine the economic stability of the enterprise in progress on the basis of particularly complex systems analysis. Table 2 presents the contents of the concepts of "financial stability» (Savitskaya, 2008; Sheremet, 2009) and "economic stability".

It appears that the stability of industrial enterprises, as an open goal-oriented socio-economic system, can be defined as the ability to achieve planned results with the specified characteristics of possible deviations, and the ability to function and develop effectively considering the set goal, despite the deflecting impact of disturbing environmental factors of various origins.

The sustainable economic development is the manifestation of the industrial enterprise ability, under the influence of disturbing factors of macro, meso and microenvironments with a high degree

of variability to achieve the development goal. The sustainable economic development is processed through certain phases, characterized by stable economic performance with an appropriate sustainability level.

A clear-cut division of the analyzed concepts can be carried out by considering them within a single space-time continuum "past-present-future." The concept of the sustainable economic operation should be viewed in the segment "past-present". Correspondingly, the sustainable economic development - in the segment "present-future."

Furthermore, the presence of stability is generally explained by the simultaneous action of two polar trends. The first deals with the reproduction and preservation of the systemic properties and qualities. The second allows the system to adapt to new conditions. Thus, we can say that the sustainable economic development is based on the principles of evolution - the preservation of identity and adaptation to the environment. Hence, the sustainable economic operation is the ability of mini-economic system under the influence of disturbing factors of the environment to preserve and restore its unique systemic features and qualities. The sustainable economic development is the example of mini-economic system functioning in complex environment with a high degree of variability of different levels disturbing factors. Such a process is characterized by the preservation and reproduction of unique systemic features and qualities together with their quantitative and qualitative transformation under the influence of the adaptation mechanism to the external environment.

Research into the dynamic functioning and developing of economic systems, as we see it, can be carried out with the use of complex systems functioning approaches. The possibility to apply complex systems sustainability principles in economics is predetermined by the fact that from a systemic point of view, all natural, technical and economic systems have similar features.

Table 2: The contents of the concepts of "financial stability» and "economic stability" treated dynamically

№ п/п	The feature analyzed	The category of "financial stability"	The category of "economic stability"
1.	Intrinsic features	State of enterprise accounts guaranteeing its solvency	The ability of the enterprise mini-economic system under the influence of disturbing factors of the environment, to function and develop with respect to the goal
2.	Functions performed	It states the excess or lack of sources of reserves and costs formation funds	1. Forecasting the development of the economic situation; 2. Determination of opportunities to increase the economic efficiency of industrial enterprise operation
3.	Performance index	Liquidity and solvency index	Economic sustainability index system interpreted dynamically
4.	Index nature	In relation to the analyzed economic activities for the period of its implementation, in statics	A momentary one, taking into account the specific economic situation of the company, characterizes the sustainability of the enterprise operation (including retrospectives) and opportunities of sustainable enterprise economic development, considering the dynamic nature of the processes
5.	Information, necessary to determine the index	Financial statements: balance sheet, profit and loss statement, cash flow statement	The system of external and internal factors that characterize the economic situation dynamically and determine the parameters of the company as an open mini-economic

			system
6.	Prognostic potential	Low, associated with the outcomes analysis (in retrospect)	High. The indices are determined via the analysis of the system of in-house processes and mechanisms in their interaction with environmental factors and their interdependence.
7.	Possibility to apply for efficiency of business operation improvement	Below average, as the determination model of liquidity and solvency indices can not be the basis for the creation of organizational and economic mechanism to change their level	High, as the economic stability indices system in dynamics is the basis to make enterprise management decisions.

Source: own.

New approaches to the study of complex systems stability include: the chaos theory, the theory of complex systems based on Ashby principle of diversity, the evolutionary theory.

The chaos theory describes the laws of development of diverse nature systems, (in terms of environmental factors variability) focusing on the chaos, complexity and self-organization; it offers methods of effective systems management in conditions of uncertainty and dynamic changes. According to the chaos theory, infinitesimal changes in the initial conditions can impact significantly the development of the entire system. The approach mentioned can be related to the socio-economic systems of macro, meso, micro and mini levels. The success of modern organizations functioning depends on understanding the hidden dynamics of the processes that underlie the apparent changes. The crucial concept of organizational management, according to the chaos theory, is the concept of leverage, justifying the significant positive changes even with minor administrative actions. In the process of dissipative chaos, even small changes in the initial parameters of the system state lead to significant differences in the final results. Consequently, the study of organization's performance dependence on the initial conditions leads to one of the major notions of the chaos theory - the analysis of such a complex systems feature as self-organization. The chaos theory application explains the low efficiency of many techniques, used to improve the sustainability of the organization in a dynamic and uncertain environment. The same refers to the methods of the quantitative assessment of risk, based on the analysis of isolated productive operating indicators of a company.

The general systems theory investigates the issues of self-preservation and sustainability of complex systems. According to Ashby principle of diversity, the diversity of system responses must correspond to a plurality of external anti-entropic impulses. Herewith the system structure flexibility should match the level of innovation activity. If the initial stage of self-organization is characterized by external environment replication, then the system evolves towards a stable state with minimal production of entropy. Thus, the stability of the internal environment development and in-house processes is determined by the peculiarities of the external environment.

Applying the theory of systems to economics, it is necessary to consider the economic system as something organic, adaptive, and self-organizing. Currently, the following general characteristics of the most successful complex adaptive self-organizing systems can be singled out. Firstly, such systems are self-managing. Secondly, self-management is possible due to the presence of a certain feedback from the external environment. The ability of the managerial level to identify the information received is the basis for the development, adaptation and preservation of such systems. Thirdly, self-managing through the feedback allows such systems to work through mobile specialization. These mechanisms of active development sustainability are at the heart of innovation management.

In addition to the chaos theory and the general systems theory discussed above, the biological evolutionary theory is likely to be applied to socio-economic researches. The basic principles of evolution - the preservation of identity and adaptation to the environment - operate in the economy as

well. Herewith the economic entity evolves on several levels (units of evolution). The basic principle of the evolution theory is the ability of every active unit of evolution to specify its own laws, which generates closed operation, leading to the formation of identity. So, evolutionary process is the preservation of identity and the ability to adapt, which is associated with natural selection. Identity and adaptation principles can be related to the formation and preservation of the distinctive organizational features and properties of the systemic product (competitive advantages). These notions are the main object of study in marketing and strategic management.

The tendency to apply analogues from the sphere of the biological theory of evolution to other areas is the basis of the population ecology developed by foreign researchers. This approach considers intraorganizational evolution, according to which the variability of the system should be as high as possible in order to completely take into account the complexity of the dynamic changes in the environment. They point out the so-called limits of variability characterizing the most appropriate level, as defined in the general theory of systems by the relationship between uniformity and diversity of the system structure elements. To describe the adaptive ability to the changing environment in organizational studies the term "economic mimicry" is used which is identical (in the general systems theory) to the principle of conditionality of rational management effects. According to the evolutionary concept, the use of the principle of multi-level organization construction allows to develop practical approaches to determining the stability of the system. It is believed that any system evolves simultaneously on several external and internal levels which are in interactive relations with each other.

It is worth mentioning that while considering the enterprise economic stability, we should take into account a variety of interactive performances on external and internal levels of enterprises activity. That leads to the integration approaches to strategic enterprise development (Eliseeva, 2011). This multilevel principle, used in the evolutionary theory, is closely linked to George Forrester approach to elaborating simulation models of production facilities.

The evolutionary theory is widely employed in elaboration of competitive advantage strategy. According to JF Moore theory of entrepreneurial ecosystems, to ensure company’s long-term success in the market both competition and cooperation are equally important, i.e. the evolution and interdependence. Hence, instead of making unilateral competitive advantages of the company it is necessary to consider it as an element of the ecosystem, where interests of all the participants and members of the business community are linked together. Thus, there appears the phenomenon of "co-evolution".

Considering the evolutionary concept, it should be noted that the logic of evolutionary development of macroeconomics in general, the stage of a particular industry or region development, the age of the individual areas of economic activity determine together the most efficient combination of external and internal factors of the enterprises sustainable state in this economic time interval.

Conclusion.

As we see it, the data discussed in the article gives reasons to conclude that modern economics has sufficient theoretical tools to study the dynamics of transient economic processes in mini-economic systems. At the same time, the evolutionary principles synthesized with the general theory of systems can be applied to explain complex phenomena in mini-economic systems. The knowledge symbiosis will enhance the accuracy of the assessment, forecasting and management of socio-economic systems. This fact will serve as a prerequisite to improve the economic stability of the system.

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Consumer Behavior of Current Travelers in Tourism Sphere

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Abstract

Consumer behaviour can be seen in several ways and in many areas of our lives. It depends on many factors in the broader context of changing consumer behaviour. Paper deals with consumer behaviour in selected tourism sector. At example of place of purchasing the holiday products influencing travellers' decision when buying holiday in their free time and factors influencing their decision making it shows partial results of the survey at the sample of selected town. The goal was to identify, evaluate and describe the behaviour of tourism when choosing travelling options based on the realized questionnaire survey.

Keywords: consumer, tourism, behaviour, tourists, marketing tools.

Introduction

Consumer behaviour always changes. There is no other situation in tourism sphere. Travellers are more experienced, globalised world brings more possibilities, fast means of transport can bring us to distant destinations in shorter time, internet brings us immediate information about different place, people share their experience etc. and that´s why it is always important to survey the market and the changes at it. Consumer behaviour of tourists depends on many factors that might influence decision making before travelling and choosing the destination. The article tries to show results of consumer behaviour survey held in chosen town and its partial results.

Literature review

The definition according to the American Marketing Association (AMA) mentioned in Richter et al. (2005, p. 9) says that "consumer behaviour is a dynamic interaction of humans and the environment contain emotions, knowledge and actions through which people carry out the exchange in order to meet their needs. In other words, consumer behaviour has the cognitive, affective and conative component that means that it involves thinking, feeling and actions of people they do in the context of the consumption process. " Morrison in 1995 stated that "consumer behaviour is a way how customers choose the services purchased and consumed and their behaviour after their purchase" (Morrison, 1995, p. 71). This shows that it is a behaviour that is reflected throughout the process of purchasing decisions. The same understanding for this topic had Schiffman and Kanuk (2004, p. 14), who defined the purchasing behaviour as "behaviour to show consumers in finding, purchasing, use, evaluation and management of goods and services, which hopes to meet their needs."

In terms of complexity consumer behaviour is the study of a process where consumers acquire, consume and dispose of goods, services, activities and ideas in order to satisfy their needs and desires. Consumer behaviour is and always will be influenced by satisfying needs. On consumer behaviour and choice when purchasing operate the whole complex of factors that marketing is not able to influence (cultural, social and personal factors) and psychological factors, which are only partially modifiable (Richter 2005 Bačík, Štefko, Gburová, 2015). When analysing purchasing

behaviour it is essential to understand why people make purchases, what factors influence them when and how those factors change in our society. Marketers need to know the factors that influence consumer behaviour, how they work and how to better understand them, to better fill up to the expectations of consumers and improve their marketing strategies.

Armstrong and Kotler in 2004 clearly named 4 main types of factors that influence consumer behaviour. Those are: cultural factors, social factors, personal factors, psychological factors. Richterová (2007) modified mentioned factors into: socio-cultural factors, social factors, individual factors and psychological factors. As socio- cultural factors she mentioned culture, sub-culture and social status. In social factors she mentions family, life cycle, reference groups and influential people. Individual factors she perceives as employment, income, personality, values and lifestyle. The last psychological group includes motivation, perceiving, studying and attitude. Cibáková a kol. (2008) states that the result of factors affecting consumer buying behaviour is that the consumer is more experienced and sensitive to price and still more complicated in lifestyle, calls for greater comfort when buying, has higher demands for quality, reliability and performance of products and exhibits less loyalty to the supplier. In principle it is possible understand the statement that consumer behaviour consists of actions that people perform in buying or using products and services, including mental and social processes that precede these activities and follow them. Richterová et al. (2007) states that these processes occur: 1. Prior to the purchase itself - eg. awareness of the need, the choice of shops, product, 2. after purchase - Utility Rating and 3. after purchase - evaluation of usefulness. In the process, it is necessary not to forget information that protrudes consumers with the product at all these stages. The information is in today's world the key factor, not only for businesses but also for consumers. Timely collection of information and its correct interpretation and usage is for business a significant competitive advantage. Customers as potential customers give great emphasis on the timeliness, accuracy and comprehensiveness. Most of them are based on information available decide on the purchase of goods and the use of services (Širá, Radvanská, 2010).

Methods and methodology

Based on this theoretical background was the aim of the present paper, based on a survey carried out by consumer behaviour in the sphere of tourism. The paper aimed to identify, evaluate and describe consumer behaviour in tourism sphere at the example of consumer behaviour concerning the place of purchase and factors influencing the consumer decision when buying certain travel possibilities at the example of chosen town and its inhabitants.

The original questionnaire consisted of 20 questions. For the purposes of this paper were selected only some of them focused on factors influencing tourists behaviour when buying tourism products as well as the place where they but the mentioned product to spend their holiday. Obtained data from the questionnaire were processed in MS Excel and Statistica- statistical program.

Basic characteristics of respondents were performed using standard methods of descriptive statistics. Quantitative variables we expressed by average, standard deviation (SD), minimum, maximum and median values. The qualitative (categorical) variables were expressed by absolute and relative abundance and display the contingency tables or graphs. Comparison of differences between groups of respondents was processed using the Chi-square test of independence. This test based on the pivot table examines the relationship of the two quality characteristics, denoted the A (p levels r) and B (with levels). The null hypothesis of the test is the assumption of independence characters A and B. An alternative hypothesis is the opposite: the characters A and B are not independent. The test statistic has the form: $\chi^2 = \sum_{i=1}^{r}\sum_{j=1}^{s}\frac{(n_{ij}-e_{ij})^2}{e_{ij}}$, where n_{ij} are observed frequencies, $e_{ij} = \frac{n_{i.}n_{.j}}{n}$ are theoretical numbers of characters and character A level i and the character B at level *j*. The test statistics has on the level of null hypothesis asymptotic chi-square distribution with *(r-1).(s-1)* degrees of independence (Litavcová 2012). Statistically significant, was determined the significance level $\alpha = 0.05$.

Results and discussion

Partial results of the questionnaire survey were based on hypotheses that claim that Internet shopping in tourism depends on the age of the customer and that purchase over the Internet in tourism is independent of the gender of the customer.

After finishing survey data collecting 324 respondents questionnaires we included in the processing-(age of respondents from 18 years to 72 years), of which 52% were women and 48% men. Gender proportion is available in Table 1. The average age of respondents was 43.3 years (SD 14.9), the median age was 40 years. The age structure could be seen in table 2. Age structure of men and women was considered as identical (Chi-square test of independence, $p = 0.769$). There respondents were inhabitant of the town Prešov, which is considered as the third largest town in Slovakia and its total population is oscillates around 90 thousand.

Table 1 : Proportion of respondents- gender

Options	Frequency	Percent	Valid Percent	Cumulative Percent
men	156	48	48	48,0
women	168	52	52	100,00

Source: own processing

Table 2: Proportion of respondents- age

Options	Frequency	Percent	Valid Percent	Cumulative Percent
18-25 years old	34	11	11	11,0
26-40 years old	126	39	39	40,0
41-60 years old	114	35	35	75,0
61 and more	50	15	15	100,0
Σ	324	100	100	x

Source: own processing

5% of survey responded were primary educated respondents, 23% respondents with finished secondary school without graduation, 39% with upper secondary education, and 33% respondents with university degree. 17% of women and 41 % of men were secondary educated without graduation. Women responded in the survey were higher educated than men (chi-square test of independence, $p < 0.001$). 44% of women and 21% of men were university graduated. 61% of the interviewed people were employed, 16% retired, 13% self-employed persons, 5% unemployed people and the same number of students (5%).

For the need to create more complex perspective on the issue of a sample was heterogeneous. Aim was to reach the widest possible range of respondents in each category. Respondents do not constitute a random sample to be in each category represented roughly proportionally.

The first chosen question was question concerning the place of purchases. The aim was to find out what kind of purchase the respondents in different categories and different age and social status prefer when buying holidays. The question was clearly stated and selected only for travelling in free time as holiday travel, not the working one. Three possibilities were offered for the response. The assumption was that the interest of buying holiday through internet increases. The other possibilities were traditional travel agencies stated as stone shops as well as tourism fairs.

Table 3 : Place of the purchases

Options	Frequency	Percent	Valid Percent	Cumulative Percent
Shop (stone)	266	82,1	82,1	82,1
Internet	46	14,2	14,2	96,3
Fairs	12	3,7	3,7	100,00
Σ	324	100	100	x

Source: own processing

From the results in Table 3 cold be seen that the expectation that internet shopping seems to be increasing in this case of mentioned town wasn´t true. Still preferred are "stone" shops of travel agencies. The reason why people still prefer it is still the immediate communication, proper advice services as well as habit to do it as before. Other preferences are based on the fact that travellers like to visit and buy product of travel agencies that they travelled before and have good experience with. The minority of respondents choose the possibility of buying product when different tourism fairs are held. This occasion also brings possibility to communicate with tour operators, to see all possibilities and have a little taste of it, because it´s usually connected with presentation of the local specialities. Internet is becoming more and more popular but in this case travellers must rely on their own judgment or on the other hand on reviews, which may not be true.

Table 4 : Location of the purchases on the basis of gender

n_{ij} / e_{ij}	men	women	
implements Internet purchases	13 / 11,1	10 / 11,9	χ^2= 0,753 p = 0,386
Don´t implement Internet purchases	65 / 66,9	74 / 72,1	

Table 5 : Location of the purchases on the basis of age

n_{ij} / e_{ij}	Up to 40 (years)	over 40 (years)	
implements Internet purchases	18 / 11,4	5 / 11,6	χ^2= 8,943 p = 0,003
Don´t implement Internet purchases	62 / 68,6	77 / 70,4	

Table 6 : Purchase in shops (stone shops) by age of respondents

n_{ij} / e_{ij}	Up to 40 (years)	over 40 (years)	
Buy in-store	61 / 68,1	77 / 69,9	χ^2= 9,999 p = 0,002
Don´t buy in-store by age of respondents	19 / 11,9	5 / 12,1	

Source: own processing

Results linked with variables could be seen in table 4,5,6, where location of the purchases on the basis of gender, Location of the purchases on the basis of age and Purchase (stone shops) by age of respondents were statistically evaluated.

The other question chosen for the purpose of this article a partial survey result was importance of purchase factors when buying holiday. While the town suffers long time from high unemployment rate the expectation was that price will play the most important role. Results are projected in Table 7.

Table 7 : Important purchase factors

Options	Frequency	Percent	Valid Percent	Cumulative Percent
Price	154	47,6	47,6	47,6
Quality	93	28,7	28,7	76,3
Discount	39	12	12	88,3
Review	31	9,6	9,6	97,9
Brand	7	2,1	2,1	100,0
Σ	324	100	100	X

Source: own processing

The most important factor influencing the consumer behaviour when buying a holiday was as expected price. The majority of respondents marked this possibility as the one that influences their decision making and buying. Quality of the product was chosen on the second place. Discount on holiday package seem s to be important as well. The results linked with respondents´´ variables are displayed in Table 8, 9, 10, 11, 12, 13. In virtual market reviews often play important role when hesitating and choosing holiday. While there were not many fans of internet holiday shopping, the results for review were at low level. Almost not important was the brand of travel agency. The price covered even agencies with great reputation. It is necessary to mention that respondents could choose only one possibility. For this question it was not possible to choose more options to see the preferences.

Table 8 : Importance factor in making purchasing decisions – Review

n_{ij} / e_{ij}	Up to 40 (years)	over 40 (years)	χ^2= 4,226 p = 0,040
review – important factor	13 / 8,9	5 / 9,1	
review – not important factor	67 / 71,1	77 / 72,9	

Source: own processing

Table 9 : Importance of the factor in making purchasing decisions – Brand

n_{ij} / e_{ij}	Up to 40 (years)	over 40 (years)	χ^2= 8,260 p = 0,004
brand – important factor	14 / 8,4	3 / 8,6	
brand – not important factor	66 / 71,6	79 / 73,4	

Source: own processing

Table 10 : Importance of the factor in making purchasing decisions – Price

n_{ij} / e_{ij}	Up to 500 €	500 € - 1 000 €	over 1 000 €	χ^2= 7,315 p = 0,026
price – important factor	48 / 40,9	30 / 32,0	7 / 12,1	
price– not important factor	30 / 37,1	31 / 29,0	16 / 10,9	

Source: own processing

Table 11 : Importance of the factor when making purchasing decisions - quality, taking income into account

n_{ij} / e_{ij}	Up to 500 €	500 € - 1 000 €	over 1 000 €	χ^2= 15,585 p < 0,001
quality – important factor	24 / 36,1	35 / 28,2	16 / 10,6	
quality – not important factor	54 / 41,9	26 / 32,8	7 / 12,4	

Source: own processing

Table 12 : Importance of the factor in making purchasing decisions – up to working status

n_{ij} / e_{ij}	Retiree	employee	Self employed	χ^2= 8,250 p = 0,016
quality – important factor	5 / 11,6	50 / 44,1	10 / 9,3	
quality – not important factor	21 / 14,4	49 / 54,9	11 / 11,7	

Source: own processing

Table 13 : Importance of the factor in making purchasing decisions – discount

n_{ij} / e_{ij}	Retiree	employee	Self employed	χ^2= 11,710 p = 0,003
discount – important factor	9 / 3,6	9 / 13,6	2 / 2,9	
discount – not important factor	17 / 22,4	90 / 85,4	19 / 18,1	

Source: own processing

Conclusion

Consumer behaviour changes and will change also in the future. It depends on various factors that play important role in decision making. There is no difference in tourism sphere. Tourists and their personalities change thanks to experience, possibilities, open free market etc. From statistically evaluated data on conducted survey at the example of chosen town it is possible to come to several conclusions. The first one is that in this case it is interesting to keep traditional stone sops of travel agencies for their consumers. Inhabitants of this small town prefer personal contact with professionals who know their offer well. Internet possibilities are faster spreadable, but for this sample don´t play such an important possibility as personal contact in travel agencies they know. From the point of the factors it is necessary to set the pricing policy to attract most potential clients. In this case discount can play interesting marketing tool in the attractiveness. Quality of the products might be important as well but from the point of economic status of inhabitants' it´s on the second place. There are also differences from the point of age, gender, education, working status, income and the other factors.

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Simulation for Decision Making: The Need for Multi-Paradigm Approaches

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Abstract.

We are surrounded by complexity and uncertainty that constrain our ability to learn and understand the systems around us. We need tools that allow us to deal more effectively with complexity in order to be able to make better decisions. Simulation is such a tool. It provides the means to experiment and learn from observed behaviour. Simulation can be used to effectively support the evaluation of complex scenarios, however its effectiveness is deeply rooted in the ability to build models that capture all the relevant details and dynamics of a complex system. Several approaches to simulation exist, however we believe that adopting a single simulation approach may prove limiting. In this paper we argue that, in more complex situations, a multi-paradigm simulation approach, in which more than one simulation paradigm is used to study the same reality, may be a better approach.

Keywords: Multi-paradigm Simulation, Discrete-Event Simulation, System Dynamics, Agent-Based Simulation

1. Introduction

We live in a world of complex and dynamic systems. These dynamic systems pose a significant challenge to our ability to understand and transform them. We need tools that allow us to better learn about systems, manage complexity and uncertainty in order to improve our capacity to take effective decisions. We believe simulation is such a tool.

Simulation facilitates the evaluation of complex scenarios and might be the only option when it is infeasible to test them in the real-world. Simulation is perhaps the only way to discover how a complex system really works (Sterman, 2004).

Simulation works by building models of the real-system and then experimenting with them. When conducting a simulation study the first step is to build a model that mimics all the important dynamics of the real-system. In order to be able to make effective decisions we have to ensure that the simulation model is valid and reliable. This implies that all the relevant details to the decision should be included in the simulation model. After the simulation model is developed and validated one can start to experiment with it. Experimentation is accomplished by running the simulation models with different sets of parameters and observing how the system behaves accordingly. Experimentation allows one to test different scenarios and foresee the consequences of its implementation in a controlled environment, without disturbing the real world (see Fig. 1).

Simulation can be used as an effective tool for complex decision-making processes; however its ability to provide the decision-maker with quality information is directly linked to the quality of the simulation model. Quality here means the ability of the model to reliably mimic the dynamics of a system.
Usually, when building a simulation model one adopts a certain simulation approach. From all the simulation approaches three stand out as the most important ones (Meyer et al., 2009): discrete-event simulation, agent-based simulation and system dynamics. Each of these simulation approaches provides the modeller with a distinct set of constructs and a specific philosophy to modelling. In spite of established practice consisting of adopting a single simulation approach we argue that a multi-paradigm approach to simulation may reap additional rewards.

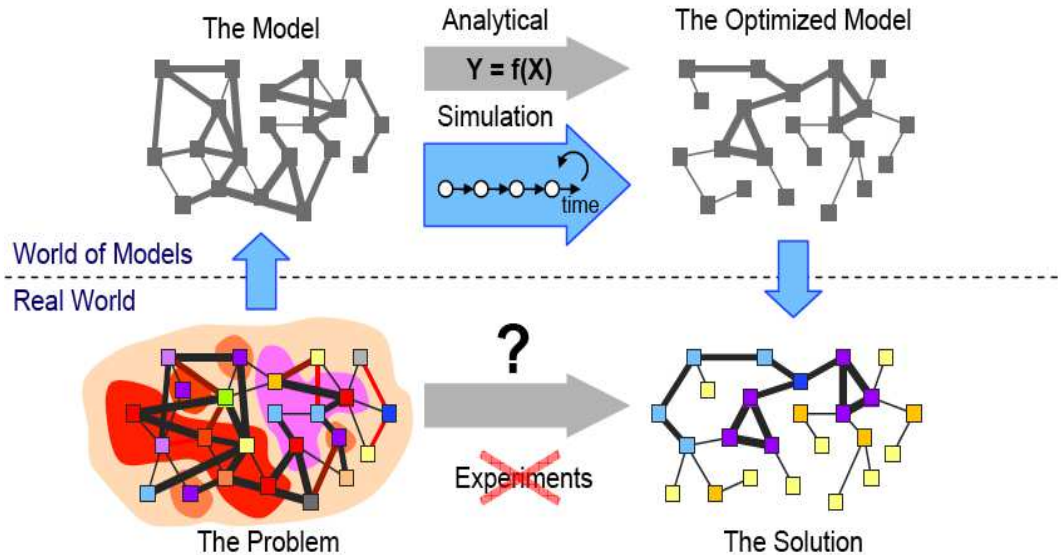

Fig. 1 – Simulation versus experimentation in the real world (Borshchev and Filippov, 2004)

By multi-paradigm simulation we mean the adoption and use of more than one simulation approach to analyse the same reality, in a complementary way. We believe that multi-paradigm simulation provides better insight into a problem by allowing its analysis from different perspectives (Scholl, 2003). Fortunately, a new wave of simulation tools makes the adoption of multi-paradigm simulation easier (Borshchev, 2007; Pegden, 2008), however there is a lack of guidelines on how to choose the simulation paradigm, or combination of simulation paradigms, that best fits the characteristic of the problem at hand. We believe this is a very important area demanding further research.

This paper is a complement to a previous one, in which we tried to clarify, the context and importance of multi-paradigm simulation utilization (Ribeiro and Pereira, 2014). To do so, after providing a high-level overview of the three simulation modelling paradigms, we present the concept of multi-paradigm simulation and we briefly describe several comparative studies of simulation paradigms that show how distinct paradigms relate to each other and how they perform when applied to the same reality. We conclude by reinforcing the need to adopt multi-paradigm simulation, especially when complex systems have to be studied and explored.

2. Simulation Paradigms

Regarding simulation, nowadays, there are essentially three simulation paradigms in use: Discrete-Event Simulation (DES), System Dynamics (SD) and Agent-Based Simulation (ABS). In the next sections, a brief characterization of each one is made.

2.1 DES Simulation

To build a simulation model the modeller adopts a simulation paradigm. From all the simulation modelling paradigms Discrete-Event Simulation (DES) has become the most widely used (Robinson, 2004). DES has been applied to study problems in areas as: organizational design (Clay, 2000), business process management (Bridgeland and Becker, 1994), decision-support (Greenwood et al., 2005), among many others.

When creating a model of a real system the modeller adheres to a certain conceptual framework, also called a worldview. A worldview is a structure of concepts and views under which the practitioner is guided in the development of a simulation model (Balci, 1988). The most used worldview is the transaction-flow worldview, in which the DES approach is the most widely known example. In this

worldview a system consists of discrete units of traffic (transactions) that compete with each other for the use of limited resources while moving (flowing) from point to point in the system (Schribber and Bunner, 2008).

A DES model is one in which the state of the modelled system changes only at discrete, but possibly random, points of time known as events. Between events the system state remains constant. The state of the system is defined as the set of variables needed to describe it at any point in time (Banks et al., 2001).

Concepts in DES modelling

A DES simulation model is built around the following set of core concepts: entities, events, resources, control elements and operations (Schribber and Bunner, 2008). DES software packages implement all of these concepts but sometimes use a different nomenclature.

Entities

An entity is any object or component in the system, which requires explicit representation in the model; examples of entities are: a customer, a machine, and a server (Banks et al., 2001). An entity can take actions that change the system state. Each entity can have its own set of properties, called attributes. Entities initiate and respond to events as they flow through the system. An event is an occurrence that changes the state of a system, for instance the arrival of a new customer (Schribber and Bunner, 2008; Banks et al., 2001). The behaviour of the system is reproduced by the execution of a pre-defined or random list of events.

Events

An event is an instantaneous occurrence that changes the state of a system (Ingalls, 2008). For example, in a simulation of a shop the arrival of a new customer is an event. An event is generated for a specific point in time, it could be the current time or a future time; when an event is scheduled to occur in the future it is registered in a structure named future event list.

Resources

Resource represent elements of a system that provide a service (Banks et al., 2001), for example in a manufacturing system machines, machine operators, transportation devices are resources. Resources are limited in number and entities compete with each other for the use of the system resources. When an entity wants to use a resource but the resource is already being used then entities must wait for their turn in a queue. A queue is an organized list of entities; entities in a queue may be sorted by priority, time of arrival, or any other criteria relevant for the model.

Control elements

Besides entities and resources, a DES model may contain control elements. Control elements support various control-related aspects of a system's state. One example of a control element is the switch; a switch is a two state variable. For example, in a model of a bank branch a switch may be used to signal if the branch is open or closed. Another control element are counters; counters may be used to count how many times a machine has been used and when a certain threshold is reached an alert for maintenance is generated. Arithmetic expressions may be used to control the operation of the system; in this case decisions are made when a certain arithmetic computation reaches a certain value; for example deciding to open a new checkout lane for customers when the average number of customers waiting is above five. The last control element are Boolean expressions; in this case decisions are made based on truth-valued expressions.

Operations

An operation or activity is a step or action carried out by or on an entity while it is flowing through the system (Banks et al., 2001). In an inventory management system the picking of goods from the

store is an example of an operation. Several operations may be ordered and combined in an integrated sequence of steps named operation logic; operation logic allows modellers to describe complex sequences of actions. An operation typically represents a period time and its duration may be specified in a number of ways: *deterministic* in this case the duration is predefined and never changes; *stochastic* where duration fits a certain statistical distribution; or it could be the result of a function.

2.2 System Dynamics

Jay Forrester at the MIT developed the System Dynamics (SD) approach in the 1960s and since then it has been used to address some of the most difficult strategic problems at companies and government agencies (Mayo and Wichman, 2003). Over the last decades, SD has been applied successfully to solve a diverse set of complex problems; for example SD has been applied to business and market modelling (Mayo and Wichman, 2003), healthcare (Brailsford, 2008), corporate strategy (Lyneis, 1994), forecasting service demand (Lyons et al., 1997), among others.

The SD vision of the world is deeply grounded in system thinking. The world is made of complex systems and in order to improve our decisions we need to be able to understand these systems. We study, understand and decide as a consequence of learning. Learning is the process of perceiving reality, making decisions that alter the real world, gather feedback information and revise our understanding of the world. Learning is a continuous feedback process of self-improvement, however there are barriers to learning.

Learning about the real world is not simple because of the dynamic complexity of the systems, limited access to information and limited capability to process and understand information. Dynamic complexity is property of a system that makes forecasting its behaviour an extremely difficult and error prone activity. We need tools to support our learning and to deal with complexity; we need tools for thinking (Pidd and Robinson, 2007). SD is a perspective and a set of conceptual tools to enable us to understand the structure and dynamics of complex systems; SD is a tool for effective decision-making and learning.

Concepts in SD modelling

SD takes on a holistic and high-level view of a system. This modelling approach allows the representation of the key performance drivers and their interdependencies within a complex dynamic system. The SD paradigm asserts that the system behaviour is caused by its structure and the structure of any system may be modelled as a set feedback processes, nonlinearities, time delays, stocks and flow structures (Sterman, 2004).

When building a SD model one should master and understand the following elements of this methodology: feedback and feedback loops, time-delayed responses, non-linear responses, stocks and flows. The behaviour of a system arises from its structure. The structure of the system consists, basically, of feedback loops, stocks and flows (Sterman, 2004).

Feedback and Feedback Loops

SD modelling starts by identifying the underlying factors that drive the behaviour of a system. This is represented as cause-effect relationships, also named feedbacks. Most complex system behaviours arise from feedback among components and not from the complexity of the component itself. Feedback have a polarity that identifies how a cause affects its dependent variable. A positive feedback means that the result changes in the same direction (increase/decrease) as the cause, and a negative feedback means that cause and effect change in different direction. For example, the price/sales feedback is a negative one because if price goes up this makes the product less affordable resulting in a decrease of sales.

Stocks and Flows

Stocks and flows, along with feedback, are the two core concepts of SD. A stock is an accumulation, which characterizes the state of the system and generate information upon which decisions are based on. Stocks provide memory to system and also create inertia; a stock causes delays in system operation by accumulating the difference between the inflows and outflows. Stocks are an abstract concept representing things that are accumulated in a system; examples of stocks are the number of people employed by a business, the inventory of products in a warehouse, the population of a country or region. Stocks are altered by flows; an inflow is a flow that increases a stock while an outflow is a flow that decreases a stock. The rate of change of a stock is determined by difference between inflows and outflows. The rates of change of the inflows and outflows are determined by differential equations.

2.3 Agent-Based Simulation

Agent-Based Simulation (ABS) is a new approach to modelling systems comprised of autonomous and interacting agents. The underlying principle of ABS is the notion that global behaviour of a system arises from the interaction of their simpler components - the agents; when building an ABS model one is not concerned with the global dynamics of a system but rather with the rules that form the agents' behaviour. According to Sanchez and Lucas an ABS simulation is a simulation made up of agents (objects or entities that behave autonomously). These agents are aware of and interact with the environment through a set of internal rules for decision-making, movement and action (Sanchez and Lucas, 2002).

This new modelling paradigm provides a new and useful approach to model complex systems that may not be modelled effectively with more traditional modelling paradigms. ABS promises to have a great impact on business decision-making processes and also on the way researchers use computers to support their research. Some have even labelled ABS simulation as a third way of doing science besides inductive and deductive reasoning (Macal and North, 2005).

Interest in ABS modelling and simulation is increasing and its applications are becoming widespread; the first reasoning driving the growing adoption of ABMS is the need to analyse and model increasingly complex systems in terms of their interdependencies, this means that traditional modelling approaches are not applicable; a second reason is that some systems have always been too complex to be adequately modelled without incurring in oversimplifications; a third reason is the increasing availability of finer-grained data organized in databases; and a fourth and last reason is the fast pace of evolution in computational platforms making feasible more complex ABS simulations (Davidsson et al., 2007).

Concepts in ABS modelling

An ABS model is made of several agents that have unique behaviour and interact with each other on an environment in order to fulfil their own goals. The global behaviour of the system will emerge from the interaction of the community of agents. ABS is rooted in complex adaptive systems and the underlying notion that systems should be built from the ground-up. In contrast with DES and SD, which take on a top-down view, ABS adopts a bottom-up approach to system modelling (Borshchev and Filippov, 2004). There are two core concepts in ABS simulation, the concept of agent and the concept of environment.

Agents

Although there is not a global and accepted definition of what an agent is, definitions tend to agree on more points than they disagree. We adopt Macal and North (2006) definition of and agent: an agent is a discrete and identifiable individual with a set of characteristics and rules governing its behaviours and decision-making. An agent is autonomous and self-directed and “lives” in an environment where he looks to achieve its own goals. Agents are flexible and may adapt their behaviour through learning and experience.

Environment

Environment is the space where agents live and interact with each other. The environment constrains the agents. For instance obstacles in the environment may limit the movement of an agent in space.

When developing an ABS model we focus on the specification of the behaviour of each agent. The behaviour is a set of rules governing the way an agent interacts with other agents and the environment, how he adapts to the changing conditions of the environment and how he makes decisions. The simulation starts be setting up an initial population of agents and let them evolve over time, the observation of this community of agents will bring out the behaviour patterns of the system.

3. Multi-paradigm simulation

Simulation is a tool to study and solve problems of real-world systems. We use simulation to improve our knowledge of how a system works and analyse the consequences of different policies, thus helping the decision-making processes. However, conclusions drawn from a simulation study are only valid if the model used represents with sufficient detail the system under investigation. It is therefore important to be able to capture all the important details and build a valid and capable model. Unfortunately, real systems are sometimes so complex that using a single simulation paradigm may imply over simplifications, with severe consequences in terms of the conclusions drawn. It is a fact that most simulation applications developed so far have followed this path. Nevertheless, we believe that, in more complex situations, multi-paradigm simulation might be the most adequate approach.

A multi-paradigm approach to simulation is needed (Borshchev and Filippov, 2004). Multi-paradigm simulation means the use of more than one modelling paradigm to study a system; different modelling techniques may be used complementarily to provide deeper insight (Scholl, 2003).

Behind each simulation paradigm is a “simulation school” with a different approach to modelling a system; each one has its own community of practitioners and its fair share of successful applications in real-world projects. These simulation communities have produced vast bodies of literature and research with over-lapping fields of applications. We believe that it is long overdue the cross study of the simulation paradigms, as they may complement each other, providing better insight. Indeed, if some business situations might be approached using one of the three main simulations paradigms - DES, SD or ABS - there are others which might be more accurately studied by using a multi-paradigm approach - DES & SD, DES & ABS, SD & ABS, or even DES & SD & ABS (see Fig. 2).

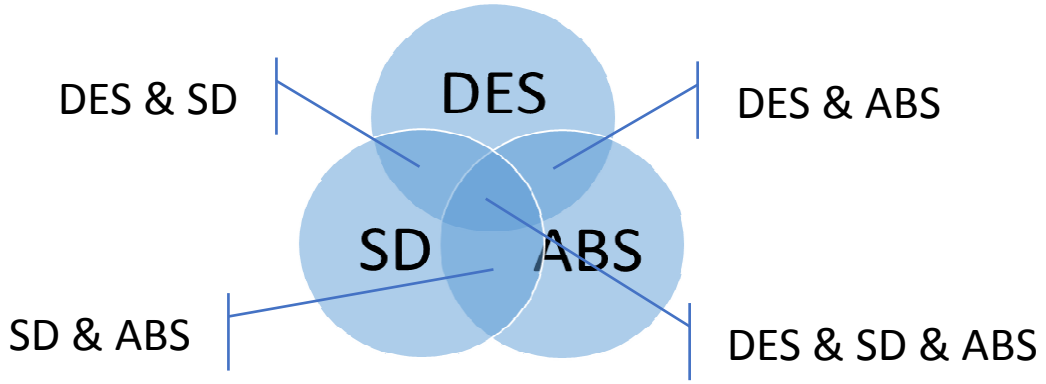

Fig. 2 - The simulation paradigms in perspective

Fortunately, some studies have already appeared which began researching the differences between the simulation modelling paradigms and how they can be used jointly to study a system from different perspectives. We feel this is a field which deserves more attention in the future.

In the next sections we present a brief description of studies that used more than one simulation paradigm to analyse the same system. These studies demonstrate the advantages of adopting a multi-paradigm simulation approach.

3.1 Comparing DES and SD

Mayo and Wichmann (2003) illustrate the of use system dynamics models to aid in strategic decision-making. The paper describes the key concepts of system dynamics and compares it to the discrete event simulation approach along a range of fundamental decisions. Some guidance on how to choose among a system dynamics or discrete-event approach is also provided.

Su et al. (2007) developed DES models to help planning for the efficient transportation of patients following a major disaster. These models proved an efficient tool for emergency planning, however they did not account for the feedback effects of human decisions which could only be accounted for by developing a SD model to supplement the DES model. This study concludes that using both modelling approaches creates a richer model and provides for better decision aid.

Morecroft and Robinson (2014) compare the usage of the SD and DES modelling approaches to model the same problem situation (a fishery); in this study the two models were developed in parallel and at each step differences in the representation and interpretation of the models were identified. They conclude that both paradigms have different modelling philosophies and characteristics and provide complementary insights, therefore SD and DES simulation should not be seen as opposing modelling approaches but rather as complementary.

Brailsford (2014) discuss if the choice of the paradigm to use is merely a question of personal preference or modeller expertise. The other assumption is, of course, that in the process of choosing the right paradigm we should take into consideration the specific features of the situation in hands, as different problems may be more adequately treated by distinct simulation paradigms. The author describes a case study in emergency care in which DES and SD were used to tackle different aspects of the same reality, pointing out some guidelines about how to choose de best simulation paradigm.

3.2 Comparing SD and ABS

Wakeland et al. (2004) present a comparative study of the application of ABS and SD modelling approaches to the study of cellular receptors. The authors conclude that the process of using two different modelling approaches was very useful because the SD approach proved to be a better tool for designing laboratory experiments but the ABS approach proved to be more suited for educational purposes. This study shows that there are advantages in choosing the best approach for the intended purpose.

Schieritz and Milling (2003) provide a comparison between the system dynamics and agent-based modelling approaches for the simulation of non-linear socio-economic systems. The authors conclude that although there are many differences between the two modelling approaches there are also similarities. The authors also identified potential integrations areas between the two approaches. This paper shows that using a multi-paradigm approach may help decision-makers develop the capacity of thinking at one and the same time of both, the forest and the trees.

3.3 Comparing DES and ABS

Dubiel and Tsimhoni (2005) studied the integration of discrete-event and agent-based simulation to simulate the movement of people in a discrete-event system. This study shows that there is value added by integrating agent-based modelling in a discrete-event simulation because the movement of people cannot be easily and accurately implemented in a discrete-event model. The use of the two modelling approaches allowed the development of a model that better mimic the real system.

3.4 Comparing DES, SD and ABS

There are not many research examples combining the three main modelling approaches and comparing them. Meyer et al. (2009) compare the three modelling paradigms (DES simulation, SD and ABS modelling) in the organizational management research. The authors conclude that each modelling paradigms has strengths and shortcomings and each one has different abilities to model the characteristics of complex systems.

Borshchev and Filippov (2004) researched how DES and SD models can be translated into ABS models. Although ABS modelling provides a rich foundation to build models of complex phenomena, the authors highlight that ABS is not a replacement for SD and DES modelling. There are applications that can be more efficiently handled with a SD or DES model. The authors also observe that when building a simulation model one should judge the advantages of using different modelling paradigms for different parts of the simulation model. In (Borshchev, 2014) the author illustrates how Anylogic may be used to study and explore the same problem with the simultaneous use of the three simulation paradigms. In this context he presents three examples (a supply-chain, an epidemic model and a product life-cycle and investment policy) in which combinations of paradigms were used to explore the same problem.

Sadsad et al. (2014), in a similar way to (Borshchev, 2014), used combinations of different simulation paradigms to tackle three distinct situations (the spread of a drug-resistant pathogen in hospitals, decision support in sexual health services and the performance of a contact centre for long-term care of senior people).

The following table try to summarize some of the most relevant contributions to the multi-paradigm simulation area:

Table 1: Comparisons of DES, SD and ABS in the literature

Authors	DES	SD	ABS	Comments
(Borshchev, 2014)	**X**	**X**	**X**	The author shows how to use a specific simulation platform (Anylogic) to mix simulation paradigms in the exploration of different problems.
(Borshchev and Filippov, 2004)	**X**	**X**	**X**	Researched how DES and SD models can be translated into ABS models; authors conclude that there are advantages in using different modelling paradigms for different parts of the simulation model.
Brailsford (2014)	**X**	**X**		Using the same case study as an opportunity to explore the two simulation paradigms, the author concludes about how to choose the most adequate.
(Dubiel and Tsimhoni, 2005)	**X**		**X**	Studied the integration of DES and ABS to simulate the movement of people in a DES system; the use of the two modelling approaches allowed the development of a model that better mimic the system.

(Mayo and Wichman, 2003)	**X**	**X**		Describes the key concepts of SD and compares it to the DES approach along a range of fundamental decisions.
(Meyer et al., 2009)	**X**	**X**	**X**	Conclude that each modelling paradigms has strengths and shortcomings and each one has different abilities to model the characteristics of complex systems.
(Morecroft and Robinson, 2014)	**X**	**X**		Conclude that both paradigms have different modelling philosophies and characteristics and provide complementary insights, therefore SD and DES should be seen as complementary.
(Sadsad et al. 2014)	**X**	**X**	**X**	Describe three case studies in which authors combine different simulation paradigms
(Schieritz and Milling, 2003)		**X**	**X**	Conclude that although there are many differences between SD and ABS there are also similarities; also identified potential integrations areas between the two approaches.
(Su et al., 2007)	**X**	**X**		Conclude that using both DES and SD modelling approaches creates a richer model and provides for better decision aid.
(Wakeland et al., 2004)		**X**	**X**	Conclude that the process of using SD and ABS was very useful because the SD approach proved to be a better tool for designing laboratory experiments but the ABS approach proved to be more suited for educational purposes.

4. Conclusions

As was mentioned before, this paper aims to complement and add new insights to a previous one which treated the same thematic (Ribeiro and Pereira, 2014). Similarly to the research work described in the examples already present in the previous paper, the new ones continue to show that there is potential in adopting a multi-paradigm approach to simulation. Some of the advantages of multi-paradigm modelling and simulation include: develop models that better capture the dynamics of the real system; provide richer analysis and insight into the dynamics of a system and cross-validation of models.

In spite of the new simulation tools in the market that support several modelling paradigms (Borshchev 2014), the practice of multi-paradigm simulation seems to be limited and made more difficult because there is a lack of guidelines for modellers and decision-makers, helping them choose which modelling paradigms should they use in each situation.

In this paper we reinforce the conclusion that, selecting the right simulation approach, or combination of approaches, for the intended purpose is challenging because modellers tend to see the world through the lens of the technique with which they are most familiar. Therefore, defining practical guidelines for the adoption of multi-paradigm simulation would prevent teams from falling in "the man with a hammer" fallacy. This is, clearly, work to do and constitutes our purpose in future efforts.

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Inter-organizational Network and Organizational Strategy: A Conceptual Framework

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Abstract

The aim of the paper is to identify the potential impact of node organization's participation in an inter-organizational network on the character of its strategy and consequently to develop a conceptual framework in that field addressing the potential hypotheses. The aim has been achieved through critical literature studies and initial case study research. The key findings constitute the following hypotheses to be verified in the next research stage: the more intensive network relationships, (1) the higher adjustment to the environment; (2) the weaker resources' allocation; (3) the weaker orientation to internal growth (4); the shorter time horizon; (5) the less salience of managerial goals, desires, values, attitude and behaviour.

Keywords: inter-organizational network, strategy, strategy dimensions.

Introduction

The issues of the paper emerge from the management sciences, especially strategic management in the field of an organizational strategy and a network paradigm. Most studies on inter-organizational network underline its high flexibility (Jarillo, 1988; Ma, Yao and Xi, 2009; Thorelli, 1986; Whetten, 1981) obtained through wide access to various resources (Gulati, 1999) or exchange of information amongst networked members (Burt, 1992). These factors seem to facilitate strategic adjustment and flexibility, yet some uncertainties remain unexplained, as most researchers focus on flexibility of a network as a whole, and they pay much less attention to the internal strategic flexibility of node organizations.

The aim of the paper is to identify the impact of an inter-organizational network on the character of node organization's strategy and to develop a conceptual framework in that field. The main research question is: does and how the intensity of network relationships influence dimensions of organizational strategy? The aim has been achieved through critical literature studies and case study research.

Insights into the Inter-Organizational Networks Literature

Inter-organizational networks (IONs) constitute a developing research area in management science. The various research on identifying, describing, and explaining the mechanisms of creating and functioning IONs has been conducted (e.g. Borgatti and Foster, 2003; Castells, 2010; Dagninio and Rocco, 2009; Delporte-Vermeirena *et al*., 2004; Emirbayer, 1997; Gibbons, 2004; Granovetter, 1973; Harrigan and Newman, 1990; McFadyen *et al.*, 2009; McPherson *et al.*, 2001; Powell, 1990). Yet, although most of the scholars are focused on the inter-organizational network as a whole: e.g. the essence and types of inter-organizational networks (Boulanger, 1995; Child and Faulkner, 1998; Granovetter, 1973), the components of networks (Bianchi and Bellini, 1991; Prahalad and Ramaswamy, 2000; Thorelli, 1986), principles of managing networks (Järvensivu and Mőller, 2009), innovative processes and knowledge management (Dent, 2002; Grant, 1996; Harari, 2002) and so forth, they do not concern the problem of

the impact of the participation in an inter-organizational network on the character of traditional components of an organization like organizational strategy what constitutes a research gap in that field.

Organisational Strategy and Its Dimensions – Theoretical Background

The strategy of an organization is undoubtedly a multi-faceted and multidimensional phenomenon determined by ontological-epistemological variation in that realm what results in ambiguity of perceiving strategy's important dimensions. Admittedly, it ought to be emphasized that multidimensionality of strategy limits the dominance of one or more dimensions so as to succeed, however, literature studies resulted in selecting the most frequently explored and explained.

First, one of strategy dimensions highlighted by the scholars is organization's alignment with its environment (e.g. Miles *et al*., 1978; Mintzberg, 1978; Pearce and Robinson, 2000) - the salience of adjusting to the environment in enterprises' strategic behaviour. Similarly, according to Andrews *et al*. (2009), strategy content means how an organization interacts with its environment and how it seeks to improve its performance. Secondly, one can find managing major internal interdependencies as an important strategy dimension (e.g. Miles *et al*., 1978; Mintzberg, 1978) – understood as the salience of internal (organizational) resources. Thirdly, some scholars (e.g. Miles and Snow, 2003; Mintzberg, 1978; Quinn, 1980) emphasise a strategic change and the speed of changing over time - attitude towards strategic changes and a change as the whole as well as the degree of flexibility in reacting to environment signals. Moreover, importance of managerial desires and plans including also managerial attitudes and behaviour are taken into consideration (e.g. Beer and Davis, 1976; Mintzberg, 1978). When it comes to the salience of the degree to which an enterprise focuses on internal growth, some scholars emphasize the instance of an orientation towards product-market development (e.g. Miles *et al.*, 1978). Additionally, what is strongly stressed regarding the dimension of a strategy, time horizon, even profitability time horizon is critical with regard to the time horizon of particular goals and plans to be attained or the time allotted to make profits (e.g. Chandler, 1962; Pearce and Robinson, 2000). The next criterion taken into account in analysing strategy dimensions is the degree of incrementalism what results in either deliberate strategies or incremental ones (e.g. Mintzberg, 1978). Value creation constitutes the next strategy characteristic in terms of realizing short-term interests of enterprise's shareholders *versus* best long-term value of the enterprise (e.g. Frery, 2006, Krause, 2012). The role of imitation extent *versus* innovativeness one is also highlighted in literature studies describing strategies mainly in terms of the degree to which an organization is focused on making processes innovative or imitated (e.g. Frery, 2006; Grant, 2010). Furthermore, resources allocation issues perceived as crucial due to strategy features like a perimeter tend to be one of very important hallmarks of a strategy understood as the allocation of own or foreign resources as well as deliberate resources' allocation *versus* resources emerging from day-to-day activities (e.g. Frery, 2006; Grant, 2010; Pearce and Robinson, 2000).

Synthetizing strategy dimensions having been presented, the following aggregated dimensions will be taken into account: (a) adjustment to the environment and flexibility in reacting to environmental stimuli, (b) resources' allocation (salience of internal resources); (c) orientation to internal growth, (d) time horizon, (e) salience of managerial goals, attitudes and behaviour.

Inter-Organizational Network and Strategy Dimensions' Intensity – The Research Framework

The research model encompasses an independent variable, dependent variables, moderator and mediator ones. An independent variable constitutes the intensity of network relationships. The strategy dimensions having been aforementioned will be considered as dependent variables. All of the mentioned variables may vary in their extent from low to high.

Consequently, as a result of analysing and synthetizing strategy dimensions in terms of inter-organizational network participation, the initial research framework includes the following hypotheses:

H1: The more intensive network relationships, the higher adjustment to the environment and the higher flexibility in reacting to environmental stimuli, and consequently the more emergent organizational strategy.

H2: The more intensive network relationships, the weaker resources' allocation (more focus on foreign resources).

H3. The more intensive network relationships, the weaker orientation to internal growth (more focus on adaptation and less focus on proactivity).

H4. The more intensive network relationships, the shorter time horizon.

H5. The more intensive network relationships, the less impact of managerial goals, desires, values, attitude, behaviour on organizational strategy character (the higher managerial adaptation).

Additionally, so as to complete the research framework, the moderator variables: network size, centralization level, coherence level, type of dominant relationships, relationship's time of lasting as well as mediator variables**:** management staff characteristics (e.g. personality traits, attitudes/behaviour) have been recognized.

Single case studies performed by the authors show that the influence of inter-organizational network is not obvious. While entering the network, the strategies of some node organizations became more flexible and open, based on external resources, and with shortening time horizon. Those changes are coherent with theoretical considerations. On the other hand, one can observe many instances of organizations which strategies became more narrowed and closed (focused only on the network), more formalised, reactive and rigid (longer time horizon), etc., as the "new" network environment is perceived as more stable and predictable.

Concluding, participating in an inter-organizational network undoubtedly influences the character of an organization's strategy, yet the direction of the influence needs to be verified. It seems that selected dimensions predispose to describe the organization's strategy in an inter-organizational network as variables determined by the character of network relationships intensity.

Conclusion

The paper introduces a framework regarding strategic adjustment to network environment. Synthesizing diverse theoretical traditions that influenced studies on inter-organizational networks, it might be envisaged that the paper offers new insights into established literature, especially it shows a quite different perspective – an organizational strategy triggered rigidly by network relationship intensity.

The future research directions depend significantly on the quality of strategy dimensions' measures, which have not yet been critically evaluated. The purpose of the next research steps is to develop, review, and evaluate the adequacy of the measures employed to capture strategy dimensions' constructs and to complement recent discussions of strategy operationalization (Ginsberg, 1984; Snow and Hambrick, 1980; Venkatraman and Grant, 1986;) and use these measures in *large-n* questionnaire studies. As well as this, the conceptualization highlights some new research areas to be explored, e.g. how a network influences other elements of the whole management system. Single studies of node organizations suggest

that contemporarily network context may be one of the most influential factors in designing and developing organizations.

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Multi-Agent Decision Support System for Evaluating Impact of Intelligent Systems in the Process of Managerial Decision

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Abstract

The paper presents the results of designing and implementing a prototype multi-agent system aimed to evaluate the impact of using intelligent systems for decision-making. In order to develop the decision support system it has been used the 'Modelling-Based Agent' paradigm through which it has been achieved an approach adequate to the intended purpose. The paper shows the model, components and functions of the system.

Keywords: management, decision, multi-agent system, decision support system

Introduction

This paper presents a prototype of multi-agent system that performs impact evaluation of using a Decision Support System (DSS) in making decisions by human decision makers. Research carried out by Williams et al (2007) and Lilien et al (2004) have proven that the use of a DSS system does not always improve the decision quality, but it can help users to understand and better solve a decision problem. Kohli and Devaraj (2004) remarked that the use of a DSS throughout an extended period leads to the improvement of decisions as system outputs. Therefore, it is very important to be understood the way a DSS helps the user to make the best decision.

The research performed so far have not given due consideration to the effect had by expertise in using a DSS in the strategy of decision making and quality of results. Most experiments have tested once a DSS by making preliminary tests on a group of subjects and comparing the results with another benchmark group, which did not use a DSS in decision making. Lack of long-term studies concerning the results of using DSS was imputed to the high cost of investigations. Because of ignoring the system survey, the research results construction can be made from two perspectives: by taking into account the lack of subjects' expertise or, second, a large difference among the subjects' levels of expertise.

1. Prototype Model of the Multi-Agent Decision System

An agent-based economy is a relatively new area that deals exclusively with the study of using agents in solving various kinds of economic problems from a particular field. The purpose of agent-based economy derives from A-Life and consists in creating artificial economies by means of economic interactions among agents who initially have no knowledge about the environment, but have the ability to learn. Then is continued with observing the types of markets, institutions, and technologies, which develop agencies, the way in which they coordinate their actions and how they organize themselves in an economy.

An intelligent decision system can be defined as a system that uses the combination of models, analytical techniques and information retrieved, in order to help develop and evaluate the most adequate alternatives (Sojda, 2002). These systems are focused on strategic decisions and not on operational decisions. More precise, the DSS contributes to

the decrease of uncertainty faced by managers when they need to make decisions regarding future options.

The distributed decision is adequate for solving problems where the complexity is an obstacle to existing only one concept maker for decision elaboration, on the one hand, and on the other hand, to be able to manage the entire problem. Intelligent Decision Systems reduce the time during which decisions are elaborated in the real context, and improve the decisions quality and consistency. The problem raised by their use is that it is based all the time information, experience and knowledge about the process.

The intelligent multi-agent decision support system has been developed using the MBA (Modelling-Based-on-Agents) paradigm and is based on production rule judgment. The system was designed using Jadex platform with the Prometheus methodology. Details about this technology and about how it was used and adapted are presented in the paper.

Used System of Production Rules

A system of production rules (SPR) has as method to represent knowledge the propositional logic and logic of first order predicate, in a declarative and unambiguous manner. The SPR uses an inferential engine for processing rules, replacing in conditions (premises) data and facts to infer conclusions whose results are actions. A first order production rule for knowledge representation has the structure from relation (1). They are stored in the knowledge base of the system and are then subjected to a filtering process.

IF <condition> THEN <action> (1)

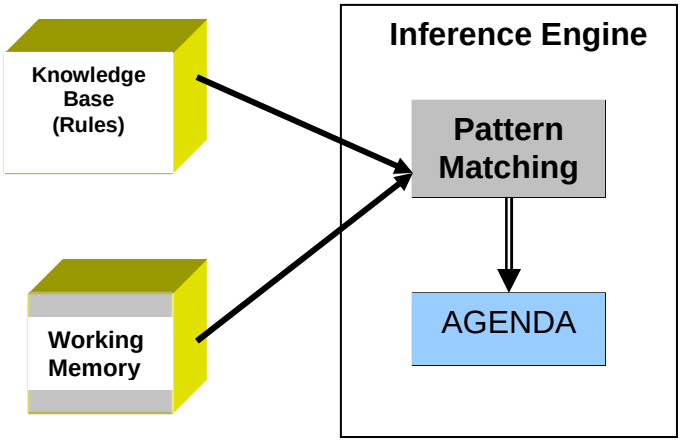


Fig.1. The System Model Rules Production Based

Filtering or pattern matching is the process of extracting some facts existing or new from rules. Inference engines use various algorithms for pattern matching, such as: linear algorithm, Rete, Treat and Leaps. Figure 1 shows the high level of rules processing (filtering).

In the developed system it has been used a Drools engine. Drools is an engine for rules processing which has implemented the forward chaining reasoning based on a strengthened Rete algorithm and which is adapted for the Java language. The processing engine is made up of two main parts: Authoring and Runtime. In the Authoring process, rules are saved in a DRL or XML file, which are entered into a compiler that checks grammatical correctness

and generates an intermediate structure. This structure is then passed to a Package Builder that carries out packaging, shown in Figure 2.

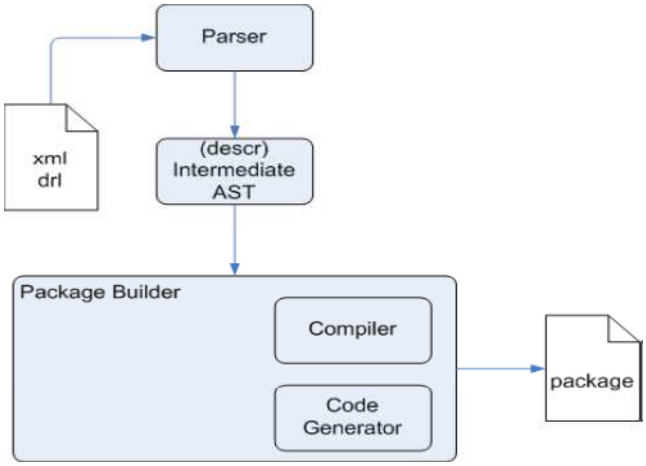


Fig. 2. Authoring components (extracted from Jadex Tutorial)

In the Runtime process several components are involved, as seen also in Figure 3. A base of rules (RuleBase) is a component that contains several packages. These can be added or deleted to/from the base at any time. One or more rules can be instantiated in the working memory (Working Memories). The working memory consists of a number of components that include Working Memory Event Support, Truth Maintenance System, Agenda and Agenda Event Support. Inserting an object can result in the creation of one or more activations and it is the Agenda that has the responsibility for planning their execution.

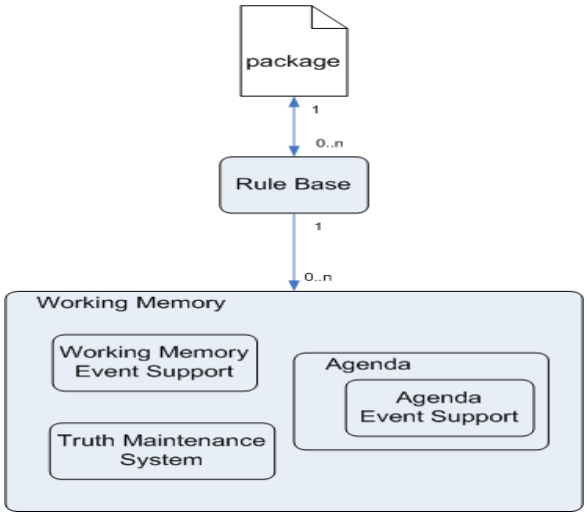


Fig. 3. Runtime components (extracted from Drools Tutorials)

The Inference Engine

The Agenda has Rete characteristics. During Working Memory Action rules can be selected and eligible for execution. One single Memory Working action may result in rules that are more eligible. When a rule is selected, it is created and placed activation in the Agenda. The

Agenda controls the execution order of these activations using a strategy of conflict solving. The inferential engine operates in a two-step recursive manner as can be seen from Figure 4.

1. Working Memory Actions. An action working with the memory takes place most of the working time being a Consequence or a Java main application. As soon as a Consequence has been finished or when the Java main application calls FireAllRules method, the engine switches to the Agenda Evaluation phase.
2. Agenda Evaluation. The Agenda tries to select a rule to execute. If finding the rule, executes it, and unless finds no rule from the existing ones, gets back to Working Memory Actions, and the process recurs until the Agenda becomes empty.
3. The recursive process ends when the Agenda is empty, in which case the control comes to the caller application. During Working Memory actions, no rule is activated.

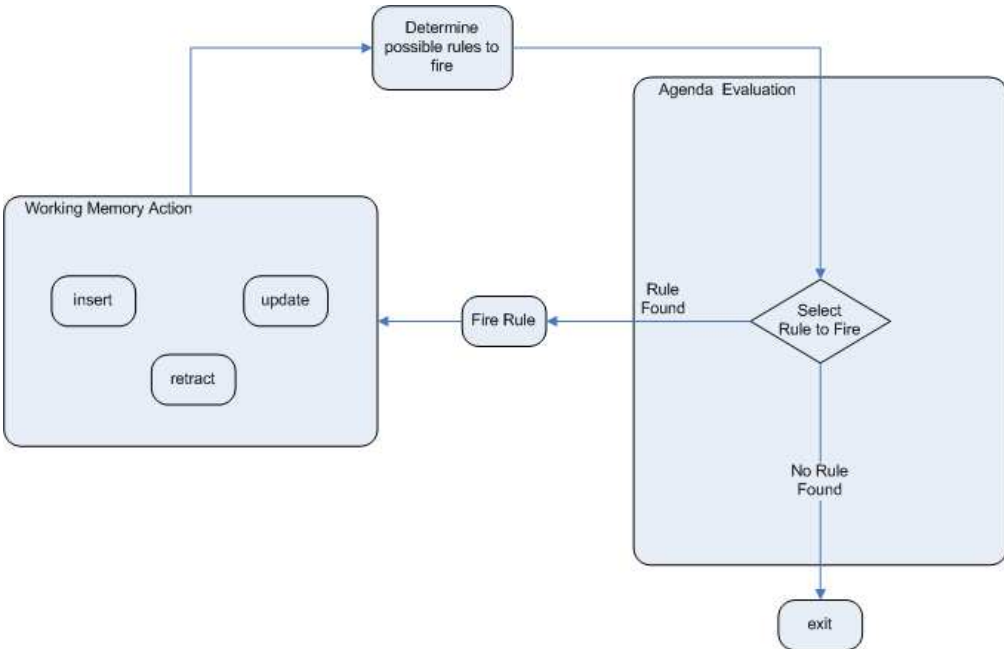


Fig. 4. Execution phases of the inferential engine (extracted from Dools Tutorials)

Maintenance of the consistency (truth value): Let us consider a set of facts. The inferential engine applies facts to the adequate rules and changes them where necessary. If the new facts determine other rules to enter into competition, then they are applied. Eventually, all necessary rules are enabled and facts are stored in the working memory, representing the "true" truth value or at least "true" as it is understood by rules.

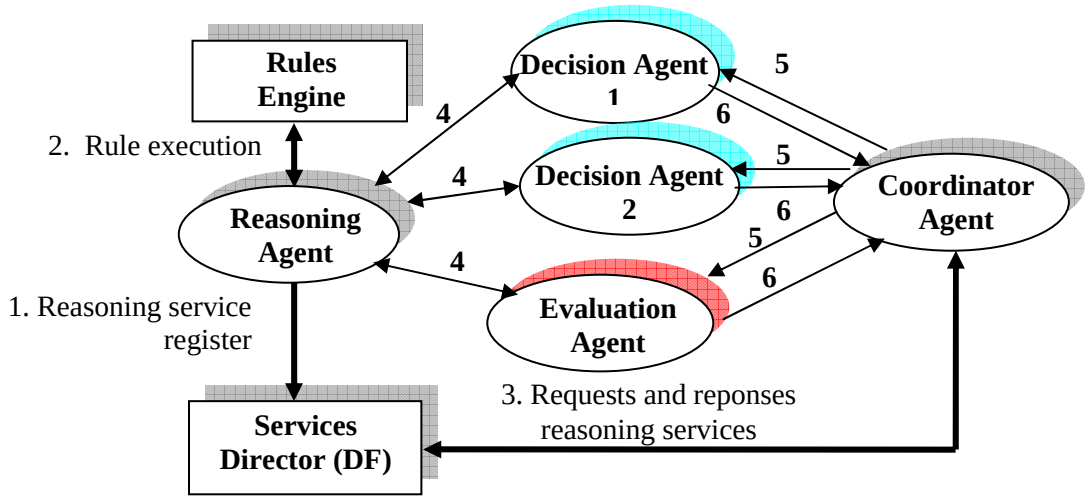
Conflicts solving: When there are one or more actions in the agenda, they are in conflict, which involves the use of conflict solving strategy with the purpose of determining the order of execution. The default strategy for conflict solving in Drools is Priority and LIFO (Last In, First Out). By I, the user can specify which rules have higher priority than others. Therefore, the rule with the highest priority will always be preferred. The LIFO priorities imply that there may be rules that have the same priority and in this case they will be executed according to the queue principle, that is, "first come, first served".

2. Designing and developing intelligent multi-agent decision support system

The purpose of this step is to develop a framework to support the decision making process within the real economic environment using artificial intelligence techniques of the Multi-Agent Systems type and Rule-Based Reasoning.

The software instrument designed and developed enable to simulate scenarios for evaluating the consequences of the decision-making processes. Designing the prototype for the case study has been carried out using the Prometheus methodology (Padgham and Winikoff, 2004) and, respectively, JADEX agents platform (Braubach and Lamersdorf, 2004), which we enlarged it as we will hereinafter specify.

Agent architecture implemented: The multi-agent system prototype is made up of five agents: two agents for one type of decision problem, a coordinating agent and an agent for performance evaluating the decision process and subjects and a reasoning agent (Figure 5).



Legend:
4 – The agent requests reasoning and receives the conclusion
5 – The coordinating agent addresses an expertise application to a certain agent
6 – The called agent returns conclusions to the caller agent.

Fig. 5. System agent architecture (extracted from Novac Ududec, 2015)

Integrating the Drools environment with the Jadex agent environment

The purpose of developing the new system was to extend the Jadex agent platform through adding a rule-based inference mechanism. The Rete-Drools engine of rules has been integrated into a reasoning agent that is capable to execute deductions. In this way, it has been taken the entire BDI functionality of the Jadex platform, including the purpose-guided reasoning and fact-guided reasoning. In addition, it has been achieved a simultaneous mechanism of inference incorporated into agents based on rules.
Knowledge is represented by rules and facts. The rules are specified in a file, and the facts in JavaBeans. The rule engine can create, delete and manipulate objects (facts). The facts are created using builder classes that employ inheritance mechanisms for each field so the engine can access the object. The facts have been entered in the working memory from

Drools and the engine can use these facts assigned in order to evaluate and map the conditions.

The rules are represented in a DRL or XML file. A DRL file is an ordinary text file which can have several rules. The rules are written by using the first-order logic and can be conjunctive rules.

A rule has a part of condition and one of consequence or action. In Drools, the first part is called Left Hand Side (LHS), and the second, Right Hand Side (RHS). In this way, both components from the definition of the „IF-THEN" rule become „WHEN-THEN":

```
rule <name>
attributes
when
        LHS <conditions>
then
        RHS <actions>
end
```

A rule should have a unique name in the package. The attributes are optional and influence the rule behaviour. LHS can have zero or more conditions. If empty, the condition is evaluated to "true". RHS must contain a list of actions that will be executed (for example: inserting, deleting, updating facts).

Reasoning Agent

The reasoning agent ensures the connection among agents and the Drools engine. It is described in Figure 6. The agent creates a service defined in the Directory of Jadex Reasoning Service (Directory Facilitator - DF), offering its service of reasoning.
The rule base and PackageBuilder are stored in the base of beliefs for creating a rule when the reasoning agent is created. These are shown as follows:

```
<belief name= "builder" class="PackageBuilder">
<fact>new PackageBuilder()</fact>
</belief>
<belief name= "rb" class="RuleBase">
<fact>RuleBaseFactory.newRuleBase()</fact>
</belief>
```

The agent has to declare a Jadex plan where will take place all communications with the Drools engine. This plan is executed when the agent receives a reasoning request via the FIPA protocol. When the facts will be assigned in the Working Memory, the filtration process occurs and the the rules will be activated and will start the execution. When finishing deduction, the control is rendered to the application and conclusions are sent back to the coordinating agent.

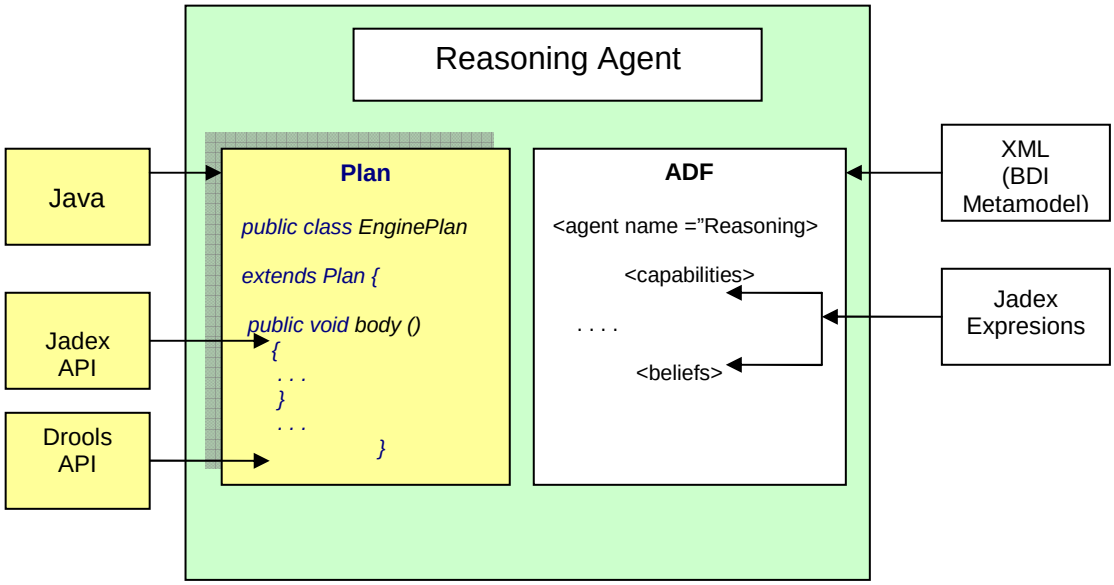


Fig. 6. Reasoning Agent

Coordinating Agent

It is the agent of interface with the user from which it takes over the consultation request of the system which then directs it to the agent of decision corresponding to the request. This agent will receive the consultation results from the decision agents and will transmit them to the evaluation agent, from which will then receive the outcome of evaluation and will make it known to the user. In addition, this agent will receive the results of solving problems by the subjects before employing the system and will transmit them to the evaluation agent.

Decision Agents

The decision agents can be virtually howsoever, one for each decision problem that is intended to be solved. They have their own base of rules. In the case of the presented system, two agents have been designed.
The Decision Agent 1 solves the decision problem of an individual who would want to place an amount of money in deposits or savings depending on certain conditions.
The Decision Agent 2 solves a decision problem of a customer who wants to place a sum of money in various investments. The agent checks the various aspects of individuals' financial image compared to normal environments and provides several opportunities.

Evaluation Agent

This agent, as we have already shown, receives from the coordinator agent the evaluation request together with the results obtained by the decision agents and subjects individually, executes the evaluation and communicates result to the coordinator agent. This agent also has its own base of rules.

Communication and Interaction among Agents

In JADEX, the communication between two or more agents is performed through message-events. Normally these message-sentences appear in the conversation among several agents. The conversation handling mechanism is based on the FIPA message structure in which are used three parameters: conversation-id, in-reply-to, reply-with. The conversation-id parameter has a unique value and groups together more messages belonging to the same conversation. The in-reply-to parameter identifies a message that is a response of a previous message corresponding to the reply-with parameter. The management process of these conversations may be predisposed to errors if managed by the programmer by means of the flowcharts interaction of the messages. Therefore, as an alternative, Jadex provides the possibilities of the Interaction Protocols that implement the FIPA interaction standards. These allows that the agents participating in a conversation be programmed by using abstract request. In the proposed system it has been used Interactions Protocols Jadex.

Conclusions

The decision support systems can restrict the decision making process in three ways: by limiting the available features, restricting the order of operations and by limiting the user control over parameters. The multi-agent system designed and implemented called SISD has proven its usefulness, proving the three working assumptions concerning the impact of using a DSS in decision making. Novac Ududec (2015) presented the results of testing the designed system. The assumptions tested were decision effectiveness, efficiency and quality. The first two assumptions were proven, not the third, in the sense that experience in problem solving leads to a better performance in making decision, but the expertise of a DSS does not have a significant impact.

The DSS users increase their effort investment throughout the working sessions until reaching a certain threshold. This is consonant with the cost-benefit principle that postulates that the major objective of decision makers is both increasing the decision accuracy or quality and reducing the effort.

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Waqf Effeciency Framework In Malaysia

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Abstract

This paper aims to present a conceptual model on the efficiency of waqf that are responsible in collecting, managing and distributing waqf in Malaysia. Waqf is an Islamic religious collected on the rich and well-to-do members of the community for distribution to the poor and the needy as well as other beneficiaries based on certain established criteria according to the Qur'an. The main aim of waqf is to protect the socio-economic welfare of the poor and the needy.The paper reviews and synthesises the relevant literature on waqf as tool of economy growth for Muslim and its efficiency. The paper then developed and proposed a conceptual model to study the efficiency waqf institutions.The paper identifies the appropriate methods to evaluate efficiency waqf institutions. Such evaluations are crucial for the Islamic financial system to function effectively in order to achieve the noble objectives of socioeconomic justice through proper distribution of wealth.This paper presents a conceptual model of efficiency of waqf institutions which would be useful for further empirical research in this area. The findings are not only relevant and applicable to Malaysia but also to other Muslim countries.

Keywords: Waqf, lslamic Wealth, Justice, Distribution

1. INTRODUCTION

Waqf is an act of retaining something for the benefit of others. Kahf (1998) clearly defined it as holding and preventing of a Maal (an asset) for the purpose of using the benefits in meeting its objectives of philanthropy. According to fiqh scholars, waqf is to preserve and hold certain properties solely to provide for certain effort of improving the mankind wellbeing and any utilization of it outside of its main objectives are prevented (Zahrah, 2007).

The terminology of *waqf* originates from an Arabic word, which carries the meaning of restrain (*al-habs*) and restrict (*al-man'*).In detail, *waqf* is defined as a form of direct (*sarih*) or indirect (*kinayah*) property dedication in which the property is restrained and its benefit is only applicable for general or specific charitable purposes. This means, the rights of the *waqf* founder towards the property is restrained from any kind of business transaction, inheritance, gift (*hibah*) or will. Any type of income, revenue or profit gained from the property under *waqf* must also be spent for the general or specific welfare with the intention of the founder to be closer to Allah SWT. Therefore, the property no longer belongs to the owner, is unreturnable to the former owner and is not able to be possessed by anybody. Generally, *waqf* is classified into two – *waqf khayri* and *waqf ahli*. *Waqf khayri* refers to the *waqf* in which its benefit is dedicated for the use of all groups of society. The purpose of this *waqf* is general (*waqf 'am*). While *waqf ahli* refers to the *waqf* that is set for a specific purpose or group. The purpose

of this *waqf* and the target group of receivers are fixed from the beginning, whether it is for family members or a special group of people (*waqf khas*). Whereas *waqf musytarak* is a combination between these two forms of *waqf*. Part of the *waqf* property is dedicated to family members and another part for the use of the public.

Waqf is defined literally as hold, confinement and prohibition. Technically, it is a sadaqah mechanism that is continuous in nature. Waqf assets must be used within a certain domain of usage according to the specification made by one who contributes the waqf. It cannot be disposed of outside of such purpose (Kahf, 2003; Abul Hassan and Shahid, 2010). Thus, it is understood that any property subject to waqf must not be perishable and they are meant to give constant benefits to the society.

Generally, waqf is divided into two kinds which are waqf 'amm (general) and waqf khas (specific). It can also be classified as public and private respectively as pointed out by Hassan (2010). The former refers to the dedication in waqf assets for the benefits of the society at large while the latter refers to the dedication of waqf assets for designated purposes or for the benefits to be enjoyed by certain beneficiaries named by the person who gives waqf.

Sabit and Hamid (2006) illustrated the attributes of waqf, which are irrevocability, perpetuity and inalienability. These characteristics indicate that the assets should be held for a long-time purpose and once it is declared as waqf assets, it cannot be revoked. It will belong to the society and usually, a third party will be appointed as the manager who will undertake the responsibility to manage and oversee the waqf assets. Interestingly, these characteristics require a higher degree of management so as to ensure the waqf assets could sustain for a longer period of time or it could be perpetual and assure that the benefits would withstand.

According to Mazrul Shahir (2012) waqf institutions play a pivotal role in enhancing social welfare. He asserts that the management for waqf institutions need to be improved and equipped with modern approaches in order to ensure better and efficient services are provided to the community. It is understood that public services for Muslims can be provided through waqf system. Waqf is seen as the medium for equal distribution and reduces inequity in the society.

The word waqf is an Arabic word which literally means to stop, to hold, confinement or prohibition (Kahf, 2007b, p. 2). It is a singular form, in which the plural form is *awqaf*. In Islamic law literature, waqf denotes holding certain property and preserving it for the exclusive benefit of certain philanthropy and prohibiting any use or disposition of it outside its specific objective (Kahf, 2007b). Kahf further adds that waqf is an endowment of money or property made for benevolent reasons.

Meanwhile Gaudiosi (1988, p. 1234) states that waqf is "the detention of the corpus from the ownership of any person and the gift of its income or usufruct, either presently or in future, to some charitable purpose". She adds that, while "ownership of the waqf property was thereby relinquished by the founder, it was not acquired by any other person; rather it was 'arrested' or 'detained'".

The word waqf has since been widely used not just by Arabs, but also by Muslims from other parts of the world. This has resulted in different transliterations, such as *wakf, vakf, vakif, vaqf, wakaf* (Islahi, 2003, p. iii). Waqf is also known with different names, such as *habs* in North and South Africa (Kahf, 2007b) and *qadsh* in Hebrew (Gil, 1998, p. 126).

In brief, waqf is a donated property used for the benefit specified by the donor, in which the purpose must be benevolent, normally serving community interests(McChesney, 1991, p. 10). The donor can state his/her intention to do waqf verbally or in writing (waqf deed), although the current practice requires the undertaking to be in writing.

2. ECONOMIES OF WAQF

The question that we may ask is why we classify waqf as economic matters. Let we look it from the basic premise, that is the definition. This definition could be divided into two, language and scholar perspectives. From language perspective, as discussed in Ariff (1991), waqf is spelled out as *Wakfun* and formally known as *Wakf-alal-aulad* or religious endowment. Alternatively, it is typically denoted as a building or plot of land8devoted for religious or charitable purposes.

Scholar such as Imam Abu Hanifah said that waqf means the detention of specific thing in the ownership of waqif and the devoting of its profit, products or other good objects for the poor. Imam Abu Yusuf and Imam Muhammad said that waqf signifies the extinction of the waqf`s ownership in the thing dedicated and detention of all the thing in the implied ownership of God. It shows that its profits may revert to or be applied "for the benefit of mankind". Another scholar, i.e., Kahf (1998), he defines waqf as "holding a *Maal* (property) and preventing its consumption for the purpose of repeatedly extracting its usufruct for the benefit of an objective representing righteousness or philanthropy."

Hence, waqfis very much closed to economic in different aspects: (i) it gives the transfer of *ownership* of the said property to a trustee; (ii) the said property is taken from the owner's wealth such as cash waqf, it reduces the consumption of owner but it create a "transitory" wealth of recipient or it generates benefits of other generation via intra or intergenerational transfer; and (iii) perpetuity concept of waqf remains as long as its asset lasts, hence the accumulation of stocks (or investment) remain with the trustee; and (iv) finally it increases the sources of revenue and expenditure of the trustee.

3. EFFICIENCY WAQF FRAMEWORK

The convenience of assessing the multiple input and output variables of these entities by not requiring congruity and an apriori relationship makes it a very popular management tool in many application areas (Akçay, Ertek, & Büyüközkan, 2012). According to the authors, DEA is a widely used benchmarking tool to evaluate performances and efficiency.

Several papers discussed this in relation to banking or financial institutions' efficiency (Berger, Leusner, & Mingo, 1997; Berger & Mester, 1997; Drake, Hall, & Simper, 2009; Halkos & Salamouris, 2004; Holod & Lewis, 2011). Since there is no publication as yet that discusses the use of DEA in measuring Waqf institutions' efficiency, the measurement of efficiency used for Islamic banks and Zakat department will be referred to as the identified proxy method in measuring the efficiency of Waqf institutions.

Sufian (2009), conducted a study to find the determinants of banking efficiency during Asian financial crisis in 1997 from the Malaysian perspective. The study investigated Malaysian banking efficiency during the crisis using the DEA approach. In his research, Sufian (2010) presented an analysis that employed DEA method on quarterly data to construct the efficiency frontiers. Nor Hayati Ahmad, Mohamad Akbar Noor Mohamad Noor, and Fadzlan Sufian (2010) further provided an empirical study that measured Islamic banks' efficiency throughout all the Muslim countries that were practicing Islamic banking during period of 2003 to 2009. This vast research was dominated with macroeconomic findings that revealed the countries' banking characteristics and economic indicators which were linked with the Islamic banking sector's performance.

Norazlina Abd and Abdul Rahim Abdul (2011) in their paper discussed the efficiency measurement on Zakah Collectors Board in Malaysia. The study examined the determinants of Zakah collection in Zakah institutions and then measured the efficiency of the organization using technical efficiency (TE), pure technical efficiency (PTE) and scale efficiency (SE).

In DEA, Berber, Brockett, Cooper, Golden, and Parker (2011) analyzed the efficiency of SPEs (Social Profit Enterprises) and described social profit as "the amount of social and humanitarian benefit gained as a result of investing in the well-being of others". DEA provided estimates of potential improvements for inefficient DMUs. The study indicated that in not-for-profit (NFP) organisations where market prices or relative values of outputs are not readily available, DEA emerged as a particularly useful service management technique.

Berber et al. (2011) divided the analysis into two stages i.e. Stage 1 for fundraising efficiency and Stage 2 for service provision efficiency. In the study, both stages were considered as two-stage linked DEA analysis for NFP organisations. NFP organisations were noted as different from the private finance sector or banking sector in the above literatures, yet their motive of operation was clearly different. Nevertheless, these findings in finance sector can still be utilized as proxies in this analysis. For example, banking sector uses identical input information which is the number of its staff.

Literally, two-stage DEA has been discussed in Halkos, Tzeremes, and Kourtzidis (2014) as an imperative model for decision maker of a supply chain, a network processes within peer DMUs (Cook & Seiford, 2009), innovative of two parallel sub-processes from a two-stage process (Yu, Shi, & Song, 2013), fuzzy multi-objective stages approach (W.-K. Wang, Lu, & Liu, 2014) and functioning to manage undesirable input-output of two-phase model (Huang & Li, 2013). The idea was pioneered by Seiford and Zhu (1998) and enhanced in detail by Y.-M. Wang and Chin (2010).

The existing multi-stage DEA models can be categorized into two; closed-system and open-system models. In this study we choose an open-system where the second stage input not necessarily from the first stage output.

Table 1 : Waqf Framework 1st Stage : Waqf Collection

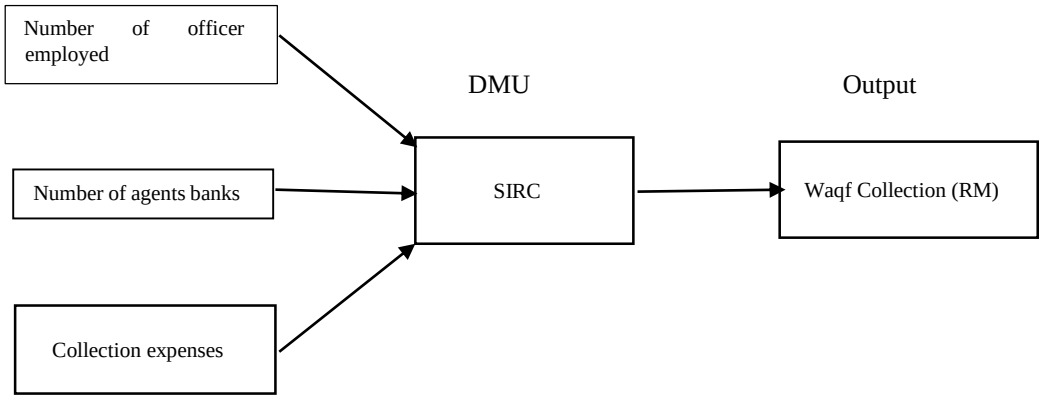
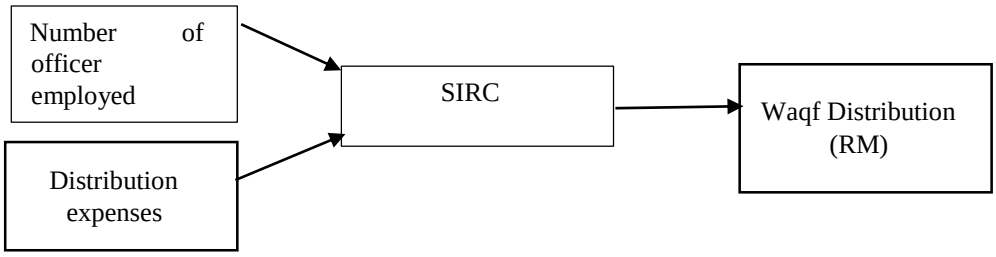


Table 2 : Waqf Framework 2nd Stage



Henceforth in this study, DMU is to represent SIRCs in Malaysia from thirteen states altogether. SIRCs are managed by the state government and Waqf funds are run by each SIRC according to the states' SIRC policies. As in this conceptual analysis of Waqf SIRCs in Malaysia, panel data analysis of its efficiency will consider all the internal information within the institutions to measure the score of efficiency. The analysis will measure TE, PTE and SE of Waqf SIRCs in both constant return to scale (CRS) and variable return to scale (VRS) scenarios.

The data analysis panel would consist both collection and distribution information from the thirteen states' SIRCs in Malaysia by measuring two-stage DEA analysis. The input information for Waqf collection (WC) efficiency will be the number of officer employed, number of agent banks and the collection expenses. The output will be the Waqf collection in the value of currency. From these figures, the efficiency of Waqf collection can be generated.

The analysis will be continued to the second stage which is to measure the Waqf distribution (WD) efficiency by the input information of the number of officer employed (for distribution) and distribution expenses. The output information will be the Waqf distribution in the currency value. Then the distribution of Waqf efficiency score will be measured.

4. CONCLUSION

From this conceptual modelling of the public Waqf efficiency measurement with DEA, efficiency scores according to the specific DMUs studied can be generated. TE measurement would be an accurate indicator to the best management practice of each and every SIRC studied. From the scores obtained in DEA, it would be possible to establish the range of efficiency scores from zero value which equals to zero per cent efficiency to the value of one which equals to a hundred per cent efficiency score. The scores can also establish a benchmark, particularly for the most efficient DMU (SIRCs) to act as the role model for other DMUs in order to evaluate their performances.

Measuring both stages of collection and distribution of Waqf will provide detailed analysis of its operation. Efficiency refers to how well the institutions are using its resources (e.g. the staff, expenditure, etc.) to meet its objectives of socio-economic justice (e.g. long-term objective of reducing poverty)

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Impact des CDS sur le cout de la dette publique : cas de la zone Euro

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Abstract

Les CDS sont des produits diversifiés très récents sur les marchés mondiaux dont l'analyse a suscité l'intérêt des chercheurs depuis leur apparition et s'est amplifié suite à la crise des subprimes en 2008. Ces produits, dont la commercialisation était vraiment rapide et facile, sont devenus l'un des plus importants marchés des dérivés de crédit mais aussi l'un des plus critiqués.

L'objet de ce travail est de répondre à la question : **Quel est Impact des CDS sur le cout de la dette publique : cas de la zone Euro ?**

Afin de répondre à cette question, nous chercherons à détecter le rôle joué par ces produits en situation de crise via l'analyse de la revue de la littérature et nous vérifierons nos résultats théoriques par une démarche empirique portant sur le marché de la dette souveraine dans le cadre de la crise de la zone Euro

Mots clés : CDS, dette obligataire publique, crise souveraine

Introduction :

L'accroissement des risques menaçants le système financier à inciter l'émergence de plusieurs produits de couverture. Ce travail se focalise sur l'un de ces produits à savoir le marché des swaps sur défaillance de crédit(CDS).C'est un contrat par lequel un vendeur de protection s'engage en contrepartie d'une prime appelée spread de CDS de dédommager l'acheteur en cas d'événement affectant la solvabilité d'une entité de référence.

Les CDS peuvent être un moyen d'alarme contre toute perturbation touchant la dette. D'ailleurs, selon Ismailescu et Kazemi (2010), dans un cadre d'étude menée sur les conditions des marchés émergents, l'utilisation des primes de CDS aide les participants au marché d'obtenir des estimations des changements défavorables de la qualité de crédit. Donc, les CDS peuvent présenter à la fois un moyen d'influence et de réflexion des conditions du marché de la dette.

Cependant, la détermination du signe et de la nature de la relation existante entre les deux marchés reste une tache assez complexe. Certains considèrent que les CDS favorisent la confiance dans tout le système financier ainsi, ils favorisent la stabilité du marché(Geithner(2006) et Greenspan(2005)) en permettant le transfert de risque pouvant lui créer une source de perturbation puisqu'ils réduisent la concentration des expositions individuelles des banques ainsi qu'ils favorisent la répartition du risque de crédit plus largement à ces parties.

C'est un point de vue très critiquable puisque d'autres chercheurs démontrent que la faible transparence des CDS a amplifié les phénomènes de défiance et d'incertitude quant à l'exposition globale et la valorisation des produits des principaux intervenants financiers desquels : Brown(2010).Dans ce cas une nouvelle hypothèse est soutenue par la littérature insistant à ce que les CDS ne sont en aucun cas stabilisateurs mais perturbateurs du marché financier. La seule explication de cette contradiction est la différence dans le cadre d'étude en termes de pays et de période.

Une analyse de la littérature sur la relation CDS/Taux d'intérêt d'une dette nous mène à deux types de relations soit une relation négative ou bien positive. Pour le cas d'une relation positive, les taux d'intérêts suivent positivement toute évolution des CDS donc augmentent suite à l'augmentation du recours au CDS et inversement. Ce résultat a été soutenu dans la littérature par plusieurs chercheurs parmi lesquels nous citons : Hirtle(2008), Minton et al(2006), Naifer(2008), Norden et Wagner (2008) et autres.

Contrairement, si nous sommes face à une relation négative, nous devons constater qu'une demande supplémentaire des CDS réduit le coût de la dette. Cette hypothèse a été aussi soutenue par certains travaux tel que Aschcraft et Santos (2009) et Ken Ho-Yu, Yen Yu Hsio & Lo Wen-Chi (2010).

Quel que soit le signe de la relation, nous pouvons confirmer qu'il s'agit bien d'une relation étroite d'arbitrage entre spreads des CDS et ceux des crédits selon les travaux de Duffie(1999) et (Hull et White(2000)). Cette relation est liée à des difficultés énormes quant à la prise de décision de son signe surtout que les chercheurs ne se sont pas mis d'accord sur ce point en présentant des résultats différents.

Notant que la crise a affecté tous les marchés financiers spécialement celui de la dette et celui des CDS. Alors, il reste à analyser si les CDS jouent un rôle de freinage des niveaux des taux d'intérêt en crise ou bien qu'ils aggravent la situation au sein du marché de la dette publique en incitant à une hausse des taux.

Notre travail commencera par la revue de la littérature à la laquelle nous chercherons à détecter la relation théorique entre les CDS souverains et le cout de la dette dans un cadre de crise essentiellement la crise souveraine de la zone euro. Par la suite, nous passerons à une vérification empirique commençant par la méthodologie consistant à la présentation du modèle mettant en relation les spreads de rendements obligataires souverains de la zone euro et les CDS souverains. Plusieurs modèles intermédiaires seront utilisés dans l'estimation par l'incorporation de variables de contrôle. Le choix de ces variables est soutenue par la littérature : Gauthier et Lardic (2003),Norden &Wagner(2008) et Fontana et Scheicher(2016).Ces données sont collectés auprès des sites www.sandpindices.com, www.investing.com, www.global-rates.com et www.stoxx.com.

Enfin, notre travail s'achèvera par la présentation des résultats, la discussion et les conclusions sur le signe de la relation entre les primes de CDS et le cout de la dette publique.

1) Revue de la littérature :

Généralement, les CDS facilitent significativement la commercialisation du risque de crédit lorsque les coûts de financement sont faibles et permettent aux intervenants sur le marché de dépasser des courts risques de crédit aussi facilement que des longs risques de crédit (Longstaff, Mithal et Neis, 2005). Ceci reste vrai dans un cadre caractérisé par des taux d'intérêts faibles donc un cadre de stabilité. Sauf que pendant la crise, le coût de financement s'il est vraiment disponible, il a augmenté en réduisant ou éliminant le retour des arbitragistes (Fontana, 2010).

Sachant bien que suite aux recours aux CDS des liens étroits de dépendance semblent exister entre les entités. Si cette situation s'associe avec le cadre de crise déjà caractérisé de multiplicité des faillites, le risque de détérioration de la qualité de crédit sera beaucoup plus fort et les répercussions des CDS sur le marché de la dette seront plus intenses. Ces répercussions porteront spécialement sur les niveaux de taux d'intérêt. Ce résultat est confirmé par la littérature puisque Cont(2010) affirme que ces produits ont été souvent accusés de porter atteinte à la stabilité financière en période de crise.

Au meilleur de notre connaissance, ils sont rares les travaux empiriques sur la relation entre marché des CDS et coût de la dette obligataire publique pour les pays développés de la zone Euro en crise ce qui explique la complexité de prise de décision quant au signe exacte de cette relation.

Notre étude sera donc tournée vers la détection du rôle joué par les CDS souverains en crise souveraine essentiellement à fin de confirmer ou d'infirmer par la suite d'un travail empirique le caractère déstabilisateur des CDS sur la sphère financière en période de tension.

La crise souveraine est à la base une crise de la dette publique due à une augmentation excessive des dépenses des gouvernements en matière d'aide sociale, de chômage….Ces dépenses sont associées à des destinations non ou peu productrices de richesse au détriment des investissements qui ont été négligé par les gouvernements par pression du cadre social.

Ces dettes ont pesé sur les gouvernements de plus de la conjoncture assez difficile essentiellement suite à la crise financière 2008. Des actions de soutien du système financier associées à une récession économique et une conjoncture défavorable à l'investissement n'ont fait qu'aggraver la situation des pays endettés.

La solution la plus facile pour ces pays était d'augmenter leurs dettes publiques pour trouver les moyens financiers nécessaires pour de tels actes de régulation, ce qui a favorisé **un phénomène de boule de neige de dette gouvernementale.** D'ailleurs, c'est dans les pays dont les finances publiques étaient déjà précaires que la dette a augmenté le plus vite (Boone et als(2010)).Cependant, cela a exigé une augmentation des primes de couverture de ces marchés.

Les premiers signaux de la crise souveraine ont été sentis suite à l'annonce des déficits publics record de la zone euro. Cette annonce a été accompagnée par un mouvement de panique et d'une vision plus sévère du niveau du risque des marchés de la dette publique.

La perception générale de la dette souveraine a été remise en cause par les chercheurs et les intervenants sur le marché financier. Cette dette a été souvent considérée comme une valeur sure, d'ailleurs certains considère qu'elle fuit au risque et qu'elle ne présente aucune source d'inquiétude pour le marché et ses intervenants.

Une idée qui s'est avérée assez loin de la réalité essentiellement dans le cadre de la zone euro ou le déficit budgétaire gouvernemental majoré par un niveau d'endettement élevé des pays à pousser le système financier vers une situation très compliquée.

La phase périodique de ce problème gouvernemental majeur ne fait qu'aggraver la situation. Une phase à laquelle les états ont été obliger de soutenir leurs systèmes monétaires(les banques) en se comportant comme garant ou même en cherchant à les épauler dans leurs combat de survie par la recherche de ressources de fonds propres.

Ces efforts gouvernementaux très poussés en matière de régulation de la crise de la dette publique, la situation reste encore précaire touchant essentiellement la zone euro ce qui suscite l'intérêt de plusieurs chercheurs et intervenants sur le marché financier.

D'ailleurs, selon Dieckmann et Plank(2011), il existe un transfert de risque du privé au public suite aux interventions gouvernementales. Ce transfert est plus important pour les pays appartenant à l'union monétaire européenne que pour les autres.

Ce transfert de risque s'associe à un cadre susceptible de choc et surtout à la favorisation du processus de contagion. Tabak et al(2016), définissent la contagion comme une augmentation de la corrélation entre deux marchés en crise. Donc, une augmentation des niveaux de prix des prix sur un marché s'accompagne par une augmentation imprévue des niveaux des prix sur un autre marché qui lui est corrélé favorisant une transmission imprévue de choc entre les deux marchés(Dungey et al(2004))

Puisque la crise souveraine de la zone euro était plus prévisible que la crise des subprimes (Hsiao et Morley(2015)), les intervenants sur le marché de la dette souveraine ont cherché une source de sécurité ce qui a favorisé le développement du marché des CDS souverain suite à la crise. Selon Olléan-Assouan(2004), les CDS souverains sont nés de l'intérêt des investisseurs pour une couverture préventive du risque pays.

Ces produits forment un marché relativement restreint par rapport à celui des obligations. Cependant, plusieurs chercheurs considèrent que le marché des CDS reflète parfaitement la situation du marché. D'ailleurs, ils considèrent qu'il est capable de donner des signaux préalables à un incident de défaut. Ainsi, les spreads des CDS présentent une bonne source de données pour tester la contagion puisqu'ils servent de mesure des probabilités de défauts (Kalbaska et Gatkowski(2012)).

Les chercheurs ont longtemps considéré qu'il n'existe pas de différence entre spreads de CDS et ceux des rendements d'obligations souverains. D'ailleurs, à ce sujet Duffie(1999) et Hull and White(2000) ont trouvé une relation de parité entre spreads obligataires et spreads des CDS dans le cas d'absence d'opportunité d'arbitrage. Pourtant, d'autres considèrent qu'ils existent des différences entre les deux spreads (Dellate et al (2011))et (Mithal et Neis(2003))

Théoriquement, ce sujet est à présent un centre débat surtout avec les évolutions conjoncturelles récentes. D'ailleurs plusieurs chercheurs ont analysé l'existence et le signe de la relation entre spreads de CDS et ceux de la dette obligataires. Hull, Prescu et white (2004) démontre que cette relation existe de même pour Dellate et al (2011) qui insistent à ce que qu'on doit être dans le cadre de mêmes entités de mêmes maturités.

Ainsi, Giovanni Calice et al (2011) trouvent qu'il est possible de considérer l'existence d'une relation de causalité entre l'augmentation des spreads obligataires et ceux des CDS pour la majorité des pays fortement touchés par la crise (Grèce, Portugal et Ireland).Ce point de vue est soutenue par Norden et Weber (2004), Blanco et al (2005),Zhu(2006) et Baba et Inoda(2007) qui considèrent que les innovations sur le marché des CDS ont tendance plus grande à se répercuter sur les spreads obligataires que l'inverse.

Une confirmation soutenue par le travail de Coudert et Gex(2010) qui estiment que le marché des CDS devance le marché obligataire même hors de périodes destinées à la baisse (hors crise).De même, pour Blanco, Brennan et Marsh(2005) qui estiment que le processus de découverte de prix de passe toujours sur le marché des CDS.

Notant que les CDS souverains sont encore loin d'être assez compétitifs face aux CDS corporate .Cela est due à la taille de ce marché qui reste encore très réduite à cause de la perception générale du niveau de risque des gouvernements qu'on considérait inexistants ou très réduits. Cette vision du risque fait que le volume total des dettes publiques protégées via CDS souverains est encore très loin du volume total des dettes souveraines sur le marché contrairement au marché de CDS corporate qui est plus grand que le marché de la dette auquel il est attribué grâce au phénomène d'accumulation de contrats.

L'impact de l'échange des CDS souverains sur l'évolution du coût d'une dette a commencé à susciter de l'importance et de l'intérêt des chercheurs avec le développement des volumes des transactions sur ces marchés. Brunnermeier et als(2013) estiment que les liens existants entre spreads des CDS et spreads obligataires peuvent par le phénomène de « la queue qui agite le chien », aboutir à la propagation de chocs partant des marchés des dérivés vers les marchés au comptant augmentant ainsi les couts de financement.

La plupart des études antérieures sur ce sujet (Blanco, Brennan et Marsh (2005),……..) ont démontré que les spreads des CDS influencent les spreads de crédit. Dans ce cas, c'est très intéressant de voir si l'effet provoqué

par ce type d'engagement s'avère positif ou bien négatif sur le marché de la dette publique surtout en période de crise caractérisée déjà d'augmentation des niveaux de risques et de craintes des défaillances.

La phase actuelle à savoir celle d'une crise souveraine de la zone euro, nous a incité à tester la relation entre spread des CDS et spread des rendements obligataires souverains de la zone Euro.

Ainsi, la détection du signe de cette relation nous indiquera le pouvoir d'influence des CDS sur la stabilité de marché financier et le redressement du cadre de la dette publique. Ainsi l'impact de ces produits sur le cout de la dette publique.

2) Méthodologie :

Notre travail portera sur la zone euro. Ce choix est expliqué par la période à laquelle fait face cette zone. Une période caractérisée de stress et de pression énorme due la crise de la dette publique.

Cette crise souveraine a commencé à prendre de l'ampleur et d'être un sujet d'inquiétude dès les débuts de l'année 2010 ce qui explique notre choix de la période d'étude à savoir **du 22 mars 2010 jusqu'au 22 février 2016 sous forme de données journalières.**

L'objet de cette partie empirique est de répondre à la question : **Est-ce que le recours au marché des CDS affecte négativement le cout de la dette publique en période de stress ?**

Afin de répondre à cette question nous estimerons le modèle de régression linéaire suivant :

$\Delta crédit\ souverain_t + = \beta_0 + \beta_1 \Delta crédit\ souverain_{t-1} + \beta_2 \Delta CDS_{t-1} + \varepsilon_t$

$\Delta crédit\ souverain_t$ = représente les évolutions des spreads des rendements de la dette obligataire souveraine à la date t

$\Delta crédit\ souverain_{t-1}$=représente les évolutions des spreads des rendements de la dette obligataire souveraine à la date t-1

ΔCDS_{t-1} = représente les évolutions des spreads des CDS souverains à la date t-1

ε_t= représente le terme d'erreur

Il s'agit du modèle de base **(modèle 1)** à partir duquel nous chercherons à comprendre la relation entre les spreads des obligations souverains et ceux des CDS après avoir présenté au cadre de la partie théorique la relation entre spreads de crédit et les évolutions du taux d'intérêt.

Plusieurs autres modèles auxiliaires seront mises en place à fin de répondre à notre problématique. Tout d'abord, nous chercherons à voir l'impact des autres variables de contrôle sur les spreads de la dette obligataire souveraine en commençant par la variable « indice de prix à la consommation harmonisé » et en ajoutant les autres variables présentés dans le tableau suivant une par une.

Tableau 1: Les variables utilisées :

Variable	Définition
Crédit souverain	Spreads de rendement des obligations souveraines
CDS	Spreads des CDS souverains
IPCH	l'indice des prix à la consommation harmonisé de la zone euro
CHANGE	le taux de change : Euro/dollar
EUROSTOXX	un indice boursier européen

Enfin, nous ajouterons à nouveau la variable " spreads des CDS" pour voir l'impact de cette variable en présence des autres variables macro-économiques du marché de la zone euro.

Nous commencerons en premier lieu dans le cadre d'un deuxième modèle **(Modèle 2)** par le test de la relation entre indice de prix à la consommation harmonisé et les spreads de la dette obligataire souveraine.

Par la suite nous ajouterons une autre variable au deuxième modèle qui est les évolutions du taux de change Euro/dollar pour former le troisième modèle **(Modèle 3)**. Puis, nous ajouterons à ce dernier la variable « évolution d'un indice boursier européen Eurostoxx »dans le cadre d'un quatrième modèle **(Modèle 4)**.Ce modèle regroupera toutes les variables macro-économiques et essaye de voir l'impact de ces variables sur les évolutions des spreads de la dette obligataire souveraine de la Zone Euro.

Pour mieux comprendre l'impact des évolutions des spreads des CDS sur les spreads de la dette obligataire souveraine, nous ajouterons au quatrième modèle la variable explicative de base "évolutions des spreads des CDS" pour former un cinquième modèle **(Modèle 5)**.

Nous nous concentrerons essentiellement sur deux modèles dans notre analyse qui sont le premier et le cinquième modèle pour cerner le rôle exacte des CDS tout seul sans prise en compte d'autres variables et avec prise en compte des variables macro-économiques du marché et effectuer par la suite une comparaison entre les deux cas.

Dans le cadre de cette partie nous tenterons d'accepter ou de rejeter l'hypothèse suivante : **Les évolutions sur le marché des CDS favorisent la déstabilisation du système financier en augmentant les engagements publics en termes de taux d'intérêt**

Le taux d'intérêt d'une obligation suit une relation inverse aux évolutions des spreads de des rendements obligataires donc il augmente lorsque ce dernier diminue et diminue inversement.

Une relation positive ($\beta_2 > 0$) entre spreads souverains et spreads des CDS signifie que le recours au marché des CDS se traduit par une augmentation des spreads de la dette souveraine. Ces derniers sont reliés inversement au taux d'intérêt. Dans ce cas, un recours au marché des CDS augmente les spreads de rendements de la dette souveraine et réduit le coût de la dette publique.

Par ailleurs, une relation négative ($\beta_2 < 0$) entre spreads de la dette obligataire souveraine et spreads des CDS signifie que le recours au marché des CDS se traduit par une diminution des spreads souverains. Ces derniers sont reliés inversement au taux d'intérêt. Dans ce cas, un recours au marché des CDS réduit les spreads de rendement de la dette publique et s'accompagne par une hausse du coût de la dette publique.

Nous pouvons conclure alors que si $\beta_2 < 0$ on accepte H

Sinon on rejette H

3) Résultats et discussions :

Après avoir effectué le test de stationnarité nous avons trouvé que seule la variable crédit souverain est stationnaire à niveau. Pour les autres variables, ils ne sont stationnaires qu'en différence première.

Tableau 2 : Les résultats de l'estimation par MCO du modèle de base et de ses extensions.

	Modèle de base		**Modèle2**		**Modèle3**		**Modèle4**		**Modèle5**	
	Coef	Prob	Coef	Prob	Coef	Prob	Coef	Prob	Coef	Prob
d(crédit souverain(-1))	-0.222846	0.0***	-0.222118	0.0***	-0.221931	0.0***	-0.222073	0.0** *	-0.222764	0.0***
d(CDS(-1))	-0.006866	0.5265							-0.006818	0.5305
d(ipch(-1))			0.000725	0.9923	-0.001378	0.9856	0.001397	0.9870	-0.000651	0.9941
d(change(-1))					0.000459	0.9477	0.000479	0.9464	0.000178	0.9806
d(eurostoxx(-1))							2.93E-07	0.8599	2.76E-07	0.8698
Obs	1480		1583		1554		1523		1478	
R squared	0.049643		0.049336		0.049273		0.049386		0.049663	

* :significative pour 10%

** :significative pour 5%

*** :significative pour 1%

Pour le modèle de base *:*

La variable $\Delta crédit\ souverain_{t-1}$ a un effet négatif est significatif à l'ordre de 1% par contre la variableΔcds_{t-1} a un effet négatif mais non significatif.

Pour le modèle 5(Extension avec prise en compte de la variable CDS) *:*

Seule la variables $\Delta crédit\ souverain_{t-1}$ est significative respectivement à l'ordre 1%.Pour les autres variables, Δcds_{t-1} et $\Delta ipch_{t-1}$) ont un effet négatif et non significatifs contrairement aux variables $\Delta eurostoxx_{t-1}$ et $\Delta change_{t-1}$ qui ont un effet positif.

En appliquant le test de white, nous avons trouvé que la probabilité est égale à 0.0000 qui est largement inférieur à 0.05 donc les erreurs sont hétéroscédastiques. De point de vue corrélation, le test de Durbin Watson indique une valeur de 1.988519. Ce résultat signifie qu'il n'y a pas d'autocorrélation des erreurs

Pour l'analyse de la normalité des erreurs, le coefficient du degré d'asymétrie de la distribution (skewness) est égal à -14.97527 .La distribution décalée à droite de la médiane, et donc une queue de distribution étalée vers la gauche.

Ainsi le coefficient d'aplatissement (kurtosis) mesurant le degré d'écrasement de la distribution est égal à 432.9578. Dans notre cas la distribution est plutôt pointue (leptokurtique).Quant à la probabilité associée au test de Jarque Bera (0.00000), elle est inférieure à 0.05 ce qui implique qu'il n'y a pas normalité des erreurs.

Tableau 3 : Les résultats issus de la comparaison entre le modèle de base & l'extension du modèle avec prise en compte de la variable CDS :

	Modèle de base		**Modèle avec extension**
β_2	-0.006866	<	-0.006818
R squared	0.049643	<	0.049663

Le coefficient des évolutions des spreads des CDS souverains β_2 est négatif donc on accepte l'hypothèse que ce soit dans le modèle de base ou le modèle d'extension(modèle 5) ce qui fait qu'il existe une relation négative entre les évolutions des spreads des dérivés sur défaillances(CDS) et les évolutions des spreads de dette obligataire souveraine.

Ce résultat signifie qu'une augmentation des spreads des CDS souverains (donc une augmentation du coût de la protection via CDS) réduit les spreads des rendements des obligations souveraines.

Les prix des CDS souverains augmentent avec l'augmentation de la demande de ces instruments sur le marché suivant ainsi la loi de l'offre et de la demande. Par conséquent, le recours aux CDS (exprimé par l'augmentation de la demande) augmente les prix de ces derniers et augmente parallèlement les taux d'intérêt sur le marché de la dette.

Le non significativité des résultats peut être expliqué par la différence énorme entre marché de la dette obligataire publique et marché des CDS souverains en termes de taille. Ce dernier reste un marché émergent et donc de taille faible par rapport au marché de la dette publique assez développés surtout suite à la crise des subprimes.

En comparant les deux modèles nous remarquons que la qualité d'ajustement s'améliore avec la prise en compte des autres variables macroéconomiques. Quant aux relations de ces derniers avec les évolutions des spreads de la dette obligataire souveraine, ils seront analysés dans le cadre du tableau suivant.

Tableau 4 : Synthèse des résultats des variables de contrôle

Variables	**Evolutions attendues**	**Résultats MCO**
EUROSTOXX	+	+
CHANGE	+	+
IPCH	-	-

En cas de recours au marché de la protection via CDS, la demande de ces produits va augmenter donc les primes demandées pour les détenir vont augmenter de même. Ce phénomène s'est dévoilé suite à la crise des subprimes en 2008 et s'est accentué avec la déclaration des déficits des pays par la suite d'un niveau de dette publique énorme. D'ailleurs le marché des CDS souverains qui était très réduits jusqu'à 2010 a commencé de s'agrandir par la demande de protection en hausse suite à la réalisation des niveaux des risques élevés sur les marchés monétaires et financiers surtout le risque souverain qui était sous-évalué par les intervenants de marché pour longtemps et qui s'est déclaré présent et menaçant pour toute la zone Euro.

L'augmentation des niveaux de risques sur le marché est associée à une perception plus exigeante des acheteurs d'obligations publiques qui seront plus strictes en matière de rendements exigés .Ils exigeront un rendement supérieurs pour accepter de supporter un nouveau niveau de risque d'Etat qu'ils estiment supérieur.

Ces nouvelles exigences se répercutent surtout sur les niveaux de taux d'intérêt reliés aux obligations. D'ailleurs, la nouvelle rémunération des obligations devra être supérieure parallèlement au risque en hausse.

Cette augmentation des taux pèsera sur les états émetteurs d'emprunts obligataires et donc constituera une charge supplémentaire pour ces pays qui sont déjà en crise de surendettement.

Les CDS souverains ont donc contribué à enfoncer les déficits des pays de la zone euro et à masquer la vraie facette de risque du marché. L'effet crise a divulgué le vrai risque fournit par cet outil de couverture. Il a permis donc de changer la perception vis-à-vis de cet instrument.

Conclusion :

Nous pouvons donc conclure que les CDS n'ont pas joué le rôle attendu en crise soit l'atténuation des niveaux de risques des Etats. Au contraire, ils ont présentés une source de déstabilisation puisque l'agrandissement de leur marché a favorisé l'accroissement des couts en termes d'intérêt sur les obligations souveraines. Cet effet déstabilisateur du marché favorisé par les CDS est expliqué par les problèmes reliés à ce marché.

Ces produits ont créé un terrain favorable à l'émergence de la crise par leur caractère très opaque et ils ont aggravé en quelques sortes la situation du marché dans cette période. D'ailleurs, comme nous l'avons déjà montré, l'interaction de ces produits avec le marché de la dette en crise a favorisé une mauvaise estimation des perturbations futures du marché.

Nos résultats convergent avec les résultats d'Ashcraft & Santos(2009) qui ont trouvé que dans la majorité des cas le recours au marché des CDS ne permet pas la réduction du coût de financement de la dette malgré les différences en termes de cadre d'étude entre crise hypothécaire et souveraine et de marché étudié entre marché de dette bancaire et publique. De même, Hirtle(2008) a trouvé que bien pour les petits que grands emprunteurs, l'effet d'un accroissement de la protection via dérivés de crédit a un impact négatif sur les nouvelles dettes. Donc, il permet l'augmentation des coûts qui leurs sont reliés.

Les CDS qu'on considérait capables d'alléger le déficit des pays par l'amélioration des prévisions de stabilité des marchés obligataires et donc l'atténuation des couts associés à ces dettes, n'ont fait que creuser les déficits des pays. Ils n'ont pas été à la hauteur des attentes des marchés surtout sur le plan informationnel. A ce sujet, Longstaff, Mithal et Neis(2005) considèrent que les spreads des CDS présentent une information pour la mesure de défaut. Une mesure dont l'évaluation a besoin d'être révisée pour une meilleure estimation des risques de marché et une meilleure prévision des possibilités de contagion de chocs entre les marchés.

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Economic and financial analysis of factors affecting growth of Mexican business.

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Abstract

The complex business world faces global challenges that make difficult to create business as well as survive and grow up at the same time. In Mexico most of its companies are micro, small and medium-size that constitute an important contribution to the gross domestic production and the employment creation. The study of economic and financial factors that influences the growth with the purpose of identify strategies that allow the sustained growth of smaller companies. The progress of this work up to today is the literature review and the methodological design for the accomplishment of the objectives.

Keywords: sales growth, financing, age, size.

Introduction

Researches on entrepreneurism growth has been increasing according to bibliometric analysis WoS ISI 1980 until March 21, 2016, exist 356 documents among articles, proceedings papers, book chapter and review ; which in their titles include "business growth" . There are two researches of Mexico, the first includes the importance of government support through access to finance, technology and strategic alliances in subsistence enterprises and the Second one is an analysis of the sources of asset growth of large multinational companies located in Mexico, (Toledo, A., Hernandez, J. D., and Griffin, D., 2010).

In the country the size of business is established according to the Official Gazette published on June 30, 2009; this work is considered the criterion the range of number of workers. 99.8% of economic units are Micro, small and Medium (Mipymes), employ the 71.20% of workers and participate with

the 35.90% of gross production. Bigger companies contribute with 64.10% of gross production and generate the 28.80% of employment; we denote the economic and social importance of smallest enterprises, as well as the importance in the gross production of the biggest ones, according to data published by the National Institute of Statistics and Geography (INEGI, 2014).

On the other hand, the life expectancy of companies in Mexico, depends on how long they have been in business. Newly created businesses have a probability of existence of 7.7 years and those 20 years old have a life expectancy of 21 years. It is showed that as older is greater life expectancy. Mexican Mipymes nationwide that survived were 78%; grew 6.3%, for every 100, there are 6 more between 2009 and 2012, INEGI, (2013). So, we notice that growth is an important phase of the life cycle in a lucrative company.

Therefore it is interesting to analyze the causes that explain that some companies stay longer than other ones. The main objective is to understand the key economic and financial factors that contribute to sustained business success that enhance growth in Mexican companies. To this end, they analyze companies that obtained higher growth in sales at the end of 2015, according to financial information published in Expansion magazine and software Economatica of Mexico. It is planned to analyze the factors affecting the growth of big business and how its capabilities can be implemented by smaller companies in such a way that allows them to consolidate and grow (Fuentes, C.D., 2008: pp. 27-28).

Preliminary results of the review of the literature realize that the variables that affect the sales growth are among others: macroeconomic analysis based on the neoclassical model, size, age of the company, economic sector, the nature of the property, capabilities and resources, the sex of their owners or managers, market financing equity and private debt of small businesses as well as optimal capital structure in different parts of the cycle, external business advice, high technology, innovation, skill level of the workforce, export, (King, R. G., Plosser C.I., and Rebelo S.T., 1988; Cliff, J. E. 1998; and N. Berger, A. and G. F. Udell, 1998; Robson, P.J.A and R.J. Bennett, 2000). Other research is related to the construction of an integrated model for small business growth (Wiklund, J., H. Patzelt, H., and Shepherd, D.A. 2009). Business growth is measured through the increase in total

assets, sales, revenues, costs, financing, number of employees, net investment, leadership, corporate culture, (Blazquez, F., Dorta, J.A. and Verona, M.C., 2006; Amat, O. and Lloret, P., 2014).

For these reasons, the hypothesis is about the sales growth with the implementation of flexible business models revenues, costs, investments and financing, along to strong values such as culture, innovation, technology, export, consultancy, efficiency, sex owners or managers, size, age and economic sector.

The methodology is mixed and is based on three main lines of work:

1. Case studies of higher growing companies, using grounded theory through comparative documentary analysis of annual reports, through matching qualitative variables, with Atlas Software Textual Ti.

2. Calculation of regression analysis least squares in two phases and the logarithmic decay based on quantitative methodology of relations between independent and dependent variables.

3. Design of a comprehensive model for the growth of Mexican MSMEs based on the application of surveys to a representative sample, in order to identify economic and financial factors that affect the sales growth of this size of companies, containing the variables according to the literature review as well as those resulting from points 1 and 2 above.

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Technical Reserves in Insurance

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Abstract

For the basic characteristics calculation the mathematical-statistic methods are used. For the trend function parameter estimate the smallest square method known from the regression analysis is used. The source of analysis is the data set published by the National Bank of Slovakia from years 2004 – 2014. Based on the thesis results we can state that in the life insurance the growth of the technical insurance continues, on the other hand the structure among various sectors has changed. In the non-life insurance the negative trends continue in car insurance.

Keywords: insurance market, macroeconomic indicators, insurance, prediction

Introduction

These resources represent a process of placement of temporarily available financial resources to the financial market for the purposes of their return and profit generation. Insurance companies therefore handle such property very carefully because it is covered from these technical reserves serving for coverage of risks of insurance and coverage activities. It is therefore suitable to establish certain limitation concerning unrestricted usage of such property to avoid devaluation of these technical reserves, which is also governed by the Act on Insurance.

1 Resource Placement Structure of the Technical Reserves in Insurance

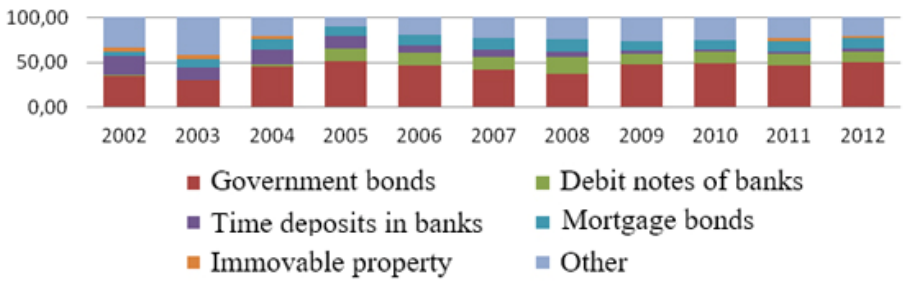
In ten-year time evaluation of the technical reserves, which we have observed from statistical bills, we have discovered following results, which are described in greater detail year after year until their final form.

To 31.12.2004, the insurance companies created the technical reserves[1] in the total amount of EUR 1,70 bil, which corresponded to year-on-year growth of 11,56%. Out of which, the technical reserves in life insurance were created in the amount of EUR 1,37 bil and the technical reserves in non-life insurance in the amount of 333,3 bil. The technical reserves in the life insurance increased in year-on-year growth of 13,94%, in the non-life insurance, the technical reserves increased in year-on-year growth of 2,72%.

To 31.12.2006, the value of 3,44 bil, which corresponded to year-on-year growth of 15%. The reserves of the life insurance reached the value of almost 2,52 bil corresponding to 73% of the total technical reserves. Net technical reserves of the insurance companies reached the value of EUR 3,15 bil to 31.12.2006.

Technical reserves deducted by the reserved for the coverage of the obligations from the financial placement on behalf of the insured parties reached.

Structure of the placement of resources of the technical reserves (%)



Source: Authors' own elaboration according to the data of the NBS.

Figure 1 Structure of the placement of resources of the technical reserves in the Slovak Republic over the 2002 – 2012 period in %

To 31.12.2009 the amount of EUR 4,47 bil. Technical reserves of the insurance companies increased during 2009 by 11,3%. The principal source of increase was the life insurance, in which the reserves reached the value of 3,45 bil and in the non-life insurance; they reached the amount of EUR 1,02 bil.

Technical reserves reached the amount of EUR 3,78 bil by the end of 2009. The coverage of the technical reserves by the actives increased to 112%. The insurance companies increased particularly the holdings of government bonds and decreased their exposure to bank bonds and time deposits. [2]

By the end of 2010, insurance companies generated the technical reserves in the amount of EUR 4,66 bil. In comparison with the previous period, they increased by 7,2%, whereby the growth rate was slower mainly due to a slower growth of the technical reserves in the life insurance.

By the end of 2011, the total amount of the technical reserves of the insurance sector decreased to EUR 4,64 bil. This decrease was historically the first of the total volume of the technical reserves in the observed period.

The decrease was caused mainly due to the development in the non-life insurance, in which the reserve for the insurance fulfilment decreased by 9% year-on-year (by 67 bil). On the contrary, the reserve for the insurance fulfilment increased by almost 16 bil due to continual contract conclusion to technical year and not to calendar year.

After the drop in 2011, total technical reserves of the insurance companies started to grow again in 2012 and reached 4,86 bil. Even though the reserves in life insurance continued in a continual growth, they decreased again in non-life insurance similar to 2011.

In life insurance, the development was caused particularly by the growth of the reserve in unit-linked insurance, which grew year-on-year by 147 mill. (17%). More than a half of this growth was caused by the growth of deficit reserve created on the basis of the test of sufficiency of the reserves, which increased by 52 mill. Growth of this reserve is probably linked to decrease in interest rates.

In non-life insurance, the technical reserves decreased year-on-year by 27 mill. All types of reserves in the non-life insurance decreased, whereby the biggest impact had a decrease of the reserve on insurance fulfilments, which dropped by 17,5 mill. It is important that this reserve reflects real estimate of the risk and that it is not artificially decreased by the insurance company.

Actives covering technical reserves, except for the reserves for the coverage of obligations from the financial placement on behalf of the insured (RKZFUMP) reached almost 4,6 bil by the end of 2012, whereby their volume increased by 251 mill. Coverage of the technical reserves by the actives increased to 119%.

The biggest increase corresponds particularly to government bonds, from which the majority is covered by the Slovak bonds. Volume of the bonds increased mainly due to the overpricing of the bonds in portfolios for sale and for business. The ratio of the government bonds in actives covering the technical reserves therefore increased to almost 50%. The ratio of other classes of the actives decreased, except for the time deposits, the volume of which increased year-on-year by 56% (by 60 mill.) and substituted part of the company bonds, volume and ratio of which dropped. Share of reinsurers on technical reserves, volume of immovable property, shares and units is gradually falling.

In 2008, financial situation of the majority of insurance companies worsened in comparison with the previous year. The total profit of insurance companies decreased by almost a half and reached the amount of EUR 108 mill. The return of their equity dropped from 18,8% to 8,9% in 2007. The period of significant growth of profitability observed from 2003 stopped.

Negative development on financial markets was influenced by the profitability of actives, mainly by bigger insurance companies. The profit generated from the financial operations decreased by more than 76% in comparison with 2007. If we abstract from the unit-linked products, financial results of the insurance companies dropped by 39 mill. (i.e. 23%) in comparison with 2007, mainly as a result of lower profitability of the actives of the insurance companies.

Despite the unfavourable development of the insurance in 2008, which resulted in lower technical result, the total financial situation of the insurance sector improved in comparison with the previous year, since year-on-year decrease on the technical account was compensated by the increase of profits from the financial operations.

The increase of profits of the entire sector was crucially influenced to the greatest degree by the increase of profits of the three biggest insurance companies.

These values, as well as the total profit of insurance companies, however, were falling behind the values from 2006 and 2007.

In 2009, five insurance companies reported a loss, two less than in the previous year. [3]
In 2010, the total amount of profits of the insurance sector fell by 2,9% to 133,7 mill. after the previous more significant growth. One insurance company influenced crucially this result.

Technical result reached 127 mill. of the previous year's loss of 75 mill., which was the highest value in history. An improvement occurred in large-scale with all insurance companies. The technical results in the life insurance improved by EUR 140 mill., in the non-life insurance by EUR 56 mill. and in the active insurance by EUR 6 mill.

Improvement of the technical result was caused mainly due to decrease of loss ratio in property insurance, increase in earned premium in life insurance and decrease of deficit reserve on the basis of the test of sufficiency of reserves. The technical results were also improved by a significant decrease in reserve growth for unit-linked products by 95 mill., which development was, however, almost totally compensated by the decrease of the financial result of actives covering unit-linked reserve. The drop of the financial result was caused almost entirely by unit-linked insurance.

However, the development of the profitability was various, with the two thirds of insurance companies the profitability increased year-on-year. In 2014, two insurance companies ended with loss.

The profit was generated mainly by the financial result and positive technical result in non-life insurance, whereby the technical result in life insurance was negative.

The major development was observed on technical account of life insurance, which year-on-year decreased from EUR 43 mill. to -175 mill. The decline occurred at almost all insurance companies. This development was influenced by several main factors: unit-linked insurance, deficit reserve, moderate growth of insurance and growth of costs on insurance fulfilments.

In 2014, financial result rose by EUR 134 mill. and reached 300 mill. due to positive development on the financial markets, from which the financial result of the investments, where the risks are borne by the client increased by 135 mill. (increase at almost all insurance companies) and of the investments, where the risks are borne by the insurance by 28 mill. The financial result was positive at all insurance companies, even though approximately a third of the insurance companies reported year-on-year fall of the financial result.

The technical result in non-life insurance was positive at the average level for the last 5 years. Four of thirteen insurance companies reached negative technical results from non-life insurance.

It can be concluded that the profitability of the insurance sector has not changed significantly in the last five years and has remained sufficient.

By the end of 2014, solvency of the insurance companies significantly increased due to the profits from re-evaluation of the commercial papers in the portfolio for sales.

However, due to the falling interest rates, these profits serve only as a pillow in case of growth of interest rates

In the future, insurance companies should create reserves for losses from overestimation due to the growth of interest rates for the bonds, which are currently purchased into their portfolio.

2 Prediction of the Technical Insurance by Time Series

In order to identify the trend, we considered three basic types – linear, quadratic and exponential. By their application to the area of the technical insurance in the life and non-life insurance, we have obtained following results for the trend functions:

Table 1 Identification of the trend in the area of life and non-life insurance in the SR in the period 2004 – 2014

	Life insurance
Linear trend	$y_i = 0{,}488364 + 0{,}0652727i$
Quadratic trend	$y_i = 0{,}337455 + 0{,}134923\,i - 0{,}0058042\,i^2$
Exponential trend	$y_i = \exp(-0{,}646272 + 0{,}0806684i)$

	Non-life insurance
Linear trend	$y_i = 0{,}835636 + 0{,}0143636i$
Quadratic trend	$y_i = 0{,}657455 + 0{,}0966014\,i - 0{,}00685315\,i^2$
Exponential trend	$y_i = \exp(-0{,}191362 + 0{,}0175186i)$

Source: Authors' own elaboration according to the data of the NBS.

Technical insurance in the life insurance shows growing tendency and moderately declining tendency in the non-life insurance.

According to the importance of the coefficients, we gave preference to the model containing linear trend. While choosing the appropriate model, we considered the following:

Importance of the coefficients,

Autocorrelation of residuals (tested by Ljung-Box test),

Akaike information criterion.

Following table shows basic characteristics (first differentia and growth or decrease coefficient.

Table 2 Basic characteristics of the technical insurance in the area of life and non-life insurance in the SR in the period 2004 – 2014

		Life insurance			Non-life insurance		
i	Year	y_i	${}_1d_i(y)$	$k_i(y)$	y_i	${}_1d_i(y)$	$k_i(y)$
1	2004	0,52	xxx	xxx	0,69	xxx	xxx
2	2005	0,57	0,05	1,1	0,83	0,14	1,2
3	2006	0,64	0,07	1,12	0,95	0,12	1,14
4	2007	0,74	0,1	1,16	1	0,05	1,05
5	2008	0,85	0,11	1,15	0,94	-0,06	0,94

6	2009	0,95	0,1	1,12	0,96	0,02	1,02
7	2010	1,1	0,15	1,16	1	0,04	1,04
8	2011	1,03	-0,07	0,94	0,96	-0,04	0,96
9	2012	1,08	0,05	1,05	0,94	-0,02	0,98
10	2013	1,09	0,01	1,01	0,95	0,01	1,01
11	2014	1,11	0,02	1,02	0,92	-0,03	0,97

Source: Authors' own elaboration according to the data of the NBS.

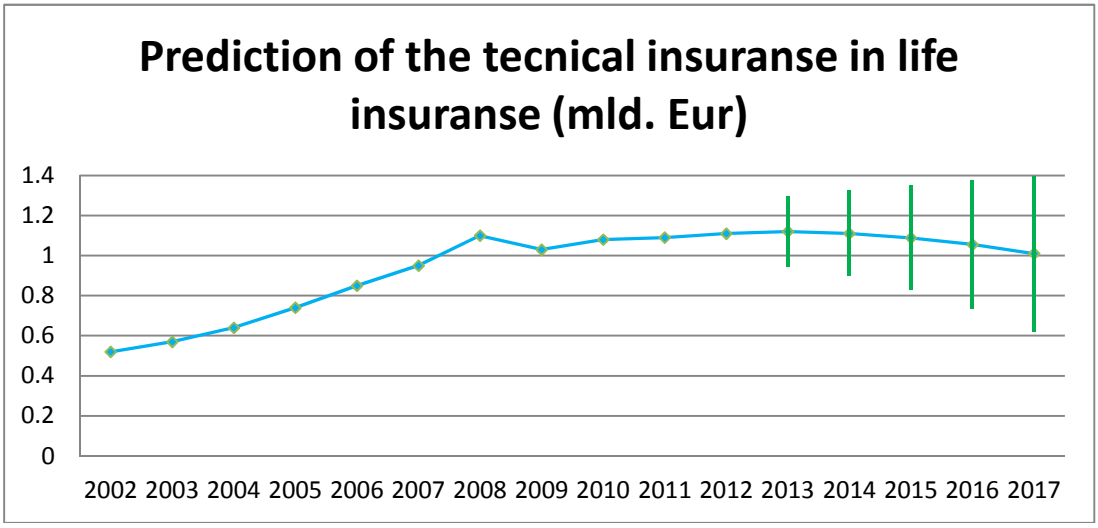
To conclude, from the model above, we have elaborated a prediction for the following five years. The results are shown in the following table and figures:

Table 3 Prediction of the technical insurance in the area of life and non-life insurance in the SR for the period 2013 – 2017

		Life insurance			Non-life insurance		
i	Year	y_i	Confidence interval 95 %		y_i	Confidence interval 95 %	
12	2013	1,12073	0,953648	1,28781	0,887733	0,765947	1,00952
13	2014	1,11055	0,905916	1,31518	0,887733	0,627925	1,14754
14	2015	1,08876	0,835432	1,34208	0,887733	0,541079	1,23439
15	2016	1,05536	0,743157	1,36756	0,887733	0,471996	1,30347
16	2017	1,01035	0,629864	1,39084	0,887733	0,412858	1,36261

Source: Authors' own elaboration according to the data of the NBS.

According to the analysis of the Slovak financial sector for the first half of the year 2013[4] in the sector of insurance companies, it is stated that the growth of the technical insurance accelerated year-on-year only moderately from 0,8% to 1,3% in the first half of the year 2013. The total amount of the technical insurance in the observed period reached EUR 1,07 bil, which corresponds to the prediction for 2013 (app. EUR 2,00 bil)



Source: Authors' own elaboration according to the data of the NBS.

Figure 2 14, 95 % prediction of the technical insurance in life insurance in the SR for the period 2013 – 2017 in EUR billions.

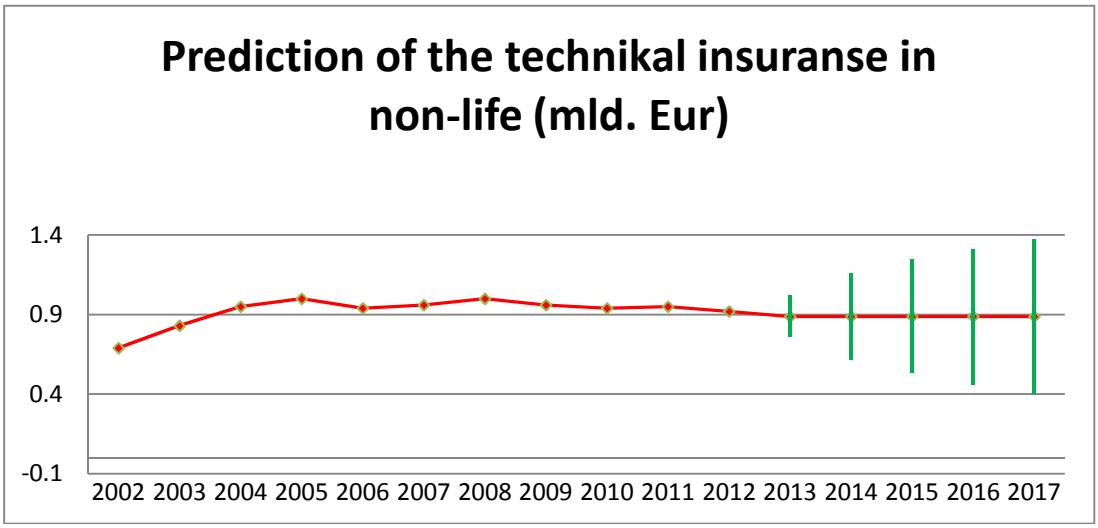
According to the abovementioned analysis of the first half of the year 2013, the growth of the technical insurance was influenced by the life insurance with the technical insurance in the amount of 0,57 bil. (3,8% growth year-on-year), mainly the common life insurance and the complementary insurance.

In comparison with the previous periods, the most significant change is represented by the decrease of the technical insurance of the investment insurance products, so-called unit-linked insurance, constituted by year-on-year decrease by 4,6% to the amount of 171 bil. The share of the unit-linked products on the insurance market dropped under 30%. Annual insurance, including new production, reported year-on-year decrease by 11,2% or 14,8%. However, despite this fact, the new production continues to represent a major part, almost 15% of the annual insurance. Slower growth of the insurance contracts in the unit-linked sector was influenced also by a growing number of insurance fulfilments due to surrenders and survival benefits, even though the growth rate was slowing down. The frequency of surrenders was at the level of 6,2% (5,9% in June 2012) and year-on-year growth of the surrender cases decreased from 20% to 6,5%.

The total amount of surrenders corresponded to 4,5% of the technical reserves in unit-linked sector (4,9% in June 2012). In contrast with the unit-linked insurance, the common life insurance reported positive growth in the technical insurance after two years of decrease in the first half of the year 2013. In June 2013, the amount of the technical insurance reached 314 bil, which corresponded to year-on-year growth of 7,6%.

The volume of insurance fulfilment in the first half of the year 2013 was in the amount of 292 mill., which corresponded to year-on-year growth of 7% (mainly surrenders, similarly to the case of unit-linked insurance), which accelerated the sector in comparison with the same period of the previous year by 4 percentage points. The number of insurance fulfilments dropped for more than 7%.

On the other hand, the non-life insurance continued in negative trend in the area of the technical insurance (0,5 bil, decrease of 1,5 % year-on-year). This development was influenced particularly by the liability insurance and car insurance. The real values of the first half of the year 2013 showed the validity of the prognoses.



Source: Authors' own elaboration according to the data of the NBS.

Figure 3 Again 15, 95 % prediction of the technical insurance in non-life insurance in the SR for the period 2013 – 2017 in EUR billions.

Technical insurance in the non-life insurance from 2009, except for 2011, was dropping. This development was influenced mainly by the car insurance in the first half of the year 2013.

The most significant drop of the technical insurance, represented by 7,5 mil. to 147,4 mil. (-4,9 % year-on-year), was observed with the liability insurance. This development was influenced by the long-lasting decrease of the insurance amounts of new (-4,7 % year-on-year) and prolonged contracts (-6,3 % year-on-year). Growth of the

insurance contract numbers slowed down in the first half of the year 2013 (2,1 % year-on-year), however, in comparison with 2012, new production transformed from contraction of -10,7% to expansion of almost 5%. Although the number of claims dropped year-on-year by approximately 6,5%, the total amount of the claims increased by almost 4%.

The technical insurance in the area of the collision coverage on the level of 124,5 mill. showed, similarly to the liability insurance, a year-on-year decrease, which slowed down from -5,5% in June 2012 to -3,8% in June 2013. The average insurance for one contract was falling down in particularly new production (-10,4% year-on-year, in June 2013, the decrease represented -18,9%). The decrease of the average insurance price for one contract was slightly less aggressive in prolonged contracts (-5,2 %), however, in comparison with 2012, it accelerated (in June 2012 decrease of -2,2 %). In the observed period, the number of the insurance fulfilments increased significantly (7% year-on-year) and predominantly their volume (10,5% year-on-year).

The development of the technical insurance and volume of costs for the insurance fulfilments in the area of collision insurance had a negative impact on the technical result. A particularly high loss ratio and continual reduction of the insurance pushed the combined index in the collision insurance over the edge of 100%.

In the area of the property insurance, the technical insurance grew year-on-year only moderately, on the level of 1,6% and reached the amount of almost 130 mill. In the insurance sector dropped the new production by 13%, however, year-on-year volume of prolonged contracts increased by more than 5%. The costs on the insurance fulfilments during the first half of the year 2013 decreased significantly year-on-year by 23,4%, whereby the number of the insurance fulfilments decreased only moderately.

The profitability and solvency of the insurance companies fundamentally did not change. The profit of the insurance sector reached EUR 158 mill., representing 16% year-on-year increase in 2013. In 2012, the profit was influenced by one-time impacts (for example: change of assessment of the property participation in subsidiaries, etc.). After the consideration of such impacts, the profit changed year-on-year only minimally. The development of the profit in the individual insurance companies was various. Two insurance companies reported a loss, but the combined loss decreased from EUR 12,5 mill. in 2012 to EUR 1 mill.

The technical result of the non-life insurance decreased by approximately a third to EUR 40,7 mill. The decrease involved particularly the decrease of the survival benefit, as well as a moderate increase of costs for insurance fulfilment and operational costs.

On the contrary, the technical result of the life insurance improved year-on-year by EUR 104 mill. The major factors included the growth of survival benefit, slow-down of the growth of costs for the insurance fulfilment and particularly the significant slow-down of the growth of unit-linked reserve by EUR 67 mill., approximately two thirds due to decrease of the profits from the investments, where the risks are borne by the client.

The technical insurance accelerated after two years in 2013 to year-on-year 5,3%. In comparison with the previous two years, the insurance grew mainly in the common life insurance, constituted by 7,2%, which occurred for the first time from 2007. The increase involved mainly new production (14 %) annual insurance (6 %), despite the decrease of the number of contracts by 4 %. This growth may correlate with the decrease of the technical interest rate from 1st January 2014 to 1,9%, which will result in higher prices of the insurance.

Conclusion

A part of this article consists of the application of the time series to the data set in order to determine a prediction of the technical insurance for the period 2013 – 2017 by usage of point and interval estimates of the division. The main task is to determine a basic tendency of their development, i.e. specification of their trend. The trend is determined by the analytical methods, i.e. by the trend functions.

The results of the statistical analyses are compared to the official published data of the National Bank of Slovakia for the first half of 2013.

Concurrently, it is estimated that the technical insurance in non-life insurance will vary around the amount of app. EUR 0,89 bil.

The comparison of the aforementioned results calculated for the entire year 2013 and the results published by the National Bank of Slovakia for the first half of 2013 shows that the difference between the estimate and the actual value represents EUR 0,07 bil, i.e. the deviation corresponds to 7%.

The technical reserves in the common life insurance, as well as in the unit-linked insurance were growing during the first half of 2013. The reserves in the non-life insurance or the placement of the technical reserves did not essentially change.

It can be concluded that the profitability of the insurance sector have not fundamentally change in the last five years and remained sufficient. The solvency of the insurance companies increased significantly due to the profits of re-evaluation of the commercial papers in the portfolio for sales. There are currently several insurance companies active on the Slovak insurance market and each year, there are various changes within their scopes. The insurance companies have to face bigger concurrence more than ever before, either from the part of the existing concurrence or from the new subjects. As a result, the insurance is dropping and the profitability is lower. The insurance companies undergo fusions and cooperate in order to create the conditions for larger business, fusion of banks and insurance companies are becoming more common.

Insurance services, i.e. the services of the insurance protection constitute a specific service on the insurance market, whereby the insurance protection develops as a need in each society due to the existence of various risks.

Each insurance company deals with a specific product portfolio and a specific clientele, which also determines its further activities.

[1] Technical reserves from self-retention, i.e. excluding the shares of a reinsurer.

[2] Placement of the resources.

[3] Insurance companies, which transformed to branches of foreign insurance companies in 2009 were not included to the total number, however, the impact of the fusion of two insurance companies in 2009 was taken into account.

[4] Národná Banka Slovenska (2003) Ročná správa o stave poisťovníctva za rok 2003. [online] Available at: http://www.nbs.sk/_img/Documents/_Dohlad/ORM/Analyzy/protected/AnalyzaSFS2013 [Accessed 8. 07. 2014]

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Impact Investment as a Potential for Slovak Banking Sector

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Abstract

The main focus of this paper is to describe and analyze how Impact investments should affect the product portfolio of Slovak banking sector. Impact investments are intended to create positive social or environmental impact beyond financial return, and constitute a new asset class. Impact investments are typically created in private markets by providing debt or equity to mission-driven businesses. Impact investing, or we should say social investing has gained traction among a wide range of investors, including foundations, private managers, individuals, commercial banks and development finance institutions. We are assuming that investors have a wider range of expectations for impact investment financial returns what estimates a significant market opportunity for Impact investment over currently ongoing economic problems we face with great mistrust and caution in financial markets. The banking sector as such is a very important and currently is an inherent part of the economy, in almost every state. Our article analyzes Slovak banking sector which overviews the biggest opportunities in the relevant Impact investments.

Keywords: impact investing, banking sector, products, social return, social risk, Slovakia

Introduction

Slovakia as one of the youngest members of the euro area has been avoiding the problems in the banking sector, derived from global financial crisis. According to the analysis by the World Economic Forum (WEF) on the competitiveness of countries, banks in Slovakia are ranked fourth-most stable in the euro area and the fifth-most in the EU. Over the past five years, Slovak banks left over half of their profits undistributed, which provided a significant boost to their stability. In the absence of these funds, the volume of provided loans would have fallen by more than 20 percent. The Slovak banking system reports strong capitalisation metrics, with the system-wide Tier 1 capital ratio at 16%, and leverage at a moderate 7.8%. The banking system also benefits from a strong funding and liquidity profile, which will remain stable over the outlook horizon. Slovak banks will be able to fund their expanding loan books via their large and stable customer deposit base, where the total loans-to-deposit ratio remains below 100% and liquid assets accounted for a solid 30% of total assets. Moody's says that the banks' reliance on more volatile market funding will remain low, although it expects a modest increase in market funding caused by (1) the favourable interest rate environment; and (2) increased household consumption translating into a lower savings rate. Moody's has lowered its assumptions on the likelihood of government support for Slovakian banks, to moderate from high. This adjustment reflects the introduction of the Bank Recovery and Resolution Directive (BRRD) and Single Resolution Mechanism (SRM) in the European Union, which provides for burden -sharing with senior creditors. In addition, under the Loss Given Failure (LGF) framework incorporated in Moody's new bank methodology, the rating agency expects the impact on bank ratings of the new resolution framework and the reduction in our assumptions of public support to be moderated -- and in some cases fully offset -- by a decline in expected loss assumptions, particularly for Slovak banks' junior deposits given their substantial size.

Stable and efficient banking system employed in Slovakia, however, still not become a breeding ground for Impact investing which “can made in both emerging and developed markets, and target a

range of returns from below-market to above –market rates, depending upon the circumstances". (Global Impact Investing Network. "About Us" 2013, retrieved 15 December 2015).

Impact investing – an Opportunity for Improvement

Although it is possible for impact investors to achieve social impact along with market rate returns, it's not easy to do and doesn't happen nearly as often as many boosters would have you believe. There has been an increasing realization that, along with government aid and philanthropy, private companies can contribute to solving environmental and social problems. At the same time, a growing number of investors are expressing a desire to "do good while doing well". There are impact investors, who seek opportunities for financial investments that produce social or environmental benefits. However, the rapid growth of the field of impact investing has been accompanied by questions about how to assess impact, and concerns about potentially unrealistic expectations of simultaneously achieving social impact and market rate returns. Impact investors actively seek to place capital in businesses, nonprofits and funds that can harness the positive power of enterprise. Impact investments occur across asset classes and investment amounts.

Impact investing refers to investments "made into companies, organizations and funds with the intention to generate a measurable, beneficial social or environmental impact alongside a financial return (Global Impact Investing Network. "About Us " 2013, retrieved 15 December 2015). It is a form of socially responsible investing that serves as a guide for various investment strategies (Lemke and Lins, Regulation of Investment Adviser, §2:158, Thomson West 2013). Among the best-known mechanism is private equity or venture capital. Social venture capital or patient capital, impact investments are structured similarly to those in the rest of the venture capital community.

Hedge funds and private equity funds may pursue impact investing strategies (Lemke, Lins, Hoenig and Rube, Hedge Funds and Other Private Funds §6:43, Thomson West 2013).

Investors may take an active role mentoring or leading the growth of the company (Financial Advisor Magazine, Wealthy Attracted To Impact Investing. NASDAQ. Retrieved 16 December 2015), similar to the way a venture capital assists in the growth of an early-stage company.

By analyzing the inherent logics and rationalities, this framework strives to acknowledge financial returns alongside social impact while simultaneously considering implied risks. At the same time it is flexible enough to deal with various approaches to measuring social, environmental and corporate governance risk and return factors, an important necessity to serve the broad range of actors and different logics in the field. Over the last couple of year, the field of impact investments advanced in terms of market structures, involved participants and investment vehicles. Among the diverse set of stream within the social investment market, the progress achieved in impact investing received exceptional attention in practice and media. (Brandstetter, L. & Lehner, O.2014).

Private financial institutions have the increasing interest in investing into social businesses and bring the expectations of social and economic return. On the other hand, public authorities are becoming reluctant to invest in the project of innovation; they do not perform their own duties in supporting the social business, if the existing projects are financed by the philanthropic organizations or private investors. Some organizations therefore fight with the possibilities of finding the investor or gaining the necessary capital for their innovation projects and ideas. Private investors expect demonstrable social and economic return on investment, and this is the factor that forces public authorities to expect the same effect from their own investment. However, the added value is to be able to measure the social impact, because it can help to improve the products offered.

In these terms of impact investing is necessary to combine it with terms of social innovations. As part of the solution of tackling existing social problems and diminishing the negative effects of capitalism, social enterprises and social entrepreneurship emerged on the horizon of social innovation. There are many definitions of the term "social innovation" (e.g., Mulgan, 2006; This is European Social Innovation. 2010; Phills et al., 2008; Murray et al., 2009; Mulgan et al., 2007; Westley et al., 2010;

Pol et al., 2009). Some definitions are specific and exclude many examples of social innovation while others are as broad as they describe projects and organizations that are not particularly innovative, even if they are in some way social. This is partly because social innovation is a practice led field – understandings, definitions and meanings have emerged through people doing things in new ways rather than thinking about them in an academic way.

Specifically, we define social innovations as new ideas (products, services, and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations. In other words, they are innovations that are good both for the society and to enhance society's capacity to act. As one of the key elements of the new innovation paradigm, social innovation has become a global phenomenon, which responds to the grand challenges that our societies are facing. Social innovation research is just starting to become part of scientific discourse and the international community building is still at an early stage. With regards to their invention, development and spread, social innovations are clearly distinct from technical innovations. Due to their specific process and product dimensions, social innovations generally arise outside the realms of corporate and academic research divisions. In general, innovations are processes whereby social, public policy and economic needs are answered by new ideas, new products, services, and new business models are created. Despite of any innovations being a commendable practice, social innovations are especially relevant to the society. The global economic crisis revealed that social challenges such as demographical changes, unemployment, poverty, emigration and others are coped with in a far more complicated way than it was thought. The opportunity for social business is the possibility of the asset of private investments. (Majercakova, D., 2015).

Impact measurement as a potential for Slovak banking sector

Impact measurement is the set of practice through which an organization establishes what difference its work makes.
Social impact investments are those that intentionally target specific social objectives along with a financial return and measure the achievement of both. The financial crash of 2008 highlighted the need for a renewed effort to ensure that finance helps build a healthy society. This requires the paradigm shift in capital market thinking, from two-dimensions to three. By bringing a third dimension, impact, to the 21tst century capital market dimensions of risk and return, impact investing has the potential to transform our ability to build a better society for all. There is a growing desire to reconnect finance with meaning and purpose, to make a difference. This is leading to an increasing demand of people looking for social impact of their investments. Impact investing does not relieve governments of their responsibilities, but it can help fulfill them more effectively. By financing innovative approaches, impact investing also has the potential to help deliver services more efficiently and, in some cases tackle the underlying causes of growing demand for social services instead of just trying to cope with their consequences.

Impact investment, like any market, is a combination of demand (for capital to finance impact-driven organizations), supply (of impact capital) and intermediaries (helping to connect supply with demand). We would like to combine all of this principal components into the investment ecosystem area. Ecosystem varies according to the role of government, foundations, the private sector, individual investors, products portfolio of banking sector and social sector. From the perspective of schematic overview of the ecosystem related to the policy options available to governments are outlined areas into the Social impact investment ecosystem´s diagram (diagram 1 at next page). The principal components are:

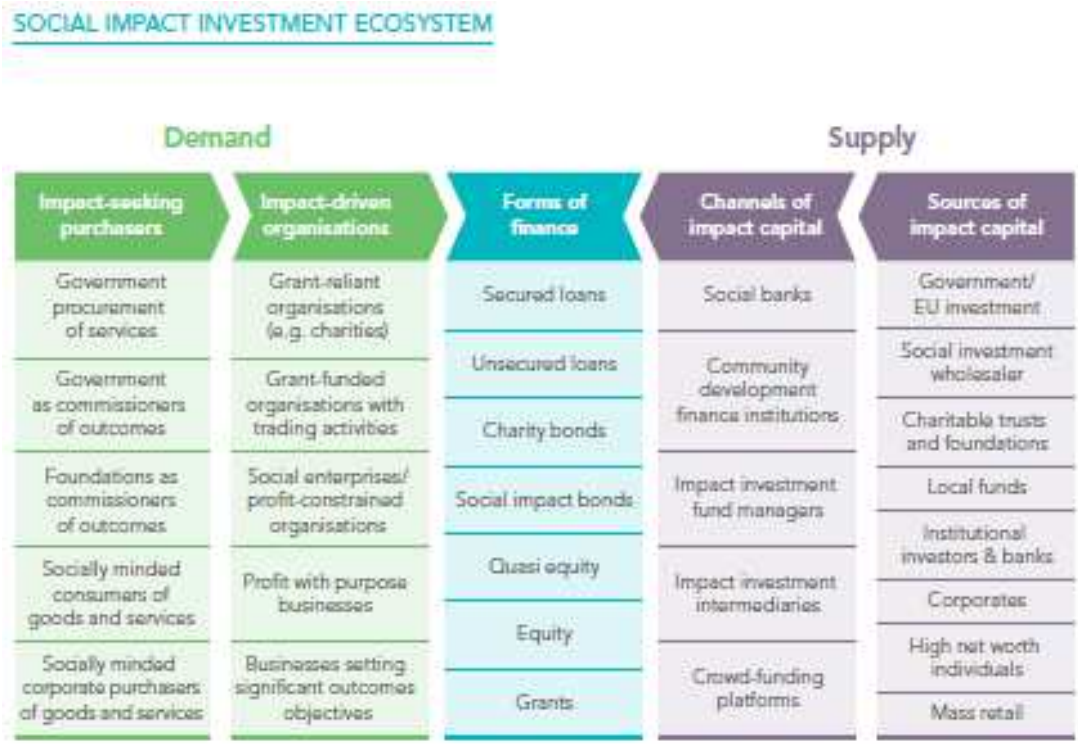
- Impact-seeking purchasers: those provide the sources of revenue that underpin investment in impact-driven organizations. Such purchasers can include governments, consumers, corporations or foundations.

- Impact-driven organizations: all types of organizations which have a long-term social mission, set outcome objectives and measure their achievement, whether they be social sector organizations or impact-driven businesses.

- Forms of finance: which are needed to address a range of different investment requirements

- Channels of impact capital: to connect investors to impact-driven organizations in situations where the sources of impact capital do not invest directly in impact-driven organizations.

- Sources of impact capital: to provide the investment flows needed.



Source: Impact investment: The invisible Heart of Markets, 2014

From the perspective of "healthy economy" and stable Slovak banks assets quality with the non-performing loans (NPL) ratio rising over 12-18 months outlook horizon we should define recommendations for establishing the healthy and stronger social impact investment ecosystem which is still needed. Slovak banks will be able to fund their expanding loan books via their large and stable customer deposit base, where the total loans-to deposit ration remains below 100% and liquidity assets accounted for a solid 30% of total assets. Moody´s says that the banks´ reliance on more volatile market funding will remain low, although it expects a modest increase in market funding causes by (+) the favorable interest rate environment; and (2) increased household consumption translating into a lower savings rate.

From the effective measurement perspective, which must be relevant, helpful, simple, natural, and certain, understood and accepted, transparent and well-explained and established on evidence; we define ten groups of recommendations for parts of social impact investment ecosystem in Slovakia.

(1) Set measurable impact objectives and track their achievement
(2) Investors to consider three dimensions: risk, return and impact
(3) Clarify fiduciary responsibilities of trustees: to allow trustees to consider social as well as financial return on their investments

(4) Pay-of-success commissioning: governments should consider streamlining pay-for-success arrangements such as social impact bonds and adapting national ecosystem to support impact investments
(5) Consider setting up an impact investment wholesaler funded with unclaimed assets to drive development of the impact investment sector
(6) Boost social sector organizational capacity: governments and foundations to consider establishing capacity-building grants programs
(7) Give profit-with-purpose businesses the ability to lock-in mission: governments to provide appropriate legal forms or provisions for entrepreneurs and investors who wish to secure social mission into the future
(8) Support impact investment's role in international development: governments to consider providing their development finance institutions with flexibility to increase impact investments efforts. Explore creation of an Impact Finance Facility to help attract early-stage capital, and a Development Impact Bond Social Outcomes Fund to pay for successful development impact bonds.
(9) Define the systematic measurement and development for understanding different changes and values the things that matter to stakeholders
(10) Be transparent and verify the results based on good research principles.

For this recommendations must be clear defined ecosystem with their weaknesses and strengthens. From the perspective of this measurements method we should conclude, that the weaknesses of the Slovak impact investments ecosystem are:

- misunderstandings of concept of impact investing;
- close "typical" bank system not open for social investments;
- corruption;
- no tax exemptions or privileges;
- absent specified subsidies;
- non-existing crowdfunding system;
- instability of social system;
- growing poverty;
- lack of knowledge and experiences in the non-typical investments.

On the other hand, strengthens should be relevant in the perspective of measurement method as a:

- crossroads of the private, public and third sector;
- concept of impact "social" investing is still in process of development and research;
- community participation on social life of society;
- recalls for the necessity of social enterprises;
- active third sector;
- active policy of employment on the local and governmental level.

Conclusion

All innovations are socially relevant, both those with objectives and rationality criteria to change economic parameters and those with social intensions and effects in the field of social practices. However, this also implies that, irrespective of what kind of innovation is to be developed, realized or examined, the meanings and effects of innovations do not remain restricted to the respectively evident functional system: technological and economic innovations affect or change not only the functional system of the economy, but also the other major functional systems as politics, law and culture.

Impact investment is about investing into people. It means policies designed to strengthen human skills and capacities and support them to participate fully in employment and social life. The biggest opportunity for social investing seeks to strengthen peoples' current and future capacities and improve their opportunities to participate in society and the labour market, and, of course, calls for investing into children and youth to increase their opportunities in life. Each of this opportunity for social investing needs at first changing of society in the meaning of social innovations and providing

social services. They may actively seek out investments – such as community development loan funds – that are likely to provide important societal or environmental benefits.

Slovak banking sector has a big potential together with strong economy for establishing the effective social impact investment ecosystem. Quality of life will be growing and also from the perspective of open space in the investments opportunities should increase level of well -being in the country.

"*As investors add the third dimension of impact to risk and financial return in their decision making, we expect there to be a considerable pool of capital looking for opportunities to invest in achieving measurable social impact*." (Impact investment: The invisible heart of markets, 2014)

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Analysis of Unexpected Recovery Factors and Their Impact on IT Business Continuity Timeframes

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Abstract

The current paper focuses on the analysis of multiple unforeseen factors that should be taken into consideration during the formulation of the IT Business Continuity testing policy in an enterprise. The prerequisite for a successful strategy towards the avoidance of the unexpected interruption of either one or multiple computer based business functions, is the often execution of recovery exercises. During testing, however, the more emphasis is given to probable Unexpected Recovery Factors that can delay the recovery time effort of a given business function, the more organized and prepared the personnel will be in order to react immediately and recover on time all the critical business functions whose interruption may negatively influence the organization in a real emergency event.

Keywords: Business Continuity Plan, Recovery Exercises, Unexpected Recovery Factors, Unexpected Recovery Index

Introduction

The modern era is characterized by various crises which have either mild or severe impact on the operation of enterprises. In his article Skrbek (2011) generally mentions that 21st century civilization has been increasingly exposed to various crises: natural events, operational breakdowns and terrorism. Modern enterprise information systems are highly affected by such crisis events. Multiple authors refer to the parallel emergence of new enterprise operational threats due to computer based everyday business tasks. Boin et al (2005), underline that the "Information Age" has not only brought international terrorism, but also an increased awareness of new types of contingencies - breakdown of information and communication systems, energy black-outs, the emergence of natural threats, bio-nuclear terrorism, etc. Additionally, Mitroff and Anagnos (2001), among 10 different major types of crisis, highlight the importance and the presence of the informational types (loss of proprietary information). The main advantage provided by applied ICT against such threats, as it is claimed by Chroust and Finlayson (2011), is the possibility of improving prevention and recovery in many different ways.

Effective Business Continuity Planning (BCP), as part of the Business Continuity Management (BCM) process, significantly helps towards the solution to the above stated enterprise problems. Antlova et al. (2011) underline that BCM is considered to be one of the key Areas of ICT Competencies. The key element to a successful and effective Business Continuity Plan, according to the British Standards Institution (BSI) (2012), is the periodic execution of disaster recovery exercises. Furthermore, the National Institute of Standards and Technology (NIST) (2010), mentions that a Business Continuity Plan (BCP) focuses on sustaining an organization's mission/business processes during and after a disruption. However, efficient and beneficial recovery exercises should be based on crisis scenarios that may harden the timely IT business process restoration within the Rational Time Objective (RTO) or the Maximum Acceptable Outage (MAO), and augment the possibility of recovery time deviation from these defined timeframes. Throughout the present work six Unexpected Recovery Factors are illustrated and analyzed as different multiple unplanned situations which can negatively influence and significantly delay the recovery procedure of critical business functions. The final step of the current contribution includes the approximate calculation of a function's recovery

time deviation from the defined by BSI (2012) RTO/MAO timeframes. The estimation approach is based on the Composite Risk Index theory of Risk Management and is entitled *Unexpected Recovery Index*.

Problem Definition

The author of the present article aims to provide justified answers to the following questions:

1. Are there any factors which should be considered throughout business continuity exercises that are practically underestimated or ignored by business continuity experts and ICT managers?
2. How can these factors be assessed and which is their precise impact on the recovery time of a given business function?
3. Is there any tool for the proactive estimation of the resumption timeframes for a specific function and the involved ICT applications, when the aforementioned factors influence the recovery procedure? Which is the approximate time deviation from the RTO and MAO values?

According to Engemann and Henderson (2012), testing and exercising assesses the viability of a business continuity plan. However, it has been noticed that practically, business continuity exercises are not sufficiently executed. Miller and Engemann (2012) underline that BCP plan maintenance and testing is a critical step but may receive insufficient resources or lack of organizational support. At the same time, multiple factors that may influence the recovery procedure are not taken into consideration during business continuity exercises. In his dissertation, Tjoa (2012) mentions that besides the incidents presented by the media, a huge variety of less spectacular threats exists that endangers the existence of companies. Examples of such threats are loss of key staff, loss of knowledge, disgruntled employees, insider threats or software failure.

The author of the current paper identifies six serious Unexpected Recovery Factors that can negatively influence and significantly delay the recovery process of the core enterprise business functions. These factors should be always considered throughout the formulation of a business continuity policy. Their classification is inspired from the recovery exercise policy recommended by the BSI (2012). The Unexpected Recovery Factors (URF) concept was initially introduced by Podaras and Zizka (2013) as part of the Business Continuity Testing Points (BCTP) approach to the estimation of criticality of multiple ICT operations and their corresponding software applications. The same concept was also utilized by Podaras (2015) in a more general and improved expression of the approach, entitled Business Continuity Points, where an unlimited number of unexpected factors is considered. The latter method was highly influenced by the Business Continuity Exercises checklist document as it is proposed by the Information and Technology Services (ITS) – University of Michigan (2014). Both methods are based on the Karner's (1993) Use Case Points approach which is utilized for software development complexity estimation.

The proactive and approximate calculation of the recovery time deviation from the expected RTO/MAO resumption timeframes, is also a crucial issue of the current contribution. A method entitled Unexpected Recovery Index, which is based on the Composite Risk Index theory of risk assessment, is utilized for implementing this part. Miller and Engemann (2012) support that risk management in BCM provides an analytical foundation for decision making. The same authors highlight that because BCM deals with events that are improbable, analyzing risks is challenging.

Analysis of the Unexpected Recovery Factors

Weather Conditions: Unexpected extreme weather conditions during a sudden system outage may prevent the IT special team from reaching the recovery site. Such a scenario is crucial for business continuity exercises. A list of involved types of weather conditions with their corresponding assessment values as well as their impact on the recovery time of a given business function, is depicted at Table 1.

Table 1: List of weather conditions and their corresponding assessment values

Impact/Severity Level	Weather Condition Type	Assessment Value
Very High	Extreme Weather Conditions (i.e. heavy snowfall)	4
High	Difficult Weather Conditions (i.e. rainfall causing flood)	3
Middle	Not Usual Weather Conditions (i.e. foggy, windy including mild problems)	2
Low	Normal Weather Conditions (i.e. cloudy, soft rainfall)	1

Disaster Types: Rodriguez et al (2007) mention that a disaster is an event concentrated in time and space, in which a society or one of its subdivisions undergoes physical harm, and social disruption, such that all or some essential functions of the society or subdivisions are impaired. Additionally, Lindel (2011) states that a disaster recovery begins with stabilization of an incident and ends when a community has re-established normal, social, economic and political routines. The size and the extent of a damage and an information system interruption is highly dependent on the type of the disaster or the emergency incident. Table 2 includes the classification of various disaster incidents, based on their severity level. Each disaster type is assigned a corresponding assessment value.

Table 2: List of disaster types and their corresponding assessment values

Impact/Severity Level	Disaster Type	Assessment Value
Very High	Extreme Situation (i.e. destroyed building by earthquake)	4
High	Difficult Situation (i.e. server failure due to fire or flood)	3
Middle	Not Usual Situation (i.e. hackers' attack, network failure)	2
Low	Normal Situation (i.e. electricity failure)	1

Timely Disaster Declaration: The timely announcement of a disaster is a crucial element of an efficient business continuity plan. Bird (2007) states that BCP is likely to comprise several elements one of which is immediate reaction procedures (incident management, disaster declaration, evacuation, damage assessment and limitation). The influence level of the untimely transmitted information, is considered to be either High and is marked with 4 or Low and is marked with 1(Table 3).

Table 3: Classification of Information Distribution

Impact/Severity Level	**Information Distribution**	**Assessment Value**
Very High	Very Slow Information Distribution	4
Low	Rapid Information Distribution	1

Urban Conditions: Another important factor that has to be considered in terms of business continuity test planning, is the urban conditions. What can happen in case of heavy traffic during the day of the information system failover, or if traffic lights don't operate or if the emergency situation is announced at night or during rush hour? It is obvious that urban problems during a sudden system outage may prevent the IT special team from reaching the recovery site. A classification of urban conditions as an Unexpected Recovery Factor is depicted at Table 4.

Table 4: List of Urban Conditions and their corresponding assessment values

Impact/Severity Level	**Urban Condition**	**Assessment Value**
Very High	Extreme Situation (i.e. large area around building destroyed due to a flood)	4
High	Difficult Situation (i.e. heavy traffic because of a serious accident or traffic lights out of work)	3
Middle	Not Usual Situation (i.e. heavy rush - hour traffic)	2
Low	Normal/Convenient Situation (i.e. system failure is during night and no traffic problems exist)	1

Staff Availability: According to Engemann and Henderson (2012), teams play a significant role in Business Continuity Management. The same authors indicate that it should it kept in mind that some individuals may not be available to perform certain of their responsibilities during a crisis. The specific factor cannot be ignored when planning the exercises of crisis response, since team members might not be able to participate in the real system restoration due to various reasons such as sickness, holiday, weak or no mobile signal, pregnancy (regarding female staff) and other personal reasons. In such cases, recovery time is highly dependent on the percentage of available employers and also on the skills and responsibilities of the available staff (Table 5).

Table 5: Staff availability and its corresponding assessment values

Impact/Severity Level	Urban Condition	Assessment Value
Very High	Extreme Situation (i.e. big area around building destroyed due to a flood)	4
High	Difficult Situation (i.e. huge traffic because of serious accident or traffic lights out of order)	3
Middle	Not Usual Situation (i.e. traffic because it is rush - hour)	2
Low	Normal/Convenient Situation (i.e. system failure is during night and no traffic problems exist)	1

Network Availability: Piedad and Hawkins (2001), underline that within an unplanned network unavailability system complexity, problem severity and staff availability are the most important factors that correlate with the length of recovery time. Moreover, Philippa et al. (2011) declare that many system operators prioritize severe incidents for troubleshooting based on their impact to end – users and applications. Thus, network availability affects significantly the recovery procedure of the enterprise operations. The classification of Impact/Severity level according to the type of network failure incident with regard to its effect on end – users and applications is depicted on Table 6.

Table 6: Network availability and its corresponding assessment values

Impact/Severity Level	Urban Condition	Assessment Value
Very High	Extreme Situation	4
High	Difficult Situation	3
Middle	Not Usual Situation	2
Low	Normal/Convenient Situation	1

The Concept of Unexpected Recovery Index

The estimation of the specific index is based on the Composite Risk Index notation, which stems from the most widely accepted formula for risk quantification as it is described by Ciobanu and Mazilu (2011), which is the following:

$$RISK\ MAGNITUDE = RATE\ (or\ PROBABILITY)\ OF\ OCCURENCE\ \times\ IMPACT\ OF\ EVENT \quad (1)$$

Similarly, the *Composite Risk Index (CRI)* is calculated according to the following formula:

$$COMPOSITE\ RISK\ INDEX = IMPACT\ OF\ RISK\ EVENT\ \times\ PROBABILITY\ OF\ OCCURENCE \quad (2)$$

According to the Composite Risk Index theory, the Impact is marked on a scale from 1 to 5, where 1 is the minimum impact value and 5 is the maximum impact value. Moreover, the probability of occurrence is also marked on a 5-level scale. It is thus realized that the minimum value for CRI is 1 and the maximum value of CRI is 25.

The Unexpected Recovery Index (URI) estimation, stems from a modified by the author CRI model. Since the URI model is formulated in terms of the above analyzed six Unexpected Recovery Factors, which are included in the Business Continuity Testing Points (BCTP) methodology where the unexpected factors are classified on a 4-level scale. As a result, according to the newly introduced model, the minimum impact value of an event is 1 while the maximum impact value is 4. For the Probability of Occurrence of each unexpected factor the same scale is implemented.

Moreover, the Modifier Impact (MI) notation is introduced. The equation should calculate the sum of all the factors' impact multiplied by the probability of occurrence of each factor. Considering the Composite Risk Index methodology, the derived equation for estimating the Unexpected Recovery Index (URI) value is the following:

$$URI = MI \times P \quad (3)$$

where, MI = Modifier Impact and P = Probability of Occurrence

According to Equation (3) and the data obtained by the Table 7, the minimum and the maximum URI values regarding each factor are: $URI_{MIN} = 1$ and $URI_{MAX} = 16$.

Table 1: The 4-level scale for Impact and Probability of Occurrence of an Unexpected Recovery Factor

Probability of Occurrence of each URF / Impact of each URF	1	2	3	4
	Unexpected Recovery Index (URI) Of Each URF Modifier			
1	1	2	3	4
2	2	4	6	8
3	3	6	9	12
4	4	8	12	16

However, according to the model, the Total URI value is calculated as the sum of all the emerging URF modifiers,

$$URI = \sum_{i=1}^{6} (MI \times P) \quad (4)$$

where, MI = Modifier Impact and P = Probability of Occurrence

According to the new model there are 2 basic scenarios regarding the emergence of unexpected factors. The Best Case Scenario considers the emergence of only one (1) URF (modifier) and in its mildest form. In this case, the Minimum Total URI value is 1. On the other hand, according to the Worst Case Scenario, all possible URF should emerge during an unexpected outage and in their most severe form. In this circumstance, the Maximum Total URI value is 96.The following section delineates the derivation of the complete URI equation, which will be utilized to estimate both Recovery Time Deviation (RTD) caused by the modifiers or Unexpected Recovery Factors as well as the Total Recovery Time Effort (TRTE).

Derivation of the Complete URI Formula and Estimation of the Total Recovery Time Effort Based on the URI Value

Before estimating Time Deviation from the initially defined resumption timeframes (RTO, MAO), it is accepted that the maximum time deviation, in the worst case scenario (maximum probability of occurrence of all URFs in their most severe form), should be the following:

$$RTD_{MAX} = RTE \quad (5)$$

where, RTD = Recovery Time Deviation, and RTE = Recovery Time Effort initially planned by the Business Continuity managers. A different expression of the relation between RTD value and RTE can be the following:

$$TRTE = RTE + RTD \quad (6)$$

where, TRTE = Total Recovery Time Effort and RTD = Recovery Time Deviation.

From Equations (5) and (6) we derive the following formula:

$$TRTE_{MAX} = 2 \times RTE \quad (7)$$

The calculation of the RTD value should be based on the following formula:

$$RTD = RTE \times \frac{URI}{100} \quad (8)$$

According to Equation (8), the estimated time required to recover an IT business function and its peripheral applications, might be influenced by the presence of various unexpected factors, in a percentage that can be quantified by URI. The most secure expression of the model is the derivation of the URI initial formula according to the scenario of the most stressful crisis event, where RTD = RTE. In such a case URI =100. As a result, the following Equations should be derived:

$$URI = \sum_{i=1}^{6}(MI \times P) = \sum_{i=1}^{6}(\frac{100}{100} \times MI \times P) \cong \sum_{i=1}^{6}(\frac{100}{96} \times MI \times P) =$$

$$= \sum_{i=1}^{6}(1{,}04 \times MI \times P) \quad (9)$$

$$RTD = RTE \times \frac{\sum_{i=1}^{6}(1{,}04 \times MI \times P)}{100} \quad (10)$$

and finally, $$TRTE = RTE\ (1 + \frac{\sum_{i=1}^{6}(1{,}04 \times MI \times P)}{100}) \quad (11)$$

Equations (10) and (11) provide the Recovery Time Deviation from the initial RTO and MAO values and the Total Recovery Time Effort respectively, based on the emergence of severe URFs in an IT System outage. The model's maximum accepted time deviation will result to business function restoration within twice as much time as initially planned.

Conclusion – Future Work

The present study is part of an ongoing research, which aims to the construction of a precise model for planning efficient business continuity exercises regarding IT business functions or systems, based on scenarios of hard and mild crisis events. The target task of the current paper is the delineation of six Unexpected Recovery Factors (URF), which can significantly delay the recovery process of critical business functions. In these cases, the URFs act as modifiers since they will change the estimated IT recovery time, as it is expressed by the Maximum Acceptable Outage (MAO) and Rational Time Objective (RTO) timeframes. The second task achieved through the present work is the calculation of the Time Deviation from the initial recovery plan and the Total Recovery Time Effort required to restore the process under the assumption of the emergence of an unexpected recovery factor. The calculation is based on the Composite Risk Index theory of Risk Management. The maximum accepted time deviation is defined by the author as the recovery time of a business

function within double time from the initially defined value. Future research results will comprise of more detailed analysis of each factor, and the exact definition of multiple crisis event types and their corresponding disaster impact level and assessment values. Future work will also entail the application of the model to real public and private organizations. The idea is to compare existing recovery timeframes indicated by business continuity experts with the recovery time effort estimated by the delineated scientific contribution.

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The Impact of Innovation Activities on Firm Performances

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Abstract

The ability to innovate is generally assumed as a critical success factor for growth and future performance of companies. Drawing on data from both the *EU Industrial R&D Investment Scoreboard* and PATSTAT, the purpose of this study is to provide evidence of the impact of the investment in R&D on companies' innovation and financial performances. A three-stage model is tested with R&D effort influencing innovation performances, which, in turn, affect financial performances. Regression analysis confirmed the proposed model. The work offers clear implications for managers who should put additional emphasis on innovation, as it is an important element for achieving improved overall firm performance and sustainable competitive power.

Keywords: Innovation; R&D investments; patent counts; performances.

Introduction

Innovation is widely regarded as one of the most important sources of sustainable competitive advantage in an increasingly changing environment. Actually, innovation leads to product and process improvements, makes continuous advances helping firms to survive, allows companies to grow more quickly, be more efficient, and ultimately be more profitable than non-innovators (Atalay et al., 2013; Cheng et al., 2010; Edison et al., 2013).

The impact of innovation activities on firm performances has been a matter of significant interest to economists and policy makers for decades (Hashi and Stojčić, 2013). A large number of empirical contributions has confirmed that there is a positive relationship between innovation and company performance (Kafetzopoulos and Psomas, 2015). Just to name a few:

- Cainelli et al. (2004) show that innovating firms in the service sector out-perform non-innovating companies in terms of productivity levels and economic growth;
- Evangelista and Vezzani (2010) prove that the joint introduction of product, process and organizational innovations gives to manufacturing and service firms a clear competitive advantage vis à vis both non-innovating companies and firms with a narrow approach to innovation;
- Li et al. (2010) uncover a positive effect of two types of innovation activities - i.e. exploratory and exploitative - on performance;
- Gunday et al. (2011) state that innovation has a positive impact on firm's innovative, production, market and financial performances;
- Price et al. (2013) find a positive relationship between innovativeness and family firm performance.

The success of innovation inputs in the achievement of innovation outputs has been frequently analyzed within the framework of a knowledge production function, where the output is measured by indicators of innovation results (e.g., patent counts) and the input is principally R&D capital or R&D expenditures (Beneito, 2006).

The aim of this paper is to provide empirical evidence on the relation among in-house R&D, innovation performances and financial performances of companies (Figure 1). Several studies in literature investigate such issue employing R&D investment, patent filings and sales as framework's variables (e.g. Artz et al., 2010; Chakrabati, 1991; Hsu et al., 2013).

Figure 1. The theoretical framework

The work is based on the innovative behavior of 118 worldwide top R&D spending firms in three industries - automobile and parts, bio-pharmaceutical and technology hardware & equipment - from 2003 to 2014.
The paper proceeds as follows: first, the methodology is presented; then, results are discussed; finally, conclusions are outlined.

Methodology

Data were first collected from *The EU Industrial R&D Investment Scoreboard*, which annually reports the worldwide top R&D spending companies for the previous year: twelve scoreboards were available on the internet, from 2004 to 2015, and referring to the period 2003-2014. During this period, three sectors were constantly top spenders - automobile & parts, bio-pharmaceutical and technology hardware & equipment - thus we confined the analysis to them. Since we were interested in analyzing long-run innovative behaviors, we limited the analysis to only those companies that were constantly present in the scoreboards. Yet, the scoreboard only reports data such as R&D investment, sales, number of employees, but totally lacks as to the patents held by companies. For this reason, in order to obtain such data, PATSTAT database was used and some firms were discarded because they did not filled any patent application during the investigated period. The final sample consists of 118 companies, as described in Table 1.

Table 1. Sample description

Segment	No. of companies
Automobile	12
Parts	13
Biotechnology	7
Pharmaceutical	29
Computer HW and office equipment	10
Semiconductors	36
Telecommunications equipment	11
Total	118

For each of the three constructs of the framework, four possible metrics were considered: an absolute indicator, a relative measure and the growth of both (Table 2).

Table 2. The variables

R&D effort	Innovation performances	Financial performances
1. R&D investment [M€]	5. No. of patents	9. Sales [M€]
2. R&D intensity [%]	6. Patents per employee (*1000)	10. Sales per employee [k€]
3. R&D investment growth [%]	7. Patents growth [%]	11. Sales growth [%]
4. R&D intensity growth [%]	8. Patents per employee growth [%]	12. Sales per employee growth [%]

Results

Table 3 shows the results of one-way ANOVA as to the mean values of the investigated variables over the twelve-year period using segment as a discriminating factor. Statistically significant differences are found for almost all the variables. On average, Automobiles companies have higher values of R&D investment and sales and they are the only firms registering an average growth in the number of patents per employee during the period, but the highest number of patents is found for Parts companies, whereas the highest patents to employee ratio is achieved by Semiconductors firms.

Table 3. Mean values and one-way ANOVA by segment

Segment	R&D effort				Innovation performances				Financial performances			
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
Auto	1,944	3.83	2.79	-0.32	181	2.04	1.06	2.81	46,915	461	3.14	1.58
Parts	710	4.46	3.50	-1.35	340	3.88	-0.27	-2.17	14,173	204	4.87	2.49
Biotech	710	45.43	18.27	-0.69	6	3.64	-14.51	-22.75	3,306	542	18.78	8.86
Pharma	1,592	28.03	7.57	0.94	39	3.41	-12.43	-15.90	10,267	320	6.65	3.34
Computer HW and office eq.	769	7.80	7.59	-1.01	108	2.39	-6.26	-15.64	17,522	317	8.58	1.21
Semiconductors	509	19.36	7.05	-0.14	84	12.04	-8.48	-12.74	3,018	307	7.15	3.35
Telecommunications eq.	1,492	15.18	5.32	-0.79	242	8.60	-7.82	-13.62	11,177	308	6.15	2.34
Total	1,069	18.45	6.90	-0.19	123	6.37	-7.68	-11.69	12,499	330	7.09	3.13
Variance between	5.6E+06	2.4E+03	2.2E+02	1.1E+01	1.9E+05	3.3E+02	4.4E+02	8.8E+02	3.1E+09	1.3E+05	2.1E+02	5.2E
Variance within	2.0E+06	8.5E+02	4.5E+01	1.8E+01	6.8E+04	1.0E+02	2.4E+02	2.2E+02	2.9E+08	3.2E+04	4.6E+01	1.7E
F	2.882(*)	2.783(*)	4.841(**)	0.624	2.868(*)	3.199(**)	1.878	4.071(**)	10.657(**)	3.969(**)	4.530(**)	3.047

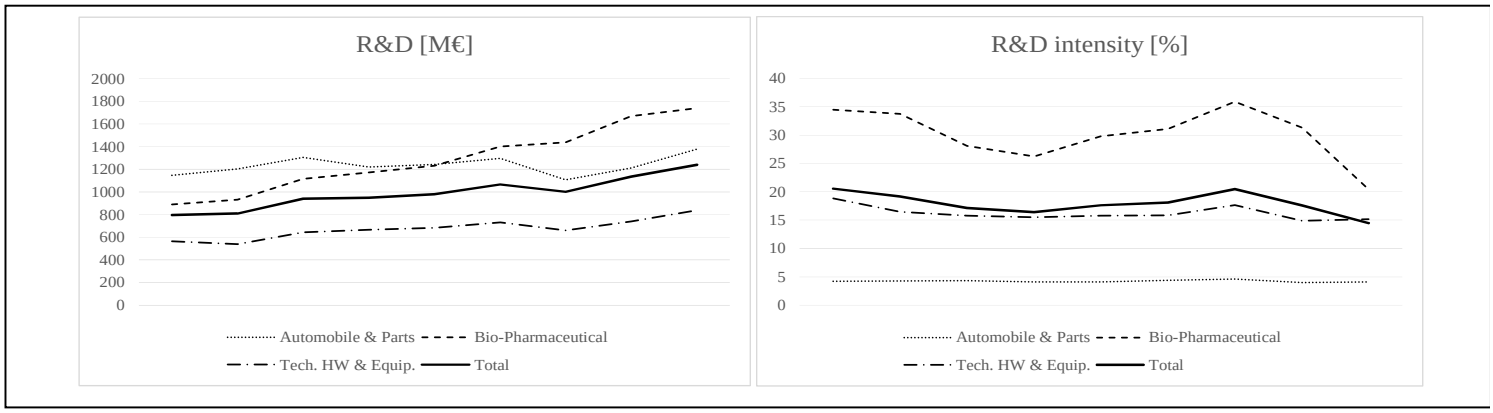
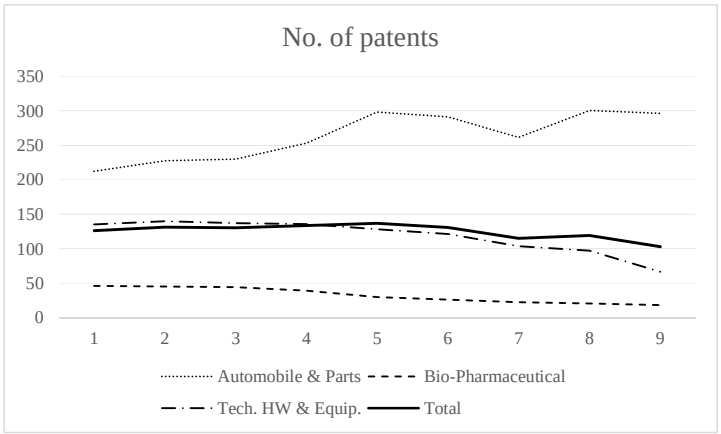
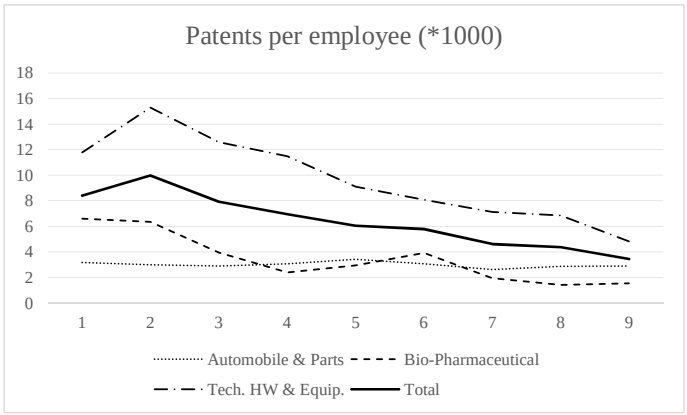
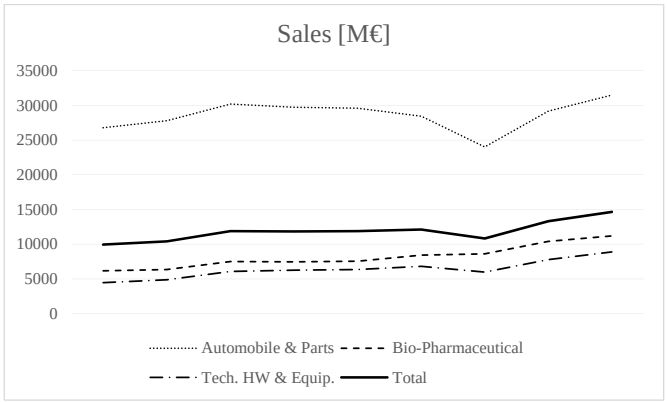


Figure 2. Trends of the investigated variables







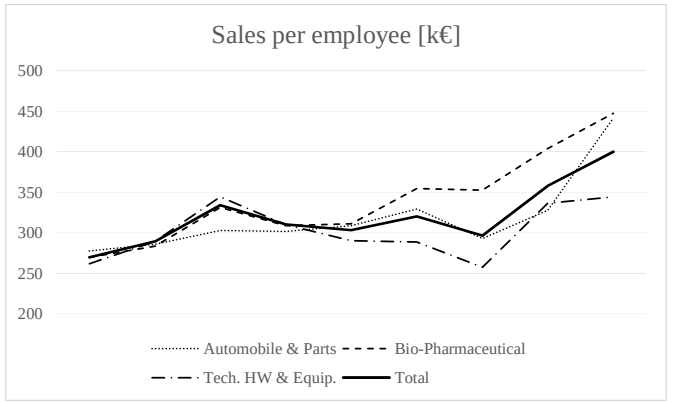


Figure 2. (continue) Trends of the investigated variables

Biotech companies show the highest values of R&D intensity and of R&D investment growth during the twelve years; furthermore, even if the absolute value of sales is small, if compared to the other segments, they have the highest value of sales to employee ratio and show the highest rates of sales growth. Looking at the sample as a whole, all variables show a generally increasing trend during the period, except the no. of patents, the patents per employee and the R&D intensity (see also Figure 2).

For each year of the period under investigation, correlation analyses were performed: the Shapiro-Wilk test of normality was employed and, since the data do not show a normal distribution, Spearman correlation was used. Actually, during the investigated period, the relationships between the different variables were quite stable, therefore, for brevity's sake, only correlations between the mean values are reported (Table 4).

Table 4. Spearman's correlation

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1.	1											
2.	-.071	1										
3.	-.039	.246(**)	1									
4.	.058	.048	.383(**)	1								
5.	.639(**)	-.304(**)	-.220(*)	.098	1							
6.	-.099	.274(**)	-.040	-.111	.463(**)	1						
7.	.015	-.150	.192(*)	.150	.165	.140	1					
8.	.048	-.204(*)	-.078	.127	.183(*)	.016	.886(**)	1				
9.	.875(**)	-.502(**)	-.198(*)	.200(*)	.675(**)	-.225(*)	.091	-.004	1			
10.	.459(**)	.137	-.044	-.045	.070	.005	.154	-.050	.320(**)	1		
11.	-.100	.205(*)	.803(**)	-.159	-.181(*)	.182(*)	.109	-.188(*)	-.193(*)	.182(*)	1	
12.	-.056	.334(**)	.070	-.392(**)	-.193(*)	.010	-.146	-.062	-.179	.172	.249(**)	1

(**) the correlation is significant at .01 level, (*) the correlation is significant at .05 level

All the three absolute indicators are positively correlated each other, suggesting that when innovation input (i.e. R&D investment) is high in entity, also its outputs (patents and sales) are high. Positive correlation is also observed between two of the three relative metrics - R&D intensity and patents per employee - confirming the input-output relationship. R&D intensity is also positively related to R&D, sales and sales per employee growth, denoting that the companies that invested greater portions of their sales in R&D had higher growth during the analyzed period. Yet, R&D intensity is negatively linked to the number of patents and to the sales, suggesting that the companies intensively investing in R&D are quite small.

R&D growth during the investigated period is associated with patents growth, suggesting that additional efforts in R&D are capable of producing an increase in the number of patents. Yet, R&D growth is negatively related to the absolute values of both patents and sales, pointing out that such increase is mainly observed in small companies. While the total number of patents is positively associated to sales, the patent to employee ratio shows a negative correlation, denoting that the smallest companies have a higher efficiency as to the patenting process.

In order to deepen the understanding of the relationships among the variables under investigation, regression analyses were performed. The regressions were performed after a cross-section perspective, using the data of R&D investment from 2003 to 2010, number of patents from 2004 to 2011 and sales

from 2007 to 2014. Thus, for each company we had eight observations, for a total number of 944 statistical units. Furthermore, three dummy variables (AU-PA, BIO-PH, THE) defining the three sectors were used as controls.

Several regression models were tested in order to find out:

1. which of the four variables describing each construct provides the best fit;
2. which time-lag should be used between independent and dependent variables;
3. which is the shape of the relationships.

The best fit was obtained when (Table 5):

1. the three absolute metrics are used, i.e. R&D investment, number of patents and sales;
2. the time-lag between R&D and patents is one year, the delay between patents and sales is three years;
3. a cubic model is used.

Some considerations can be made as to the time-lags. In the relationships between R&D investment and patents only one year was found as delay: this is certainly due to the prevalence, within our sample, of companies operating in the technology hardware & equipment industry. As a matter of fact, in this sector the new product development process is fast due to the high obsolescence of technology. Indeed, the date registered by PATSTAT is the application date, i.e. the date in which the applicant requests for the patent, which is reasonably near to the moment in which the innovation effort has been made. This also explains the longer time-lapse obtained between patent and sales, since from the application to the approval of a patent at least 18 months are spent.

Table 5. Regression analysis

Independent variable: R&D investment Dependent variable: no. of patents										
Model	Model summary			Coefficients						
	Adj. R Square	F	Sig.	constant	b1	b2	b3	AU-PA	BIO-PH	THE
Linear, no controls	.134	146	.000	50	.076					
Linear, AU-PA	.185	108	.000	21	.071			162		
Linear, BIO-PH	.202	120	.000	94	.084				-166	
Linear, THE	.135	75	.000	32	.079					33
Quadratic, no controls	.209	126	.000	-7	.237	-3,4E-5				
Quadratic, AU-PA	.250	106	.000	-30	.221	-3,1E-5		145		
Quadratic, BIO-PH	.270	117	.000	37	.236	-3,2E-5			-157	
Quadratic, THE	.212	86	.000	-28	.241	-3,4E-5				37
Cubic, no controls	.210	85	.000	3	.190	-9,5E-6	-2.9E-9			
Cubic, AU-PA	.253	81	.000	-15	.150	4,9E-6	-4.3E-9	149		
Cubic, BIO-PH	.271	89	.000	48	.186	-6,7E-6	-3.0E-9		-157	
Cubic, THE	.213	65	.000	-18	.198	-1,2E-5	-2.6E-9			35
Independent variable: no. of patents Dependent variable: sales										
Model	Model summary			Coefficients						
	Adj. R Square	F	Sig.	constant	b1	b2	b3	AU-PA	BIO-PH	THE
Linear, no controls	.135	147	.000	9,943	28					
Linear, AU-PA	.236	147	.000	6,989	21			17,821		
Linear, BIO-PH	.134	74	.000	10,393	27				-1,300	
Linear, THE	.185	108	.000	14,835	27					-10,032
Quadratic, no	.234	145	.000	6,347	75	-.023				

controls										
Quadratic, AU-PA	.313	144	.000	4,139	64	-.020		15,824		
Quadratic, BIO-PH	.235	97	.000	5,473	78	-.024			2,195	
Quadratic, THE	.301	136	.000	11,659	79	-.025				-11,485
Cubic, no controls	.277	121	.000	4,512	120	-.104	2.4E-5			
Cubic, AU-PA	.338	121	.000	2,942	100	-.084	1.8E-5	14,150		
Cubic, BIO-PH	.281	93	.000	2,997	125	-.109	2.5E-5		3,601	
Cubic, THE	.341	123	.000	9,768	121	-.103	2.3E-5			-11,218

Another observation can be pointed out as to the shape of the two curves (Figures 3 and 4).

The number of patents exhibits an inverted-U shape but, in the range of observed values for R&D investment, the decreasing branch is only hinted. The trend suggests a decreasing productivity of R&D efforts: for small values of investments, the growth of R&D implies an increase in the number of patents, but such increases are smaller and smaller as investments grow, until a saturation is reached. This can be explained because, even if R&D investments are necessary to generate new patents, over certain thresholds they may be no more sufficient, and other issues have to be taken into account. As to sales, they show a generally increasing trend with the number of patents, with an intermediate range of values where a quite flat tendency is observed. The finding proves that patents are particularly able to generate sales either for small companies - which can sometimes rely only on one proprietary technology for their competitive power - or for very large ones, where technology and innovation management processes are well structured and organized towards the maximization of results.

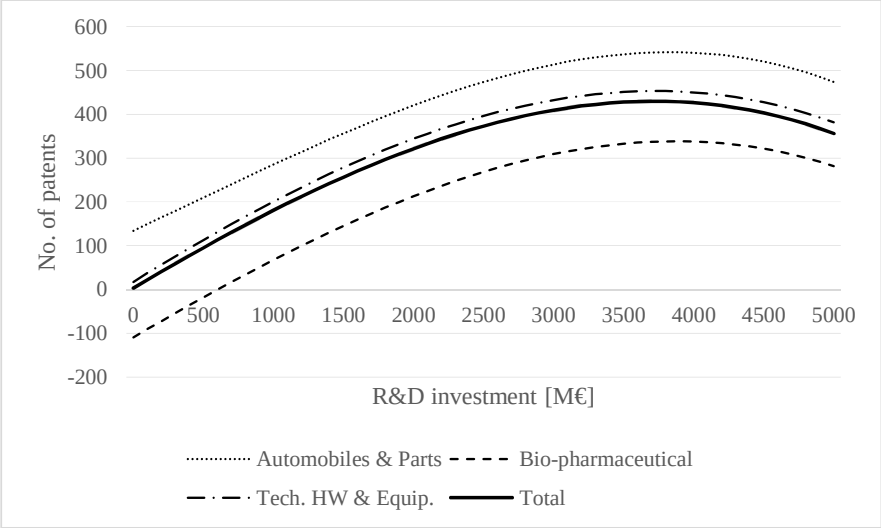


Figure 3. Regression curve of number of patents as a function of R&D investment (cubic model)

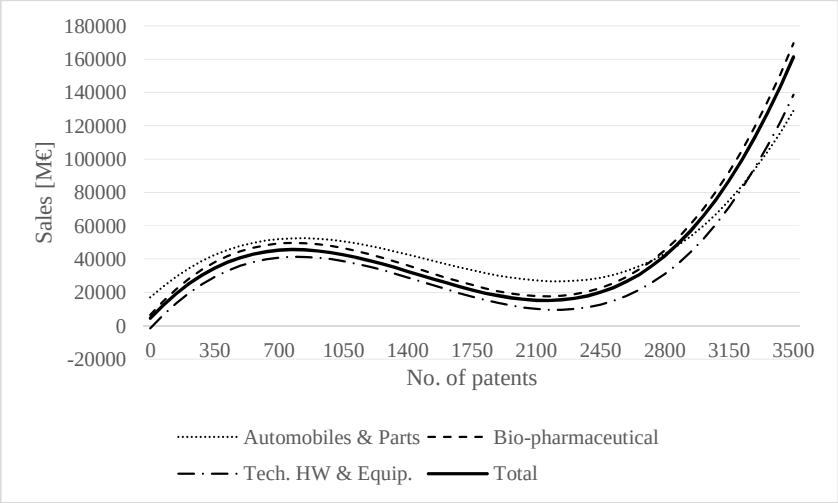


Figure 4. Regression curve of sales as a function of number of patents (cubic model)

Finally, the relation between R&D investment and no. of patents is positively influenced by automobile & parts and technology hardware & equipment industries, negatively by the bio-pharmaceutical sector. On the contrary, the linkage between no. of patents and sales is positively mediated by automobile & parts and bio-pharmaceutical sectors, negatively by the technology hardware & equipment industry. Therefore, carmakers and part producers are more able to transform their R&D investments in patents and their patents in salable products.

Conclusions

The impact of innovation on performances has been a matter of significant interest to economists and policy makers for decades. This paper aims at entering the debate by giving additional evidence of the impact of R&D investment on innovation and financial performances of companies.
A three-stage model was proposed, where R&D effort influences the innovation performances, which, in turn, affect financial results. The model was tested on a sample of 118 worldwide top R&D spending firms in three industries - automobile and parts, bio-pharmaceutical and technology hardware & equipment - by analyzing their R&D investments, number of patents and sales over a twelve-year period from 2003 to 2014. Empirical evidences confirmed the validity of the model (Figure 5).

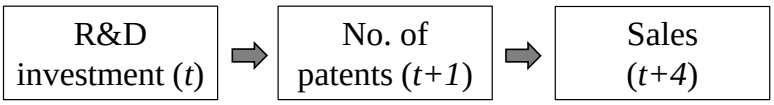


Figure 5. The empirical model

The paper provides clear implications for managers who should put additional emphasis on innovation, as it is an important element for reaching improved overall firm performance and sustainable competitive power. Yet, the work has some limitations, mostly linked to the fact that it is a first attempt to understand a very complex phenomenon: trying to synthesize innovation by the use of only three indicators can be an excessive simplification. Furthermore, the analysis is limited to three sectors, all characterized by high levels of R&D investments; therefore, the results are not generalizable to low-tech industries.

Future development of the work will include the investigation of the open innovation models (Michelino et al., 2015a) as well as of the technological strategies companies implement (Michelino et al., 2015b) and will be addressed to the analysis of more industries, in order to enhance generalizability.

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The Management of Agricultural Land in the Danube Delta Using Remote Sensing

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Abstract

The management of agriculture is an area which lately has depended heavily on the information provided by remote sensing. This information is used to monitor agricultural plantations, soil water content, or their evolution in time and space. In conjunction with the rapid advances in computing and position locating technologies, remote sensing platforms are now capable of providing detailed spatial and temporal information on plant response to the local environment that is needed for the site specific agricultural management approaches. For this study, the Danube Delta was chosen, as it is a unique place with a great agricultural potential. The images that were used in this article were offered for free by the Landsat 8 satellite and were combined in ArcMAp10.1.

Keywords: agriculture, Danube, Landsat, land cover

Introduction

The territory of the Danube Delta reserve covers an area of about 580,000 hectares. This area comprises the Delta itself, the complex lake Somova – Parcheş, the lake Plover - Murighiol and the marine area between the coast and 20 m isobaths.

The geographic position of the reserve is defined by the following geographic coordinates: $28^0 10' 50''$ (Cotul Pisicii), $29^0 42' 45'$ (Sulina), $45^0 27'$ eastern longitude, (Chilia, km 43) and $44^0 20' 40''$ (Cap Midia) in the north.

From the total reserve, 312 440 hectares are represented by the natural ecosystems of aquatic and terrestrial areas included in the list of World Heritage and those for ecological restoration areas that represent the public land of national interest. The remaining areas include dammed areas for fishery, agriculture and forestry (80.000 ha) and areas that comprise private or public land of local interest within towns or municipalities (29.000 hectares), and a marine buffer zone of about 103.000 hectares. The Delta is situated on the territories of three administrative districts:

Tulcea 48, 9 %
Constanța 2, 89%
Galați 0,098%

The Tulcea County is located in the western part of Romania, at the influx of the Danube into the Black Sea. The territory is bordered in north by the Galați County, in the west by the Brăila County, in the south by the state border between Romania and Ukraine. The Tulcea County has an area of 8497, 75 km and occupies 3.5% of Romania, being the 4th largest in the country.

The land areas of the Danube Delta do not include the marine buffer zone, which has an area of 1030 sq. km and the marine economic zone which has an area of 374, 92 sq. km.

The agricultural lands occupy an area representing 11.6% of the Delta and are mainly concentrated in the proportion of approx. 68% in the river delta, which is more developed in terms of morphologically and pedologically.

Out of the 61220 hectares of agricultural land, over 54% are in agricultural areas which are dammed and drained, and the remaining ones are on the Chilia field, the marine levee deposits, the shore levees of the main arms and the river-marine levees. The agricultural land is exploited, the highest share being represented by the arable land (67.61%), followed by the natural grasslands (32.04%). The vineyards and orchards occupy an insignificant percent (0.34%) and they are usually located inside villages on private lots of residents.

The agricultural land located on marine, deltaic plain levees of shore which are under a free regime of flooding are occupied by pastures and small arable land which is traditionally exploited by the local population, most of them being breeders and small producers of cereals, vegetables and fodder.

Also, an important role in the Danube Delta is played by natural grasslands which occupy an area of 22.490 hectares, the great majority of areas being represented by communal fishponds which occupy an area of 2.160 hectares.

In terms of genetics, the Danube Delta is the youngest territory of Romania. The soils are young, many are still developing, and the process of pedogenesis is at the beginning. The soils of the Delta formed and evolved under circumstances of cyclical flooding; they are defined by hydromorphy, generally prevailing the gley soils.

The Delta climate falls within the temperate continental climate with pontic influences, thereby it singularizes itself as a complex topoclimate. This complex topoclimate is set at the geographic position (45 ° latitude) and reduced altitude (0-12 m), comprising large areas of water and pond vegetation, sand banks and marine levees consisting of sands with varying degrees of coverage, scrub and grass vegetation, and having a wide opening to the Black Sea.

The general circulation of the air is zone-specific, western-type the most part of the year, which causes the advection of moist sea air. The great coolings during winter are due to the continental air invasions of the southern periphery of the eastern European anticyclone or due to the Arctic advection in the long-wave through movement. The Mediterranean cyclones entering the Black Sea - have a particular evolution, most often retrograde - determines abundant rainfalls and strong winds from the east-northeast.
Thus, the thermal condition (air temperature) is moderate with a slight increase from west to east.

Materials and Methods

The satellite remote sensing currently applies to various fields, including monitoring of different areas of land. This led to the understanding of natural phenomena and processes taking place on our planet.

Rogan J and Chen DongMei (2004) mentioned that the myriad of satellite systems which are equipped with various sensors allows the takeover of records with different spatial, spectral, radiometric and temporal resolutions, thus dictating the type of the application to be used.

In the case of optical sensors, the bands in which images are taken and in the case of radar sensors, the angle of incidence and tape are highly important as they set out the application.

The vegetation covers a large proportion of the study area. In order to achieve the vegetation dynamics analysis or evaluation of its state, remote sensing can be used. According to Campbell J. B. (1987), the main advantage is the ability of vegetation to reflect incident electromagnetic radiation, thus providing qualitative and quantitative information about the status.

For the analysis of the study area, images offered for free by the satellite Landsat 8 were used. These images are for a selected surface of the Danube Delta and were downloaded from the portal: http://glcf.umd.edu/. Spatial resolution is: 15 meters/30 meters/100 meters (panchromatic/multispectral/thermal).

In the paper by Roy D.P. et al. (2014), it is said that changes involved in using the land cover are an important part of global changes affecting the environment. These changes are altering (increasing or decreasing) the density and composition of details of land and the conditions, all being registered by the satellite image.

Landsat 8 includes additional bands, as the combination used to create RGB (Red, Green, Blue) composites differ from Landsat 7.

Landsat 8 is used for agriculture monitoring and depends on different ranges of frequencies along the electromagnetic spectrum – because a color is not necessary visible to the human eye. Each range is called a band, and Landsat 8 has 11 bands (Short, N., 1982).

A widely used method to detect changes is the combination of spectral bands resulted in imagery that reflect colors depending on the order of bands used and their spectral response.

Band 1 senses vivid blue and violet. The blue light is hard to collect from space because it is easily scattered by tiny bits of dust and water in the air, and even by air molecules.

Bands 2, 3 and 4 are visible blue, green and red. Bands 5 measure the near infrared. This part of spectrum is especially important for monitoring agriculture land as the healthy plants reflect it. The water in their leaves scatters the wavelengths back into the sky.

By comparing it with other bands, indexes like NDVI are determined, which allow us to measure the plant health more precisely than in situations when we usually looked at visible greenness (Small C. 2002).

Bands 6 and 7 cover different slices of shortwave infrared or SWIR. They are particularly useful for distinguishing wet earth from dry earth, and for geology: i.e. rocks and soils that look similar in other bands often have/show a strong contrast in SWIR.

Band 8 is the panchromatic band. It looks like a black and white film: instead of collecting visible colors separately, it combines them into one channel.

Results and Discussion

For the Landsat 8 satellite, the most used combinations of bands to interpret vegetation characteristics are the following (GDSC, 2014):

1. Bands 123 (band 1 coastal/aerosol, band 2 in blue and band 3 in green). This combination image shows how reality is perceived. Band 3 (green) generally permits the differentiation of the main types of vegetation: forests and meadows (Figure 1).

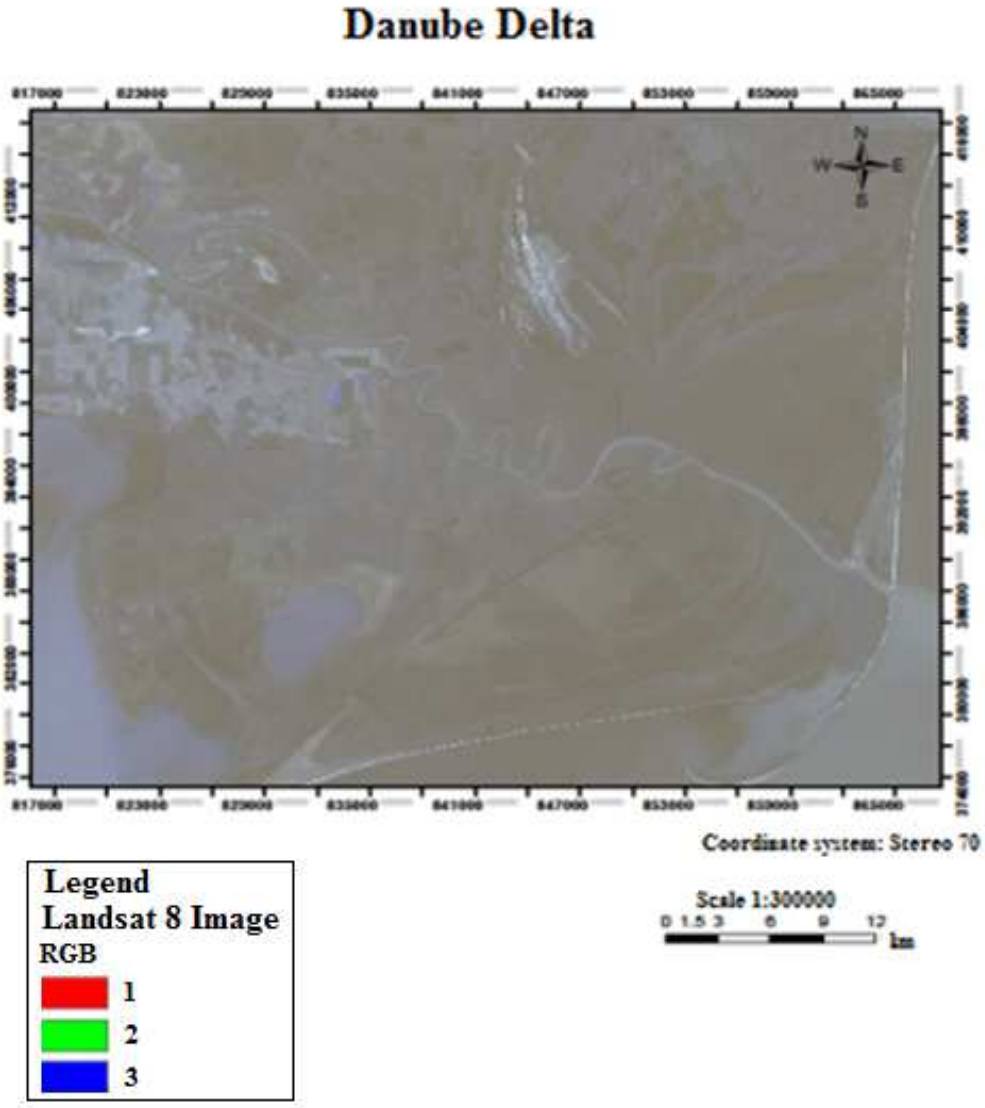

Figure 1: Landsat 8 – bands 123

2. Bands 234 (band 2 in blue, band 3 in green and band 4 in red). Band 4 allows the differentiation of vegetation types through the image analysis where lighter tones represent a stronger spectral response (Figure2) (Lillesand, T.M., Kiefer, R.W., 1994). In this image, it can be observed that the vegetation signal represented by the green band (band 3) is much lower than the vegetation signal represented by band 5 (NIR).

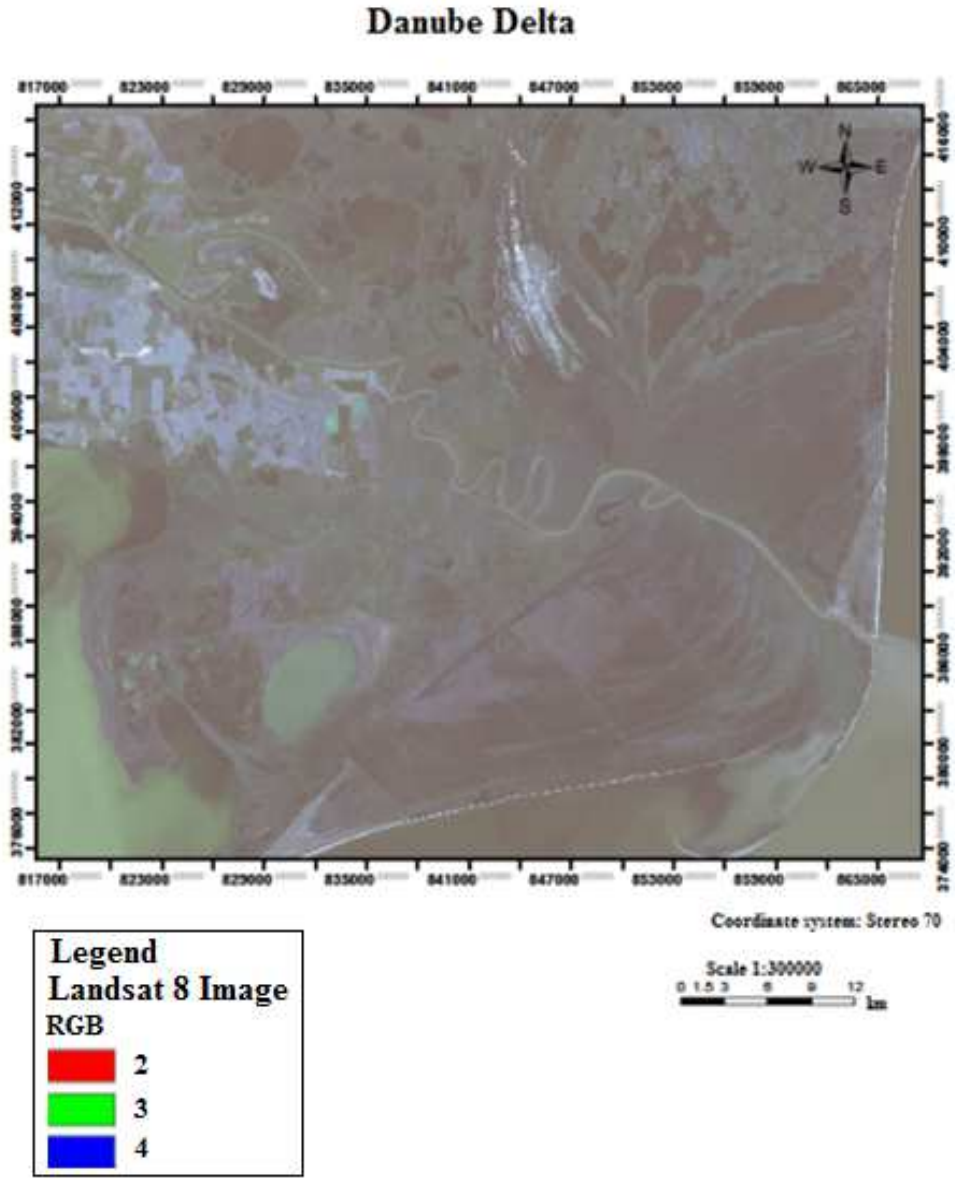

Figure 2: Landsat 8- Bands 234

3. Bands 247 (band 2 in blue, band 4 in red and band 7 SWIR). Band 7 provides information about the amount of water in the substrate and in the plant tissues. By analyzing this image, it can be seen the alluvial cone formed at the mouth of the Danube to the Black Sea (Figure 3). Furthermore, it can be noticed in the upper left side of the image the area in which cities are developed.

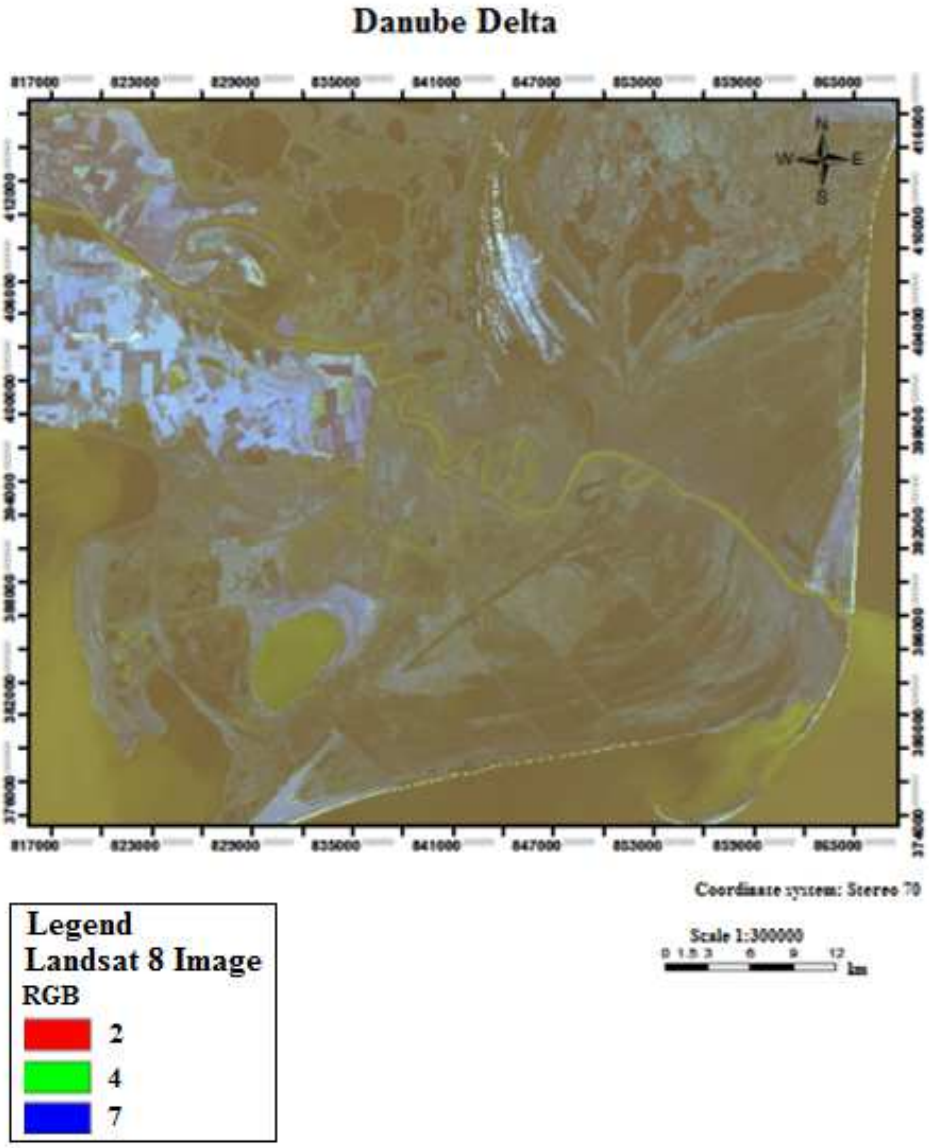

Figure 3: Landsat 8 – Bands 247

4. Bands 735 bands (Band 7 SWIR, band 3 in green and band 5 NIR). In this combination of bands, band 7 provides information about the content of water in the area. It can be observed the precise delineation of areas with farmland and areas without crops. The flooded areas of the Danube Delta are shown in green shades, and it can be observed that the alluvial cone in this image is well-defined (Figure 4).

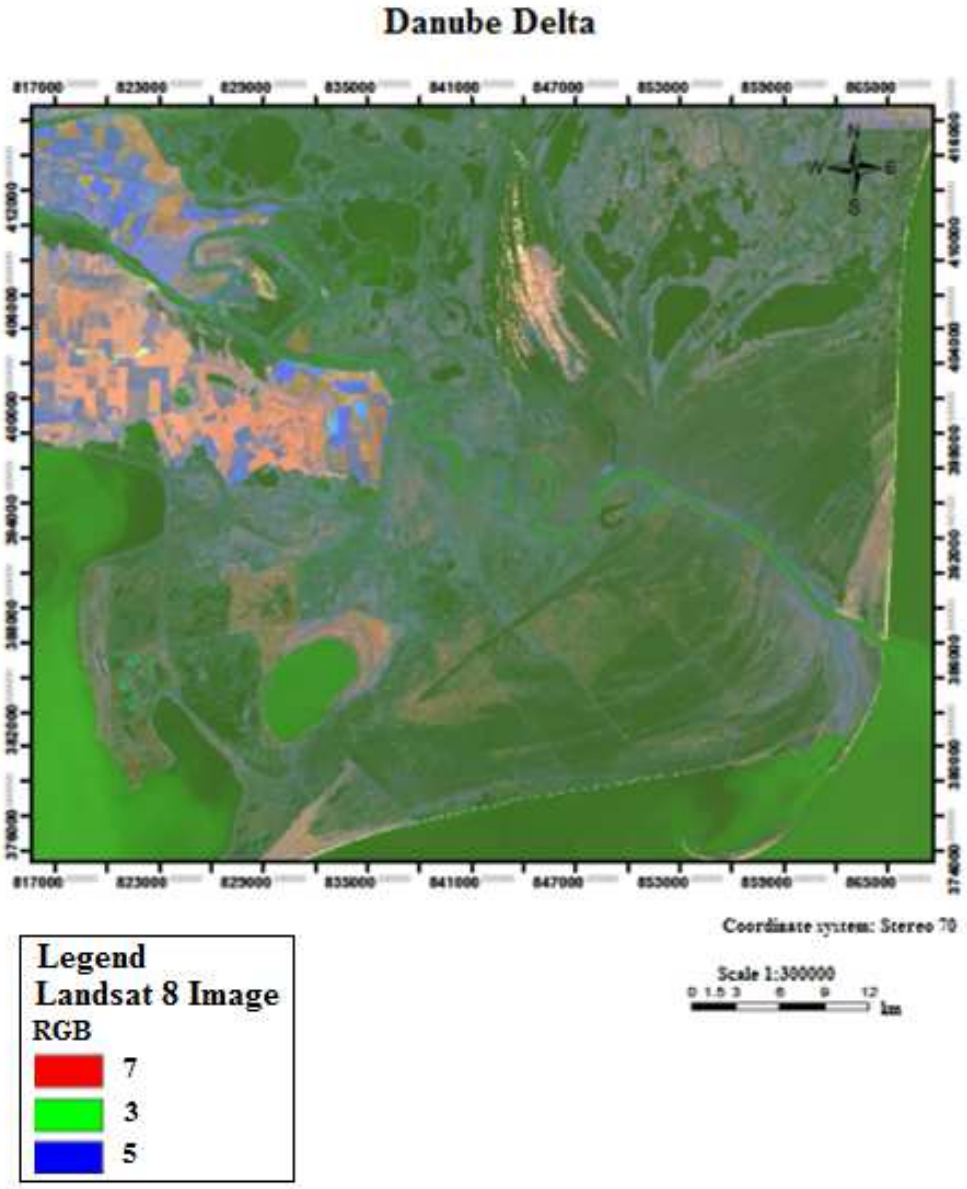

Figure 4: Landsat 8 – bands 735

5. Bands 742 lane (band 7 SWIR, band 4 in red, band 2 lane in blue). By analyzing this image, it can be observed a major difference in the combination shown above (bands 735). Through this combination, the flooded areas and the evident agricultural land area in the north- western of the satellite scene are delimitated. The Danube has a green tint which is different from the inundated zone. Also, it can be observed in a yellow color the dunes that border the Danube Delta (Figure 5).

This combination of bands has similar properties to the properties resulted from the combination of bands 453, the only difference between them being the green color of vegetation. It is worth mentioning that the Landsat 7 combination of bands 742 was selected for the global mosaic created for NASA.

The combination was used to outline the lithological units, and the structural and morphological features as well. The Bands 742 distinguish clearly between the basement rocks whereas the

difference between the bands 4 and 2 highlights the differences in lithology between pure limestone and more sand cover (Mwaniki M.W, 2015).

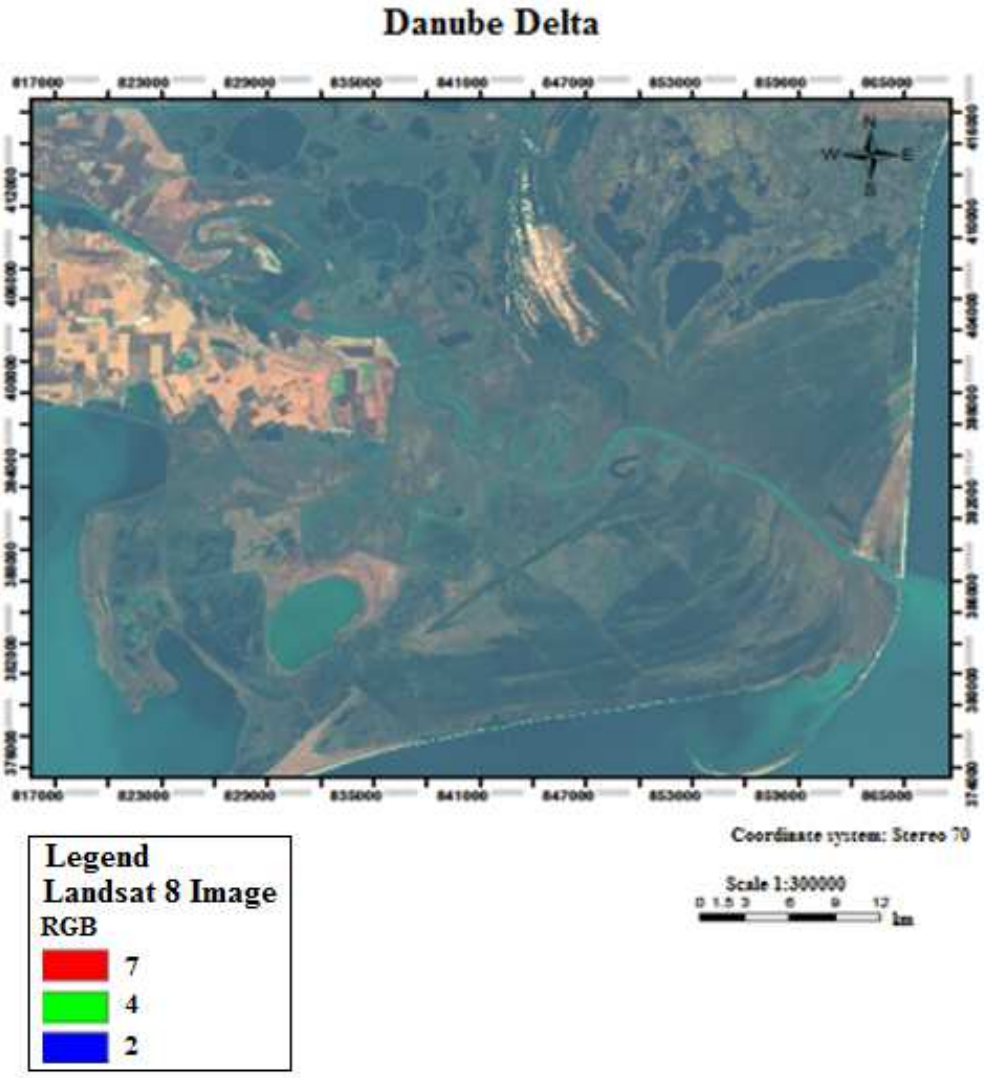

Figure 5: Landsat 8 – bands 742

Conclusion

The aim of this study was to present the possibility of using remote sensing in land changes. We would like to emphasize that the study area is one of the most important in Europe, because these lands offer the possibility to develop a sustainable agriculture.

The satellite images can help monitor the land located in Delta. In the near future, our aim is to establish a temporal evolution of land in this geographical area. For this purpose, images for a period of 10 years will be downloaded in order to identify the changes that occurred in that period of time.

Last but not least, the combination between GIS and remote sensing provided us a lot of information about the land cover of this study area and the spatial distribution of different land cover changes.

In conclusion, the satellite imagery, including Landsat 8, plays an important role in developing crop production estimates (i.e. particularly the Danube Delta area has a lot of land which is cultivated with different types of grain).

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A Study on the Economic Impact of Emission Reduction in The Shipping Industry

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Abstract

Concerning the maritime transportation industry, according to the International Maritime Organization (the United Nations' regulatory body to ensure that the shipping industry contribution in emissions' reductions is managed effectively) CO_2 emissions have increased by almost 70 per cent in the last 25 years. As a result of the imminent threat, the European Commission together with the organizations concerned with the decrease of the pollution level and the control of the greenhouse gas emissions decided to regulate the system through the introduction of new threshold via legislative measures. The paper highlights the results of a doctoral research concerning ship owners attitudes towards sustainable strategies designed to meet the requirements of the new regulations imposed by the International Maritime Organization. The first objective is to reveal the relevant measures undertaken by shipowners to support the decrease in greenhouse gas and non- greenhouse gas emissions. The second objective concerns to what extent these measures might economically influence the organizations performance and which are the benefits of implementing the policy mechanisms within the current economic environment.

Keywords: energy efficiency, greenhouse gas, sustainability, new-buildings

Introduction

It has been established that the transportation industry comprising all its modes has to meet many requirements and fulfill the challenge of economy, society and environment (Abdallah, Belloumi and Wolf, 2013).

Nowadays, more concern within the shipping industry is given to the environmentally sustainable strategies that might decrease the impact of air pollution from ships and to reduce, even to extinguish where possible, any risk related to the sewage and harmful substances from ships. As Comtois and Rodrigue (2013) suggested, the environmental impacts of the transport modes are in a direct link with their supply energy systems, their emissions and the infrastructure over which they operate, so the efficient management of the operations, trained crews effectively guided and a deep understanding of the regulations in force are the key tools to reduce greenhouse gas.

The paper will assess shipowners approaches in their attempt to comply with international regulations and how this approach might economically influence the maritime industry. According to Endresen et al. (2008) the shipping industry represents an important contributor to the global greenhouse gas emissions as a result of the use of fossil fuel in their operations. Joumard and Gudmundsson (2010) reinforced this statement adding that transportation is a field of activity with a prominent role in the society, but raising great concerns as regards to the impact and consequences on the environment. Figure 1 highlights the rapid growth in CO_2 emissions from international shipping, as presented within the International Maritime Organization (IMO) in 2009.

Furthermore, statistics according to the International Maritime Organization suggest that under the current policy, shipping emissions are expected to rise significantly, by 50 to 250 per cent (IMO GHG Study, 2014). As a result, reducing emissions resulting from anthropogenic greenhouse gas is imperative and shipping companies are facing economic challenges as most of their fleet is not new and most of the vessels are not in compliance with the current requirements thus are in need of

conversion and technological improvements. The decision –making concerning investing in new vessels is a complex process as ship-owners face fluctuant prices of fossil fuels.

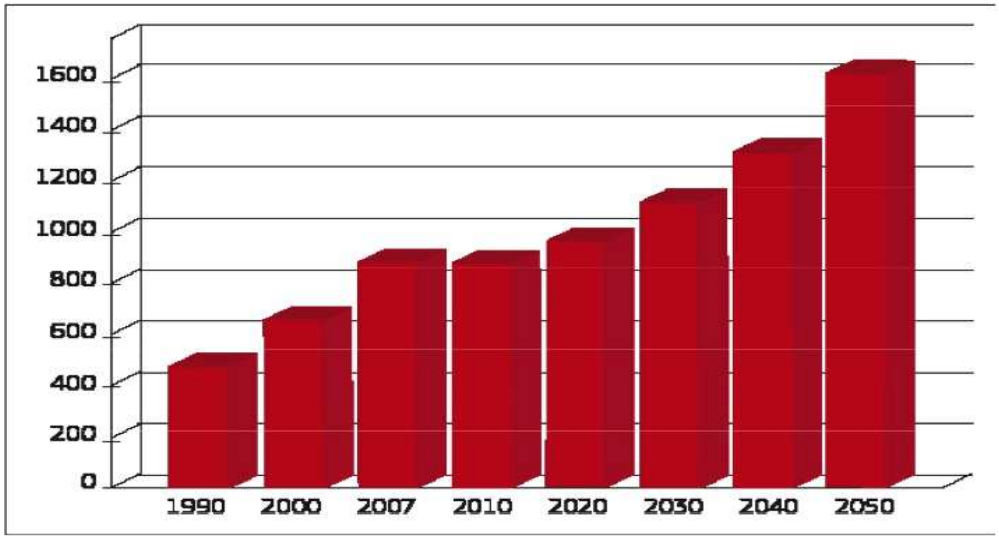

Figure 1: Estimated CO_2 emissions in million tonnes per year (Sources: 2nd IMO GHG study 2009 for emissions until 2007; MEPC 63/INF 2 for average scenario projections 2010-2050)

1. Literature Review

Climate protection, shifting to a renewable power base, reducing the energy consumption and increasing energy efficiency are the key approaches to stop global warming (Hennicke and Welfens, 2012), (Pollak et al., 2010). As a consequence, the energy economics being limited by ecological constraints (Barbian, 2001) are worldwide facing ongoing system changes. In this respect, according to Helfre and Boot (2013) the shipping industry has been given various opportunities to switch to a more sustainable behaviour.

Under the Greenhouse Gas (GHG) Protocol, six gases are categorized as greenhouse gas, CO_2 being the most relevant to the shipping industry. In addition, globally, 1,050 million tonnes of CO_2 were emitted by shipping in 2007, doubling 1990 levels (Helfre and Boot, 2013), CO_2 emissions representing approximately 3% of the world's total CO_2 emissions (Buhaug et al, 2009).

On the other hand, shipping produces other air emissions, most notably sulphur oxides (SOx), nitrogen oxides (NOx) and particulate matter (PM). It is important to establish the fact that the shipping industry is among the top emitters of SOx.

A total of 2.3 million tonnes of SO2 (the most common sulphur oxide) was emitted by ships in the seas surrounding Europe in the year 2000. Globally, 15 million tonnes of SOx were emitted by shipping in 2007, representing a 50% increase from 1997 levels. Moreover, SOx emissions from shipping represent between 5% and 8% of the world's total SOx emissions (Helfre and Boot, 2015).

IMO has defined the Emission Control Area, where more stringent rules and regulations are applicable for type of fuels and emission from ships. MARPOL Annex VI defines two sets of emission and fuel requirements: (1) global requirements, and (2) more stringent requirements applicable to ships in Emission Control Areas (ECA). An Emission Control Area can be designated for SOx and PM, or NOx, or all three types of emissions from ships, subject to a proposal from a Party to Annex VI Marpol (Hasan, 2011). There are currently various active Emissions Control Areas (ECAs) in Europe, such as the Baltic Sea area and the North Sea area (only for SOx).

In addition, IMO regulated North American area for SOx, NOx and PM; the United States Caribbean

Sea area for SOx, NOx and PM (came into force in January 2013 and are in effect from January 2014). Currently, China has published new regulations designating three areas as sulphur control areas effective January 1st 2019 (DNV GL, 2015).

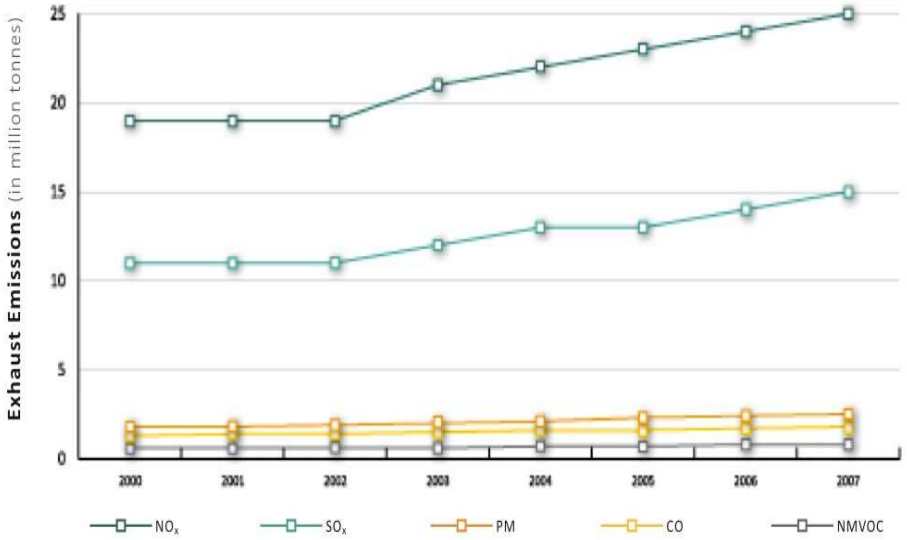

Figure 3: Global Non-Greenhouse Gas Emissions from Shipping (Source: International Maritime Organization, "Second IMO GHG Study 2009.")

2. Research Methodology

Desk research has been undertaken by the author in order to attain the objectives stated. The first objective targeted is to reveal the relevant measures undertaken by shipping companies to decrease the level of greenhouse gas and non- greenhouse gas emissions within the vessels' operations. There were analyzed theoretical considerations regarding the new regulations imposed by the International Maritime concerning the decrease in CO_2 emitted by worldwide vessels.

To achieve the second objective – namely to present to what extent these environmentally - friendly measures mighteconomically influence the shipping companies' performance, the author, based on the statistics gathered from the international organizations that monitor greenhouse gas emission, identified the costs shipping companies must support in order to meet the imposed regulations.

3. Research results concerning ship owners approaches in ensuring compliance with the European Emission Control Areas (ECA's) and the International Maritime Organization Regulations

Desk research targeted various technological measures to be the main tools in adopting more sustainable operations in the near future, based on eco- efficiency analysis. Although there is already a range of available measures in use, the most productive ones are thought to be the increase in propulsive efficiency and the increase in power production efficiency. Moreover, measures such as reduction in ship resistance and the reduction in auxiliary consumption are expected to highly increase as part of more sustainable operations.

It has been illustrated that lately, the International Maritime Organization encouraged a regime based on analysis and cost effectiveness assessments, the main tool within this process being the Formal Safety Assessment (Eide et al., 2009). Although highly technical and complex, recommendations as the result of the FSA might be a powerful tool in decision-making to prevent economic difficulties for the maritime companies in situations that their operational activities might cause negative

impacts on the environment.

However, as Eide et al. (2009) highlighted, there is number of measures, which have already been applied to reduce greenhouse gas emissions, such as emission taxes and hybrid schemes that established targets and standards within the industry. As a result of the mandatory requirements imposed by IMO, shipping companies' attempt to become green and improve reputation among stakeholders in order to reduce consumption and ultimately to gain profits has reified in a range of measures, such as technological measures that include energy- saving engines, more efficient ship hulls and designs, cleaner fuels (natural gas, alternative fuels); operational measures which include speed optimization, optimal fleet management and deployment, efficient, supply chain management, and others that impact the logistical operation. Other approach includes the market-based measures, which include the Emissions Trading Schemes (ETS), an International Fund based on a contribution imposed on fuel (Psaraftis, 2012).

Except for the care of their regulation compliance and ultimately their reputation, shipowners must protect their capital and find viable, cost- effective solutions to ensure compliance with the ECA regulations and IMO legislation. Although such procedures require substantial investments within the current technical situation of the fleet and the lack in mature technology, most of the shipping companies adopted early strategies to meet the forcoming legislation.

The Monitoring Plan of CO_2 emissions (MP)

According to the European Commission (2015) the Monitoring Reporting and Verification Regulation (MRV) system is estimated to cut CO_2 emissions by up to 2% compared with a 'business as usual' situation. Furthermore, as the International Institute of Sustainable Development (2014) stated, establishing an MRV regime will need to involve designating responsibility to regulatory entities to oversee, approve and coordinate MRV at the local, subnational, national and international levels. Roles and responsibilities have to be defined and existing capacities assessed in order to determine where capacity or policy gaps exist.

Desk research suggested that the MRV system would reduce net costs to owners by up to €1.2 billion per year by 2030.In addition, it might bring useful insights into the performance of individual ships, their associated operational costs and potential resale value (DNV GL, 2015).

As a result of all the regulations in force concerning vessels' emissions caused by their daily operations, companies with responsibility on the ships' operations have to report the results of previous year's annual monitoring of aggregated CO_2 emissions emitted. The IMO regulations lay down rules for the accurate monitoring, reporting and verification of CO_2 emissions and other relevant information from vessels above 5000 gross tonnage (GT) calling at European ports.

International Maritime Organization Energy Efficiency Design Index (EEDI)

IMO defined energy efficiency as grams of CO_2 per tonne nautical mile and IMO formulated the EEDI as a measure of a ship's CO_2 emissions. EEDI is calculated using characteristics of the ship at build, incorporating parameters that include ship capacity, engine power and fuel consumption (Rightship, 2013).

The new ships contracted as of 1 January 2013 and with delivery not later than 30 June 2015 must have an attained index at or below the EEDI reference baseline. For vessels with a building contract from 1 January 2015, the baseline is reduced by ten per cent. The baseline is further reducing for contracts placed as 1 January 2020 (ABS, 2013). As a result, this would have a bias on the implementation of energy efficiency measures for newbuildings over existing vessels (Rehmatulla, 2015) Furthermore, desk research undertaken by Faber et al (2015) has shown that the EEDI advantages for shipowners depend on the contracts, such as a vessel owner with a more energy efficient vessel can reduce their bunkers and will represent a first option vessel for ship-owners in a collapsed or through economic environment. Furthermore, while retrofits and upgrades can be costly,

the payback period can be relatively short (depending on the type and cost of the energy efficient measure chosen by the respective ship-owner). Other benefits to vessel owners might include port or terminal discounts; lower insurance premiums, avoidance to pay non-compliance surcharges and an enhanced reputation (preferred position by stakeholders and business partners).

According to the desk research undertaken, the assumption from Figure 4 is supported by information gathered from an international certification body and classification society (DNV GL, 2013), highlighting that following realistic statistics environmentally efficient designs will gradually improve throughout this decade and a new-building contracted in 2020 will, depending on type, emit 10-35% less CO_2 than a current ship with an EEDI equal to the IMO reference line. The largest reduction will be experienced with tank, bulk and container vessels.

	Size	Phase 0 1 Jan 2013– 31 Dec 2014	Phase 1 1 Jan 2015– 31 Dec 2019	Phase 2 1 Jan 2020– 31 Dec 2024	Phase 3 1 Jan 2025 onwards
Bulk carriers	>20,000 Dwt 10–20,000 Dwt	0% n/a	10% 0–10%*	20% 0–20%*	30% 0–30%*
Gas tankers	>10,000 Dwt 2–10,000 Dwt	0% n/a	10% 0–10%*	20% 0–20%*	30% 0–30%*
Tanker and combination carriers	>20,000 Dwt 4–20,000 Dwt	0% n/a	10% 0–10%*	20% 0–20%*	30% 0–30%*
Container ships	>15,000 Dwt 10–15,000 Dwt	0% n/a	10% 0–10%*	20% 0–20%*	30% 0–30%*
General cargo ships	>15,000 Dwt 3–15,000 Dwt	0% n/a	10% 0–10%*	15% 0–15%*	30% 0–30%*
Refrigerated cargo ships	>5,000 Dwt 3–5,000 Dwt	0% n/a	10% 0–10%*	15% 0–15%*	30% 0–30%*

Figure 4: Reduction factors (in percentage) for the Energy Efficiency Design Index relative to the reference line for each ship (Source: IMO, Marpol Annex Vi)

As Hasan (2011) highlighted, the EEDI can be treated as an index measure of transport efficiency, such that, the maximum amount of cargo that can be carried with minimum fuel consumption. Adopting the EEDI means that the ultimately target is to reduce the CO_2 emission from the operating vessels. As a result, by forcing the shipping industry to have more and more energy efficient ships, CO_2 emission is almost proportional to fuel consumption, and fuel consumption is the proportional reflection of total hull resistance.

On the other hand, it was found that there are other various ways of calculating energy efficiency and efficiency design, in more simple steps. As a result, the Estimated Index Values (EIV) might be used to measure design efficiency, an index in conformity with MEPC.215 (63) (MEPC, 2012).

Important to note is that EIVs should not be mistaken for EEDI scores. The EIV is more a measure of the design efficiency than of fuel efficiency of ships as there are a number of simplifying assumptions used in the calculation. Within the study Faber et al (2015) conducted, it was highlighted the relationship between EEDI and EIV by linking the ships in Clarksons' Register to the IMO database. Results described a clear linear trend is shown with a coefficient of determination (R2) of 0.92. On average, the EEDI value is smaller than the EIV or, in other word the EIV is an overestimation of the EEDI. Furthermore, by using the EIV to calculate design efficiency, according to the study undertaken by Faber et al. (2015) regarding 9000 vessels that have entered the fleet between January 2009 and July 2014, it was highlighted that container- ships have improved their design efficiency since 2009 (approximately 90% of new container ships had estimated index values below the reference line) and bulkers have improved their design efficiency since 2013.

Taking into account that the EIV is an overestimation of the EEDI, this result suggests many ships already exceed the EEDI required from 2015, concluding that EEDI is a strong driver for attaining fewer emissions.

3.1 Research results concerning the economic impact of the International Maritime Organization's requirements concerning CO_2 emissions on the shipping companies

In order to comply with regulations, companies have to invest in data analysis systems and in procedures that monitor the impact of the operations. According to Nelissen and Faber (2014) several shipping companies have, on a voluntary basis, started programmes to improve the efficiency of their fleet over the past years. These companies have not only invested in systems that monitor the fuel consumption, but also taken various other technical measures to improve fuel efficiency. Table 1 highlights the cost of implementing strategies that support sustainable operations in the shipping sector associated with the stakeholder that bear the cost.

Table 1: Overview on cost items associated with Monitoring, Reporting and Verification Regulation concerns emission of CO_2 from the shipping sector

Cost item	Stakeholder to bear costs
Familiarization with obligation	National authorities, EU authority, Ship owner/operator
Designing information material	National authorities, EU authority
Informing subjected entities	National authorities, EU authority
Developing reporting tool	EU authority
Registry costs	Ship owner
Purchase of additional monitoring and reporting equipment	Ship owner
Additional maintenance of monitoring and reporting equipment	Ship owner
Setting up monitoring plan	Ship owner
Additional monitoring	Ship owner/operator
Reporting (setting up emissions report)	Ship owner/operator
Verification of information submitted	National authorities, EU authority
Processing of verified reports	EU authority
Enforcement National authorities (if ship is inspected compliance has to be checked (by ensuring that document is on board), application of penalties, execution of expulsion order)	National authorities
Fulfilling possible recommendations from National Authorities (inspection application of penalties, execution of expulsion order, etc.)	Ship owner/operator

Source: European Union (EU) regulation 2015/757 on the monitoring, reporting and verification (MRV) of carbon dioxide (CO2) emissions from maritime transport

According to ESN (2013) report, the main barriers to making environmental investments in the shipping industry are complex and they relate to the high cost of the operations involved and also to the human approach such as the training of crews and the professional teams that manage the complexity of the installations and integration. Except for technical issues that cover the safety of the vessels and the crews, shipping companies face lack of competitive incentives

On the other hand, financial issues that affect the shipping industry arise from the current economic environment, such as the fluctuant price of the oil. Oil is the major source of energy powering the global economy, supplying approximately 95 per cent of the total energy fuelling world transport (Aleklett, 2007). Like other modes, the maritime transport relies heavily on oil for propulsion and, in view of limitations imposed by existing technology and costs, the maritime industry is highly

influenced by the price of oil (Backus, 2000).

Oil price have fallen since 2014 with consequential effects on the shipping sector with regard to price of the fuels and valuation of the companies. The vessels ordered during the market boom or shortly thereafter and now being delivered, are facing difficulties in matching today's less favorable economic situation concerning the decrease in oil price. The companies that have invested considerably in alternative means of improving consumption and exhaust gases emissions might think that their investment on such technologies is futile on the short terms, as the fuel price nowadays does not necessarily represent the main concern in vessel's operation expenses.

Nevertheless, they will have benefits on the medium and long-term, as the eventually expected recovery of the oil, products an fuel markets will reignite the focus on development of more energy-efficient systems for ships. Still on the short term, the cost of ships' fuel is expected to keep the market participants attention, as a result of the increased demand and use of (low sulphur) distillate fuel that will follow the implementation of the new IMO rules (MARPOL Annex VI) that will apply in Emission Control Areas in 2015 and globally from 2020 (DNV, 2015).

Furthermore, the vessel prototype that was developed alternative fuels like liquefied natural gas or methanol, are still non-affected by the price of fuel, but they see put on hold plans for access to a distribution network and infrastructure of such stations, storage and distribution of these fuels.

3.2 The environmental and sustainable perspective in shipping: The Liquefied Natural Gas (LNG)

According to IMO's statistics, the LNG has become a popular fuel for vessels, as a result of the new regulations imposed regarding air pollution. Companies' attempt to practice more sustainable operations reified in choosing this type of fuel, as a response to the requirements regarding less GHG emissions. LNG fuelled vessels result in the elimination of essentially all SO2 emissions, and leads to reduced NOx, CO_2, and PM emissions compared to the emissions from a typical vessel powered by marine diesel.

In addition, the demand for LNG fleet has grown, this transition being on the strength of the environmental advantages of natural gas over other fossil fuels. Jensen (2004) argued that there are various factors that contributed to this particular suffrage, the main ones being related to price competitiveness and energy efficiency. Figure 6 presents the progress of the LNG fuelled fleet emphasizing a visible growth especially in the acquisition of new buildings. This implies a doubling of the fleet over the period 2013-2018.

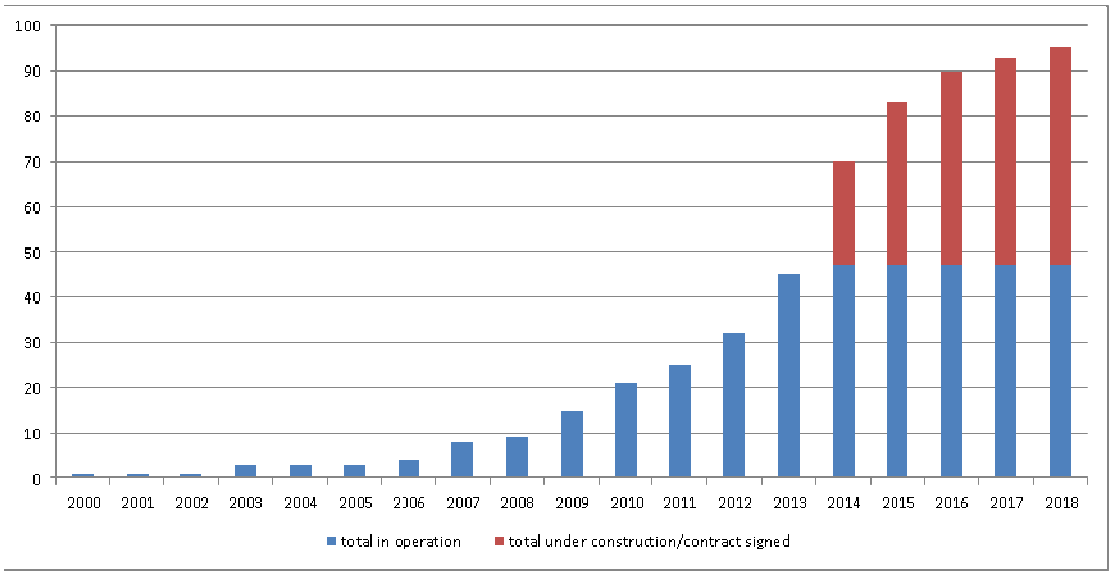

Figure 6: Development of Liquefied Natural Gas-fuelled fleet (Source: 2014, DNV, LNG for shipping - current status)

LNG's contribution to greenhouse gas emission reduction is due to its lower carbon content. As a result, as Table 2 highlights, using LNG as a ship fuel can achieve a significant reduction of pollutant emissions in the gas mode.

Table 2: Reduction potential of Liquefied Natural Gas per pollutant

Air pollutant emission (in gas mode)	Reduction potential
Nitrogen oxides	85-95 %
Sulphur oxides	-100%
Particulate Matter	-100%

Source: World Port Climate Initiative

However, as DNV (2013) stated, this approach of investing in LNG fleet might have economic advantages but also disadvantages for shipowners, as LNG has to be stored in cryogenic tanks which require much more space than traditional fuel oil tanks, fact that might reduce the cargo capacity, depending on the type of vessel and the potential to have an adequate and safe location for the LNG tanks on board.

On the other hand, although the future price level is highly uncertain due to the current unstable economic environment, the LNG is assumed to be available at a competitive cost. IGU (2015) adds uncertainty to the matter highlighting that the pricing in the world gas markets remains very fragmented, with prices influenced more by local stakeholders and regional factors than global dynamics. Summing up these findings, shipowners investing in LNG vessels might have advantages by investing in the specific field regarding the environmentally –friendly operations, but on the long-term, as demand for this type of fuel will increase as a result of the high demand in LNG vessels, will be economically affected.

4. Conclusion

Sustainable transport is acknowledged as one of the biggest challenges within the century. Regulation imposed by international organizations and environmental protection remain the key drivers of initiatives, but the economic bottom line is still dominant and it needs to be targeted in efforts by all the stakeholders within the maritime sector to deliver sustainable shipping standards (WWF, 2012).

Overall, the trend established in the new-building markets highlighted that shipping companies are investing in new vessels, like the LNG shipping market, which provide vessels recognized as being more fuel -efficient with less emissions emitted. The increasing size of many ships is also expected to improve fuel efficiency and as a result, the operational measures (e.g. better speed management throughout the course of a voyage) are also expected to reduce fuel consumption and are addressed in detail by the new Ship Energy Efficiency Management Plan that has been made mandatory by IMO. Shipping companies have a very strong incentive to reduce their fuel consumption and thus reduce their CO_2 emissions: bunker costs represent an increasingly significant proportion of ships' operational expenses, having increased by about 400% since 2000 (ICS, 2014).

Summing up the relevant information within the specialized literature, desk research has illustrated various categories of vessels that fully support the sustainable approach. The first category is represented by the ecological and economical design vessels that are built with improvements in hull form, consumption and engine power, targeted to record fuel low consumption (and thus pollutants emitted). The second category is represented by the economical and ecological retrofit vessels, which are existing vessels, equipped with facilities to reduce their consumption or are economically exploited through electronic monitoring of multiple continuous navigation and adjustment systems. The third type of vessels and the most targeted currently within the shipyards is the economical and ecological operation fuel monitoring vessels.

As the shipping industry approaches tailored strategies to become more environmentally friendly and links environmental elements with regulatory requirements, the likelihood to decrease the level of CO_2 emissions and other pollutant is higher.

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Courtesy, Criteria of Motivation and Reward for Public Sector Employees in Romania

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Abstract

Romania is facing complaints from citizens who express their discontent with the way they are treated by public sector employees, even when they approach them in order to fulfill the obligations imposed by law, like, for example, tax payments. Currently, the computer system is not developed well enough so, citizens are forced to contact directly the public servants officials in order to satisfy their legitimate interests.The possible causes of this phenomenon in public sector are: transition from totalitarian regime to a democratic one and the low amount in wages. The present article aims to analyze to what extent should courtesy be rewarded, as a motivational method or if, on the contrary, the lack of courtesy should be penalized.

Keywords: courtesy, public servant, citizen, reward

Introduction

The situation de facto in Romania, at the present time, is a difficult one, the direct contact and generally, communication by any means of natural and legal persons with employees of local and central public institutions (civil servants) display large shortcomings concerning the manner in which the beneficiaries are treated by office holders. Direct communication between the representatives of public institutions and citizens is quite common, not only in Romania, but also in other EU countries having an information system in perfect tune. However, in the Western European countries there are very rare situations where public services' beneficiaries are not treated agreeably. One possible explanation might consist in the fact that the activity of those institutions is far better organized, the appointments with citizens being programmed individually. Thus is avoided overcrowding, standing in line for hours, circumstances in which citizens are losing their patience and time, and public servants are overpeopled and under pressure to solve the work duties in stressful conditions.

Unless it had negative consequences, the bureaucracy in Romania would be simply hilarious. This situation is further complicated by an excessive taxation imposed on individuals and legal entities. For example, for paying its property tax, a citizen needs first to queue (minimum an hour) for receiving order tickets, then queue again in order to actually pay. If additional forms need to be filled in (for example, for an office of self-employed person) one has to stand in another line so as to lodge them and then to queue again for the actual payment. If one chooses to pay online has to queue in order to receive a code based on which will make the payment.

In this context it is very easy to understand the citizens' indignant attitude and the aggressive and rude defense of public servants. It should be also mentioned that those officials at the counter are not too high in the internal hierarchy of public institutions, that they are working in a system where the principle of hierarchical subordination applies and therefore do not have too much freedom of action. But the challenging nature of the position should not be an excuse for the improper behavior that breaks the rules of professional ethics.

This paper is based on a review of the legal provisions which apply to public civil servants and of the solutions proposed for solving the problems regarding the obligation of courtesy.

I. Terminological Explanations

According to the explanatory dictionary, the short definition of courtesy (Longman Dictionary, 1998) is “polite behavior” or “things that you say or do to be polite”. In a more complex explanation, courtesy means “1. polite behavior that shows that you have respect for other people” ,”2.something you do or say in order to be polite” and courtesy by somebody or something “the permission or kindness of someone rather than by paying them” (Longman Advanced American Dictionary, 2000). On the other hand, a courteous person is someone who “has good manners and respect for other people” (Longman Advanced American Dictionary, 2000). From these explanations we can conclude that courtesy involves two components: an external one being materialized through a polite and respectful attitude and another, internal, of respect and appreciation for the interlocutor. If the external attitude can be analyzed and quantified, the internal attitude is overlooked and, we can only assume that the first is a reflection of the second. The public servants, through their work, are serving a general social interest. Their very name, “public servants”, indicates the attitude they should have during the exercise of their duties, namely to serve the citizens.

II. Legal Framework

As concerns the legislative aspect, regulation of the defining elements of the Statute of employees within the public institutions and authorities makes the object of special laws, especially regarding the public position.

Within the European Union it has been adopted Council Regulation (C.O., Euratom) No. 723/200 on 22 March 2004, this being enforced on May 1, 2004. (Spence and Edwards, 2008).

In addition to the normative act enshrining the legal status of officials and contractual employees within the EU institutions, it has also been aimed at establishing rules and principles of professional ethics, in this regard the concerns being spread due to multiple discussions resulting from the way in which European employees carried out their work, in this case, scandal that climaxed with the collective resignation of the Santer Commission on 15 March 1999 after having published the Report of Independent Experts Committee which contained allegations of fraud, poor management and nepotism in the European Commission's activity. (Spence and Edwards, 2008).

Subsequently, the Prodi Commission laid emphasis on rules of professional ethics and thus it has been adopted a Code of Conduct for Commissioners and established the Task Force for Administrative Reform which had the mission of drafting the White Paper. (Craig and De Búrca, 2009).

We mention that most European Union institutions have elaborated codes of conduct that apply to their employees, and the most important document as regards ethics and professional deontology is the European Code of Good Administrative Behaviour, document through which it is created the general framework applicable to all officials and contractual employees within the European Union institutions.

The right to a good administration, enshrined in Article 41 of the Charter of Fundamental Rights of the European Union and recognized for the EU citizens implies the existence of a body of professionals whose mission is to ensure the achievement of European interest. In this regard, The European Code of Good Administrative Behaviour has been adopted by the European Parliament in 2001 and includes deontological principles and ethical duties incumbent on the employees within the European Union structures. This document pays particular attention to courtesy (Article 12), as an obligation incumbent on the staff from the Union’s institutions.

According to Article 12, the courtesy of the public servant involves several aspects: “1. The official shall be service-minded, correct, courteous, and accesible in relations with the public. When answering correspondence, telephone calls, and e-mails, the official shall try to be as helpful as possible and shall reply as completely and accuratly to questions which are asked. 2. If the official is

not responsible for the matter concerned, he or she shall direct the citizen to the appropiate official. 3. If an error occurs which negatively affects the rights or the interests of a member of the public, the official shall apologise for it and endeavour to correct the negative effects resulting from his or hers error in the most expedient way and inform the member of the public of any rights to appeal in accordence with Article 19 of the Code." (http://ec.europa.eu/transparency/code/index_en.htm).

We note that European regulation focuses on the responsibility of EU's employees to have an amiable attitude in the relations with citizens. Thus, courtesy should govern the entire activity of public servants in their relations with citizens, whether it is about a direct contact, or a contact mediated through a form of correspondence, being given as examples phone calls and e-mails. Also, through their attitude, the European institutions employees should show fairness, which means that both a possible disadvantaging of the beneficiaries and an eventual excessive favoring are forbidden. Correctness also implies the lack of any discrimination, wether positive or negative. An official must serve the legitimate interest of the European citizen, to serve him/her in the exercise of rights and satisfaction of individual's legal interest.

The accessibility condition of public servant regards all ways of communication listed in the legal text. Whatever the manner of petition, a public employee must respond promptly and in a language accessible and understandable for the applicant. A too sophisticated expressing may lead to misunderstanding. As a matter of fact, the very idea of communication implies that between the transmitter and receiver to also exist, in addition to a communication channel, a language accessible to both. Otherwise communication is only formal and will not reach its purpose, that is, to deliver accurate and useful information from one individual to another.

Official's answer to the questions of citizens should be as accurate and complete as possible so as to enable achieving the beneficiary's purpose and exercising properly its right or complying with the obligation.

Also, courtesy means not just a polite behavior towards the public, but also helping citizens in the cases when they have not addressed to the official who has the authority to respond their requests. In such circumstances, the Union's employees have an obligation to direct the citizen to the competent official. For the work duty to be considered properly fulfilled, the official has the obligation to re-direct the application or correspondence to the competent authority. It is not acceptable an answer to the applicant, whether very politely, to direct him/her elsewhere with his/her application. First of all, for many applications or documents the law provides an express time limit within which can be formulated and failure to comply with the time limit is sanctioned by incapacity. In such situation the only acceptable solution is to re-direct the request to the competent authority and to inform the citizen in relation to this matter.

Last dimension of the obligation to be courteous refers to the cases where an official or agent of the Union causes, by his/her activity, an injury to a person, thus prejudicing his/her legitimate rights and interests. Besides the fact that he/she must make all efforts to remedy the mistake made, the official has to apologise to the prejudiced person. The European rule is formulated so as to be also observed interpersonal relationships and each person's dignity. Throughout this legal text, the moral rule implying to apologize when making a mistake becomes legal rule, being assigned to it an even higher weight. If the person to whom the rule addresses fails to comply with it voluntarily, coercive force of the state might intervene in order to ensure its observance.

At the same time, officials have the obligation to inform citizens on the possibility that, pursuant to the Code, to make an appeal within legal time limits, against the decisions they deem harmful.

In the Romanian law system, deontological rules concerning public servants are regulated by Law No.7/2004. This regulation constitutes the framework law in the field and, starting from its provisions, public authorities and institutions have to adopt regulations for organization and functioning or codes of conduct whose provisions to be in accordance with those of the law (pursuant to Article 24 of Law No. 7/2004).

Analyzing the law text can be noticed that, in the *Code of Conduct for Public Servants*, courtesy does not benefit from a regulation in such detail as the one from The European Code of Good Administrative Behaviour. Otherwise, in the Romanian law, courtesy is provided as an obligation incumbent on public servants, and this must be seen not only in relations with citizens, but also in their relations with other people who work within the institution, according to Article 12 (1). Thus, courtesy is established as an obligation from two perspectives, both concerning the relations with citizens and in terms of collegiality and relations with superiors and subordinates of public servant.

Although the Romanian legislator does not expressly provide, we believe that the obligation of courtesy subsists not only in direct relations among officials and citizens, but also in relations mediated by modern ways of communication (telephone, e-mail, fax, etc.).

A particular element of the Romanian law provisions is that it is recommended, through the Code of Conduct provisions, compliance with the rules of conduct and by natural and legal persons who get in touch with the employees of public authorities and institutions with the purpose to "increase the quality of public service". Article 12 (4) of the Code has the following content: "for carrying out social and professional relations which would ensure persons' dignity, work efficiency, as well as quality increase of the public service, it is recommended to also observed the rules of conduct provided in pars.1-3 by the other subjects of these relations." This provision can be construed as establishing the obligation of courtesy also for the public service beneficiaries, individuals or legal entities. From our point of view, we do not believe that such a stipulation is necessary, especially in a code of conduct for public servants. The law regulates separately their rights, and insulting, threatening or hiting (any form of physical, mental or moral aggression) the public officials represents, as appropriate, contravention or a crime, and is sanctioned accordingly. The recommendation addressed to citizens to behave amiably with the public servants, although it is not meaningless, does not belong to this regulatory document. Romanian law contains express provisions that protect public servants against any form of abuse or injury of their dignity.

Compliance with the rules of conduct is a legal obligation provided also by Law No.188/1999 on the status of public servants. Thus, Article 43 paragraph 3 of this regulatory document stipulates that "public servants have the obligation to observe the rules of professional and civic conduct provided by law". The legal provision refers to the legal regulations in force concerning the conduct of public servants, namely the *Code of Conduct for Public Servants.*

The legal provisions adopted by other states contain references regarding the obligation of courtesy for the public servants. Acording to the research study by Palidauskaite (2006), courtesy is mentioned as a principle of behaviour for the public servants in the the Code of Ethics adopted by other countries of the European Union.

III. Courtesy, between Sanction and Reward

Proposal for financially rewarding the public servants' courtesy appeared in a social context in which many citizens have expressed their discontent with the way they are treated by public servants in the exercise of rights and performance of obligations, particularly in the direct contact with them. Trying to harmonize the situation and appease spirits, the president of a union of public servants in Romania proposed giving financial rewards for the polite public servants. This proposal has been formulated taking into account the low level of officials' salaries. In such a situation any financial incentive would be welcome and would constitute an important motivation for changing attitudes**.** Their prime motivation to be courteous would be economic.

The question arises how reliable and particularly legal, might prove such a reward. In general, the reward means a reward that a person receives for a good thing that it did. It is obvious that a courteous attitude can only be a good thing.

But is it legal to reward the performance of an obligation? The legal provisions in force are

compulsory for their recipients. Courtesy has been established as an obligation for public sector employees even since 2004. However, the situation de facto proves that, in their work, public sector employees are showing too little courtesy in relations with the public. This legal rule has not found echo in social life and is not observed accordingly. Perhaps it would be the time to intervene some legislative changes so as to be ensured a respectful and effective communication among public sector employees and citizens. Lack of courtesy with which the individual is treated to almost every counter of the public institutions is notorious and must be remedied. It violates the honor, dignity and even mental integrity of the beneficiaries, the fundamental values of a democratic society.

One of the real problems encountered by someone who would like to financially reward public servants courtesy is the method of quantifying it. How courteous has to be an official for being considered courteous enough? How polite, solicitous and attentive? The first conclusion we can draw out of this proposal is that courtesy appreciation should come from the beneficiaries, the people who interact with officials. A questionnaire method might prove useful but is too laborious. Against all existing bureaucracy, another form to be filled in by the citizen does not seem such a good idea. The simplest method would be to mount at each counter, two buttons, one with a positive meaning (a smiley face) and another with a negative meaning (grim-faced) and the beneficiary, on leave, to press one of the buttons depending on how considers that has been treated. But obviously mounting such a system might prove to be expensive. Some institutions might afford funding from their own budget, others not. In such situation we would be facing discrimination, there would be courteous officials who could not be rewarded for the simple reason that there is not a system for monitoring their courtesy. What could they do in such a situation? Would they be obliged anymore to be courteous or would they not? And if not, the citizens' rights are violated.

On the other hand, if we look at this issue from a strictly legal point of view, the deontological duties are mandatory and must be observed. Thus, in the Romanian legislation is expressly provided that failure to comply with the rules of conduct constitutes disciplinary offence and entails liability of the guilty. Also, if by violating the deontological rules an injury is caused, the official is obliged to repair it pursuant to Civil Law, Article 23 of Law expressly provides No.7 / 2004.

Hence, from the juridical point of view, currently, in Romania, the lack of courtesy constitutes a disciplinary offense and may entail applying one of the penalties provided for by Article 77 (2) from Law No.188/1999 concerning the public servants status.

Furthermore, we should take into consideration that determining a disciplinary sanction is carried out following a legal procedure which requires an analysis of each case separately by a Disciplinary Commission, being absolutely necessary to bear in mind aspects such as: individual circumstances of the investigated person, weight of the offence, degree of guilt and consequences produced by the offence comitted. (Vedinaş, 2014).

For the failure to observe the courtesy obligation to be subject to the control and sanctioned, a complaint needs to be lodged by a person injured by the official with improper behavior. It is important that citizens be aware that they have this right to require the disciplinary investigation and sanctioning of public servant who is rude and lacking in solicitude. A complaint presented by a citizen aggressed in this way by a public institution employee should entail an objective investigation and, if the accusations are proven, application of a sanction proportionate to the weight of the offence. In this way such conducts are discouraged in the future. From our point of view, keeping the proportions among the offence weight and sanction imposes, for the case of breaching the obligation to have a courteous conduct, lighter sanctions, of moral nature. Nevertheless, in situations where the concerned official is persisting in the inappropriate behavior then the repetitive nature of such events can and should attract more severe penalties, including dismissal from the public position.

The relationship between the civil servants and the citizens is of major importance and in the study of Barbu and Orzan (2012) the authors mention that courtesy towards the public is an element that contribute in a positive manner to the improvement of the quality of the public services.

IV. Discussion and Conclusion

The financial reward of courtesy seems a viable solution in the context of socio-economic realities from Romania. The adequate legal rule is as a garment which dresses the social reality accordingly. It is obvious that the current legal provision establishing courtesy as an obligation of the public sector employees does not find its practical applicability, does not answer to the real need of citizens, nor as beneficiaries of public services or as state employees.

From another point of view we think it would be useful and advisable an amendment of Law No.7/2004 concerning the Code of conduct for public servants, in the sense of supplementing Article 12 with the provisions of the European Code of Good Administrative Behaviour. Clarifying and explaining the manner in which courtesy must be understood and practiced by public servants, in any way of communication with citizens will certainly lead to a proper conduct of the legal rule recipients. Such an amendment is also needed in the context in which Romania is a Member State of the European Union, and each European citizen could come to locate in Romania waiting reasonably to be treated by the representatives of local and central institutions with the appropriate respect and courtesy. Certainly, it should not be understood from the above mentioned that the Romanians would be worth less courtesy from public servants than other citizens of European countries, our intention was to emphasize the need for this legislative change taking into account the entire European context.

Further, to the extent that it will be possible, an objective quantification of courtesy or lack of courtesy for all public servants in relations with citizens, it does not seem insubstantial either the idea of financial rewarding polite and solicitous attitudes, but stick to the idea that such conduct constitutes an obligation and a state of normality, in no circumstances something exceptional that needs to be awarded. The right to dignity is a fundamental right of the human being and must prevail in social relations, both personal and institutional.

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The Treatment of Budgetary Debts in the Romanian Insolvency Procedure

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Abstract

Ensuring a balance, the equitable treatment of different categories of creditors in insolvency proceedings is an inevitable concern of any lawmaker who deals with this highly sensitive matter.
This paper aims at analysing the status regulation of the budgetary creditor in the insolvency procedure, as per the Romanian legislature in the new regulatory statute, Law No. 85/2014 on procedures to prevent insolvency, and insolvency.
The new regulation seems oriented towards the more flexible and faster collection of receivables, but results will only become apparent after a change of the mindset of all the parties concerned.

Keywords: insolvency, budgetary debts, Law No. 85/2014

Introduction

The procedure of insolvency is essentially a unitary, general, collective procedure oriented against the debtor in an insolvency situation, aiming at covering the debtor's liabilities, either by reorganising his/her activity, or by liquidating assets in his/her possession until the liabilities are settled, or by bankruptcy. Corporate bankruptcy laws have been an area of nearly constant changes in many countries over the past century. There are also still large differences in opinion among legal academicians, practitioners, creditor organizations, and politicians about what constitutes the best bankruptcy law. Omar (2014) charts the additions made by the French legislator to the insolvency framework, reformed relatively recently in 2005 and 2008, consisting in a fresh set of amendments in 2014 aimed at encouraging more take up of upstream rescue proceedings as well as improving the existing procedures.

Among the basic principles of insolvency, the Romanian lawmaker included: giving debtors a chance to effectively redress their business, either by the procedures of insolvency prevention, or by the judicial reorganisation procedure; granting equal treatment to all debtors of the same rank, and acknowledging the existing rights of the creditors, as well as observing the priority order of arrears, based on a set of clearly determined and universally applicable rules. As shown in the doctrine by Tandareanu (2016), „defining principles is extremely important, and their usefulness is to be proved in practice in case the regulation is missing or is unclear. It is believed that there is no order in the application of principles and they should be applied, if need be, simultaneously".

Making sure there is a balance, an "equitable" treatment of the various categories of creditors in the insolvency procedure is the main concern for any lawmaker dealing with this extremely sensitive issue. Since ordinarily the assets are insufficient to satisfy all creditors, conflicts of interests are unavoidable, and there is variously justifiable pressure in favour of a category or other. In many cases, if one examines the Romanian case law, among the creditors enlisted in the statement of affairs are budgetary creditors.

The following is an analysis of the regulation of the budgetary creditor's status in the insolvency procedure, as performed by the Romanian lawmaker in the new statute, i.e. Law 85/2014 on insolvency prevention proceedings and insolvency.

1. The Conception of the Romanian Lawmaker

As shown above, the main statute to be analysed is Law 85/2014 on insolvency prevention proceedings and insolvency (hereinafter referred to as the Insolvency Code), but, according to art. 342 para. 1, the dispositions of this law are to be completed, to the extent they are without prejudice to, the provisions of the Code of Civil Proceedings and the Civil Code. Also, the Fiscal Code and the Code of fiscal proceedings comprise regulations of the attributions pertaining to the fiscal organs with insolvency competences.

As a preliminary remark, it is to be seen that the budgetary arrears are too largely defined by the Romanian lawmaker in art. 5 point 14 in the Insolvency Code, comprising taxes, contributions, fines and other budgetary revenues, together with their accessories. The analysis of this statute leads to the conclusion that they also include, and place under the same protection, fiscal and non-fiscal arrears, such as the sums owed to the central or local budget, including the revenues derived from economic activities.
Endorsing the view expressed in the Romanian doctrine, it is our opinion that such a priority has no justification able to provide a superior position in the procedure as compared to other commercial creditors, as such a vocation belongs only to the arrears derived from the public interest function of procuring fiscal resources for the state/ local communities (Bufan, 2014).

According to the Report of uniformity of insolvency legislation on an European level, drawn up by experts from INSOL Europe, in the European Union (EU) the treatment of budgetary creditors in the insolvency procedure is differently regulated. Thus, the national statute of certain member states, such as Germany, France and Sweden does not grant the fiscal creditor a privileged order of satisfaction. There are also legislations that grant the fiscal creditor a legal preference clause, but only to a certain extent or specifically for certain types of fiscal debts (Italy, Spain, Poland, United Kingdom). In the Report on Standards and Codes (ROSC) 2014, The World Bank recommended Romania to reposition the fiscal creditor on an equal level with the unsecured creditors.

Adopting a different position in comparison with the developed states in UE and without taking into account the recommendation of the World Bank, the Romanian lawmaker granted preferential treatment to all budgetary creditors, irrespective of the fiscal or budgetary nature of the debt or the amount of the debt.

In our opinion this position may be partially accounted for by the circumstance that certain debtors, who have proper commercial relations but are bad fiscal debtors, resort to the insolvency procedure in order to be able to have operational activity under the circumstances of generalised blockage (garnishment, levy) imposed by the fiscal bodies.

2. The Test of the Private Creditor

According to ROSC, "the regulation environment, especially in regard to fiscal authorities, does not sufficiently support corporate reorganisations and other means of prevention. There are common mentions on the alleged inability of fiscal authorities to participate in operations of reorganisation and schemes (concords), by virtue of the lack of legal quality, but also because of the EU norms on state aids".

The analysis of EU legislation and case law leads to concluding that the choice of such a position by fiscal organs is not justifiable. Thus, according to article 107 para. (1) TFUE, except for the derogations provided for in the treaties, the following are considered incompatible with the internal market the state aids or aids granted through state resources, under any form, denaturing or threatening to denature competition by favouring certain enterprises or producing certain goods, to the extent in which they affect fair trade among the member states.

Nevertheless, the requirements that a measure should meet in order to qualify as ”aid” in the sense of article 107 TFUE are not met if the beneficiary enterprise could obtain the same advantage as the one put at its disposal by the state resources in circumstances corresponding to the normal market conditions (see in this respect the Decision of 5 June 2012, Commission/EDF, C-124/10 P, point 78 and the Decision of 24 January 2013, Frucona Košice/ European Commission, C-73/11 P, point 70). This assessment comes into being when a public creditor grants payment facilities for a debt s/he has towards an enterprise, by applying, in principle, the criterion of the private creditor. Thus, this criterion, when applicable, is among the elements that the Commission is bound to take into consideration in order to prove the existence of such an aid (see in this respect the Decision of 29 April 1999, Spain/Commission, C-342/96, Rec., p. I-2459, point 46, the Decision of 29 June 1999, DM Transport, C-256/97, Rec., p. I-3913, point 24, as well as the Decision of 5 June 2012, Commission/EDF, C-124/10 P, points 78 and 103, and the Decision of 24 January 2013, Frucona Košice/ European Commission, C-73/11 P, point 71).

In keeping with European regulations, the Code of Insolvency introduces a new element in Romanian legislation, i.e. the ”test of the private creditor”, whereby budgetary creditors may check if accepting a restructure plan may constitute a state aid. According to art. 5, point 71 in the Code of Insolvency, ”the test of the private creditor is the comparative analysis of the degree of settling the budgetary debt by relating to a diligent private creditor, within a procedure aimed at preventing insolvency or reorganising, as compared to a bankruptcy procedure. The analysis is based on an assessment report drawn up by an authorised evaluator, appointed by the budgetary creditor, and it is reported including to the duration of a bankruptcy procedure as compared to the payment schedule proposed. It is not state aid if the test of the private creditor certifies that the distributions that the budgetary creditor would receive in the case of insolvency prevention or reorganisation are higher than those received as a result of a bankruptcy procedure”.

An initial observation is that, taking into account the pre-eminence of the European Union law, including the case law of the Court, evinced in art. 230 Fiscal Code, this statute need not have been introduced, as the European principles being applicable de jure. However, in the circumstance that the derogations granted to this issue by the Court of Justice of the European Union are not very recent and upon their settlement the attitude of the budgetary creditors remained unchanged, we consider that the Romanian lawmaker was right to clarify this issue. Since the enactment of a statute is not enough to change mentalities, we favour the opinion expressed in the doctrine, viz. ”it is necessary to complete the insolvency law with an internal procedure at the level of ANAF; the lack of a special procedure, well designed and implemented, which would obviously presuppose a series of check-ups and hierarchical approvals would lead in the future to the inefficiency of the new statute. The reasons are varied: lack of practice with such procedures, inherent suspicions in such situations, the absence of a body of experts able to guarantee the accuracy of the necessary assessments” (Bufan, 2014).

Another important observation is that, although it was stated that the appointment of the certified evaluator is the task of the budgetary creditor, it is not clear what funds are allotted to pay for the latter’s services. As the evaluator’s activity will take place, in principle, to the benefit of the insolvency procedure, we consider that this pay should follow the principles imposed by art. 39 in the Code, i.e. to be

taken out of the debtor's assets, with the approval of the Creditors' board ad only in case the available monetary funds are insufficient (which is unlikely when a reorganisation plan is proposed) from the Liquidation fund.

It is considered that the appointment of the evaluator by the budgetary creditor is a salutary idea from more points of view. On the one hand, it is a means to clearly distinguish between the necessary report to effect the test of the private creditor and the evaluation report necessary to draw up any reorganisation plan, according to art. 133 para.4 letter d in the Code of Insolvency (the reorganisation plan should mention "what damages are to be granted to the holders of all types of arrears, as compared to the estimated value that may be received by distribution in case of bankruptcy; the estimated value is to be calculated according to an evaluation report, drawn up by an evaluator appointed according to the provisions in art. 61"). On the other hand, it cannot be stated that the report of this evaluator could be biased or influenced by the holder of the reorganisation plan, even if the latter is the debtor and the pay is granted from its available funds.

3. Including Budgetary Creditors in the Claims List

Sometimes, going through the stages imposed by the insolvency procedure as fast as possible makes the difference between a successful reorganisation and a failed one, ending in bankruptcy. Also, making crucial decisions regarding the debtor's situation is conditioned by constituting the Creditors' Assembly, and the Creditors' Committee, respectively. In this respect, it is desirable that the procedure of declaring arrears, checking these arrears by the judicial administrator , and putting together the final form of the creditors' table should take place with expediency. On the other hand, in order to observe the right to defence, it is necessary for all the creditors to have the time to acknowledge the opening of an insolvency procedure and formulate the outstanding debt statements. This is why the Code of Insolvency lays down imperative deadlines for the formulation of arrears, (according to art. 100 para.1 letter B in The Insolvency Code, this deadline is at most 45 days since starting the procedure) and the formulation of potential appeals to the preliminary table of outstanding debts (according to art. 111 para.2 in the Insolvency Code, "appeals shall be submitted to the court within 7 days since the publication of the preliminary table in the BPI, both in general procedure and in simplified procedure").

On the other hand, fiscal arrears are settled as a result of a rigorous procedure, regulated by the Fiscal and Fiscal Procedure Code, guaranteeing for the reality of the economic operations as well as the taxpayer's rights, and it requires to be observed within a suitably long time span in order for the fiscal control to be adequately implemented. In such circumstances, it is obvious the need for more time given to the fiscal creditors (Bufan, 2014). Moreover, there is also another justification of this priority: the fiscal authority can only evaluate its own situation on the basis of the taxpayer's statements or the results of the fiscal inspections, so that the "insolvency" statement of the taxpayer may constitute a presumption that the real fiscal debts– which are undeclared – are higher than the ones in the fiscal authority's registers.

By means of the new regulation, the Romanian lawmaker tried to harmonise the two contradictory tendencies in multiple ways. Thus, art. 66 para.1 in the Code states that "the debtor in an insolvency state shall submit a request to the court in order to come within this statute, within 30 days at most since the occurrence of the insolvency state. The request to the court shall enclose the proof of notification addressed to the competent fiscal organ regarding the intent to open the insolvency procedure". Art. 72. para.2 in the Code stipulates that when the request is formulated by the creditor, "within 48 hours since the creditor's request is registered, the court shall communicate it to the debtor and the competent fiscal body". Concerning the fact that the lawmaker did not state the sanction for not attaching the proof of

notification addressed to the competent fiscal body regarding the intent to open the insolvency procedure, the doctrine says that there is no sanction for not fulfilling this requirement.

The corroboration of these texts leads to the idea that the fiscal authorities shall be notified prior to other creditors about the possibility to initiate an insolvency procedure, thus having the necessary time to start the fiscal control and issue the title of outstanding debt. On the other hand, the doctrine pointed out that „within this interval, albeit short, the fiscal authority may try to consolidate its position, constituting garnishes or liens on certain goods belonging to the debtor; such a procedure seems to get in conflict with principle no. 6 on "the recognition of the existing rights of the creditors and observing the priority of arrears, based on a set of clearly stated and uniformly applicable rules". This principle may be opposed to creating preferential regimens for certain creditors in the interval immediately before initiating the procedure. Thus, the obligation to notify the fiscal authority about submitting a procedure opening request, stated in art. 66 (1) and 72(2) should be unable to lead to creating, within that interval, a mortgage or lien to the benefit of the fiscal creditor, etc. Another measure taken by the Romanian lawmaker was to grant budgetary creditors a supplementary term to finalise their arrears. According to art. 102 para. 1 in the Insolvency Code, ”budgetary creditors shall register the admission request for the arrears with the time limit stated in art. 100 para. (1) letter b), followed by, within 60 days since publication in the BPI of the notification on the procedure initiation, the registration of a supplement of the admission request of the initial arrears, if need be”.

The statute mentioned above brings another very important clarification, showing that ”there are previous arrears, and the budgetary arrears found by a fiscal inspection report drawn up after the initiation of procedure, but whose subject is the debtor’s previous activity. Within 60 days since the publication in the BPI of the notification on procedure initiation, the fiscal inspection body shall perform the fiscal inspection and draw up the fiscal inspection report, according to the Government Ordinance no. 92/2003 on the Code of fiscal procedure (…)”. In practice, attention was given to the issue of the compatibility of the dispositions referring to the request to resubmit the term, included in the Code of civil procedure with the dispositions on the obligation of fiscal authorities to observe the time limit of submitting the arrears statement and, the supplement to the admission request of the initial debt. Thus, according to art. 186 para.1 Code of civil procedure,”the party who missed a procedure deadline shall be rescheduled only if it proves that the delay was due to thoroughly justifiable reasons”. By Decision no. ……/2016 of the Appellate Court of Brașov (unpublished) it was held that granting the privileges stated in art. 72 para. 2 and art. 102 para.1 in the Insolvency Code was included by the lawmaker precisely in view of overcoming the difficulties of performing the fiscal control and obtaining the title to outstanding debts, so that these cannot be also claimed in a request to reschedule the supplement to the admission request of the initial debt.

Another issue related to including the budgetary creditors in the creditors’ table is to check the arrears. According to art. 105 para. 2 in the Insolvency Code, ”it is not allowed to perform the checking procedure (by the insolvency practitioner or the syndic judge) on the budgetary outstanding debt resulting from an executive title uncontested within the time limit stipulated in the special statute”. Also, according to art. 75 para. 3 "it is impossible to suspend (…) legal action for the determination of the existence and/or amount of the arrears of the debtor, issued after opening the procedure. For such actions it is possible to formulate, during the observation and reorganisation period, the payment request to be analysed by the judicial administrator while observing the provisions in art. 106 para (1), properly applicable, without including these debts in the outstanding debt table. The measure order by the judicial administrator may be contested by observing art. 59 para. (5), (6) and (7). "According to art. in the Code of fiscal procedure, "by waiver from the dispositions in art. 75 in Law no. 85/2014, the fiscal administrative documents issued before and after becoming insolvent are subject to the control of specialised courts of fiscal administrative

law". Art. 146 para.3 in the Code shows the fact that "all arrears targeting the debtor's possessions will be checked, including the budgetary ones, issued after the date of the procedure initiation, or, as the case may be, whose amount was altered as compared to the final outstanding debt table or the payment plan in the reorganisation plan, as a result of the payments made after opening the procedure".

The corroborated interpretation of these statutes lead to the existence of three situations. Thus, when the executive title includes liabilities prior to the moment of opening the insolvency procedure, and was not contested according to the dispositions of the special statute, it shall not be checked later. When the executive title comprises liabilities prior to the opening of the insolvency procedure and was contested, the legal action against it being ongoing, the arrears shall be provisionally included in the creditors' table (with a suspended right to vote and to participate in distributions), and the legal action shall be settled by the fiscal litigation courts. It is our opinion that the special statute in the Code of fiscal procedure should be interpreted as being within the competence of the administrative courts to deal with the fiscal administrative papers issued before and after initiating insolvency, when they refer to fiscal debts prior to the insolvency initiation, as the waiver is only in regard to the dispositions of art. 75 in the Insolvency Code, and not to art. 146. However, when the executive title includes duties subsequent to the insolvency initiation, it shall be checked by the syndic judge.

Ordinarily, there are only a few cases in practice when income tax is due after procedure initiation, but there are many cases dealing with the VAT on the transactions performed after the procedure initiation, the salary tax and the social contributions and they debts to the local budgets, derived from the mere existence of property, based on the tax due for buildings, special constructions, grounds, parking lots, etc.

It is our opinion that such a choice on the part of the lawmaker is not justified. The infringement of the specialisation principle may be admitted in case of sufficiently strong arguments. Alternatively, the issue of the rapid settlement of legal actions is not real, as administrative courts are also bound to solve cases with expediency (art. 17 in Law no. 554/2004 of administrative law). Also, there may be occurrences when the same title is aimed at determining fiscal debts covering both a period prior to, and another subsequent to opening the procedure. In such a case the same title may be attacked both in the administrative courts, and in front of the syndic judge. Finally, there may be situations when the debtor submits the statement for VAT reimbursement, and the fiscal body, assessing that the debtor has also performed transactions requiring WATT, issues a taxation decision. According to the dispositions art. 167 para.11 in Law no. 207/2015 on the Code of Fiscal Procedure, "for the debtors coming within the statute on insolvency who submit a negative-value tax discount on the VAT with the reimbursement option after the date when the insolvency procedure was initiated, the amount approved for reimbursement is compensated with the fiscal duties issued after the insolvency initiation". The complaint against it shall be settled by the syndic judge, although the competent court to reject the VAT reimbursement request pertains to the administrative court.

Concerning the issues that may occur in practice, it is our opinion that it would be best to go back to the previous regulations, when the solution to the legal actions against fiscal titles was exclusively the task of specialised courts in administrative and fiscal litigation.

4. Involving the Responsibility of Culprits for the Debtor's Insolvency State

According to art. 169 in the Insolvency Code, „the judicial administrator, the judicial liquidator, the Creditors' Assembly or the creditor owning at 50% of the debts owed may require that all or part of the liability of the debtor, physical person in an insolvency state, without exceeding the damage directly linked to the act in question, be settled by the members of the management and/or supervision boards in

the society, as well as any other individuals who have contributed to the debtor's insolvency state by means of one of the following acts:

a) used the goods or credits of the legal person in their own benefit or the benefit of another;
b) operated activities of production, trade or service in their own interest under the cover of the legal person;
c) decided, in their own interest, to continue an activity obviously leading to the insolvency of the legal person;
d) kept false accounts, obscured certain accounting documents or failed to keep books according to the law. In case the accounting documents were not remitted to the judicial administrator or liquidator, the guilt as well as the causality link between the act and the liability are presumed; presumption is relative;
e) embezzled or hid part of the legal person's assets or falsely increased the debtor's liability;
f) used ruining methods to procure funds for the legal person, to the purpose of ceasing payments;
g) in the month prior to the cessation of payments, paid or decided to pay a preferential creditor, to the detriment of other creditors;
h) any other intentional act, contributing to the debtor's insolvency, according to the provisions of the present title".

According to art. 25 para.2 in the Code of Fiscal Procedure, "the outstanding payment duties of the debtor declared able to pay in the circumstances of the present code, are to be settled in solidarity with the debtor by the following categories of individuals:

a) physical or legal persons who, prior to the date when insolvency was declared, with malice aforethought and by using any means, acquired assets from the debtors who had thus reached insolvency;
b) administrators, associates, shareholders and any other persons who caused the insolvency of the indebted legal person by ill-willingly remising or hiding the debtor's assets;
c) administrators who, during their term, with malice aforethought did not comply with their legal duty to require the competent court to open the insolvency procedure for the fiscal duties pertaining to that period and left outstanding at the date when insolvency was declared;
d) administrators or any other persons who ill-willingly determined the failure to declare and/or pay the fiscal duties when due;
e) administrators or any other persons who ill-willingly determined the reimbursement of amounts from the general consolidated budget without being duet o the debtor".

The analysis of these legal provisions leads to the fact that the special legal dispositions applicable to fiscal creditors allow the liability of persons who determined the insolvency state and thus caused them prejudice. The scope of individuals against whom these measures may be taken is roughly the same, but in addition to the dispositions in the Insolvency Code, even third person who are will-willed who acquired in any way assets from the debtors who thus provoked insolvency may also be made liable.

It is our conclusion that, however, if in order to involve the responsibility based on the Insolvency Code indirect intent is enough as form of guilt, the Code of Fiscal Procedure imposes that the act be done „with ill-will or malice aforethought", viz. direct intent. Concerning this duality of legal grounds in imposing liability on the persons affected by insolvency, in practice there may be cases when the fiscal authorities issue decisions of unitive involvement of responsibility on their behalf and, at the same time, promote actions in order to involve them in patrimonial responsibility according to the Insolvency Code. Since both the legal motivation and the finality are different, as in the former case the guilty party being executed by the fiscal creditor, to his sole benefit, and in the latter case to the benefit of all creditors, the

distribution being made according to the final arrears table, there is no ground for obtaining two executive titles.

However, it is our consideration that, in the context of simultaneous legal pursuits, the debtor shall be able to contest the executive title on the ground that the fiscal creditor in question was paid, as otherwise the latter would be getting rich without legal justification. In the particular case when the fiscal authority is the only creditor claiming outstanding debts, an action concerned with involving the patrimonial responsibility according to the Insolvency Code started after the issue of the decision of unitive involvement of responsibility according to the Code of fiscal procedure would seem devoid of interest.

5. Treatment of Fiscal Arrears as a Result of Bankruptcy

According to the dispositions of art. 140 para 1 in the Insolvency Code, after a reorganisation, ”in case of bankruptcy the situation shall revert to the initial decided in the final table of all arrears against the debtor as per art. 112 para. (1), subtracting the amounts paid during the reorganisation plan”. Consequently, the creditors shall be re-included in the table with the amount accepted originally, minus the potential amounts already recovered, so that they are entitled to recover, in bankruptcy, the VAT on the outstanding debt, and not just the debt included in the reorganisation plan. According to art. 154 para. 2 in the Insolvency Code, ”liquidation shall start immediately after the completion by the judicial liquidator of the inventory and the submission of the evaluation report. The goods may be sold as a whole or individually. Any bulk sale of the goods, as a functional sub-assembly, no matter if it is done as reorganisation or bankruptcy, may be considered as transfer of assets, if it meets the requirements in art. 128 para. (7) in Law no. 571/2003”. The provisions in the Fiscal Code referred to in the text above state that ”the transfer of all or part of the assets, occasioned by the transfer of assets or, according to the specific case, the transfer of liabilities as well, no matter if it is performed as a result of the sale or operations such as division, fusion, or nature infusion to the capital of a company, does not constitute goods delivery if the beneficiary of the assets is a taxpayer. The receiver of assets is considered as the successor of the giver in point of the adjustment of the deduction right under statute”.

Hence, the functional sub-assembly shall also be considered from a fiscal point of view as a "transfer of assets", and this bulk sale is not subjected to VAT and the beneficiary will also acquire by this transfer the bankrupt entity’s rights to VAT adjustments.

Conclusions

The analysis of legal dispositions leads to the idea that the Romanian lawmaker has strayed quite a lot from the international recommendations to place fiscal creditors on the same legal position as the other creditors in the insolvency procedure, both by the dispositions of the Insolvency Code, and the special dispositions in the Fiscal Code and the Code of Fiscal Procedure. On the other hand, by taking over European case law on the analysis of the reorganisation admitted by the fiscal creditor versus state aid, the Romanian lawmaker followed the international recommendations in granting a second chance to honest debtors.

The new regulation seems more flexible and oriented towards the more rapid collection of budgetary/ fiscal arrears, but the results will be apparent only as the aftermath of a change in mentality of all those vested in the procedure.

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Consumer Perception and Attitude in Traceability Systems Development for Fish Products

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Abstract

One of the most important issues that occur in the process of traceability systems for fishery development is to take in consideration all the aspects connected with the fishery supply chain. This involves balancing the point of view of all the stakeholders from the fishery supply chain. This paper aims to provide information on consumers' perception and their attitude regarding quality and safety of fish products, purchasing behavior, and willingness to buy safe fish products in Romania, based on a survey of fish products consumers. The results show that the price, the knowledge concerning processing, storage, and the traceability system of the fish products, are the main determinants of Romanian consumers for the traceable products.

Keywords: traceability systems, fishery supply chain, consumers, quality, safety

Introduction

Until the late 80s, Romania had an important fish processing industry, that, ten years later, to fall into a steep decline. The situation was caused, on the one hand, by a drastic decrease in production due to the closure of fleet for ocean fishing, and on the other hand, by the consumer preferences for new imported products that the Romanian companies could not offer on the market. At present, the yearly consumption of fish in Romania is 5.5 kg / capita, while in the EU countries fish consumption is on average 20 kilograms per person per year, the largest consumers being Portugal and Spain with 48 and 45 kg per capita/year (Aquaculture, Fishery Businesses in Romania, 2016). The fish consumed in Romania comes either from domestic production or from imports. The internal production is represented by the catch from commercial fishing, both in the inland waters, and in the Black Sea, aquaculture, raising fish in guided system, in pools, ponds and basins. The fish is delivered fresh or processed in different stages, and then traded. Fish farming in Romania includes aquaculture, marine fishing and inland water fishing, as well as processing activities. The most important activity is aquaculture in freshwater, being followed by fishing in inland waters. In Romania there are fish production facilities in 38 counties. There are over 84,500 ha of fish breeders, 15,500 ha fish nurseries, 300 fish farms and 60 trout farms with an area of 44 ha (Raising fish in Romania, 2016).

In the last years, some Romanian companies have begun to offer modern products and the domestic production, especially semi-prepared products, started to go up again. In order to have a market of functional fish products, at the national level, it is intended to adjust production at the demand level, for the benefit of both producers and consumers. Fish market organization is based on the adoption of commercial standards for quality, size, packaging and labelling of fresh fish. Stakeholders have different traceability requirements, distinct ways of approaching, given by the different parts they have in the distribution chain of fishery products. The implementation and use of traceability system depends on the close cooperation among the parties involved in the distribution chain. If the traceability system meets the requirements of all participants - consumers and producers, then the benefits anticipated will be achieved. In this respect, information gathering has been carried out by

taking into account the main stakeholders from the sale chain of fishery products, that is, consumers and producers, who include: farms specializing in the production of young, breeders, companies producing and companies dealing with the sale. The factors driven by the market influence the sustainability of the fish and seafood supply chain (Peterson and Fronc, 2007).

The research undertaken at this stage determines consumers' perception and their attitude regarding quality and safety of fish products, purchasing behavior, and willingness to buy safe fish products in Romania.

1. Methodology

The method used for collecting information is questionnaire. Questionnaires designed for consumers aimed at determining the factors that influence the decision to buy fishery products. The questionnaire intended for determining the key factors in implementing information systems for quality traceability in companies from the agricultural sector consists of three sections, as follows: demographic details (the environment in which it lives – urban/rural, gender, job category, level of education) and respondent preferences (consumption preferences, purchasing behavior and criteria taken into consideration on the purchase of fish and pisciculture products), factors influencing the decision to buy fish /fishery products (product price, apparent freshness, term of validity, fish origin, conditions in which the fish was raised (water, soil), conditions in which the fish was fed, conditions in which the fish was transported, conditions in which the fish was stored, conditions in which the fish was processed) and traceability-related factors that influence intention to buy fish / fishery products in the future (availability of information as regards the quality of fishery products, the availability of suitable labeling, accessing information related to the quality of fishery products).

The respondents were asked to evaluate their responses on a Likert scale of five points (from 0 to 5), ranging from totally agree to totally disagree. 800 questionnaires were distributed and returned. After eliminating those questionnaires with incomplete responses and those otherwise unusable, 743 usable questionnaires were obtained. The statistical analyses were conducted using SPSS software. Mean responses with standard deviation, frequencies and percentages of responses in each category were calculated and presented in tabular form.

2. Results and Discussions

Consumer preferences and purchasing behavior when purchasing fish and fishery products

Freshness is an important factor that affects the fish consumption in Turkey. The research conducted by Can, Günlü and Can (2015) shows that most of the questioned consumers (98%) preferred fresh fish to processed fish. Table 1 shows the purchasing behavior of Romanian consumers surveyed. Most consumers preferred to purchase refrigerated fish (24.60%) and live fish (20.16%), rather than frozen or processed. The primary processed products, such as whole frozen, were more popular than deep processed products, such as fillets or fish balls or sea fruits.

Table 1: Respondent's preferences

Which of the following products from fish and fishery products are preferred by you?	**Percent**
Live fish	20.16
Refrigerated fish	24.60
Frozen fish	13.10
Semi-canned fish	13.36
Canned fish	16.94
Seafood	11.84

A survey conducted in the United States showed that seafood is purchased most from supermarkets, street sellers, and restaurants (Sechena et al, 2003). In Turkey, it was found that fish is most frequently purchased from fish markets (80%) and supermarkets (Can, Günlü**,** and Can**,** 2015). The majority of the Romanian consumers (34.35%) preferred to buy fish products from fisheries. Approximately 33.87% of consumers buy fishery products from supermarkets and hypermarkets. At the opposite pole of preferences regarding the place from where consumers choose to purchase fish and fish products, are the producers and proximity stores, as shown in Table 2.

Table 2: Purchase behavior and criteria taken into account when purchasing fish and pisciculture products

From where are you buying fishery products for own consumption?	Percent
Supermarket/hypermarket	33.87
Fishery	34.35
Food market	12.07
Food store/ proximity store	7.91
Directly from the producer	11.80

Factors that influence the decision to buy fish and fishery products

Several factors are affecting on the demand of fish and fishery products. De Silva (2011) identified the price, the income, the income distribution, the substitutes, the tastes, the fashion, and advertising and expectations of the consumers as the main factors. Also, he stipulated that ethnicity is other important determinant of the demand. Countries in the East place have a high demand on wide variety of fish and fishery products in comparison with the other parts of the world. Moreover, countries with larger Muslim population place high demand on meat products than fish. A study focused on the exploration of the cross-cultural differences in the frequency of fish intake and motivation for fish consumption among people was conducted in five European countries (Pieniak et al, 2008).

The results of the survey conducted in Romania, presented in Table 3, show that the consumers' behavior have some particularities, in comparison with the results of the other surveys operated in other areas of the world. The most important incentive factors that affect the purchasing decision for fish and fishery products are the product price and the conditions in which fish was stored, followed by the conditions in which the fish was fed, and the conditions in which the fish was transported. Except the price, all factors highlight the relation to the quality and safety knowledge and risk perception, which contrasts with the results of a similar study /survey carried out in PR China, which shows that the consumers reveal an obvious lack of quality and safety knowledge and risk perception associated with fish products (Wang et al., 2009). Maintaining the cool chain is essential to minimize product deterioration and to maximize the shelf life of the product. Many potential problems in the supply chain can be avoided by understanding the critical handling issues and carefully planning each load.

Table 3: Factors that influence the decision to buy fish/fishery products

Influence Factor	Composite Priority	Rank
Price of the product	12.325	1
Apparent freshness	10.979	4
Term of validity	10.612	6
Fish origin	10.317	7
Conditions in which the fish was raised (water parameters)	10.837	5
Conditions in which the fish was fed	11.635	2

Conditions in which the fish was transported	11.500	3
Conditions in which the fish was stored	12.325	1
Conditions in which the fish was processed	10.979	4

Quality and safety awareness and intention to buy fish and fish products

The consumers become more concerned about food safety than ever before and markets such as European Union (EU), Japan and the United States (US) have strict regulations to ensure quality and safety of fish and fishery products. Food labelling has to provide information about the product composition, safety information and origin. This means that all fish and fishery products have to have labels, which provide information about the origin and the means of production (farmed or wild). Quality standards add extra cost to the production process and quality requirements differ from market to market. Thus, EU market is based on as EU directives food safety and sanitation, and US market is based on US Food and Drug Administration (USFDA) requirements, whereas Japanese market is based on Food and Sanitation Law (Lupin, 1999).

Many respondents indicated in the survey they are aware by the certification strategies (traceability and quality labels) developed to improve consumers perception of food safety where food safety. This shows that the Romanian consumers are informed about the importance of quality and safety of fish products. The Chinese consumers place low value on the indication of quality control. As a whole, respondents indicate they are willing to pay a 6% premium over the price for traceable fishery products (Wang et al, 2009). Concerning the access to information in relation to the quality of fisheries products (traceability), the Romanian consumers prefer to access them directly from the store (using info-kiosk), to the detriment of accessing with mobile devices (phone / tablet) or from the personal computer.

Table 4: Intention to buy fish and fish products

Criteria	**Composite Priority**	**Rank**
Availability of information on the quality of fishery products	21.794	1
Availability of an adequate labeling	21.655	2
Accessing information on the quality of fisheries products (traceability) directly from the store (using info-kiosk)	20.504	3
Accessing information on the quality of fisheries products (traceability) using mobile devices (phone / tablet)	17.950	5
Accessing information on the quality of fisheries products (traceability) using a personal computer	18.096	4

Conclusions

Most of Romanian consumers preferred to purchase fresh or refrigerated fish and fresh fish rather than frozen or processed, preference placing them in the general trends of consumer preferences registered in the European Union, Turkey and China. The results of the survey show consumers are aware about the fish products safety including quality and the necessity of getting safety knowledge and they got a risk perception associated with fish products. Also, due to the interest in safety and quality, among the Romanian consumers of fish and fish products there is concern for accessing the information related to the quality of fisheries products (traceability) directly from the place of purchase, which is mostly the supermarket/hypermarket.

In conclusion, because was used a sample of consumers from all the Romania's territory, with a large range of age, gender, job category, level of education, this survey provides a chance to understand consumers' awareness to the quality and safety of fish products in Romania.

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Potential Influence of New Trends in Marketing On Consumer Purchasing Behavior

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Abstract

Marketing communication and marketing are influenced by their environment, especially social development and development of informational technologies. To anticipate and meet the needs of current and potential consumers, enterprises must be able to reach specific target segments through selected marketing communication tools. Today, thanks to the unlimited possibilities of the Internet and information technology companies have new opportunities in the sale, distribution, and especially in communication with its customers. The aim of this paper is to identify and highlight the effect of selected trends in marketing and marketing communications to consumers' buying behaviour.

Keywords: advertisement, consumer, promotion, purchase behaviour.

Introduction

The communication tools must be used appropriately to suit the context of the markets being served, different customer needs and the firms' objectives. Media availability, cultural and legislation differences and the nature of the products and services being marketed will influence the communications strategy decisions and choice of tools. Customer perceptions can be damaged by poor communications management within the firm and by external factors over which the organization may have no control. The international firm must concentrate on communicating consistency in its image, standards and values to a diverse range of stakeholders as well as making its direct appeal to existing and potential customers. It must also integrate the traditional communications with online communications to further develop interactive, one-to-one customer relationships (Doole, Lowe, 2012). Integrated communications are the integration of formerly specialized communications functions into on organizational system that conveys a consistent set of messages to all target audiences. Integrated marketing and corporate communications manage each point of contact between the consumer or other target groups and the product or the organisation. Companies evolve only gradually to a truly integrated communications system. This slow evolution is caused by a number of important barriers to integration, such as the functional specialization in companies, existing structures, the lack of internal communications and the perceived complexity of planning and co-ordination. In integrated communications many instruments are used. They are embedded in a communications plan that has to be integrated in the strategic marketing plan (De Pelsmacker et al., 2013).

Literature review

Several authors like Kotler and Keller (2013), Kotler and Armstrong (2004), Štefko et al. (2015), Štefko and Krajňák (2013), Bačík and Fedorko (2015) indicate that the marketing communication means on the one hand to inform, to acquaint with product, explain their features, highlighting their benefits, quality, worthy, utility, and use the other hand to know and hear, receive suggestions and demands of consumers and to respond to them. Marketing communication is an indispensable part of

today's modern marketing. This requires more than just produce a good product, attractive to measure it or make the target customers. Enterprises have to communicate with consumers, and it can no longer be left to chance.

So what is the essence of marketing communications? To inform, to acquaint customers with the products they use properties, application areas and so on, but also to know them and listen to learn about their requirements and of course, appropriate responses (Bartáková et al., 2007). Marketing communication is one of the most visible and most discussed marketing tool with a growing impact on society and business. Customers and business managers are exposed to advertising; they use various forms of sales promotion, attending trade fairs, exhibitions, purchase of a certain well-known brand and so on. These activities affect the purchasing behaviour towards the promotion of sales of a product. Marketing communication includes all the tools through which the company communicates with the target customer groups to increase interest in the products or their public image (Cibáková, Bartáková, 2007).

In today's period, which is accompanied by the economic upturn, the market requires alternative solutions for maintaining business conditions. Cash and material flows are carefully guarded. Both parties - the seller and buyer are suddenly vigilant and cautious in all spheres of business. This trend has had to adapt to the other sales support activities. The solution is a new alternative, non-traditional forms of promotion (Lelková, Lorincová, 2015; Gburová et al., 2015). When talking about standard advertising we based on the theory that advertising is any paid, non-personal communications through various media by and identified brand or company. It is one of the most visible tools of the communications mix. Advertising campaign development consists of a number or stages. Firstly, advertising strategy has to be decided on: who are the target groups of the campaign, what are the objectives, and what messages are going to be conveyed? At the very core of the advertising process is the development of a creative idea. Companies have to write a creative brief before the advertising agency can start to do its job. Creativity is hard to describe, but bringing the message in an original, novel and appealing way comes close. Emotional appeals, on the other hand, contain information cues such as price (De Pelsmacker et al., 2013). Experts in advertising are betting on the fact that the internet is the main information and entertainment centre for people and the right through it they try to reach the target groups. The proportion of Internet advertising has recently seen a substantial increase, in contrast to other media, that cannot tell the same. When we consider the fact that radio to the took about eighty years unless it affected population on a large scale, television needed thirteen years afterwards, but internet needed just four years, which is a fraction of the time of other media. Taking into account the social networks such as Facebook or Twitter, the rate at which they spread to awareness among people is striking.

In a situation of growing immunity of consumers towards traditional advertising organisations tried to search for new forms how to better and more effectively reach target audiences. Such forms include for example product placement, buzz marketing, guerrilla, viral and mobile (viral) communication, or even word of mouth (Přikrylová, Jahodová, 2010). Advertisement belongs to the most important communication tools of businesses that are able to influence the purchasing behaviour of consumers (Lelková, Lorincová, 2015). At present its influence on successful management of enterprises is increasingly apparent. As everything also the advertising has its disadvantages, but they are not fully comparable with the benefits offered. The basis of success in creating of advertising is the knowledge of company analysis, its product, market, while measuring the effect of the communication, which aims to determine whether advertising successfully delivered messages to the targeted customers. For the advertisement it is spent lots of money because it is a tool that raises the most public debates. The most important step in the advertisement is the transformation of creative ideas, where it is necessary to pay close attention to the selection of appropriate techniques to preserve the effectiveness of advertising (Pelsmacker et al., 2003).

Methods and Methodology

The goal was to identify the effect of selected trends in marketing to the purchasing behaviour of Slovak consumers. The object of research was consumers living in the Slovak Republic. The sample was obtained at the choice of easy accessibility.

To achieve the aim of research, the following hypotheses were set:
- We assume that there are statistically significant differences in knowledge of trends in marketing depending on the respondent's education.
- We assume that there are significant differences in the preferred purchase via Internet depending on the age of respondents.
- We assume that there are statistically significant differences in the impact of advertising on consumer buying behaviour, depending on the gender of the respondent.

Respondents (consumers) responded to a questionnaire´s closed questions. Primary data obtained from questionnaire survey were later processed in a statistical program Statistica. In confirming or rejecting the established hypotheses it was used the method of Spearman's rank correlation coefficient and chi-square test.

Results and discussion

Age of respondents was considered to be an important factor, as a result of subsequent confirmation or rejection of set hypothesis. Age representation of respondents ranged from 17 to 37 years with average of 22 years. Ages categories involved in completing the questionnaire divided into three groups:

- up to 20 years
- 21-25 years
- over 25 years.

Research shows that the most represented was the age group of 21-25 years, which created 61.6% of total respondents. The second largest group was the age group up to 20 years, which had 30.3% representation. The lowest representation had the age group of over 25 years, where 14 respondents were represented what amounted to the equivalent of 7.6%. Within other identification questions it was investigated the highest level of education of the respondents. The graph below shows that the highest level of education ranged from basic education (9%) to University education. degree (6%), with most numerous secondary with GCSE (54%) and university first degree (30%). The lowest representation had Secondary schools (1%). At the beginning the research was focused to determination which factors are the most significant limits for consumers' purchasing. At this point of the research participants had a choice of several responses - low salaries, have a high price, unemployment, no factors and low price. On this question, there were added the possible answers and the possibility of others, where the respondent could enter another factor that restricts it when buying. The largest representation in the responses was the high price of 71%, which represents 131 respondents followed by low pay conditions (11%). No option checked only 15 respondents. Other options have been identified only in very few cases.

Within next question it was investigated whether the respondents sometimes met with the notion of new trends in marketing communications and marketing. The majority of survey respondents indicated a positive response (33%). Partly positive response chose 49 respondents (26%). The third option was the most commonly which corresponded to answer rather not. Only 13% of respondents did not know answer whether they ever encountered with this concept and 4% of respondents have never met with this notion. Since the new trends in marketing in the territory of the Slovak Republic are used not so much or not at all, the participants may not be aware that the promotion of what they see or have seen in the past include new trends in marketing.

The first hypothesis was verified by two questions. In the first one with identify character, where we asked for the highest level of education. In the other where we investigated whether the respondents have had contact with the notion of new trends in marketing. The following Table 1 shows us the distribution of respondents' answers up to different backgrounds.

Table 1: Evaluation of Hypothesis 1

			Have you ever heard of the concept of the new trends in marketing?					Total
			Yes	Probably yes	Don´t know	Probably no	No	
Education level	Primary school	n	3	7	4	3	0	17
		%	17,60%	41,20%	23,50%	17,60%	0,00%	100,00%
	Secondary school without graduation	n	0	0	0	2	0	2
		%	0,00%	0,00%	0,00%	100,00%	0,00%	100,00%
	Secondary school with graduation	n	25	26	13	30	5	99
		%	25,30%	26,30%	13,10%	30,30%	5,10%	100,00%
	University education (Bachelor)	n	28	14	7	6	0	55
		%	50,90%	25,50%	12,70%	10,90%	0,00%	100,00%
	University education (Master)	n	5	1	0	3	2	11
		%	45,50%	9,10%	0,00%	27,30%	18,20%	100,00%
Total		n	61	48	24	44	7	184
		%	33,20%	26,10%	13,00%	23,90%	3,80%	100,00%

Source: own processing

The hypothesis was verified by Spearman´s correlation coefficient, which value was -0.222, so weak negative relationship, which, however, was considered to be statistically significant ($p = 0.002$). The pattern is clear that respondents with higher education reported more frequent meetings with the concept of new trends in marketing and we confirmed the hypothesis.

The Internet is used to develop existing markets through enabling and additional communications and or sales channel with potential customers. It can be used to develop new international markets with a reduced need for new sales offices and agents. Companies can provide new services and possibly products using the Internet. Digital marketing can support the full range of marketing functions and in doing so can help reduce costs, facilitate communication within and between organisations improve customer service (Chaffey, Chadwick, 2012). Hypothesis 2, verifies if there are differences in the preferred purchase on the internet according to age. The distribution of answers of respondents, divided by age into three groups is shown in Table 2.

Table 2 : Evaluation of Hypothesis 2

			Do you buy products or services online?					Total
			Yes	Probably yes	Don´t know	Probably no	No	
Age	Up to 20	n	17	25	1	13	0	56
		%	30,40%	44,60%	1,80%	23,20%	0,00%	100,00%
	21-25	n	38	52	1	20	3	114
		%	33,30%	45,60%	0,90%	17,50%	2,60%	100,00%
	over 25	n	3	7	0	3	1	14
		%	21,40%	50,00%	0,00%	21,40%	7,10%	100,00%
Total		n	58	84	2	36	4	184
		%	31,50%	45,70%	1,10%	19,60%	2,20%	100,00%

Source: own processing

According to the response rate it can be seen that the biggest difference between the compared age groups was the preference options certainly yes. A lowest purchase of products over the internet was

seen at example of oldest respondents (12% opposed to the middle age group). Overall, the chi-square test did not show evaluation of statistically significant difference (chi-square = 4.677, p = 0.791), so the hypothesis is not confirmed, as compared age groups differ.

Within the last hypothesis we verified whether advertising sometimes caused to consumers rise to the immediate purchase of certain goods or services. Subsequent identification issue was the question of the gender of the respondents.

Table 3 : Evaluation of Hypothesis 3

			Have advertising cause you initiative for immediate purchase certain goods or services?					Total
			Yes	Probably yes	Don´t know	Probably no	No	
gender	men	n	3	19	7	20	11	60
		%	5,00%	31,70%	11,70%	33,30%	18,30%	100,00%
	woman	n	22	49	15	30	9	125
		%	17,60%	39,20%	12,00%	24,00%	7,20%	100,00%
total		n	25	68	22	50	20	185
		%	13,50%	36,80%	11,90%	27,00%	10,80%	100,00%

Source: own processing

The hypothesis was verified by chi-square test of independence criteria, in Table 3 is presented the distribution of the responses in both men and women. The table shows that, men are more inclined towards a negative response. Women answer more positively. Women succumbed immediate impulse to purchase. The difference was considered to be statistically significant (chi-square = 11.347, p = 0.023) and on the basis of it given hypothesis was confirmed.

Conclusion

The paper aimed to point to the impact of new trends in marketing and marketing communications to consumers' buying behaviour, where investigated the information and theoretical knowledge about new trends in marketing and so wanted to raise public awareness of these trends in marketing. Based on the questionnaire survey, subsequent analysis and verification of set hypotheses, it was found out the following facts. The impact of new tools in marketing in this survey influenced mainly the female gender, which may be due to better involvement in purchases. Our analysis also found out that respondents with higher completed education know, respectively, with the concept of the new trends in marketing they have met, but this does not guarantee their utility and application in practice.

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The Concept of the Profitability for the Transport Orders Acquired From the Transport Exchange Market

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Abstract

This article covers the issue of the quick profitability assessment method for the transport orders acquired from the transport exchange market. For this purpose two algorithms were suggested that were developed in order to increase the pace of the decision making process. The first algorithm ” geo-position” makes the time shorter for the information to be retrieved from a digital map and the second one “improvement“ algorithm selects the transport orders on the basis of the optimal costs with a short time delay.

Keywords: transport exchange market, transport orders profitability, optimal algorithm

1. Introduction

Permanent development of the transport exchange markets has brought about many changes based on the ongoing searches for the long term transport contracts or orders for the transport companies. This process in which the transport orders are acquired and then analyzed taking into account the calculations of the previous orders is made to finalize the process by preparing an offer that is determined by the time that is; the time of the decision making process.

Examining only the analysis of the order as such it was concluded that previously it was necessary to determine precisely the loading / unloading location, evaluate the number o similar orders, (that is; the distance between the loading place and the actual route) predict the number of the areas so that the distance to the location was the shortest possible as well as to check many other parameters affecting the profitability and the cost involved. The time to prepare an offer involved many people, which made it long before the actual order was proceeded This ,on the other hand, affected the profitability and the availability of the transport means due to the delays in decision making process. Presently it can be observed that the search for transport orders is more dynamic thanks to the operation of the transport exchange market which has become a platform for well established and new companies to compete on the market. That is why the transport exchange market is often called a lottery where it is possible to acquire profitable orders as well as to cover the costs of the fleet maintenance.

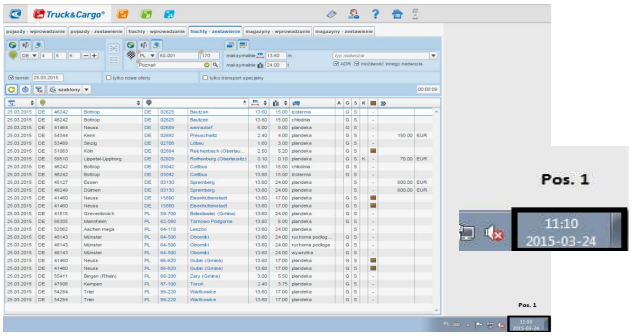
It is worth considering the question what are the profits that can be gained by using a transport exchange market ? Analyzing the offers we can conclude that the transport exchange market is an efficient tool for optimizing the logistics. It does not mean that the exchange market would tell the user how to reduce the costs or which criteria should be chosen for selecting the best route. In this case it turns out that the work of the experience transport operators proves to be crucial as far as the efficiency is concerned while the transport exchange market makes an excellent tool to determine free transport means and the loads available. This information nowadays is a key to success in logistic business. It lets the companies save time as the communication is so developed that it enables them to be in touch with a great many contractors and have an access to a great amount of cargo and the transport space availability, which can be effectively organized and managed by using computerized systems.

There is no doubt that in 21th century it is more and more difficult to imagine a modern transport system without the logistic exchange market however, the efficiency of transport mainly depends on the application of the IT tools which are used to plan, coordinate, store and optimize the proceedings due to the application of proper algorithms[1]. Summing up we can say that the transport exchange market is a source of information that is further proceeded by the computer system, making it so efficient and profitable.

2. Acquiring the profitable orders from the transport exchange market – case study

Despite the fact that the contemporary transport exchange markets offer their customers modern computer based tools which, as it is said , "make the business more efficient and transparent" they unfortunately limit their functionality to the presentation of more and more loads and their control during the transportation. Consequently, the functionality such as; the route costs calculation or the monitoring of the vehicles with the "tele-matic" system suggesting the operation work on one platform, concerns only the situation referring to the load that has been put on the transport exchange market and its transportation. The way in which the transport business operates makes us consider other aspects (not included in the offers) that affect the profitability of a particular order. It mainly concerns the distance to the loading location (that is empty run distance) as well as the difference in costs depending on the company. As it happens very rarely that the transport offer appears in the location where the company has the vehicle available. It is also impossible to determine the same distance costs for every company using transport exchange market. Therefore the key factor for the transport operators is to evaluate the profitability of a given order in a very short time.

It is worth pointing out here that the profitability evaluation makes a complicated process and is related to the additional analysis of the parameters such as; the area of loading (industrial areas of Europe give the guarantee of large quantity loads ,which means that the probability of finding the next order is very high), the distance to be covered (the longer distance the higher the price and lower costs resulting from the distance to the loading location), the time of the transportation (short term motivates the suppliers to put up the price), price (the ability to calculate the costs involved to reach the loading location and the transportation to the unloading spot, which supports the calculation of the whole order to be proceeded. The operation proceedings of the transport operators and the dynamically changing orders in the transport exchange market are illustrated in the pictures in sequence 1, 2, 3.

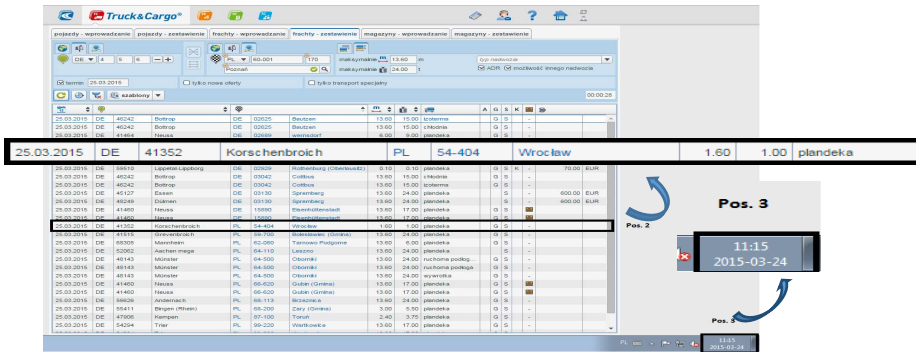


Picture 1: Screen shot of the transport exchange market TimoCom –11.10 am.

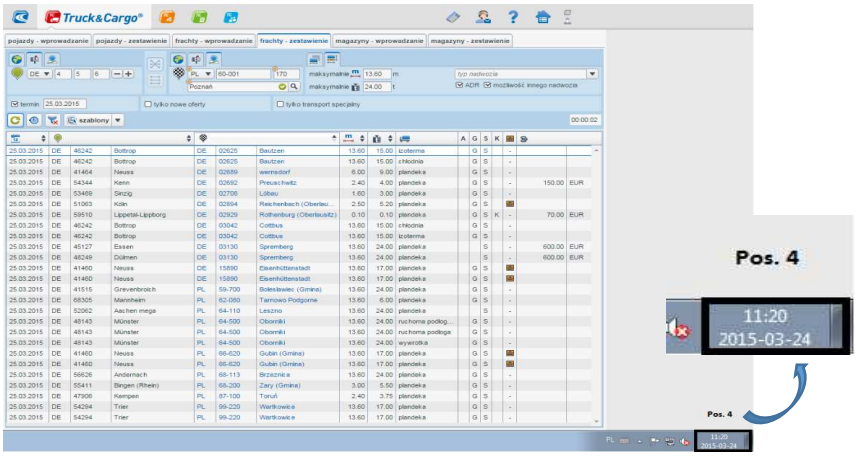
[1] Chen Shi-Jie, Mazur Ł. and Sąsiadek M. (2013) 'Project task flow optimisation and departmental flow analysis using design structure matrix and genetic', *International Journal of Logistics Systems and Management*, , Vol. 15 (1), 68—92..

In Picture.1 one of the biggest transport exchange market was shown. The observation of the incoming orders started at 11.10 am (Picture. 1). In this time there was no interesting transport offer. Picture. 2 shows the screen shot of the same transport Exchange market but only 5 minutes later, that is; at 11:15 am 15am (Picture 2, pos 3). At this time one offer appeared for the route; Korschenbroich (Germany) – Wroclaw (Poland). The offer did not include the price so it was negotiable. The offer can be determined by the following operations to be carried out; checking for available vehicles, calculating the distance to the loading location, calculating the transportation distance, calculating the costs , determining the income distribution and negotiating with the customer.

This means that one of the users decided to take this order so all the operation related to the decision making process can't have lasted more than 10 minutes. This situation shows a typical work of the transport operator who without proper tools assisting his decision making process is forced to take a risk or trust his or her experience. In this case the success rate is conditioned by luck, experience and a random calculation not a reliable assessment and planned operation procedures.



Picture 2: Screen shot of the transport exchange market –11.15 am.



Picture 3: Screen shot of the transport exchange market – 11.20 am.

The experience of the operator mainly refers to his or her knowledge of the digital map and the ability to assess the distance between the loading / unloading locations . On the other hand the evaluation of the costs is based on defining the costs for the vehicle to reach the loading location (unloaded run) and the transportation costs (loaded run) This differentiation plays an important role because of the value of the estimated costs and assigning them to the transportation distance as a whole.

The authors of this article carried out the analysis of the operational costs of the company with whom they cooperate daily. On this basis the average annual costs of the company for the distance to the loading location was determined by summing up the permanent and changeable costs including the mark-up that the company imposed when the vehicle was reaching the loading location. Next, dividing value by the summarised number of kilometres covered annually[2]. Analogically, the average annual cost for one kilometre was calculated. The results for the company that has the transport means ranging from 150 – 200 vehicles with trailers amounted to 0,75 EUR for one kilometre for the distance to the loading location and 0,85 for the transportation of the load. Using similar calculations the profits that is generated by the transport exchange market orders was determined. It is worth pointing out here that the companies tend to hide both the number of kilometres and the costs. In most cases the customers of the transport exchange market are interested only in the value of the order and not in the number of the kilometres to be covered to reach the loading location and proceed the transportation. To analyse the income and the costs of the kilometre the "Frachteo" internet portal was used[3]. On the basis of the 2500 quotes of the offered price in relation to the different destinations offered by the portal it was determined that the particular income ranges from 0,9 EUR to 1,3 EUR per one kilometre. The tests started in January 2015 and have been carried out till present. The difference in incomes in relation to the value of one kilometre is significant with results mainly from the evaluation of the profitability of the company taken annually. Most of the small and medium companies tend to analyse so called "big numbers" that is; the values collected from a long period of time, mostly covering one year. In this case the analysis concerns; the number of the kilometres covered with and without the load for all the vehicles in service and the costs involved as well as the profits generated .

On the basis of this data the evaluation economical instruments were defined in order for the operators to make decisions during their work on the transport exchange market.

In conclusion the case study covering the route Korschenbroich (Germany) – Wroclaw (Poland) (Picture. 2), would show which operation the operator should carry out

a) Determine the number of kilometres,
b) Assign the closest vehicle possible, which on 25.03.2015 can reach the loading destination in Korschenbroich (Germany),
c) Determine the number of kilometres to be covered to the loading location,
d) Check if in the nearest term 26.03.2015 there will be a load to be taken from the city Wroclaw (Poland) because it makes an unloading location, which would greatly limit the costs of the next order,
e) negotiate and determine the price with the order supplier

As mentioned before, the transport operator has only 10 minutes to make a decision so he or she can make many mistakes The best example is the calculation illustrated in the Table 1 and 2. In the calculations the vehicle must reach Holland (different unloading locations) then move to Germany that is to the loading place only to drive on to Poland. The operator in this case must carry out all the operations mentioned before.

[2] Woźniak W., Jakubowski J. (2015), 'The choice of the cost calculation concept for the mass production during the implementation of the non-standard orders', 26th IBIMA Conference, 2015, Madrit, p.2364-2371.
[3] http://www.frachteo.pl

Table 1 : Order profitability calculation - destination option A

Own calculation - destination option A		Kilometres	Costs	Cost value
Destination	Rotterdam (Holland)	210,00	€ 0,75	€ 157,50
	Korschenbroich (Germany)			
Transportation	Korschenbroich (Germany)	860,00	€ 0,85	€ 731,00
	Wroclaw (Poland)			
Total		1 070,00		€ 888,50
Calculation for the customer		Kilometres	Costs	Order proceeding value
Transportation	Korschenbroich (Germany)	860,00	€ 1,00	€ 860,00
	Wrocław (Poland)			
Order profitability analysis				**-€ 28,50**

Table 2: Order profitability calculation - destination option B

Own calculation - destination option B		Kilmetres	Costs	Cost value
Destination	Eindhoven (Holland)	100,00	€ 0,75	€ 75,00
	Korschenbroich (Germany)			
Transportation	Korschenbroich (Germany)	860,00	€ 0,85	€ 731,00
	Wrocław (Poland)			
Total		960,00		€ 806,00
Calculation for the customer		Kilometres	Costs	Order proceeding value
Transportation	Korschenbroich (Germany)	860,00	€ 1,00	€ 860,00
	Wrocław (Poland)			
Order profitability analysis				**€ 54,00**

If this route were to be covered because of the instability of the transport orders in the selected directions (for example the case of increasing number of the orders towards Germany and limited ones towards Poland) the profitability will always be achieved for such an order even if its profitability as such will be negative.

3. Methodology and decision making support tools in relation to the selection of the profitable transport orders.

A short time and the lack of possibility to evaluate the business situation at the moment the decision is to be made, which makes it a complicated task to choose an optimal selection in the light of the profitability, greatly affecting the development of the company.

Despite the fact that these tools are widely used and are offered by the transport exchange portals in addition to the company's own transport management systems the speed, at which the clues as far as

the profitability is concerned, is still very limited and in most of the cases the problem lays in delayed proceeding time and the digital map reaction as well as the assignment of an optimal solution via the use of the computerised transport management systems.

Analysing particular elements of the operations that are done by the transport operator during the process of the orders acquisition from the transport exchange market the following method was suggested, which may significantly shorten this process. In the Table 3 seven steps were presented giving a full picture of the transport operator work. The yellow colour was used to indicate these steps which can be improved by using the suggested tools.

In this method the operator is still using his or her experience and skills in order to plan and acquire the orders from the transport exchange market. This can be achieved thanks to the 2 alternative methods illustrated in step 2 and 5 (yellow colour). In the first case it is suggested using the application of the algorithm which takes the graphic coordinates on their basis assigning the initial geographical position for the vehicle (the location of the previous upload location or actual position and the geographical position of the uploading resulting from a given order. Next, the distance is calculated (in kilometres) in a straight line between the defined coordinates points. In the next step, the algorithm defines the time needed to reach the destination in a straight line by using the statistical data and the average speed for the vehicle in a given region (similar to the digital map).

The value that has been retrieved is then compared to the work schedule of the driver (working hours according to the road and safety regulations) In this way, having determined the working time and the number of the kilometres the algorithm excludes these orders that do not meet the basic criteria.

Table 3 : Suggestion for the selection method of the profitable transport orders

Steps	Operations	Tools
Step 1	Assigning adjacent points: - max distance to the destination in kilometres, - the cost of an order, - the cost of the transportation, - the value of an income and other values.	Statistical data analysis from previous orders via TMS or other computer based tools.
Step 2	Uploading orders from the exchange market.	The application of the available computer based tools.
Step 3	.Analysis of the available vehicles and the loading destinations derived from the exchange market.	The application of the digital map functions
		Own suggestion: the method and the computer based tools in order to develop a matrix of the distance in relation to a geographical position – the "geo-position" algorithm
Step 4	Defining the orders (based on data from step 3) which are feasible to proceed	The application of the available computer based tools.
Step 5	Defining the optimal solution for the shortest distance to the uploading location as well as the lowest costs involved.	The application of the optimisers used in TSM or on the basis of own tools
		Own suggestion – the method of profitable orders selection based on the optimising algorithm "improvement algorithm"
Step 6	Selected order price quotation and negotiations,	Communication with a supplier
Step 7	The order profitability calculation	Computer based tools application (own, TMS or other tools)

This solution is called the algorithm of geographical position which makes up a first matrix of the available transport means and the acceptance of the orders with the parameters such as the distance, time to reach the destination and the time of the driver work schedule (step 4). All the orders that are accepted by the algorithm go on to the next step for which a digital map is used as a standard.. At this stage we can observe some time savings in the analyses of all the interrelations based on the vehicles available and their relocation on the digital map.

In the next step , as an alternative option for the tools used in modern TMS systems it was suggested using our own algorithm that is the algorithm of "improvement"[4]. This algorithm can be characterised by a short time complexity, namely; the time of the information access in relation to the most common and widely used optimising algorithms of TMS systems which includes the transport algorithm and in this specific case – the "Hungarian" algorithm[5].

The algorithm of „improvement" was used to optimise the possessed orders in relation to the lowest cost of the order proceeding. The time for the calculation to be completed for 40 vehicles with the transport exchange market orders ranging from 40 – 80 can be seen in Table 4. Even with the optimisation of the 80 orders retrieved from the exchange market the time did not exceeded 1 minute.

Table 4:Time complexity for the "improvement" algorithm

Number of ordeers	Unit	Result time complexity for the "improvement" algorithm	
		Min. time	Max. time
40	**µs**	13 091 956	16 625 676
40	**minutes**	0,218	0,277
45	**µs**	15 780 079	17 999 959
45	**minutes**	0,263	0,299
50	**µs**	18 779 995	21 190 365
50	**minutes**	0,312	0,353
55	**µs**	21 499 997	25 686 380
55	**minutes**	0,358	0,428
60	**µs**	23 664 384	27 950 021
60	**minutes**	0,394	0,465
65	**µs**	27 430 071	35 533 736
65	**minutes**	0,457	**0,592**
70	**µs**	31 120 128	34 846 478
70	**minutes**	0,518	**0,58**
75	**µs**	34 160 014	38 204 563
75	**minutes**	0,569	**0,636**
80	**µs**	38 669 992	45 396 568
80	**minutes**	0,644	**0,756**

[4] Woźniak W., Wojnarowski T. (2015), 'A Method for the rapid Selection of profitable Transport Offers within the Freight Exchange Market', 25th IBIMA Conference, 2015, Amsterdam, p. 2073 – 2085.
[5] Ibidem

As a result of the 'improvement" algorithm execution the result was achieved in which All the 40 available vehicles were assigned to 40 different orders derived from the set of 80 orders to be considered. The parameter for the algorithm was the lowest cost. Table 5 illustrates the fragment of the sorted table. Consequently, the matrix is filled with the values of the costs and their proceedings from the step 3 ,which is influenced by both the distance to the loading location and the load transportation according to the rates examined and evaluated in part 2.

The data that has been generated via the „improvement" algorithm indicate a real number of kilometres which is to be proceeded in a given order and the costs include additionally the distance to the loading location. Consequently, the analysis of the kilometres from the data is not adequate to the pre-defined costs (for example; comparing the position 1 and the position 2 in the Table 5) This , on the other hand, might be essential tool for the operator to increase the profitability of the orders due to his or her knowledge about the distance (number of kilometres and duration) and the distance to the loading location.

Therefore when the costs of the order is available the number of kilometres to be covered and the allocation of the income then the operator, can start negotiating and defining the price. At this stage the profitability of the orders depends on the negotiations only.

Table 5 : Example results for the optimising algorithm of "improvements"

L.p.	Vehicle ID in data base	Unloading location (start point for the destination)	Loading location (start point for the transportation)	Unloading location (endpoint for the transportation)	Order cost proceeding	Kilometres from the order
1.	1	COTTBUS	IŁOWA	FOERITZ	386	389
2.	26	ARNHEM	HURTH	MARMOUTIER	406	320
3.	29	COTTBUS	IŁOWA	KREMSMUNSTER	472	490
4.	8	KLATOVY	LITVINOV	ARETSRIED	491	440
5.	23	CHARLEROI	LAAKDAL	DORNSTETTEN	516	528
6.	6	KLATOVY	NERATOVICE	TURKHEIM	559	520
7.	22	STAROGARD	JANIKOWO	WEIHERHAMMER	768	745
8.	4	ORMOŻ	PISCHELSDORF	OSTROŁĘKA	811	820
9.	39	ZGIERZ	WŁOCŁAWEK	SATERLAND	848	906
10.	33	ROTTERDAM	FELUY	BEESKOW	863	854

This kind of the acceleration of the operator's work by using the "geo-position" and "improvement" algorithm in relation to defining of the costs and profitability enables us to make decisions in the time shorter than 10 minutes for a selected group of transport orders. The method suggested here and the application of the solutions discussed makes an alternative option for expensive and limited in its functionality solutions that are used in the transport systems operating on the transport exchange market.

4. Conclusion

The phenomenon of the transport exchange market is strictly connected with the operational improvements in the area of transport processes and the establishing of international contacts to access the loads directly. Because of this the costs of so called unloaded runs are greatly eliminated enabling bigger profits to be achieved. It is estimated that 90 % of the transport companies make use of different transport exchange markets. The idea that the transport exchange is only a kind of virtual advertising has been abandoned long time ago since their functionality has proved to be very efficient in relation to the work proceedings and the data analysis. Unfortunately the tools that are often used do not serve the function of the TMS systems, which means that a great amount of time is lost for the integration of data and retrieving the information. In fact all the tools that are made to accelerate the work on the transport exchange market such as the " improvement' or "geo-position" algorithm can be used as an effective tool to compete for the profitable orders on the dynamically evolving transport market.

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Determinant Factors for Effective Collaboration between University and Industry in Commercialising Research Products in Malaysia

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Abstract

Commercialising of the research product has now become one of the critical issues towards achieving innovative nation and generating wealth creation especially relevant for Malaysia. One of the elements of research products commercialisation is promoting a strong and an effective collaboration between university and industry. They have been a lot of attempts and iniatives in bridging the two worlds, however, the collaboration is not strategically promoted and is still less satisfactory. Thus, this paper aims to review factors for an effective collaboration between university and industry towards commercialising research products. For the purpose of the study, interviews were conducted with six academic researchers who have experienced in collaborating with the industry. Drawn from their insights and experiences, this study identified factors with respect to the role of the university, research product and academic researcher. These factors are important for academic researchers and their industry partners to develop and plan strategically for an effective, strategic and sustainable collaboration in commercialising research products.

Keywords: Research product commercialisation, Collaboration, University and industry, Academic researcher

Introduction

Commercialisation of the research product has now become a critical issue in the university. This process involves translating knowledge from research into a new and improved products and services (Isabelle, 2004). For this reason, the role and function of the university have expanded from traditional teaching and learning to include commercialisation activities. The production of new and improved products from the university have pave the way for new opportunity for university to enjoy a more commercialised status, and some may refer as "entrepreneurial university" (Ramli et al, 2013; Karlsson, 2004; D'Este and Perkmann, 2010). This situation has also encouraged university to become an independent body to create its own income (Ramli et al, 2013; Howitt, 2013; Han and Heshmati, 2013). It has also been emphasised that universities are treated as an engine of wealth creation through commercialisations tools (Markman et al., 2008. However, it is interesting to note that commercialisation of research product particularly in the university is still new and less encouraging in Malaysia. Furthermore, there are also little findings to support for commercialisation activities in Malaysia. This is because commercialisation is required a long and complex process. Furthermore, it has been stated that since universities are still focusing on traditional teaching and researching, commercialisation is still considered as a long way to go (Galushko and Sagynbekov, 2014). In fact, publication has become priority among academics (Behboudi, Jalili and Mousakhani, 2011) to fulfil their key performance index or to get promoted. The worst scenario is that some academics found that commercialisation has no relevance to them (Farsi, Moderessi and Zarea, 2011; Boadu and Metla, 2008) and some may think that commercialisation requires too time consuming (Aziz et al., 2013; Galushko and Sagynbekov, 2014; Yaakub et al., 2011).

There are many ways on how universities set their own strategies for commercialisation, and some have adopted internal, quasi-internal and externalisation approaches (Markman et al., 2008). They also engaged through research contract, consultation and joint research (D'Este and Perkmann, 2010). These strategies are important especially in identifying their novel intellectual property rights and their financial strategies to maximise the success (Siegal and Wright, 2007). Various programs and inititiaves have been put forward by the university to encourage collaboration towards the effective research product commercialisation. These programs include for example incubators, education and

networking programs (Karlsson, 2004) and the establishment of the technology transfer office (Teng, 2010); Siegal, 2013) to facilitate the collaboration process. University will also adopt commercialisation policy and issues related to academic rights, ownership rights, sharing of the profit etc (Ab Aziz, Harris and Norhashim, 2011; Ramli, et al., 2013). Research management centre or technology transfer office plays an important role to coordinate and facilitate the commercialisation activities in the university (Sastry et al., 2007; Jensen and Thursby, 2001). Apart from that, collaboration between university and other agencies including research centres and industries are one of the strategic approaches to encourage for research product commercialisation (Siegal and Wright, 2007; Ramli and Zainol, 2013). To foster an effective collaborative culture between university and industry, there are certain ways to be employed where; (a) industry financially supports university and academics are free to decide their research as agreed; (b) industry involves as part of the members but does not involve in research activities; (c) industry orders specific types of research to university, and they have more rights on the result from the research; and (d) industry and university equally involve in the research and they gain equal benefit from such collaboration (Lind, Styhre and Aaboen, 2013). However to ensure that collaborative agreement is a success, there are certain criteria which industry expected from the university, and vise versa. It is claimed that university should produce research product that meet the market requirement and consider the technological trend in the industry (Yusuf, 2006).

Since commercialisation involves a complex process, there are challenges and gaps that need to be addressed. Although many initiatives have been put forward by the government, nevertheless there are challenges as regards lack of funding, lack of collaboration between academic and industry, lack of emphasis on innovation and lack of human capital (Govindaraju, 2010). Furthermore, due to tacit nature of knowledge, there was a problem to collaborate between academic and industry (Etzowitz, 1998). Lack of expertise in the relevant field and lack of expertise in management skills are also identified as challenges for successfully commercialising research products (San, Narayanasamy and Ahmad Dahlan, 2012). Lack of technology transfer office or research management centre's capabilities are identified as one of the challenges to facilitate, monitor and sustain the collaboration (Farsi, Moderessi and Zarea, 2011). It is said that this office or centre is still new and less experience in conducting commercialisation related activities (Yaakub, et al., 2011) and their personnel lack capabilities in marketing, technical and negotiation skills which lead to many research product remain uncommercialised (Farsi, Moderessi and Zarea, 2011). Another challenges is that reward and incentive systems are not properly granted to the academics to pursue for commercialisation. Furthermore, research product failed to meet the market demand and it lacked of competitive advantage (Farsi, Moderessi and Zarea, 2011) and research conducted in the university normally failed to give proper consideration to the industrial problems (Anbardan, 2013). Moreover, there are different motivations between university and industry; whereby academics prefer to share their knowledge, whilst industries try to keep the information secret from their rivals (Aziati, Hazana and Ping, 2014; Ramli and Zainol, 2013).

It was reported from the empirical study that there were factors that contribute to focus on the collaborative partnership between university and industry. A new program and project management was also found to be useful to reduce the gaps between both entities (Fernandes, et al, 2015). Adoption of this program and project management has emphasised on the structured objective setting, good progress monitoring and effective communication towards effective collaboration between university and industry (Fernandes et al, 2015). It was suggested however that this program and project management was not a "recipe" for all university-industry collaborative context, but a careful consideration need to be adjusted by a manager or management team to respond to a particular program requirements (Fernandes, et al, 2015). The study conducted on 142 firms in Konya found that the level of collaborating degree between university and industry was still not sufficient and there is a positive directed linear relationship between the frequency degree of collaborating with the university and number of employees in the institution which is necessary of being institutional (Sendogdu and Diken, 2013). Thus, the collaboration is often failed to be materialised in the institutional firms (Sendogdu and Diken, 2013). It was found in Chinese university and high technology industry that university and industry collaboration is established by various factors such R&D tendency, R&D risks, R&D promotion in terms of incentives (Riaz, 2013). It was also emphasised that there are significant output based on such collaboration including innovative

incentives, technological gains and sharing R&D costs (Fiaz, 2013). Similarly, it was viewed that collaboration between university and industry affected process innovation and product innovation is positively affected by the geographical area to a university but negatively affected by the amount of its production of knowledge (Maietta, 2015). For a successful commercial collaboration it was suggested for university and industry to adopt a long term strategic planning and a tactical approach for handling day-to-day operations (Liew, Tengku Shahdan and Lim, 2012). In Denmark, researchers experienced an institutional convergence to share the culture of knowledge sharing and effective communication for joint projects with industries, especially when they engaged social skills to bridge the perceived gaps (Bjerregaard, 2010).

Thus, this paper focuses on the determinant factors that lead to the effective collaboration between university and industry. This is because if collaboration between university and academic manages to tackle all issues and challenges, commercialisation will be treated as a success one (Karlsson, 2004). Furthermore, the important motivation behind the creation from the university is not only creating profits for the university per se, but in fact it should give impact to the society and nation as a whole.

Research Methodology

For commercialising research products, there are many factors to guarantee the success of commercialisation, and one of them is to collaborate between academic researcher and industry. Successful collaboration between academic and industry is significant to ensure that commercialisation of research product is reaching the market segment. However, this is not always be the case since there are many factors contributing to guarantee the success of collaboration between academics and industry partner. This paper addresses the following research questions:

(a) What are the determinant factors for a successful collaboration between academics and industry;

(b) What improvement can be made to ensure for an effective collaboration between academic and industry.

To answer this research question, this study employed a qualitative research using semi-structured interview questions. Six academic researchers have been purposely selected for the interview. They were chosen based on these criteria; (a) various and extensive experiences in technical and scientific background; extensive experiences in commercializing research products; (c) extensive experiences of collaborating with industry partner; and (d) represent the academics from the Malaysian public university. The six interviewees are identified and referred as DR, AN, SZ, LY, RZ and EN for the purpose of anonymity.

The interview questions were designed based on the structure developed by Patton (2002). This study adopted face-to-face semi-structured interviews with the six respondents. Each interviews session lasted from approximately 1 to 1 ½ hours. The researchers asked the permission to record the interviews and they were transcribed verbatim. All information gathered from interviews were analysed based on axial coding.

Findings and Discussion

Successful collaboration between academic and industry is significant to ensure that commercialisation of research product is reaching the market segment successfully. This study has identified and examined the main determinants for effective collaboration between academic researcher and industry partner, which can be categorised into three main aspects namely; (1) role and function of the university; (2 producing innovative research product and (3) competencies of academic researcher. This study recommends ways for improvement between academic researcher and industry towards a better and effective collaborative engagement and commercialisation of the research products.

Role and Function of the University

University plays significant role in bridging between academic researcher and industry partner. University supports may come in the form of the effective role and function of the research

management centre. This centre is dedicated to facilitate and monitor issues related to research and development (R&D), research products and commercialisation in the university. However, the role and functions are not only limited to these particular aspects only, but they are also providing platform for networking purposes between these two worlds. The significant role and function of the research management centre have been emphasised by three interviewees in this study. Interviewee DR stated that research management centre supported the collaboration by providing a team of experts and personnel to assist for collaboration. He said that:

"Good team is very important to support for such engagement, they are a team of accountants and good personnel who are able to deal with business related matters, and good public relation with outsiders". This was also agreed by interviewee SZ where he stated that *"the personnel help us [academic researcher] a lot in term of the agreement made in the form of MOU and MOA. They are also acted on behalf of academic researcher in terms of commercialisation activities and related matters, promotion and advertisement in supporting for collaboration"*. An interesting observation made by interviewee RZ where he said that *"research management centre tries to match whatever technology we have with the interested industry. After that, they make us meet with the industry"*.

Thus, various role and function in bringing closer link between academic researcher and industry partner provide a good platform towards successful research products commercialisation. Their active promotions of the potential research products in the university guarantee for effective engagement between these two parties.

In addition, sufficient funding is also found to be one determinant factor for an effective collaboration towards commercialising research products. This shows the seriousness from the part of the university towards encouraging for active and effective collaboration with the industry partner. Normally, at the early stage of commercialisation endeavour, it requires huge investment in producing mass of products and subsequently attracted the potential industry collaborator. Interviewee DR shared his thought on this when he said that:

"We started with pre-commercialisation, we have internal fund which are secured by hundred thousand. That hundred thousand I bought a second hand machine for the brick manufacturing. […] Even though it is old machine, at least it gives us some idea how the process work. So by using that machine, we are able to convince our partner".

Sufficient funding provided by the university helps academic researchers to attract and convince the potential industry to collaborate with them. This is equally true to small medium enterprises (SME) which expected to get financial assistance from the university in order for them to go for the mass production. This is further emphasised by interviewee DR where he stated that to convince the industry partner, the university must really committed and appreciated in achieving commercialisation stage.

In encouraging collaboration, university must play an active role in promoting academic research products. Promotions can be made formally, for example through scientific and engineering exhibitions, either at national or international level, conferences or any other scientific competition. This provides as a platform for academics to expand their networking with other researchers from different areas, and also with the potential industry collaborators, as emphasised by interviewees AN and SZ. Similarly, interviewee DR was also very lucky to meet his own industry partner through the scientific exhibition. According to him, he met influential people and this person was really impressed with his products, and this has become his introducer to the interested industry.

Promoting research products is one of the ways to facilitate the process of university-industry collaboration. Interviewee SZ stated that:

"It is not difficult to actually collaborate with industry. We just need to be actively promote our product […] have a very broad marketing. My media team from university is very good". Similarly, interviewee LY agreed that university has played its role in promoting his product to the potential industry collaborator. The active promotion that played by the university manage to advertise the research product to the outside world.

Research Products

Producing of innovative research products is the main determinant factor that contribute to the collaboration between academic and industry. Producing quality products with reasonable price manage to attract industry partner to effectively engage with the academics. The capability of product to offer a low price in the market is one of determinant to ensure the success engagement between both parties, academic researcher and industry partner. This study highlighted that three of the interviewees were able to produce a quality product at reasonable price. Interviewee DR shared his experience in comparing his product with another products and stated that:

"Customer has started asking because are we selling the brick at the price of 28 cent per piece which is similar price to a cement brick. Cement brick is not as good as this. And the quality is quite similar to clay brick. Clay brick is 45 cent per brick. But of course you see, that is just a small amount, just 28 cent. But then, when we talk about project for example, building like chancellery building. Chancellery building will use about 2million bricks. So it becomes big". Similarly, interviewee LY confidently claimed that "*my product is cheaper, stronger and lighter"* and this was also supported by interviewee EN where he added that:

"If the product is really good, really useful, and suitable with the price, I think it should be no problem".

Thus, quality but yet reasonable product enable to attract industry partner to collaborate for the business.

Creating and producing product that able to solve market problem is another way on how to attract the industry partner to collaborate with the academics. In order to meet the market demands, academic researchers need to find the problem in the market and try to solve them by offering their products to the potential industry. In this sense, industry partner will appreciate the efforts made by the academic researchers. Furthermore, this type of products guarantee that the products will have the potential consumer in the future. Furthermore, this type of product manage to benefit society as a whole, as observed and agreed by interviewee EN where he said that:

"It started from problem faced in the school. So we solved the problem. Thus, whether the project is big or not, it must be useful to the society. Otherwise, your product cannot be commercialised. For example let say I leave in a village and near to a river. Usually the electricity run off during the flood. What do I need? I need a clean generator. Because the existing one is smell and oily. If there is one generator using solar and green technology which I can put at my home, I will buy it even though the cost is high. It is a need. So back to basic, what is the need of our society? We need to do something new which people really need it".

On a similar note, interviewee DR also claimed that research product should benefit the society as a whole and manage to provide solution to a particular problem. Thus rather than focusing on their own key performances index (KPI), academic researchers are now have to consider the market needs of their research products. Producing a good research product alone does not guarantee that industry will attract to the products, but academic researcher must show that their products tap to the market needs and worth to the society.

Uniqueness of the research product is one criteria that industry partner is taken into account to collaborate with the university. Interviewee SZ shared his view on this by saying that his product has created a value-added that successfully attracted collaboration from the industry partner. He further stated that:

"This product is very high fibre, high shelflife, long lasting, and the vitamins and minerals maintain in there. […] I made it suitable to be commercialised and ensure the uniqueness of my product and availability of sources. I added value to existing product". Creating value-added product also was also agreed by interviewee LY where he has promoted the system that was very economic, sustainable and benefit to the user. The uniqueness of his product provides him a good platform to meet his potential industry partner.

Due to the tight budget, many industries prefer to accept market ready products rather than producing them. In other words, they prefer to consume the products rather than manufacture them. Industry partner is not willing to spend more in developing the product, but they expect to have a market-ready product. This market ready product will be easily and quickly entered into a market place. This is equally true since commercialisation is not a straight forward processes, rather it is a complex process that requires a lot of investment in terms of time, energy and money. Interviewee SZ commented that:

"*My product is actually a market ready product. Industry can buy and add this vitamins to their main product such as bread, rice etc to make it a healthier food"*. Similarly, interviewee DR highlighted that:

"The acceptance from the industry depends on the nature of the product. The product which is straight forward and ready to be used is more tendency to be accepted by industry. It is just matter of marketing. Like my product, for the brick it is also quite straight forward because you know it is used for construction". Thus market ready product is more preferable and interested by the industry to successfully collaborate with the academics.

Academic Researchers

Academic researcher needs to have a strong networking with industry partner to ensure that collaboration is a success one. Strong networking enable academic researcher to introduce his product to the outside world and enable him to understand business related issues. This networking benefits both parties; academic researchers to understand business related matters and industry partner to understand technical aspects of the product. There are many ways in which academic researcher will be able to have a strong networking with industry partner, as shared by interviewee RZ that:

"I have been active in nurturing technology. I started by my active involvement in non-profit organisation. It related to concrete. Now I am as a council member of Construction Society of Malaysia (CSM). Because of my active involvement in the society for more than 20 years, I also actively involved organising seminar and short courses. I also organised seminar on research and development in many places. So I get to know many people from there because of the fact that I shared my knowledge".

Building up a strong networking is one of the effective ways to introduce research products to the market place and to ensure that a collaboration is a success between these two parties. As shared by interviewee RZ above, he has the opportunity to learn more about his research product by communicating and building a networking with the industry partner. Furthermore, in producing and towards a better commercialisation, research products should tap the demand from the market. The experiences of being together with the industry has given good opportunity to the academic researcher in appreciating industry people in comparing the academic world.

It is said that lack of common knowledge and understanding between academic researcher and industry partner are considered as a challenge to link between them. Thus, academic researcher needs to identify and select their own industry partner because it is one of the key success for effective collaboration. This ability to set for finding suitable and right business partner may be gained through experiences. The right business partner able to understand academic and appreciate the research products. However, identifying and finding the right business partner is not an easy task, as interviewee DR commented,

"We went through hard time. We learnt through mistake. So now I'm ok. Because I become more matured. I know from the beginning when I start talking to people, I already know how their mentality and how they think. If I feel this guy is not good, then I just back off because for me he just look for funding only." Careful consideration need to be exercised in dealing with industry partner. Some of them may take advantage on the academics without giving full commitment in producing and commercialising research products. This was admitted by interviewee DR where he had a personal experience in dealing with this type of industry partner. So, it turned out to be unsuccessful collaboration between him and industry partner.

Strong determination and passion is another character of academic researcher whom industry partner are looking for. These characteristics are important to convince the industry partner to work with them effectively. Furthermore, these are character to ensure their products will enter the market successfully. When asking how they think about commercialisation, interviewee SZ claimed that:

"I think it is about passion. I love business since I was in school. It taught me a lots of things. It bring me out from laboratory and talk with many people"

On a different note, interviewee DR considered commercialisation as a way of learning new things. This is because traditionally university environment is used to teaching and learning per se, and commercialisation has just entered recently in the university setting. Commercialisation has changed the traditional setting of an academics in spending in the laboratory, but bringing their product into the market place. Passionate of doing commercialisation enable them to link with the industry. Equally agreed by interviewee EN that passionate of doing research and commercialisation activities is one of the best character encourage him to pursue for commercialisation. Furthermore, his main motivation towards commercialisation is for the benefit of the society and nation, not mainly for the monetary form. He said that:

"That is my aim, my passion [...] not only about money. It is the way on how I be able to contribute to my country". This statement was also agreed by interviewee AN that he wanted to be a pioneer (market leader) in his product, and he wanted to contribute back to the society. For this he said that:

"I want to be pioneer in this product. Because nobody has done this before and nobody has sold this before. So I want to be the first one. I want to challenge myself and at the same time I want to contribute to the country and society".

For commercialisation activities, academic researchers need to sacrifice their time, money and energy. Since commercialisation is a complex process, it requires a lot of time spent to successfully commercialise research product. Time is of the essence for the industry and they will consider if academic researcher is willing to sacrifice their time in pursuing the commercialisation activities. This was proved by interviewee AN where he stated that:

"I spent a lot of time in learning the process of commercialisation from the expert in other university. I focused on my teaching and research on the day and commercialisation in the evening. Sometimes until late at night just to learn about this".

Time sacrifices has convinced the industry partner to link with academic researcher, in order to ensure for the success of commercialisation process.

Academic researchers need to be creative to find their own income and generate income in pursuing for commercialisation, especially relevant during the tight budget. This experiences were shared by two of the interviewees, for them to attract industry partner to collaborate with them. Interviewee SZ observed that:

"I spent a lot of money at the beginning of the process of commercialisation. For example, the raw materials, I used my own money first. And when the demand is getting increase, I need to outsource in order to increase my production. I do contract of manufacturing. It cost my money as well. I used my money first before the pilot scale is ready. Sometimes it is not that quick to get the money from the university, so I need to invest first. I have spent around RM20 thousand for this. Now it has been 8 months". Similarly, interviewee LY stated that:

"I have spent a lot of money that some people don't know. I think, I have built a total about 6 buildings. The first one is outside the university. In Sri Gading. I have to rent a piece of land. Every month I pay RM500 to use the land and to build the first model house. So it lasted for more than 10 years. And actually I'm losing money you know".

Sufficient funding convinces the industry partner to effectively collaborate with academic researcher. Interviewee AN pointed his view:

"In order to get funded by university, we need to come out with our money first in order to convince the university on the practicality of our product. University also likes to see how determined we are in commercialisation". This was supported by interviewee DR who said that using his own money is one of the strategy to guarantee the success of collaboration. Thus, too much reliance on the university support in term of funding may not be justified to effectively collaborate with the industry partner. He said that:

"Don't expect university produce until really to the end user. But instead you have to interject once if you see the idea is good. You have to invest. You have to give your idea. You have to further educate those researcher, but you have to invest money on that."

Apart from the time and money that they have to sacrifice, academic researchers also need to dedicate their unlimited efforts for commercialisation to attract the industry partner to work with them effectively. Two academic researchers agreed that they have proved to give unlimited efforts to ensure that they reach the commercialisation stage effectively. Among the effort that academic researchers need to do is by doing their own marketing for their products. For this, interviewee SZ commented that:

"I do it on my own first. I sell it in a retail shop. Other than through university, I commercialise this on my own. I bring my product to whenever I go. I need to do this to increase the sales". On a similar vein, interviewee EN stated that:

"I do direct sales. When there is a conference or exhibition, I will promote and tell the people there about my product".

Clear vision, goal and objectives for commercialisation are also criteria to ensure the success of collaboration between academic researcher and industry partner. Interview AN was of the view that:

"I believe with this product. The market is large and it can give high impact to blind people. The market for this product might be niche but there is no competitor. We can monopoly the market. We can be the pioneer. Not number one, but only ONE…"

Since his product was of a kind in helping the blind people and eventually has become the market leader, interviewee AN proudly shared that he has reached the target, and this has set him for a clear vision, goal and gain the competitive advantage in the market.

Creative and innovative academic researchers are expected from the industry partner. Creative and innovative person can provide a solution especially in the critical time. Interviewee DR claimed that he encountered difficulty in finding suitable and adequate resources for his product. However, his creativity and innovative idea was to replace the old resource with a new one which enable him to produce a quality research products. Surprisingly, the new product that he produced is much better than the old product used with the existing inadequate resource. He (interviewee DR) emphasised that:

"I was stucked with the waste. I don't have waste for the brick. So I quickly looked for a solution. So I found another waste from another industry. So using that waste we produced, we started the formulation. Of course we have modified the formulation and we manage to produce brick and in fact the brick also a very good brick". Creativity and innovative engagement of academic researchers enable them to produce quality and surprise results from their research.

On the other circumstance, interviewee EN shared his experience,

"Actually before this, I sold thumb drive. We used flash technology in the thumb drive. It can only be install in one computer only. That can be said as the first one, the pioneer because nobody has done it before. However, we found it is not practical when the demand is increasing, we are not able to produce so many thumb drive in a short time. So we moved to internet, we developed the software on the internet. So people can buy through online as many as they prefer. It is much easy because we generate the system only".

Conclusions and Recommendations

This paper concludes that there are three main determinant factors to facilitate for an effective collaboration between academic and industry towards research product commercialization in Malaysia. Commercialization involves a very complex process which requires a flexible approach rather than one-size-fits all approach. Thus academic researchers should expect that along the process of commercialization there are many challenges that they need to face. Although there are many factors to determine the successful collaboration between academic researchers and industry partner, however this study only focuses on three main factors, namely role and function of the university, producing an innovative of research product and competency of the academic researcher. The role and function of the university in facilitating, encouraging, monitoring and sustaining the collaboration must be emphasized to become a commercialized university. The research product also must be creative and innovative to meet the market demand. Apart from this, the research product also must be based on the industrial needs to ensure for an effective collaboration. To emphasis for a better understanding, academic researcher should equip themselves with various skills to convince the industry partner to collaborate with them.

This study recommends that for an effective and strategic collaboration between academic researcher and industry partner, university should not only facilitate and link with the industry partner, but the most important function is to build, develop and sustain a good rapport. University also must practice careful consideration to develop and maintain a good rapport in selecting the most potential and appropriate industry partner. A well-defined function and role of these unit (research management centre or technology transfer office) must be set up in the university purposely helping academic researchers to collaborate with industry partner and to strengthen the position of product commercialization in the university. These centres are providing their assistance from the beginning until products reach the commercialisation level. Furthermore, appointed personnel must be competent in giving assistance in terms of business and management related skills as well as other rules and procedures for collaboration and commercialization. A clear responsibilities and rights are needed to ensure that each parties appreciate and understand each other's rights and function. Building a good rapport and examine what are the demands of the industry are important for a successful collaboration of the research product commercialization. Regarding the research product, in order to attract industry partner academic researcher should produce a unique and innovative products. Merely producing a research product without carry any value for commercialization will be treated less significant by the industry partner. Thus, research product must have commercial value and solve the existing problems in the market. Moreover, the product produced must have a competitive advantages in comparing with other available research products. Academic researchers should equip themselves with various knowledge, for example intellectual property and commercialisation and other business and management related skills. Furthermore, they need to enhance with other skills including negotiation, leadership and communication skills to have a common knowledge and understanding with industry partner. Industry partner also must be encouraged to have basic technical knowledge in areas related to academic researcher for them to appreciate the academic role. The effort of bridging two worlds, academic and industry must be made possible. Thus, understanding and adaptability are needed to avoid any mismatch between academic researcher and industry partner. Furthermore the link between them must be made in a concerted efforts to achieve a common goals for commercializing research products.

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Capital Social, Entrepreneuriat Et Croissance Economique: Cas Des Pays Développés Et En Développement

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Abstract

This article analyzes the relationship between social capital, entrepreneurship and economic growth for a panel of developed and developing countries during the period 1990-2004. Our study will be conducted using static and dynamic panel data method and a simultaneous equations model. The main results of this study are, first, the level of social capital and growth are significantly and positively correlated, on the other hand, social capital can also have indirect effects on economic growth through other variables specifically through entrepreneurial activity.

Keywords: Social capital, entrepreneurship, economic growth, panel data.

Résumé

Cet article analyse la relation entre le capital social, l'entrepreneuriat et la croissance économique d'un panel de pays développés et en développement au cours de la période 1990-2004. Notre étude sera effectuée en utilisant la méthode des données de panel statique et dynamique, ainsi qu'un modèle à équations simultanées. Les principaux résultats sont, d'abord, le niveau du capital social et de la croissance sont positivement et significativement corrélés, d'autre part, le capital social peut également avoir des effets indirects sur la croissance économique par le biais d'autres variables et plus précisément par le biais de l'activité entrepreneuriale.

Mots clés: Capital social, entrepreneuriat, croissance économique, données de panel.

Introduction

La croissance économique désigne le processus par lequel la production réelle nationale de biens et de services augmente régulièrement au cours du temps. Depuis Smith (1776) la question de la croissance des économies constitue l'une des préoccupations centrales de la recherche économique. Durant son développement, la théorie de la croissance s'est concentrée sur des variables telles que le travail, le capital et le progrès technique, et à la façon dont les facteurs sont combinées entre eux pour expliquer les différences de croissances entre pays. Pour expliquer ces différences de croissance, les études économiques ont abordé des déterminants profonds tels que la qualité des institutions, le capital social et l'entrepreneuriat afin de compléter le schéma théorique de la croissance.

En effet, l'intérêt pour l'étude de l'entrepreneuriat réapparu avec plus d'intensité dans les années 70, avec un accent sur les théories économiques par le biais des constations empiriques et réflexions théoriques. Il a été constaté que plusieurs pays développés, principalement en Europe, ont lancé de nouvelles initiatives, après des années de ralentissement économique et de déclin de la création d'entreprise. D'autres parts, des réflexions théoriques qui ont marqué l'économie mondiale, se reflètent dans les économies nationales. Ces changements indiquent que la croissance économique a été soutenue non seulement dans les économies d'échelle ou de gamme, mais que les entreprises ont un rôle important dans la croissance économique.

Ainsi, un des facteurs importants dans la réussite ou non d'un processus de création d'une nouvelle entreprise et qui aide l'entrepreneur à contrer ces difficultés est sa capacité à développer et à mobiliser son capital social. Le capital social désigne les réseaux de relations d'un acteur individuel

ou collectif et les ressources qu'il peut mobiliser grâce à ces réseaux, il permet à l'entrepreneur d'obtenir des ressources qui, autrement, ne lui seraient pas accessibles, mais d'une façon plus onéreuse en termes de temps, de coûts ou d'efforts pour les acquérir. En ce sens, deux avantages directs sont obtenus à partir du capital social pour les entrepreneurs: les ressources et les informations. L'existence d'un groupe de personnes qui doivent être intéressés à prendre des risques sur leurs fonds afin de générer de nouvelles entreprises engendre un effet positif de l'activité entrepreneuriale sur la croissance économique.

Les études sur le capital social menées jusqu'ici dans le champ de l'entrepreneuriat ont bien montré son importance pour les projets de création d'entreprises. En général, la littérature a considéré que l'importance du capital social dans le domaine de l'entrepreneuriat a été attribué au fait qu'ils fournissent des ressources, l'accès à des ressources ou du soutien affectif. En ce sens, la pertinence est due au fait que l'entrepreneuriat est liée à l'innovation et à l'avantage concurrentiel. Par conséquent, une relation positive entre le capital social et l'entrepreneuriat est prévu et d'une manière indirecte, il permettrait également de renforcer la croissance économique.

Généralement, nous constatons dans l'analyse empirique une corrélation positive et significative de l'effet du capital social sur le taux de croissance du PIB par habitant, mais sans insister sur les différents canaux de transmission. En d'autres termes, outre l'effet direct que le capital social peut exercer sur la croissance économique, la structure sociale peut également avoir des effets indirects sur l'activité réelle par le biais d'autres variables qui, à leurs tours, affectent la croissance. Dans la littérature à ce sujet, le capital social mesuré par le niveau de confiance dans l'économie est un facteur déterminant de l'activité d'investissement, du capital humain, de la qualité des institutions, du développement financier et de l'activité entrepreneuriale.

1. Définition et importance du capital social

Le concept de capital social n'est pas nouveau et remonte au moins à Hanifan (1916) qui a souligné l'importance de la participation communautaire dans l'amélioration de la performance scolaire. L'auteur définit le capital social comme *« ces substances tangibles qui comptent le plus dans la vie quotidienne des gens à savoir, la bonne volonté, la camaraderie, la sympathie et les relations sociales entre individus et familles ».* Plus tard, Banfield (1958) a utilisé le concept de capital social pour tenir compte du déclin économique du sud de l'Italie. D'autres travaux ont fait usage de ce terme, parfois avec des variations dans la signification (Homans (1961), Jacobs (1971) et Loury (1977)) pour suggérer que la mobilisation des relations sociales et la coopération peuvent aider les individus à améliorer leur bien-être.

Mais, la popularisation de ce concept, pendant les dernières décennies, est due à Bourdieu (1980, 1986) qui s'est aussi servi de la notion de capital social pour faire référence à certains types de ressources qui découlent de l'appartenance à des associations, communautés et réseaux sociaux. Bourdieu a été le premier à donner une définition précise du capital social : *« Le capital social est l'ensemble des ressources actuelles ou potentielles qui sont liées à la possession d'un réseau durable de relation plus ou moins institutionnalisées, ou en d'autres terme, à l'appartenance à un groupe ».* Coleman (1988, 1990) a donné une nouvelle dimension à ce concept en le définissant par sa fonction, où il est reconnu comme une variété d'entités avec deux éléments communs : des caractéristiques de structures sociales et la facilitation des actions individuelles au sein de la structure. Pour Coleman (1988) : *« Le capital social désigne la capacité des individus à travailler ensemble pour un objectif commun dans des groupes ou organisations ».* Dans le début des années 90, ce concept sociologique a connu une renaissance puisqu'il a été adopté par des politologues comme Putnam (1994) et Fukuyama (1995). Putnam définit le capital social comme «*les caractéristiques de la vie sociale telles que les réseaux, les normes et la confiance mutuelle, qui permettent aux participants d'agir ensemble plus efficacement pour atteindre des objectifs partagés»*. (Putnam, 1995, p. 67). On peut dire alors que le capital social a été défini de différentes façons par les différents chercheurs et l'on peut considérer comme un ensemble de réseaux, de normes et de valeurs qui facilitent la coopération

intra-groupe et inter-groupe pour l'obtention des bénéfices mutuels. Étant donné que le capital social a un aspect de qualité, alors, il est difficile à mesurer. En fait la mesure du capital social se rapporte à des sujets tels que la fiabilité ; la participation volontaire à des associations et instituts de charité ; l'appartenance à des organisations et des clubs... Plusieurs chercheurs ont essayé de trouver des indicateurs du capital social : Coleman (1988), dans son étude sur la contribution du capital social au capital humain, Putnam (1993 / 2000) dans ses études sur les relations entre capital social et performance économique, Knack et Keefer (1997) relativement aux liens entre capital social et résultats économiques. Ces auteurs utilisent généralement trois types d'indicateurs pour mesurer le capital social : l'adhésion aux associations locales et aux réseaux, les indicateurs de confiance et adhérence aux normes et les indicateurs d'action collective.

2. Définition et importance de l'entrepreneuriat

Bien que l'intérêt de l'entrepreneuriat n'est pas nouveau, le terme entrepreneur a été utilisé pour la première fois dans un contexte économique en 1755 et attribuée à Richard Cantillon. Dès lors, de nombreux livres et articles ont été écrits sur des sujets liés à l'entrepreneuriat. En conséquence de l'attention croissante du sujet, l'entrepreneuriat a été étudié en utilisant des approches différentes : psychologique, sociologique, anthropologique, et bien sûre économique. Cela reflète la complexité de la définition de l'entrepreneuriat, ainsi le concept est clairement ouvert à la recherche fondée sur des motifs divers. Nous utilisons comme point de départ les contributions et les idées de trois économistes: Joseph A. Schumpeter (1934), William J. Baumol (1968) et Israel M. Kirzner (1973).

Pour Schumpeter l'entrepreneuriat se produit quand il ya de l'innovation dans l'introduction d'un nouveau produit ou d'une nouvelle organisation. Par conséquent, sa compréhension d'un entrepreneur était une abstraction conceptuelle caractérisée par la création de nouvelles combinaisons. Plus précisément :

« Quel qu'il soit, l'individu en question sera entrepreneur ou non selon qu'il réalisera ou non des combinaisons nouvelles. Il perd donc ce caractère s'il continue à exploiter l'entreprise considérée selon un circuit » (Schumpeter, 1934).

« *Et qu'ont-ils fait : ils n'ont accumulé aucune sortes de marchandises, ils n'ont pas créé des moyen de production original, mais ils ont employé des moyens de production existants de manière différentes, de façon plus appropriées et plus avantageuses. Ils ont effectué de nouvelles combinaisons. Ils sont des entrepreneurs. Et leur profit, le surplus que ne contrebalance aucun passif, est un profit d'entrepreneur* » (Schumpeter, 1934).

Ainsi, lorsqu'un entrepreneur cesse d'innover, il cesse d'être un entrepreneur. En outre, pour Schumpeter, l'entrepreneuriat et l'innovation de l'entrepreneur conduisent à une « *destruction créatrice* » dans les marchés et les secteurs de l'économie parce que des nouveaux produits et des business modèles arrivent et remplacent les anciens. Ainsi, la « *destruction créatrice* » est à l'origine de la croissance économique à long terme.

Reprenant les travaux de Joseph Schumpeter sur l'innovation, William Baumol insiste sur le rôle de l'innovation dans la concurrence entre les firmes. L'entrepreneur est un innovateur, qui est toujours engagé à faire quelque chose qui n'a jamais été faite avant. Baumol montre que si le nombre total d'entrepreneurs (l'intensité entrepreneuriale) varie selon les sociétés, leur contribution à la croissance varie encore plus selon leur allocation plus ou moins productive selon les périodes et les cultures étudiées (1990). Pour lui, le fond du problème, c'est que la répartition des entrepreneurs entre bons ou mauvais dépend de leurs rendements relatifs. Par conséquent, les incitations adéquates et les institutions solides qui soulèvent la récompense par rapport à l'entrepreneuriat productif devraient être conçues.

Selon Baumol l'entrepreneuriat productif est favorisé « *par les incitations pour les entrepreneurs de se consacrer à l'innovation productive plutôt que la recherche de rente novatrice ou même à des occupations destructrices, telles que des activités criminelles* ». (Baumol, 2002)

Ainsi, Baumol distingue entre les entrepreneurs et met l'accent sur la pertinence intrinsèque du contexte économique dans la détermination de l'entrepreneuriat productive. Enfin, pour Baumol l'entrepreneur est un innovateur. Plus précisément « *Il cherche en permanence la possibilité d'introduire de nouveaux produits et de nouvelles procédures, d'envahir de nouveaux marchés, et de créer de nouvelles formes d'organisation* ». (Baumol, 2002)

Kirzner met en valeur le rôle crucial de l'entrepreneur dans l'équilibrage des marchés. Pour lui le profit entrepreneurial est un pur profit qui n'est pas lié à l'utilisation des facteurs de production. Il provient d'une décision simultanée d'achat et de vente suite à la découverte de différences de prix avantageuses, dont l'existence est basée sur l'ignorance des agents sur la demande et l'offre précises. Jusqu'ici les agents économiques ignorent les opportunités de profit, qui ne peuvent être découvertes que par la seule mise en place d'investissements spécifiques, elles dépendent avant tout des capacités des individus et en particulier de leur « *vigilance* ».

Kirzner affirme donc que les opportunités existent à cause de l'ignorance des acteurs du marché et les entrepreneurs sont les rares individus qui tireront un avantage de ces insuffisances du marché. Ainsi les opportunités existent tout autour de nous dans l'espace et dans le temps, mais c'est seulement les individus dotés de ce que Kirzner appelle « *vigilance* » qui possèdent la capacité de les identifier. La perception des opportunités de profit dépend donc de la vigilance de l'entrepreneur aux différentiels dans la dotation en information des individus sur le marché.

3. Capital social, entrepreneuriat et croissance économique

Comme il est déjà mentionné, le capital social a un impact sur le développement et la croissance par le biais de divers mécanismes. Par exemple, Knowles (2005) identifie quatre groupes principaux, qui couvrent les différentes façons dont le capital social contribue à la croissance économique. Le premier se réfère à « *l'augmentation du nombre de transactions mutuellement bénéfiques* » illustré par divers exemples de coopérations fondées sur la confiance et l'information. Le deuxième grand groupe se réfère à « *la résolution des problèmes d'action collective* » qui stipule que les entreprises ayant un degré élevé de capital social résolues les problèmes d'action collective plus facilement que ceux ayant un faible niveau de capital social. « *La réduction des coûts de surveillance et de transaction* » est un autre mécanisme pour que le capital social fonctionne, principalement par la confiance. Enfin, le capital social contribue à « *l'amélioration de la circulation de l'information* » à travers des groupes sociaux ou des réseaux.

Aussi Greve et al. (2006) soulignent que : le capital social a quatre effets principaux : l'obtention d'informations; le transfert de connaissances, l'innovation et la diffusion des technologies ou des pratiques; la combinaison des connaissances complémentaires et d'aide à la résolution des problèmes; et le courtage. Ils montrent d'autres aspects dans lesquels le capital social contribue à augmenter la productivité et contribue à stimuler l'entrepreneuriat : l'un est l'utilisation des relations sociales pour mobiliser les gens à contribuer à un projet, l'autre est l'utilisation du capital social des membres de l'équipe pour augmenter et compléter les connaissances de l'équipe. L'utilisation du capital social des membres de ces réseaux sociaux, des ressources de l'entreprise ou de l'équipe peuvent être renforcées et complétées, car une communauté d'individus rassemble toujours plus de ressources qu'une seule personne. Greve et al montrent donc la valeur du capital social comme capital productif qui ne dépend pas seulement du nombre de contacts dans ces relations sociales, mais qui influence également sur les contacts indirects qui seront reflétées dans la structure du réseau.

Spellerberg, 2001, a déclaré que « l'accès au capital social peut être considéré comme ayant trois fonctions principales: *le traitement de l'information, l'évaluation des risques et des opportunités* et

l'évaluation des situations, des personnes et des organismes». Ces trois fonctions sont importantes dans la société, parce que l'information est un élément clé de l'entrepreneuriat et de la croissance.

Ainsi, comme nous pouvons le voir, le capital social et l'entrepreneuriat jouent un rôle clé dans le développement. Le capital social est un facteur important dans la diffusion des connaissances dans la société en général et les entreprises en particulier, en facilitant les flux d'informations et le transfert de l'innovation et l'entrepreneuriat affecte le développement économique en augmentant le niveau des revenus ou en réduisant le niveau de chômage. Koo & Kim, 2009, affirment que les politiques de recherche et développement doivent être discutées dans le contexte plus large de questions régionales relatives, telles que l'entrepreneuriat, la recherche universitaire, le capital humain, le capital social et les structures de l'industrie. Ce sont des questions interdépendantes qui doivent être examinées dans un cadre politique plus globale. Ils ont proposé un modèle de croissance économique dans lequel le taux de croissance économique régionale est une fonction du taux de croissance de la connaissance locale économiquement utile, combinée avec les taux de croissance du capital et du travail. La croissance de la connaissance locale économiquement utile est une fonction de la R&D, de l'entrepreneuriat, de la recherche universitaire, du capital humain, du capital social et de la structure de l'industrie. Leurs résultats indiquent que l'entrepreneuriat joue un rôle important dans la croissance régionale. De plus, pour un niveau donné des dépenses, l'industrie R&D et le niveau de l'activité entrepreneuriale détermine combien d'avantage un Etat peut recueillir de son activité de recherche.

Vázquez-Rozas et al. (2010) afin de tester l'effet de l'entrepreneuriat sur la croissance économique utilisent le ratio d'entreprises créées dans chaque région par rapport au nombre total d'entreprises pendant neuf ans (2000 à 2008) comme approximation du capital entrepreneurial. Ils estiment un modèle économétrique sur données de panel, et ils trouvent un effet positif de la variable entrepreneuriat sur la croissance du PIB par habitant. En outre, ils constatent que le capital humain et le capital social sont significatifs.

4. Analyse empirique de la relation entre le capital social, l'entrepreneuriat et la croissance économique

Notre objectif dans cette partie est d'étudier empiriquement le lien entre le capital social, l'entrepreneuriat et la croissance économique pour un échantillon de 40 pays développés et en développement en utilisant des données sur la période 1990-2004. Pour cela nous utilisons la méthode des données de panel statique et dynamique. En conséquence, nous réalisons tout d'abord des estimations sur un modèle à effets individuels. Ensuite, nos estimations porteront sur le modèle dynamique où nous introduisons la variable endogène retardée comme variable explicative pour voir si la croissance économique d'une année est influencée par celles des années passées.

4.1. Spécification du modèle économétrique

A la suite des travaux de Gregory N. Mankiw, David Romer, et David Weil (1992), Demetriades et Law (2004), l'objectif de notre étude empirique, est d'ajouter d'autres déterminants de la croissance économique dans l'équation du modèle de croissance de Solow, traitant de la relation entre le capital social, l'entrepreneuriat et la croissance économique. Par conséquent, nous tenons compte du modèle suivant comme équation à estimer:

$$Y_{it} = \alpha_i + \beta 1\ lgdp\_f_{it} + \beta_2\ lKS_{it} + \beta_3\ lKH_{it} + \beta_4\ lINV_{it} + \beta_5\ lDF_{it} + \beta_6\ lQI_{it} + \beta_7\ lE_{it} + \varepsilon_i \qquad [1]$$

Où i et t dénotent respectivement le pays et le temps.

Pour i = 1,……, 40/ t = 1990,……, 2004.

Avec αi l'effet spécifique individuel, β1, β2, β3, β4, β5, β6 et β7 sont les paramètres à estimer dans ce modèle et εit est le terme d'erreur.

4.2. Présentation des variables et de leurs sources

Les variables qui seront présentées sont recueillies pour un panel de 40 pays développés et en développement au cours de la période 1990-2004. La variable dépendante est le taux de croissance du PIB réel par tête (Y_{it}) et les variables indépendantes sont le logarithme du PIB initial (lgdp_f) qui sert à contrôler la convergence, le capital humain (KH), le taux d'investissement par rapport au PIB (INV), le développement financier (DF), la qualité de l'environnement institutionnel (QI), le capital social (KS) et l'entrepreneuriat (E).

Le capital humain est mesuré par la moyenne des années d'éducation secondaire, le capital physique est mesuré par la formation brute du capital fixe, le développement financier est mesuré par le ratio du passif quasi-liquide, la qualité des institution est mesuré par l'indice de liberté civile publié par Freedom house compris entre 1 et 7 (1 pays à degré de liberté civile élevé, 7 pays à degré de liberté civile faible), le capital social est mesuré par l'indices de confiance et de densité associative, et enfin l'entrepreneuriat est mesuré par le nombre des brevets déposés par les résidents et les non-résidents.

4. 3. Méthode d'estimation et interprétation des résultats

La structure du modèle telle qu'elle a été présentée ci-dessus, nous conduit à réaliser des estimations sur un modèle de panel hétérogène. Ainsi, nous utilisons deux méthodes d'estimations. Dans une première étape, nos estimations portent sur la méthode des données de panel statique, elle permet de prendre en compte l'hétérogénéité inobservée des pays de l'échantillon. Les caractéristiques individuelles peuvent être de nature déterministe ou aléatoire. Le test de spécification de Hausman permet de choisir l'une ou l'autre de ces spécifications. Le modèle à effets fixes (MEF) sera retenu si la probabilité attachée à la statistique de test de Hausman est inférieur à 10%. Sinon, on retient le modèle à effet aléatoire (MEA). Dans une deuxième étape, les méthodes économétriques suivies sont la méthode des moments généralisés GMM (*General Method of Moment*) en panel dynamique ainsi qu'un modèle à équations simultanées pour résoudre la question d'endogénéité du capital social.

4. 3.1. La méthode des données de panel statique

Tests de spécification

En estimant un échantillon en données de panel, la première chose qu'il faut vérifier c'est la spécification homogène ou hétérogène des données, autrement dit de savoir si l'on a le droit de supposer que le modèle théorique étudié est parfaitement identique pour tous les pays, ou au contraire s'il existe des spécificités propres à chaque pays.

On commence à tester l'hypothèse d'une structure parfaitement homogène (constante et pente identiques). Si les statistiques de Fisher associées au test d'homogénéité totale sont supérieures au Fischer de la table statistique, on rejette donc cette hypothèse. Ensuite, on teste la présence des effets individuels en supposant ainsi que les β_i sont constantes pour tous les pays.

Pour ce type de modèle, on distingue deux cas : le cas où les paramètres α_i sont des constantes déterministes (modèle à effets fixes) et le cas où les paramètres α_i sont des réalisations d'une variable aléatoire d'espérance et de variance finie (modèle à effets aléatoires). Il faut donc savoir quel est le bon modèle pour notre échantillon. Nous procédons donc à une analyse de test de spécification de Hausman.

Tests de Hausman

Rappelons que le test de spécification de Hausman (1978) est un test de spécification des effets individuels. Il sert à discriminer les effets fixes et aléatoires. L'hypothèse testée concerne la corrélation entre les effets individuels et les variables explicatives :

$$\begin{cases} H0 : E(\alpha i \setminus Xi) = 0 \\ H1 : E(\alpha i \setminus Xi) \neq 0 \end{cases}$$

Sous H_0, le modèle peut être spécifié avec des effets individuels aléatoires et l'on doit alors retenir l'estimateur des MCG (estimateur BLUE). Sous l'hypothèse alternative H_1, le modèle doit être spécifié avec des effets individuels fixes et l'on doit alors retenir l'estimateur Within (estimateur non biaisé). La statistique de test de Hausman appliquée au test de spécification des effets individuels est la suivante :

$$H = (\hat{\beta}_{within} - \hat{\beta}_{MCG})' \, [Var\,(\hat{\beta}_{within} - \hat{\beta}_{MCG})]^{-1} \, (\hat{\beta}_{within} - \hat{\beta}_{MCG})$$

Sous H_0, la statistique H suit asymptotiquement un Chi-deux (χ^2) à K degrés de liberté.

Résultats d'estimation

En utilisant la méthode des données de panel statique pour 40 pays en développement sur la période 1990-2004, on obtient les résultats présentés dans le tableau suivant.

Tableau 1: effets directs du capital social sur la croissance économique (panel statique)

Variable dépendante : Croissance du PIB réel par tête (Y_{it})	MEF	
	(1)	(2)
lgdp_f	-0.0888 (0.0332)***	-0.1305 (0.0374)***
lKS	0.0008 (0.0004)*	0.0008 (0.0005)*
lKH	-	0.0247 (0.2002)
lINV	-	0.0105 (0.0302)
lDF	-	0.0075 (0.0197)
lQI	-	-0.0169 (0.0280)
lE	-	0.0125 (0.0056)**
Constante	0.8541 (0.3017)***	1.1106 (0.3225)***
Observations	200	200
R2	0.5930	0.6411
Test de Hausman	0 0057	0.0101

*Notes : ***significativité à 1%, ** significativité à 5%, * significativité à 10%. La période d'étude 1990-2004 est subdivisée en Cinque sous-périodes de trois années chacune. Toutes les variables sont exprimées en logarithme népérien. Le test de Hausman correspond à la statistique du test de Hausman, avec la p-value entre parenthèses.*

D'après les résultats d'estimation, nous constatons que la statistique de Fisher calculée est supérieure à celle de la table statistique. Ceci nous amène à conclure qu'on doit rejeter l'hypothèse nulle celle

d'homogénéité interindividuelle. Autrement dit, il faut privilégier un modèle tenant compte des spécificités individuelles.

Pour la régression (1), la réalisation de la statistique du test de Hausman est de 10,35. Etant donné que le modèle comporte deux variables explicatives (K = 2), cette statistique suit un Khi deux à deux degrés de liberté. Le seuil est de 5,992. Nous rejetons donc l'hypothèse nulle d'absence de corrélation entre les effets individuels et les variables explicatives. Ainsi, nous devons privilégier l'adoption d'un modèle à effets fixes et retenir l'estimateur Within. La régression (1) montre que le capital social présente un coefficient positif et significatif. En plus, le PIB initial présente également un coefficient négatif et significatif qui confirme l'hypothèse de convergence conditionnelle, comme dans Mankiw, Romer et Weil (1992), où les pays en développement ont tendance à croître plus rapidement que les pays développés.

Dans la régression (2), nous introduisons les autres déterminants de la croissance économique à savoir le capital humain (KH), le taux d'investissement (INV), le développement financier (DF), l'entrepreneuriat (E) et la qualité des institutions (QI) qui est mesuré par l'indice de liberté civile compris entre 1 (pays à degré de liberté civile élevé) et 7 (pays à faible degré de liberté civile), par conséquent nous espérons un coefficient négatif lorsque nous utilisons l'indice de liberté civile. La réalisation de la statistique du test de Hausman est de (18,46). Le modèle (2) comporte sept variables explicatives (K = 7), cette statistique suit un Khi deux à sept degrés de liberté. Le seuil est de 14,067. On constate que les estimations retenues, seront celles des modèles à effets individuelles fixes. Le capital social a conservé son importance statistique significative par rapport à la régression précédente. L'entrepreneuriat mesuré par le nombre des brevets déposés par les résidents et les non-résidents a un impact positif et significatif sur la croissance économique. Ce constat est conforme à la littérature théorique et empirique présentées ci-dessus.

Après avoir effectué nos estimations en utilisant les effets fixes, nous allons procéder dans une deuxième étape aux estimateurs GMM d'Arellano-Bond. Chacune de ces techniques à ses propres mérites. L'analyse de régression à effets fixes tient compte des effets fixes par pays et produit des estimateurs convergents des coefficients, à condition qu'il n'y ait pas de problème d'endogénéité et la variable dépendante retardée n'est pas inclus dans l'analyse. L'analyse GMM tient compte des effets fixes par pays et produit des estimateurs convergents en présence de la variable dépendante retardée. En outre, en incluant la variable dépendante retardée dans l'analyse, dans une certaine mesure, la méthode GMM tient compte du problème d'endogénéité. Ce qui explique l'utilisation exponentielle des données de panel dynamique dans les travaux récents sur la croissance.

4. 3.2. La méthode des données de panel dynamique

Un modèle dynamique est un modèle dans lequel un ou plusieurs retards de la variable dépendante figurent comme variables explicatives. Cette méthode permet de résoudre les problèmes de biais de simultanéité, de causalité inversée et de variables omises qui affaiblissent les résultats antérieures. Elle permet aussi de traiter le problème de l'endogénéité de toutes les variables explicatives. Il existe deux variantes d'estimateur des GMM en panel dynamique : l'estimateur GMM en première différence et l'estimateur GMM en système. L'estimateur GMM en système combine dans un seul système une régression en différence et une régression en niveau (Arellano et Bover, 1995 ; Blundell et Bond, 1998). Dès lors, l'estimateur GMM en système est le mieux approprié pour notre essai empirique. Deux tests sont associés à l'estimateur GMM en panel dynamique : le test de suridentification de Sargan/Hansen, qui permet de tester la validité des variables retardées comme instruments, et le test d'autocorrélation d'Arellano et Bond où l'hypothèse nulle est l'absence d'autocorrélation de premier ordre des erreurs de l'équation en niveau. Dans nos régressions, les résultats de ces deux tests sont conformes à nos attentes. En effet, les statistiques ne permettent pas de rejeter l'hypothèse Ho, celle de la validité des variables retardées comme instruments.

Résultats d'estimation

En partant de l'équation [1], les estimations ont été réalisées avec la méthode du GMM *system* en panel dynamique : en introduisant la variable endogène retardée comme variable explicative. On obtient ainsi l'équation [2]:

$$Y_{it} = \alpha_i + \beta_1 Y_{it\_1} + \beta_2 \, lgdp\_f_{it} + \beta_3 \, lKS_{it} + \beta_4 \, lKH_{it} + \beta_5 \, lINV_{it} + \beta_6 \, lDF_{it} + \beta_7 \, lQI_{it} + \beta_8 \, lE_{it} + \varepsilon_{it} \qquad [2]$$

Les résultats d'estimation sont présentés dans le tableau (2).

Tableau 2: effets directs du capital social sur la croissance économique (panel dynamique)

Variable dépendante : Croissance du PIB réel par tête (Y_{it})	GMM System	
	(1)	(2)
Y_{it_1}	-0.0980 (0.1404)	-0.0497 (0.1451)
lgdp_f	0.0764 (0.0473)	0.0246 (0.0342)
lKS	0.0011 (0.0007)*	0.0014 (0.0008)*
lKH	-	0.0549 (0.0248)**
lINV	-	0.0325 (0.0382)
lDF	-	-0.0250 (0.0354)
lQI	-	-0.0060 (0.0446)
lE	-	0.0022 (0.0092)
Constante	-0.6399 (0.4254)	-0.2295 (0.3035)
Observations	160	160
Test de Hansen	0.622	0.274
AR(2)	0.483	0.633

*Notes : ***significativité à 1%, ** significativité à 5%, * significativité à 10%. La période d'étude 1990-2004 est subdivisée en Cinque sous-périodes de trois années chacune. Toutes les variables sont exprimées en logarithme népérien. Le test de Hansen correspond à la statistique du test de validité des instruments pour l'estimation en GMM, avec la p-value entre parenthèses : l'hypothèse nulle est la validité des variables retardées en niveau et en différences comme instruments. AR(2) : statistique d'Arellano-Bond du test d'autocorrélation des erreurs de second ordre, avec la p-value entre parenthèses : l'hypothèse nulle est l'absence d'autocorrélation de second ordre.*

Pour l'estimateur GMM *system*, les statistiques de diagnostic sont favorables. Le test de suridentification de Hansen ne rejette pas la validité des instruments utilisés et le test d'Arellano et Bond ne rejette pas l'autocorrélation à l'ordre 2. Les résultats des différentes régressions effectuées avec la méthode du GMM *system* en panel dynamique confirme l'effet positif et significatif du capital social sur la croissance économique. Les résultats montrent aussi qu'il existe une relation positive et significative entre le capital social et le capital humain. Néanmoins, les autres variables sont étonnamment jugées non significatives, malgré le signe positif. Ces résultats peuvent s'expliquer par la présence du niveau initial de revenu comme une variable explicative.

Il en résulte donc que le capital social a deux effets sur la croissance économique : un premier effet direct vient du fait que le capital social peut être considéré comme un déterminant de la croissance économique comme le capital physique ou humain (Coleman (1988)). Un deuxième effet indirect est transmis à la croissance économique à travers les autres variables mentionnées : la qualité des institutions, l'éducation, l'investissement, le développement financier et l'entrepreneuriat.

Pour distinguer les effets directs et indirects du capital social sur la croissance économique, nous utilisons un modèle à équation simultanées.

4. 3.2. Modèle à équations simultanées

Effets indirects des canaux de transmission sur le capital social

Pour tester empiriquement l'effet du capital social sur chaque canal de transmission, nous avons effectué une série de régressions qui sont présentées dans l'équation [3], ensuite nous avons utilisé un modèle à équations simultanées (équation [4]), qui permet aussi de surmonter le problème d'endogénéité. Les résultats des estimations sont présentés dans le tableau ci-dessous :

$$\begin{cases} lKH_{it} = \alpha_i + \beta_1\, lgdp\_f_{it} + \beta_2\, lKS_{it} + \varepsilon_{it} \\ lINV_{it} = \alpha_i + \beta_1\, lgdp\_f_{it} + \beta_2\, lKS_{it} + \varepsilon_{it} \\ lDF_{it} = \alpha_i + \beta_1\, lgdp\_f_{it} + \beta_2\, lKS_{it} + \varepsilon_{it} \\ lQI_{it} = \alpha_i + \beta_1\, lgdp\_f_{it} + \beta_2\, lKS_{it} + \varepsilon_{it} \\ lE_{it} = \alpha_i + \beta_1\, lgdp\_f_{it} + \beta_2\, lKS_{it} + \varepsilon_{it} \end{cases}$$

L'estimation de ces équations permet de prendre en compte les effets indirects du capital social sur la croissance économique.

Tableau 3: effets indirects du capital social sur la croissance économique (estimation par la méthode des équations simultanées)

Variable dépendante	lKH	lINV	lDF	lQI	lE	Y_{it}
	[3]					[4]
lgdp_f	0.3348 (0.1854)*	0.3557 (0.1217)***	0.5492 (0.1892)***	0.1263 (0.1256)	0.9211 (0.6581)	-0.2992 (0.0367)***
lKS	0.0047 (0.0017)***	0.0040 (0.0011)***	-0.0003 (0.0017)	-0.0004 (0.0011)	0.0037 (0.0062)	0.0007 (0.0003)**
lKH						0.0085 (0.0152)
lINV						0.0451 (0.0230)**
lDF						0.0091 (0.0150)
lQI						0.0193 (0.0223)
lE						0.0103 (0.0042)**
Constante	-1.7655 (1.5664)	0.4208 (1.0280)	-1.8263 (1.5985)	0.5825 (1.0612)	-2.5769 (5.5591)	2.2577 (0.3040)***
Observations	200	200	200	200	200	200

*Notes : ***significativité à 1%, ** significativité à 5%, * significativité à 10%. La période d'étude 1990-2004 est subdivisée en Cinque sous-périodes de trois années chacune*

L'estimation des équations rapportées dans l'équation [4], montre que l'investissement et l'entrepreneuriat sont positifs et significatifs. Le Tableau (3) révèle également que le capital social est positivement et significativement corrélé avec la croissance économique. En d'autres termes, après avoir pris en compte les effets indirects du capital social sur la croissance économique à travers les canaux de transmissions, nous constatons que le capital social devient significatif au seuil de confiance de 5%. En plus, l'entrepreneuriat mesuré par le nombre des brevets déposés par les

résidents et les non-résidents a un impact positif et significatif sur la croissance économique. L'entrepreneuriat devient aussi significatif au seuil de confiance de 5%.

Dans d'autres études sur le lien entre la confiance et la croissance, Knack et Keefer (1997) ont trouvé qu'une augmentation d'un écart-type dans le niveau actuel de confiance est associée à une augmentation de la croissance économique de plus de la moitié d'un écart-type. Selon Zak et Knack (2000) la croissance économique augmente d'environ 1% en moyenne suite à une augmentation de 15 % de la confiance. Un tel résultat s'est avéré robuste dans les travaux de Beugelsdijk, De Groot et van Schaik, (2004) qui ont utilisés l'analyse extrêmes liés.

Néanmoins, à notre connaissance, toutes ces contributions n'ont pas explicitement étudié les canaux de transmission de capital social à la croissance économique. C'est pourquoi le but de ce travail est de centrer l'analyse sur ces aspects en étudiant la contribution relative de chacun des déterminants de la performance économique.

Conclusion

L'objet de ce travail est d'étudier empiriquement les effets directs et indirects du capital social sur le taux de croissance du PIB par tête pour un échantillon de pays développés et en développement. Pour cela, nous utilisons l'économétrie des données de panel en résolvant les problèmes d'endogénéité de la variable indépendante, en l'occurrence, le capital social.

Dans ce contexte, nous avons présenté une synthèse des relations entre le capital social, l'entrepreneuriat et la croissance économique. La perspective du capital social suppose que les liens des réseaux sociaux fournissent des individus ou des organisations ayant accès au savoir et à d'autres ressources utiles. Les réseaux sociaux d'une nouvelle entreprise se sont les ressources les plus importantes et particulièrement les contacts sociaux de l'entrepreneur sont souvent les principaux éléments stratégiques qui sont en mesure d'améliorer le développement de nouvelles entreprises.

Les principaux résultats de cette étude sont premièrement, le capital social et la croissance économique sont significativement et positivement corrélés, d'autre part, un niveau élevé de capital social a aussi un effet indirect sur la croissance économique par son effet sur l'activité entrepreneuriale. Ainsi, cet article se propose d'élaborer des éléments de réponses théoriques et empiriques à l'effet d'un capital social adéquat sur le renforcement de l'activité entrepreneuriale qui aurait des effets positifs sur l'investissement et la croissance économique.

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Using the Concept of Customer Life - Time Value for Internal Customers of Insurance Market

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Abstract

Purpose of the article: The aim of this work is to focus primarily on the methodology for internal use CLV customers to create new scientific knowledge in the area of quantifying costs and benefits of internal customers, ie. Employees and partners in a particular market segment. Like external customers (markets) as well as internal customers express their behavior and demeanor greater or lesser affection, in the first case and to mark the latter case the employer. **Methodology/methods:** Therefore, the modeling of CLV for internal customers will require a qualified prediction and quantification of a wide range of both Hard and Soft items and its conversion to a valid pointer.
Scientific aim: The scientific aim is to create new knowledge in methods of evaluating internal customers. In terms of strategic management is an area identifying business value, not only by the value of external customers, but also by the value of internal customers.**Findings:** CLV calculations and methods practiced on external customers, can be used for internal customers of the company as a valid economic indicator, which expresses the extent to which, when using the Hard and Soft HR operations, the company pays an employee in the context of lifelong, union employees with the company.**Conclusions:** CLV model for internal customers will be based on the primary, CBA analysis for obtaining input data that will be used for modeling a modified CLV. The results of the model determines the maximum amount of the discounted average cost of acquisition and retention of internal customers as part of their life cycle in the company.

Keywords: Customer life time value, internal customer, internal marketing communication, proactive, reactive, Cost-benefit analysis.

Critical evaluation of the state of knowledge in the field of research topic

Utilization Concept Customer Lifetime Value (CLV) in Strategic Marketing companies described in (Hanzelka, 2014, Kumar, 2008). Each company performs economic policy objectives through its organizational structure, level of technology and proactive utilization trends in scientific - technical development, which will ensure their economic growth. External customer is the enterprise resource performance and profitability, is the bearer requirements and needs and creator of loyal customer groups. For external customers can be categorized as CLV CLV-OUT. CLV-OUT can be modified for internal marketing companies operating in the insurance market. These are mainly insurance companies, as described in (Hanzelka, 2015). Internal customer helps create production, is the holder of invention and co-creator of the corporate culture of the company. For internal clients is described analogous method for determining the value of internal customer CLV-IN as described in (Hanzelka, 2015). Simultaneously, in the performance of the pilot study was verified hypothesis H0. Calculations and CLV method, practiced on external customers, can be used for internal customers of the company as a valid economic indicator that expresses the extent to which, in the use of Hard and Soft HR operations, the company pays an employee in the context of lifelong, union employees to the company. This pilot study was conducted on a small sample of respondents, yet showed that the value of internal customers is an important variable contributing to the value of the whole company. In the preliminary method was used CBA (Cost Benefit Analysis). CBA method applied to the project monitoring one insurance agent (IA) in the Allianz brings the following conclusions:

- CBA method can be delegated regarded as a form of CLV-IN to determine the value of internal customers in our case IA.

- For calculating the NPV = 1 616 USD, 32 821 CZK value can be internal customer thus set in relation to one average customer.

- From the IRR calculation follows a simple conclusion. The IRR is higher, the project is beneficial, in a metaphorical sense it is a hassle-free return on the project. It is possible to determine the value that brings an experienced IA to Allianz if we assume that the average experienced IA has in its customer portfolio of 500 customers. We conclude that the total value of the internal customer is 80 800 USD ie. 16.410.480 CZK.

The aim of the planned research is focusing on the methodology of using CLV-IN for internal customers and to create new scientific knowledge in the field of quantifying the costs and benefits of internal customers, ie. employees and collaborators of the insurance market segment. Similarly, as external customers (markets) and internal customers (creative force) expressed their behavior and demeanor more or less affection, in the first case to the brand, and in the latter case to the employer. The methodology described below CLV-IN will be verified upcoming research in the field of insurance, respectively. advisory market. Consulting market is focused on the broader area of concern: insurance, finance and investment. IA, in this case, changes to the financial adviser FA.

The current state of the topic

From the perspective of the proposed study on the topic: Using the concept of Customer Life-time value (CLV) in strategic management of companies, it is necessary to describe the importance of metrics CLV-IN as a method for determining success factors.
For this consideration we start from the belief that the success of the company stands for value creation in the behavioral approach is about creating a common interest, which is profit at the intersection of three interest groups, companies, internal customers, external customers. The following Fig. 1 demonstrated this concept of success:

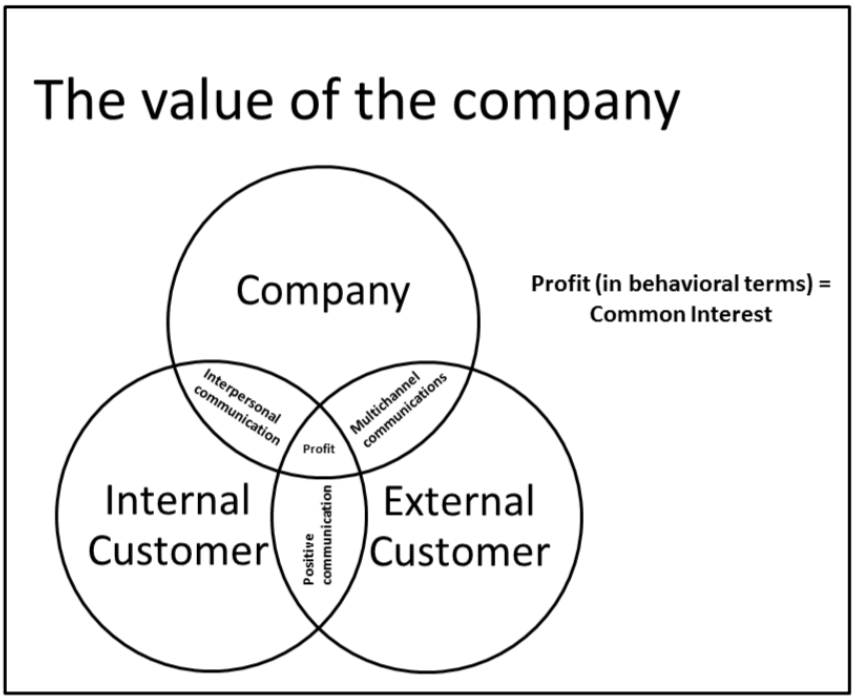

Fig. 1: the companies in the behavioral sense (Hanzelka, 2012)

CLV-IN

rom the perspective of contemporary theories CLV-OUT is an internal customer is the most important article profitability of the company and is considered an asset (Kumar, 2008). CLV-OUT as a metric substantial portion of corporate assets is based on discounted lifetime value that the customer is able to bring enterprise. Very similar to this is in the company's internal marketing strategy. It is based on a simplified things, product or service and the people (employees). Here, only the employee is capable of emotional approach to the product or service to a customer. From the microeconomic studies is included in employee liabilities and firm for him must have resources in the form of working capital. It is, however, only one point of view, because the employee is the primary creator of consumer value (products and services) and fed into the company's customers. CLV-IN as a metric of corporate assets is based on the discounted value of life, which is an internal customer enterprise can bring.

Analogical model CLV

Analogical model metrics CLV-OUT in literature referred to as CLV will be based on linking cost-benefit analysis (CBA Cost Benefit Analysis) to describe the theory CLV-OUT. The project determining CLV-IN internal customers in a particular market segment can be divided into two parts:
1) CBA Analysis (Sieber, 2004) internal customers of the insurance market, in other words, insurance agents specific insurance company. Data for this analysis CBA will be obtained partly primary questionnaire survey and by the analysis of secondary research data.
2) connecting the CBA analysis with the calculation of CLV will set CLV-IN internal customers of the insurance market.

Definition CBA

CBA framework is best not contradictory method for the evaluation of projects in the public sphere. The essence consists in quantifying all the positive and negative effects resulting from the project and the resources needed to achieve them, transfer these costs and benefits into cash flows (getting called. Socio-economic flows) and intertemporal aggregation. (Sieber, 2004).
Socio-economic flows, all socio-economic results of the project after deducting all costs of resources incurred during the project life cycle in order to achieve positive results of the project. Because the socio-economic consequences (flows) occur at different times, they need to be aggregated into an intertemporal evaluation indicators:

• Absolute indicator CBA: ENPV - (Economic Net Present Value) is the sum of the discounted net socio-economic flows of the project from the beginning to the end of its life.

• Relative indicators CBA: ENPV / I (version socioeconomic index of profitability) EIRR (socioeconomic IRR) or B / C Ratio (Benefit-Costs Ratio - the ratio of the sum of the discounted benefits of the project to the discounted sum of project costs), (Siber, P. 2004).

Theory calculation of CLV-IN

CBA allows you to determine the benefit of the socio-economic flows. CLV contrary predictive of direct costs, acquisition costs and retention costs to maintain client. From this structure can be defined by a mathematical expression CLV-IN:

$$CLV-IN_i = ENPV_i - C_i * \sum_{i=0}^{T}\left[\frac{r^t}{(1+d)^t}\right] - M * \sum_{i=0}^{T}\left[\frac{r^{i-t}}{(1+d)^t}\right] \qquad (1)$$

wherein:
NPV - (Economic Net Present Value) is the sum of the discounted net socio-economic flows of the project from the beginning to the end of its life.
C - direct costs of internal customer
r - sustainability (Churn)
d - discount rate
M - maintenance (retention) costs
T - scheduled time

Methods parameterisation of inputs CLV-IN

Calculation method:
Determination of elementary input parameters - preliminary research, based on the survey for financial advisors FA, in order to determine the following input indicators (Hanzelka, 2015):

- The volume of premium trash FA - cash flow
- The volume of premiums for Cross-selling FA - cash flow
- Loyalty FA – index
- Participation in the management FA – index
- Cancellations past shops FA - cash flow
- Quality of service FA – index
- Level of education FA – index
- Incentives for the FA - cash flow
- Commissions for the FA - cash flow
- Commissions for caring for FA - cash flow
- Acquisition costs for acquiring new FA - cash flow
- Costs for retention to maintain the acquired FA - cash flow

Methods of assessment CLV-IN

Methodology enable CLV-IN parameters, and convert the price of internal customer into a single indicator expressed through cash flow. This can determine the profitability of the company's internal customer. Profitability internal customer is none other than the determination of the indicators of whether the enterprise's internal customer pays (Hanzelka, 2015).

The draft research process

CLV method can rightly use to companies that strictly segment the customers. Achieves a more accurate allocation of investments in individual customer segments and better differentiation of costs incurred for multichannel marketing (Kumar, 2010). Fig. 2 is expressed dependence CLV marginal impact marketing communication.

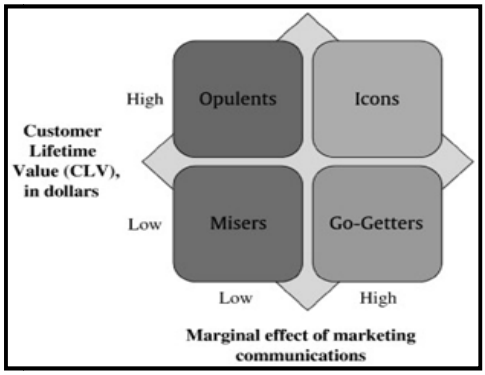

Fig. 2 : Customer segmentation in the CLV and a marginal effect Marketing Communications, (Kumar, 2010).

From Fig. 2. segmentation obvious cost incurred in individual tourism segment to optimize the effects of marketing communications. Adjust segmentation external customers by Fig. 2, a similar model for internal customers in selected segments of the labor market. This segment of the insurance market and the market for financial advice. Specify who the market segment of the insurance market and counseling internal customer. It is an insurance consultant, respertive financial advisor, as executive component, which brings insurer (brokers) income. Internal communication insurer or broker to such Executive Branch can be considered internal marketing communication that is both multi-channel and also is in many ways very similar to the marketing communication that is intended to external customers. Internal customers in the insurance and financial counseling insurer (brokerage) company primarily motivated from three perspectives: financially, technically and professionally. Let's look at a specific transformation Fig. 2, according to the CLV internal customers in the insurance market guidance on marginal effects of internal marketing communication shown in Fig. 3 (Hanzelka, 2015).

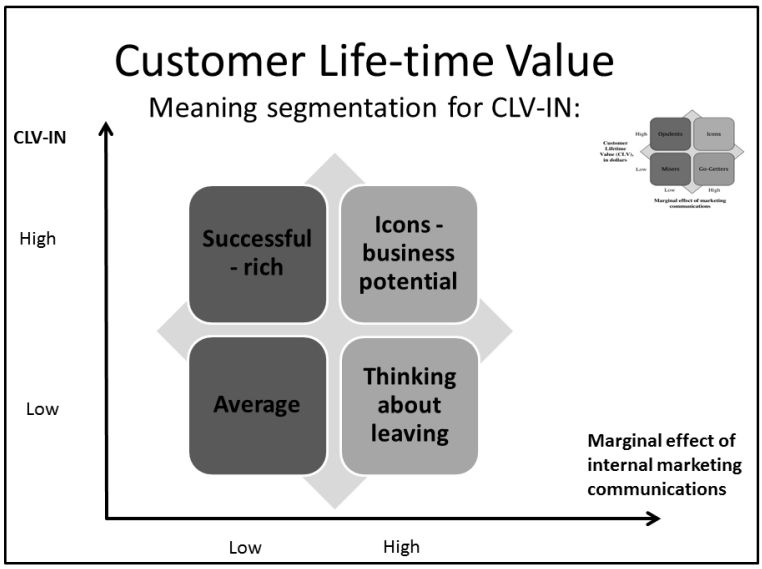

Fig. 3 : Segmentation internal customers in CLV-IN depending on the peripheral effects Internal marketing communications.

Corporate strategy

Part of the corporate strategy are sub-strategies of individual areas of business management. These include the following strategies: Manufacturing Strategy, HR Strategy, Information Strategy, Business Strategy, Marketing Strategy, Financial Strategy, outer and inner value strategy, to which undoubtedly CLV metric as a tool belongs (Collis, J. Hussey, R., 2009). Value strategies are all about sharing values (assets) by which on the one hand consist of external customers, such as customers and on the other internal customers as employees, creators of values. From the perspective of contemporary theories CLV-OUT is the most important link external customer profitability of the company and is considered an asset. (Kumar, V., 2006). Same goes for the corporate strategy. It is based on a simplified things, product or service and the people (employees). Here, only the employee is capable of emotional approach to the product or service to a customer.

Investigated area

Surveyed region is a segment of the insurance market and financial advisory services to internal customers as insurance advisors and financial advisors. Such an internal customer has for internal distribution of insurance companies and consulting firms exceptional value. It's a powerful business component with the potential to acquire new customers, but also with the potential for retention of existing customers, (Hanzelka, 2014). Insurance consultant as an internal customer requires extraordinary care in the field of career development, training, internal marketing communication, motivation and stimulation, financial evaluation, company benefits, comprehensive value proposition. These are the basic items that should be quantified so that they can be expressed in terms of cash flow. Some are at first glance Hard as e.g. monetary values and benefits, but most of them are called. Soft e.g. motivation proferní growth, and the like. Therefore, for the quantification of these Soft parameters is offered to use a well developed theory of costs and benefits (CBA) (Hanzelka, 2015). The thing is, from the outset to look at internal customer acquisition, as at the start of the project, the cycle may coincide with the life cycle of the company. Therefore, the internal customer can be connected with the life cycle of the company and, by analogy, it is possible to express the value of using CLV. To this CLV distinguish them from the current one of the conventional CLV for external customers, we talk about the so-called. Modified CLV (CLV-IN). Analogous modified CLV model is based on linking cost-benefit analysis (CBA Cost Benefit Analysis) to describe the theory CLV. The project determining CLV internal customers in a particular market segment can be divided into two parts (Hanzelka, 2015):

1) CBA Analysis (Sieber, 2004) internal customers of the insurance market and the market for financial advisors), in other words, insurance advisers particular insurance or financial advisors specific brokerage company. Data for this analysis CBA will be obtained partly primary questionnaire survey and by the analysis of secondary research data.
2) Outputs of CBA analysis used as inputs for the calculation of CLV internal customer-defined market segment.

Used research methods

To create a de facto methodology for determining CLV-IN internal customers start from the following assumptions (Hanzelka, 2005):

1) There A set of corporate strategy with important moments in conjunction individual areas of business management.
2) Determination of the areas examined internal customers within a segment of the insurance market and the financial market.
3) Creating a model analogous to the theory of costs and benefits under the sub-project personnel to obtain and maintain internal customers. This theory seems to be a good means to quantify incremental parameters for determining the CLV IN for internal customers, because it is a systematic

process successfully applicable to any project. The result is quantifiable cash flows.
4) Description of the current theories CLV used for external customers.
5) Description analogous modified CLV model for internal customers.

Model research

Distribution of research:

1) The primary survey to obtain predominantly Soft data for subsequent quantification. Is primarily about the motivation and loyalty, which can not be directly quantified. Quantification will be preceded by a qualitative assessment questionnaire.

2) Secondary research directly quantifiable costs and benefits such as operating systems and affiliate companies in the reporting segment.
Primary research: primary survey will be carried out in the following steps: Build the source questionnaire (sample questionnaire on a separate page), Development of a specific methodology of treating the resulting investigation using mathematical statistics, awards outputs from the processing and quantification in cash flows. Secondary research: Secondary investigation in the areas of:

- Analysis of the value proposition,
- affiliate career and Regulations product portfolio,
- business model in a defined market segment.

The project determining CLV internal customers in a particular market segment can be divided into two parts:

1) CBA Analysis (Seber, 2004) internal customer reference market. Data for this analysis CBA will be obtained partly primary questionnaire survey and by the analysis of secondary research data.

2) Outputs of CBA analysis used as inputs for the calculation of CLV internal customers of the reference market. Invaluable costs and benefits will be quantified research activity, ie. Soft convert information on Hard outputs. These benefits, which are called. Soft, will quantify indirect methods, using the primary questionnaire (Hanzelka, 2015).

Conclusion

The aim of the research is to focus on the methodology for internal use CLV customers to create new scientific knowledge in the field of quantifying the costs and benefits of internal customers, ie. employees and collaborators of justice in a particular market segment. Like external customers (markets) and internal customers express in their behavior and demeanor more or less affection, in the first case to the brand, and in the latter case an employer (partner). Therefore modeling CLV for the internal customers will require a qualified prediction and quantification of a wide range of both Hard and Soft items and their transfer to a valid pointer. Modeling CLV for the internal customers will be based on primary, CBA analysis for obtaining input data that will be used for modeling the modified CLV. The results of the model determines the average discounted amount of the maximum costs for the acquisition and retention of internal customers within its lifecycle in the company.

Annex no. 1

Number of questions	Questions I. Circle is always a possibility (X)	Completely unimportant	rather unimportant	Neither important nor unimportan	Somewhat important	Very important
	Scale	1	2	3	4	5
1	Regarding work in general, the importance given to the following items?	X	X	X	X	X
	Labor (interest, diversity, hobbies, etc.)					
	Salary conditions					
	The atmosphere at the workplace					
	Flexibility of working hours					
	Access superiors (management style)					
	Further education					
	The prospect of career growth					
	Working environment					
	Job security					
	It is important for you motivation of the employer?					
	It is important for you to stimulation by the employer?					
	Employee benefits and benefits					

Number of questions	Questions II. Always circling one option (X)	Completely satisfied	Rather satisfied	Rather satisfied	Completely satisfied	I do not know
	Scale	1	2	3	4	0
2	When you consider all the circumstances, how are you satisfied in your current job?					
3	Are you generally satisfied your job (interest, diversity, etc.)?					
4	It brings you a feeling of job satisfaction?					
5	How do you rate your relationship with your boss?					
6	Are you satisfied with the working environment at your workplace?					
7	How to evaluate the flexibility of working hours?					
8	Are you satisfied with a range of training and development initiatives for the company?					
9	Suits you and career possibilities of growth in this company?					
10	Are you satisfied with your financial rewards?					
11	Do you perceive the method of remuneration (money) in this society as righteous?					
12	How do you prefer a management style that uses your supervisor?					
13	Do you think that, you get plenty of information and feedback from your supervisor?					
14	Are you satisfied the current range of employee benefits?					
15	How did the motivation of the employer satisfied?					
16	How did you get stimulation from the employer satisfied?					
17	The company gives you job security?					

Number of questions	Questions III.	<10 000	10 000-15 000	16 000-20 000	21 000-30 000	>30 000
	Check (X) span of your monthly income					
19	I thought (and) you lately about leaving the company?	No	Rather not	Rather yes	Yes	I do not know
	Write reasons:	1	2	3	4	0
		Please circle one option				
20	What is the object of your work brings you the greatest feeling of dissatisfaction? *)	fulfillment	majored	finance	enthusiasm	motivation
21	How do you evaluate your relationships with your colleagues at your workplace? *)	buddy	collegial	working	opposing	another reason
	Another reason to express their own words:					
22	If you think your workplace relationships are not ideal, how do you see the cause? *)	poor communication	poor management	poor organization of work	pressure from superiors	another reason
	Another reason to express their own words:					
23	Please, what would you like to improve *)	education	communication	management	relations	I do not know
24	What educational and developmental activities would you most like to see *)	business skills	professional competence	managerial skills	Continuous personal development	I do not know
25	What employee benefits, and the benefits you value most? *)	incentives	financial benefits	nonfinancial benefits	event	I do not know
26	What employee benefits or benefits you miss the most? *)	food	vouchers holiday	allowance contribution	official car for private	business mobile and laptop

*) Or can circle mark (X), two options are important to you

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Study on International Forms of Cooperation for Companies in the Context of Globalization

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Abstract

This paper highlights the international forms of cooperation in research and development for medium enterprises and it is based on the example of an enterprise from Germany. Medium enterprises face more and more difficulties to state a self-maintained position in the context of commercial competition since the modern production techniques, the high-tech large-scale enterprises often favored and the competition growing due to largely saturated markets. When the autonomous growth ceases because of the financial reasons, the only possibility is to merge with other enterprises from research and development field. This paper is based on a literature review from "international cooperation forms" field and on the study of an enterprise from Germany. The aim of this paper is to present different methods of international cooperation and to derive their optimal shape based on a study of an enterprise. To realize this objective, the authors conducted an analysis of an enterprise from electronic industry field in the period of PhD studies.

Keywords: supply chain management, risk management, outsourcing and insourcing

Introduction

The aim of this paper is to highlight the reasons and advantages of cooperation in the international context using the study on an enterprise within R & D cooperation from Germany.

The demand for a international orientation of the enterprise is conducted recently with increasing frequency. Corporate management has always been important to develop a good international strategy of cooperation for companies in the context of globalization and was always a difficult task. A good form of international cooperation, however, was never as important as now. So many things cannot be forecasted, because the development is so unclear, and we are going through a fundamental phase of change.

International cooperation in the context of globalization has the potential to provide significant benefits to all participants, particularly if managed well. It is common knowledge that international cooperation has the potential to reduce a partner's costs and so they are more efficient for all parties.

The opening of global market offers to companies expansive opportunities for activities (Brandstetter, 2007). The increasing competition, intensive trade and increasing international mobility on internal market, are leading to an enhanced pressure. This pressure is forcing local enterprises to adapt themselves.

The increasing constraints for internationalization of various companies make it clear that the nature and extent of their internationalization activities are afflicted with very large gaps.

By analyzing the companies' current market situation we may conclude that the internationalization of companies is well advanced.

Literature review

Cooperation, from the Latin "cooperatio" (cooperation, collaboration), is the interaction between two or more individuals, persons or systems, particularly on economic or political basis. This work considers begins from cooperation between companies; therefore the main focus lies on business cooperation. In most cases it is about the cooperation of two or more companies for increasing their common competitiveness (Wöhe, 2012). The literature addresses two main criteria (Becker et al., 2005):

- Maintaining the economic and legal independence of enterprises
- Coordination and implementation of joint activities

For the implementation, the participants of such network cooperation are using shared resources and expertise. The alternative is to ensure the same performance through own forces by building up resources or by acquisition on the free market. In this respect, the business cooperation can be considered as an alternative form of organization, which occupies an intermediate position between the market and hierarchy, meaning it stands between contractual regulated and over hierarchy controlled cooperation (Müller, 2003). In Becker's vision (2005) the continuously cooperation in market-hierarchy can be represented so:

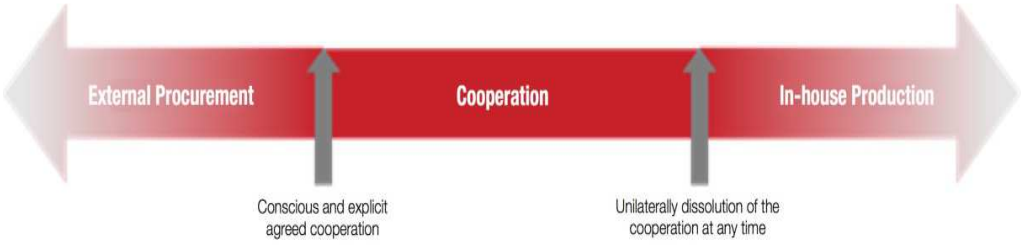

Fig. 1: The Continuously Cooperation In Market-Hierarchy

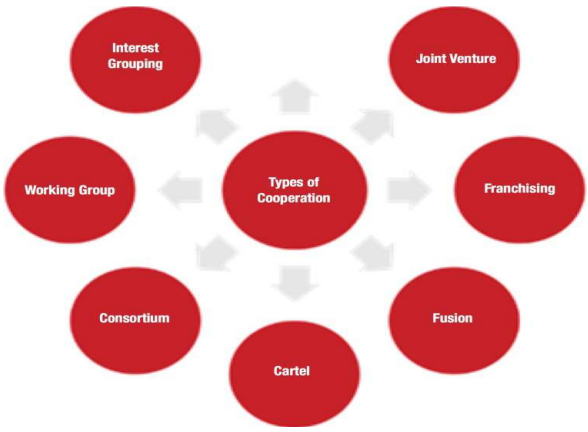

Fig. 2: Types of Cooperation

The figure 2 presents the different types of cooperation.

Each type of cooperation is detailed in the table below:

Table 1: Types of Cooperation

Types of cooperation	
Social group/Interest group: A social group is composed of few or more enterprises which set the goal of enforcing common interests. This form of cooperation is usually controlled by a simple contract and is headed by a chairman employed for this purpose. A classic example is the employer representative (Hendrik, 2008).	**Strategic Alliance:** Strategic alliances, often temporary interrelations (often horizontal) between companies in the same industry whose action relates to a specific business segment. In this form of cooperation it is about pooling resources to achieve a competitive advantage over competitors.
Working group: Working group is especially common in the construction field and serve more companies in a merger for the joint implementation of a project, for example, a major construction project. This form of cooperation is limited in time and usually occurs as a company constituted under Civil law.	**Joint Venture**: The cooperation model of Joint Venture represents the founding of a legally independent company by two or more legally independent enterprises, wherein the reason for the collaboration is to accomplish certain tasks jointly. The reasons for founding a joint venture, may be the association of capacities, pooling of resources or avoiding duplication of investments.
Foreign Trade Cooperation Foreign trade cooperation could take the form of export or import cooperation. For export cooperation or export association single or multiple delivery tasks are divided among the cooperation's partners. Import or buying cooperatives achieve financial benefits by pooling purchases at national and international procurement markets (Decker, 2002).	**Franchising** Franchising is a collaboration between legally independent franchisors and franchisees, whereby the franchisor is responsible for the tasks of planning, implementation and control of a previously successful operation type. The franchisee, in turn, receives the license, of this concept including the services and products to be distributed according to the existing concept (Büter, 2007).
Cartels Generally, cartels are characterized of existing based on a contract which is suitable to influence the market conditions by restricting competition, whereas legally ineffective according to restriction of competition law (Becker et al., 2005). The companies are connected horizontally and remain legally independent.	**Fusion:** The merger represents the most extreme form of cooperation; as independent companies legally merges into one company under one name. Often, smaller companies are this way taken over by stronger partners.

Research Methodology

To reach this objective, the authors had conducted some interviews with the two managing directors. The interviews are used to identify the reasons for business cooperation and to derive the future type of cooperation.

For giving a better statement of an appropriate international cooperation form, it was made a detailed business analysis on the enterprise studied and were summarized the results in a core competency matrix.

Based on these results and the interviews conducted, the reasons for the cooperation between companies inside of the example company was worked out on the basis of theoretical fundamentals and possible cooperation ways in the field of R & D.

These results lead to the recommendation of the possible business cooperation.

Research Results for International Forms of Cooperation on the Example of the Enterprise Studied

For industrial companies, research and development represents a popular area for cooperation within the strategic alliances cooperation type and therefore an indispensable part of daily work.

To withstand the mentioned pressure of competition and innovation, small and medium-sized enterprises are often forced to close development collaborations.

Attributes of such cooperation initiatives are that the partners participate voluntarily to the cooperation, follow common interests and register economical profits from that specific project (BMWi, 2001).

The collaboration can, but must not, be restricted to a certain time frame or achievement of specific targets.

The analyses undertaken revealed that the grounds for entering cooperation in the R & D area may be completely different. The most important considered targets and opportunities for the Sample

However, the objectives are not clearly separable, but often interconnected and are mutually reinforcing each other.

Table 2: Grounds for R & D Collaborations

Grounds	Targets and Opportunities
Complementarity	Companies are entering a cooperation if own resources are not enough to conduct a sought R&D project. Therefore, resources may be used additive or complementary. At an additive bundling it is about a project which is simply too large and more capacities are needed; whereas, conversely, in the complementary method it is about connecting not existing resources with its own. Thus, an effective implementation of a project can be better realized (Helmke, 2008). The pooling of resources continues to bring scale economies, which may lead to a reduction of variable costs. This advantage is particularly important for small-sized companies. They can implement many projects through the pooling of resources with

	partners (Decker, 2002).
Cost reduction	Companies are urged by the increasing time and cost pressure to a steady reduction of costs. Through resources, procurement, installation and usage of equipment, development and further production, costs are rising in any phase of the innovation process. Basically, cost savings can be realized through economies of scale, economies of scope or learning curve effects, respectively knowledge building. Costly redundancies can be avoided and business processes run more efficiently by integrating information and communication technologies. In addition, double investments are thus avoided and the development costs shared within the cooperation (Decker, 2002).
Time savings	Through cooperation, development initiatives have more human, technical and financial resources and can thus be carried out more quickly and efficiently (Becker et al., 2005). This is a necessary consequence which must be drawn from the trend towards more rapid innovation and technology cycles and shorter product life cycles, while increasing product complexity (Heinz, 2005).
Knowledge gain	The company's internal know-how is one of the most important resources to secure competitive advantage. Within an efficient cooperation, know-how can be exchanged controlled, whereby both parties achieve best results. In this respect collaboration is an opportunity to acquire new knowledge. This is done by the targeted knowledge transfer, yet also by generating expertise. Know-how transfer means that previously existing knowledge of a company is incorporated in the cooperation and the partners acquires this new knowledge. If the associate members are liaising knowledge and experience to new ideas than Innovation Learning takes place (Helmke, 2008). The gain of knowledge in turn leads to cost and time savings and can bring other positive effects, such as quality improvements.
Capacity supplement	A capacity supplement follows a similar pattern as the economies of scope. It means pooling of resources through which larger projects can be realized. Those might be among others, financial capacities or for example, output capacities, equipment or personnel.
Risk reduction	Each R & D project is associated with risk factors. If the costs are shooting up, the developed “passes over the market” or feasibility problems appear, development projects can turn into million graves, which cause the company long term negative consequences. To reduce the threat, the allocation of such risks on several network partners is an effective measure, as at the occurrence of such risk factors the entire cooperation spreads the cost or have enough resources are available to improve or save the project (Schuhmann, 2004) . From a risk management perspective a higher risk means also a higher return, which

	in case of a partner would be cut in half.
Market access facilitation	Market entry and mobility barriers can generally prevent the entry into a new market. Increased capital investment or gain of know-how and technology can overcome these barriers. The missing resources may be provided by cooperation partners and the access to new markets from home or abroad is obtained through business connections. Especially abroad the resident partner can help to overcome commercial barriers. Through partners also knowledge of the new market can more easily be acquired and making the chances of success best improved (Decker, 2002). These new contacts can be strengthened by further successful collaborations which buildup a healthy corporate network (Helmke, 2008).

Within the first step, the results of the study answered the question about the grounds for a business cooperation of the sample company.

Based on the range of occupations, the sample company is more of a specialist - and not a complete range products provider. With its division as controller, image processing and computer systems, the sample company is more application-oriented and less product-oriented.

Since the company is not a technology leader, the sample company uses new technologies in electronics, respectively in the field of microelectronics and image processing for the research and development of the own products.

In order to make statements about the core competencies of the sample company, was developed a core competency matrix.
The results of the conducted interviews and the business analysis are represented below:

Table 3: Core Competence Matrix

Area of competence	Critical skills	Is-situation	2015
1. Product/Project specific competencies	- technological workout, further development and manufacture of existing product solution	+	
	- development and manufacture of new product solutions based on existing or new technologies	+	+
	- maintaining and further development of the technological level	+/0	
2. Market specific skills	- reccognising customer's new needs and development and execute them effectively		
	existing markets	0	+++
	new markets	0/-	
3. Functional abilities	- delivering customer specific top solutions	+	
3.1 Production processes/Departments	- push through high prices	-	
- Development	- offering complete product range	-	
- Distribution	- offering good services	+	
- Technical contract development	- new customer acquistion	-	
- Purchasing and Manufacturing	- offering complete solutions	0	
3.2 Supporting Processes	- delivering system solution	0	++
- Technology	- efficiently manufacturing	0/-	
- Human Ressources	- cost efficiently procuring	0/-	
- Infrastructure (IT, QM, FI)	- using, binding and recruiting highly skilled employees	+/0	
	- fast pay-back from R&D Investments	-	
	- low quality management costs	0	
	- procure new financial resources	-	
4. Cross key topics	- strategical marketing	+/0	
	- product management / V-products	0	
	- first class cost management	-	+++
	- management and control of heterogeneous businesses	-	
	- technological/commercial Project management	0	

Capacity + high developed / 0 medium developed / - low developed

+++ very high ++ high + less high

Looking at the picture more closely, it can be seen that the sample company is aligned technically-technologically and can provide customized solutions in the mid and high-end segment. However, the skills for R&D are not sufficiently pronounced to generate here a great added value for the sample enterprise. This problem is reflected, among other things, by the accepted and sells research contracts without knowing how long will take the development of the appropriate solution. The consequence therefore is that are needed more days for the development, which cannot be charged. This results, in a great financial loss for the sample company, which, in most cases, cannot be retrieved on the sale of the developed product.

From this, can be derived the following strategies for research and development:

Table 4: Objectives for the Research and Development

Goal / Strategy	Example
Cost reduction	Develop cost-optimized product solutions for defined applications or customers
Quality improvement	Develop quality-oriented products for defined applications or customers
System solutions	Deliver system-solutions and not components or modules

Because the sample company of medium-sized companies is too small, for ensuring a cost-optimized R & D business it has to enter into the cooperation area. This way, synergies can be reached which creates added value not only for the Sample Company but are also interesting for the cooperation's partners.

Because only this way can the cooperation's partners withstand the cost, innovation and market competency pressure (Becker et al., 2005). Through the one international cooperation form new funding can also be obtained, which initially takes the cost pressures of the new research and development projects. The international development cooperation have also the advantage that thereby new distribution channels can be developed with which new markets are opening up to.

The figure below presents the market entry forms, after (Gabler, 2015):

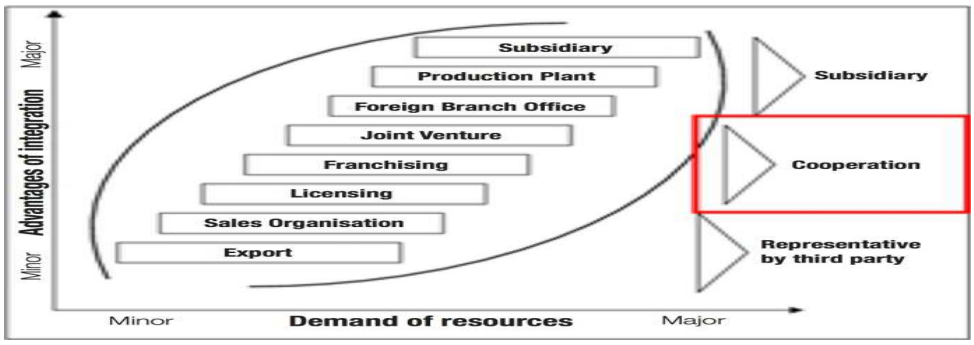

Fig.3: Market Entry Forms

Another reason for entering into collaborations is that incentives are not made as prior to the extent of the country. Thus, the Sample Company is formally compelled as a medium-sized company to cooperation. Incentives are critical, especially since the projects are often lost and the actual research and development costs are not covered and completely supported by the Sample Company.

The company tried to be successful with various cooperation types. Therefore, company has strategic partnerships in the areas of customer and supplier relationship that were used for entering new markets and increasing sales. In addition, this type of co-operation is used to strengthen customer relationships and to obtain access to new contacts and trade fairs.

In the past, the enterprise studied has cooperate with another company, which is commercially distribution-oriented. However, cooperation lasted only one year and was dissolved by the partner, due to commercial reasons. The aim of that company was to learn about the Sample Company out from the cooperation and buy it cheaper afterwards. Finally, the Sample Company had a whole range of incentive projects, which have not brought the desired long-term success.

Just this past cooperation example shows that the Sample Company has always had a weak partner and the last one was focusing only on its own advantage.
Considering the problems in the past, which have occurred in different collaborations of the Sample Company, it becomes quickly clear that the company must take a different approach to reach long-term success in international markets. A strategic alliance in the field of research and development (R & D cooperation) may be for the Sample Company a good option in order to step abroad and continuing to be international. Through this type of cooperation, it becomes possible for the Sample Company to remain legally independent and still having the opportunity to carry out collectively certain tasks, especially in the area of research and development. In this context, it is of secondary importance whether the strategic alliance in the field of research and development, is unlimited or made only for a specific research project.

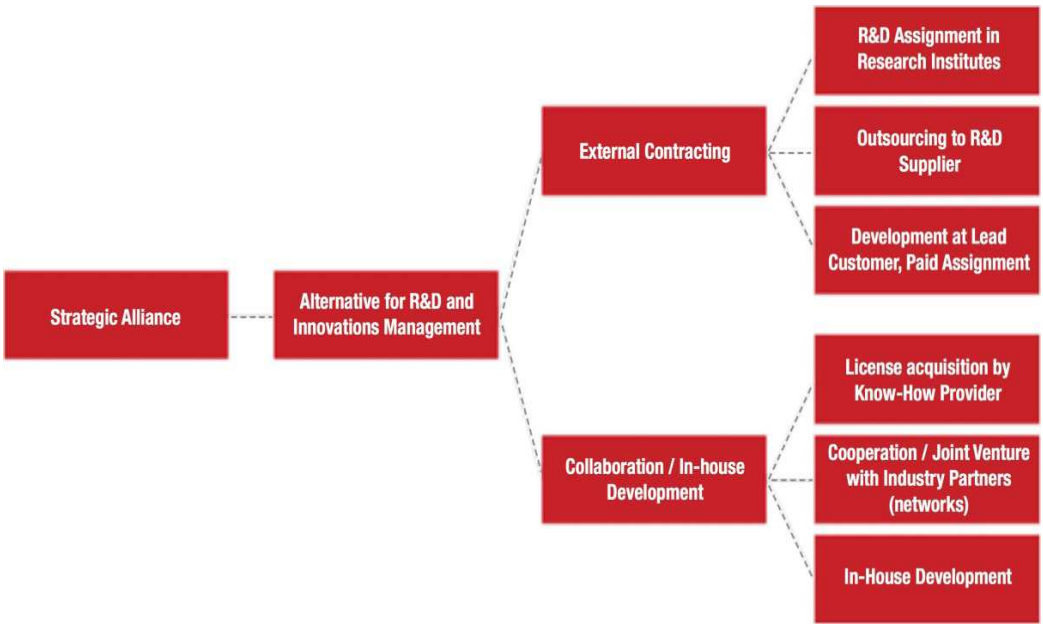

Fig.4: Example of Cooperation Types in the Enterprise Studied

Conclusion

The results of the research undertaken showed that regardless of size and industry cooperation, in research and development companies is included within the daily operations. While earlier research was done by individual scientists with pencil and paper and carried out in inexpensive laboratory equipment, nowadays, it is necessary to cope with the immense costs of research that can only be worn by several companies together.

Today we speak about an European economy, where companies operate mainly international. The interaction between national and collaborative funding of the EU Member States can lay the foundations for a European dimension of cooperation in research and development.

Cooperation is becoming more complex, dynamic and multi-faceted. The cooperative abilities of both large and small-sized companies have become the main criteria for a long-term success. This is accompanied by process and IT standards, which are the basis for an effective collaboration between several enterprises. Reports and comments from all research-intensive sectors show that it needs a greater cooperation. Classical approaches of "competitive markets" are reconsidered and increasingly efforts are sought in the context of cooperation and competition in complex "co-petition" networks. A prevailing example in literature and the news is the automotive industry.

Equally, similar surveys of companies in various industries are documenting that cooperation are carried out in all areas and gain even more importance in the future development. By standardizing and optimizing cooperation from process perspective by the aid of modern communication and organization tools, efficiency and effectiveness can be increased, thus leading on ensuring company's success for the cooperation partners, and on the advancement of national and international science.

Research results showed that the enterprise studied has illustrated the opportunities given by a research and development cooperation. The success is primarily given by the grounds of this form of cooperation, through which, medium-sized companies competitively remain. R & D cooperation can thus serve as a successful alternative collaboration for remaining successfully in the market. For the Sample Company, an R & D cooperation is a good way of growing internationally. For this reason it is recommended to implement R & D cooperation in the context of a market entry strategy as of the Sample Company to permanently be successful on the international market.

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Publicité En Ligne Et Comportement Hors Ligne En Tunisie

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Abstract

The aim of this study was to present new mediating and moderating variables in the relationship between online advertising and purchase intention as well as visiting the store. Therefore, a qualitative study of 17 Tunisian Internet users was conducted. The results show that the change in lifestyle and the willingness to visit the store are mediating variables between these consequences and electronic advertising (purchase intention and visiting the store). Furthermore, the involvement with the product is the moderating variable between e-advertising and change in lifestyle, including willingness to visit the store.

Keywords: online advertising; mediating variables**;** moderating variables

Introduction

La publicité électronique est une activité moderne. Elle représente, d'une part, « le pilier commercial du réseau Internet d'aujourd'hui »[1] et d'autre part, un moyen idéal pour « assurer la promotion des services ou produits proposés dans un site web »[2].

Dans ce cadre, les dépenses de la publicité en ligne vont dépasser 40 milliards de dollars en 2017[3] aux Etats Unis et en Europe. En Tunisie, les dépenses publicitaires sur Internet ont passé de 1,6 million de dinars en 2007 à 3,8 millions en 2012[4]. C'est un outil en pleine progression où les recherches académiques autour de cette variable sont très importantes. En effet, l'e-publicité permet l'accroissement de la mémorisation (Tanveer et Changhyun, 2014), l'inconscient (Yoo, 2008), l'attitude envers la marque (Li, Daugherty et Biocca, 2002), l'attitude envers la publicité, l'attention, les intentions d'achat en ligne (Hamborg, Bruns, Ollermann et Kaspar, 2012) et l'augmentation du taux de clics (Aksakallý, 2012).

[1]´La publicité en ligne´ (2011), [Online], [Retrieved December 19, 2014], www.jurisint.org.

[2]Pillou J (2011), ´Introduction à la publicité en ligne´, [Online], [Retrieved April 4, 2015], www.commentcamarche. net

[3]Pontiroli T. (2012), ´Les dépenses en publicité en ligne vont doubler en cinq ans´, [Online], [Retrieved December 10, 2014], http://pro.clubic.com/webmarketing/publicite-en-ligne

[4]´Spécial Open Sigma–Ettounsiya Tv accapare 23,5% des investissements publicitaires en Tunisie´ (2013), [Online], [Retrieved Mai 5, 2015], www.businessnews.com.tn

Il semble que les managers auront tendance à mettre l'accent sur l'augmentation des investissements dans le marketing électronique et de l'e-publicité. Il paraît que les performances d'e-commerce ne suivent pas d'égal à l'importance des dépenses de la publicité en ligne. Selon une étude de l'agence Leadformance, 82% des ventes se réalisent à partir des points de ventes physiques contre 13% à partir du web[5]. En Tunisie, les ventes électroniques sont faibles ou presque inexistantes car le commerce électronique peine encore et le consommateur n'a pas encore l'habitude d'acheter en ligne.

Ces données nous renseignent sur la remarque que la communication en ligne n'implique pas seulement une augmentation des achats électroniques, mais celle-ci peut accroître les ventes dans les magasins. Par exemple, en France, un nombre important de «*cyberacheteurs*» (environs 64%) pensent qu'il est mieux d'enlever le produit au point de vente après un achat à partir du site Web de l'entreprise[6]. En 2020, 53% des achats en point de vente en Europe comporteront des recherches sur Web[7]. Par conséquent, nous préconisons d'étudier les conséquences de l'e-communication dans le contexte off ligne. En tenant compte de ce qui est précédemment cité, les recherches se sont notamment focalisées sur l'étude des conséquences de cette notion seulement dans le contexte virtuel. Aucune recherche n'a essayé de proposer l'impact de celle-ci sur le comportement off ligne du client. Par conséquent, en se basant sur la théorie de la hiérarchie des effets, la question de recherche à laquelle nous essayerons de répondre est la suivante: Quel est l'effet de la publicité en ligne sur l'intention d'achat off ligne de l'internaute et la visite du point de vente ?

L'originalité de cette étude réside également dans la prise en compte des nouvelles variables médiatrices qui sont « le changement du mode de vie » et « la disposition à visiter le magasin ». Les variables médiatrices identifiées dans la littérature, sont les attitudes (Zaichkowsky, 1994; Wei, Jerome et Shan, 2010). La variable modératrice dans ce nouveau modèle est « l'implication avec le produit ». Les variables modératrices présentées dans la littérature, sont « le genre et l'expérience » (Sun, Lim, Jiang, Peng et Chen, 2010). Pour répondre à cette problématique, une étude qualitative est réalisée auprès de 17 internautes afin de préciser les propositions de la recherche et les échelles de mesure (Giannelloni et Vernette, 2012). Dans les prochaines lignes, les résultats de cette enquête seront exposés.

La publicité en ligne

Hanafizadeh et al (2012) ont mentionné que la publicité en ligne est « *Un processus basé sur l'Internet par lequel l'annonceur communique, interagit et persuade les internautes afin de promouvoir leurs préférences d'une manière plus personnalisée et de diminuer le temps nécessaire pour prendre une décision d'achat* ». Dans ce contexte, Kuisma et al (2010) ont montré qu'il existe trois caractéristiques principales de la publicité en ligne qui sont : l'animation, le format et le contenu. Ainsi, Yoo et al (2005) ont prouvé que l'animation est le facteur le plus déterminant pour l'efficacité de la publicité électronique.

Wang et al (2007) ont préconisé que le construit **contenu** réfère à la mesure dans laquelle le message publicitaire inclut un ensemble d'informations intéressantes pour l'internaute. C'est aussi une composante très intéressante puisque la publicité en général a comme objectif principal d'informer le client. Le troisième construit de la publicité c'est **le format**. Cette dimension comporte

[5]Prigent N. (2010), ´Echanges ROPO au salon e-Commerce 2010´, [Online], [Retrieved November 22, 2014], www.ropo.fr.

[6]Prigent N (2010), ´Acheter en ligne et retrait en magasin, quelques chiffres sur les attentes clients´, [Online], [Retrieved December 19, 2015], www.ropo.fr.

[7]Dever E (2015), ´En Europe, les achats de Noël en ligne représenteront 20% du commerce en ligne en 2015´, [Online], [Retrieved Janvier 13, 2016], http://www.himediagroup.com /blog/tag/ventes-en-ligne/

la taille, les couleurs et les images. Ceci est relié à l'existence de différents types de publicité en ligne. Wei et al (2010) ont montré que chaque type a son pouvoir d'attirer l'internaute.

L'étude qualitative

Dans le livre de Giannelloni et al (2012), pour la mise en œuvre de l'étude sur terrain, le suivi de l'ensemble des étapes bien définies est réalisé. Tout d'abord, il faut choisir la méthode de recueil des données. L'outil convenable dans cette recherche est l'entretien individuel semi-directif. Ceci revient à la raison qu'il se présente comme l'outil le plus utilisé et privilégié par les chercheurs en gestion et plus particulièrement en marketing. Pour réaliser cette forme d'entretien, il faut élaborer, ainsi, un guide d'entretien (deuxième étape). La troisième étape de l'étude qualitative, c'est la précision de l'échantillon. Dans cette recherche, le nombre des entretiens retenus est de dix-sept en tenant compte du principe de saturation. En effet, la diversification dans le profil des répondants portera sur les critères suivants : l'âge, le genre et la catégorie socioprofessionnelle. Le seul trait commun que doit avoir chaque participant est qu'il est utilisateur d'Internet. Enfin, la dernière étape, c'est le choix de la méthode d'analyse des données. La méthode la plus appropriée pour cette recherche est celle de l'analyse de contenu. Les étapes de cette analyse sont les suivantes : la transcription des entretiens, choix et précision de l'unité de l'analyse, construction de la grille, analyse thématique, quantification et élaboration d'un rapport de synthèse.

Les propositions de la recherche

Les conséquences de l'e-publicité seront présentées dans les titres suivants.

Le changement du mode de vie

Wind et al (1974) ont prouvé que, en marketing, la variable mode de vie est un antécédent principal qui permet d'expliquer les décisions du client en termes de choix du produit à acheter, le choix de la marque et le choix du média de communication. Ainsi, Valette-Florence (1986) a défini cette notion comme *« la résultante globale du système de valeurs d'un individu, de ses attitudes et activités et de son mode de consommation ».*

Dans le cadre de cette recherche, nous allons proposer une nouvelle variable nommée « changement du mode de vie ». Samuelsen (2006) et Valette-Florence (1986) ont montré que ce choix est basé sur la remarque que le mode de vie est une variable instable et en évolution permanente à cause de l'existence d'un ensemble de construits prédicteurs (la culture, l'exposition aux médias,…). Ainsi, Molino (1998) a défini la notion de changement comme « *toute transformation observable dans le temps, qui affecte, d'une manière qui ne soit que provisoire ou éphémère, la structure ou le fonctionnement de l'organisation sociale d'une collectivité donnée et modifie le cours de son histoire* ».

A l'aide de ces arguments et les résultats de l'étude qualitative, la variable changement du mode de vie peut être défini comme suit : « ***c'est la volonté d'une personne ou groupe d'individus à faire évoluer la manière de vivre, d'être et de penser*** ». Ainsi, les professionnels montrent que « *dans le commerce et dans la publicité, un mode de vie devient une cible marketing, que les commerciaux tentent de cibler pour s'approcher au mieux des besoins et des envies de consommation de cette population particulière »*[8].

Les résultats de l'étude qualitative prouvent que l'importance de l'e-publicité pour l'internaute, peut l'amener à prendre la décision de changer et améliorer sa vie en acquérant le produit ou service en question. Par exemple, « *Oui, en m'intéressant à la publicité je veux changer et avoir le nouveau produit. Je veux être à la mode si le produit me plait et avoir toujours la possibilité de convaincre les autres dans mes discussions après l'utilisation » : participant 3.* Donc, **La publicité en ligne s'avère**

[8]Mode de vie (2013), [Online], [Retrieved Janvier 13, 2016], fr.wikipedia.org

engendrer un effet sur la volonté consommateur de changer afin d'améliorer son mode de vie quotidienne.

La fréquentation du point de vente

Lombart et al (2005) ont précisé que le consommateur considère un point de vente (magasin) comme un lieu où il peut vivre plusieurs expériences. En fait, Filser (2000) a montré que « *le point de vente n'est plus uniquement envisagé comme un lieu où le consommateur «va faire ses courses», mais également comme un lieu de vie sociale, de découverte, de promenade et de détente*». De même, Lombart (2004) a bien précisé les différents modes de fréquentation des magasins. Ils sont de l'ordre de quatre : le butinage, le magasinage, le shopping et la lèche-vitrine. Le butinage représente la visite d'un magasin pour passer du temps et réaliser une nouvelle expérience. Le shopping représente une activité de visite d'un ensemble de magasins où le consommateur a pris d'avance la décision d'acheter un produit bien défini. Le magasinage représente la visite du magasin pour la collecte de l'information. Le lèche-vitrine est une activité de la visite du magasin sans la nécessité d'entrer à l'espace concernée.

Dans ce contexte, Valette-Florence (1986) a montré que le mode de vie est un critère pour élaborer leurs stratégies de distribution. En fait, le consommateur fréquente et choisit un magasin bien déterminé selon son mode de vie. Par conséquent, cette forte corrélation entre le mode de vie et la fréquentation du point de vente, nous permet de mettre en évidence l'existence d'une relation entre le changement du mode de vie et la décision de visiter un magasin. Il est utile de noter que les participants ont montré que leur décision de visiter le magasin est liée à leur volonté de changer leurs modes de vie et satisfaire leurs besoins. « *J'ai réalisé des visites au magasin pour satisfaire mon besoin d'avoir le nouveau produit et vérifier les informations présentées dans la publicité » : participant 6.* Donc, **Le changement du mode de vie des consommateurs influence la visite du magasin, tout dépend de la réponse à l'exposition au message publicitaire.**

La disposition à visiter le magasin

House et al (1996) ont défini la disposition comme « *des tendances pour répondre à des situations, ou des catégories de situations, d'une manière particulière prédéterminée* ». Taylor (1979) a montré que, en marketing, la disposition a constitué souvent une variable prédictive et explicative du comportement du consommateur. Grace (2005) a mentionné que, généralement, la disposition est un antécédent de la préférence de la marque, satisfaction, intention d'achat, bouche à oreille,….

Comme précédemment indiqué, la variété modes de fréquentation des points peut s'expliquer par des différences de comportement. House et al (1996) ont prouvé que cette divergence comportementale peut indiquer qu'il existe un groupe d'individus peut prendre facilement la décision de visiter le magasin alors que d'autres individus ne peuvent pas. Tout dépend des tendances particulières des uns et des autres à s'investir dans les activités de visite des magasins. Ainsi, nous pouvons considérer que certaines personnes sont simplement prédisposées à prendre cette décision alors que d'autres le sont moins ou ne le sont pas. Nous pouvons alors proposer de définir la disposition à visiter le point de vente comme suit: « ***la disposition à visiter le magasin est définie comme la tendance du consommateur de réaliser une action de visite du point de vente afin de réaliser un objectif bien déterminé***».

Dans ce contexte, en tenant compte des résultats de l'étude qualitative, plus les internautes font attention à l'e-publicité et plus elle suscite leurs intérêts, plus ils auront une prédisposition favorable à réaliser une visite au point de vente. Cette visite sera essentielle pour confirmer l'information présentée dans la publicité et procéder éventuellement à un acte d'achat. Par exemple : « *J'ai la volonté de se diriger vers les points de vente parce que je suis convaincu par la publicité » : répondant 4.* Ainsi, **la publicité en ligne semble influencer la disposition du consommateur à visiter le magasin (ou le point de vente) afin de vérifier le contenu informationnel dans cette communication.**

D'autre part, la disposition à visiter le magasin peut constituer également un antécédent de la décision de visite. L'examen de la revue de la littérature existante nous révèle qu'aucune recherche n'a confirmé ou infirmé cette relation. Néanmoins, Taylor (1979) a indiqué que la disposition environnementale, au même titre que les traits de personnalité, oriente le consommateur à réaliser certaines réactions dans sa vie quotidienne. Craik et al (1977; p.147) ont proposé que «*les dispositions environnementales dénotent des variations individuelles dans les réactions d'un consommateur, qui touchent son environnement physique quotidien*». L'environnement physique fait référence à la maison choisie, centre commercial visité, etc. Ainsi, cette disposition est un déterminant du comportement d'un individu dans le choix d'un point de vente précis et elle influence son attitude et son mode de fréquentation. En effet, les consommateurs qui sont fortement prédisposés sont ceux qui se comportent d'une manière récréationnelle et forment des attitudes positives. Par conséquent, nous inspirant de cette théorie, nous pouvons déduire qu'il est possible de proposer une relation entre la décision et la disposition à visiter le magasin respectivement. Cette déduction semble bien se confirme en se basant sur l'étude qualitative. En effet, plus l'internaute a une aptitude favorable vers l'idée de visiter le magasin, plus il prend facilement la décision de s'orienter vers le point de vente pour acheter ou pour réaliser une activité de loisir. Par exemple : « *Je me dirige vers les points de vente car dès le début j'ai l'idée et la volonté de visiter le magasin » : interrogé 7.* Donc, **la disposition à visiter le magasin semble influencer la décision de visiter du consommateur, d'autant que de la propension à visiter ce dernier existe préalablement.**

L'intention d'achat

Belch, et al (2004) ont défini cette variable comme « *la prédisposition du consommateur à acheter une marque ou produit bien identifié* ». Les recherches antérieures montrent que la publicité influence indirectement l'intention d'achat par les attitudes. En fait, le mode de vie est un antécédent des réactions du client comme le choix du produit à acheter et le choix de la marque. Donc, le changement du mode de vie va entraîner chez l'individu la volonté d'acquérir les nouveaux produits permettant de réaliser cette modification dans sa vie individuelle ou sociale. Par conséquent, nous pouvons proposer que le changement du mode de vie puisse avoir un effet sur l'intention d'achat d'un client. En se basant sur les résultats de l'étude qualitative, les personnes qui veulent changer leurs modes de vie et faciliter la réalisation de leurs affaires quotidiennes, ont plus l'intention de réaliser les actions d'achat des produits modernes présentés dans la publicité électronique. Par exemple : « *si la publicité porte sur mon produit préféré, je voudrai acheter le nouveau produit du magasin afin de satisfaire mon besoin » : participant 16.* A partir de ces conclusions, **le changement du mode de vie semble influencer l'intention d'achat du consommateur.**

Egalement, Lombart (2004) a montré que l'existence ou l'absence de l'intention d'achat est une autre cause de l'apparition de ces différents comportements des consommateurs lors de la visite du magasin. Par exemple, l'intention d'achat existe en adoptant le comportement du shopping. En outre, en tenant compte des entretiens menés dans cette recherche, le consommateur qui aura une forte intention d'acheter le produit, prendra la décision de visiter le magasin afin d'acquérir le produit ou service. En se basant sur ces arguments, **l'intention d'achat a un effet positif sur la visite du consommateur au magasin (point de vente).**

La variable modératrice : L'implication envers le produit

Zaichkowsky (1994) a proposé que cette variable est *« la pertinence du produit aux besoins et aux valeurs des consommateurs et d'où l'intérêt pour les informations sur le produit »*. Merabet et al (2014) ont montré que l'implication avec le produit joue un rôle modérateur entre la publicité et ses conséquences comme les attitudes. En d'autres termes, les consommateurs fortement impliqués seront intéressés plus par les publicités. Ils seront capables de mieux recevoir l'information présentée dans le message surtout si elle porte sur une nouveauté. Il est facile pour eux de faire un bon décodage et traiter d'une manière plus convenable l'information car ils connaissent plus les produits et leurs efficacités. Ben Miled–Chérif (2001) a suggéré que ce traitement facile de l'information publicitaire rend ces consommateurs les plus sensibles à modifier leurs attitudes et accroitre les chances de réaliser une décision d'achat. Alors que les clients à faible implication ne s'intéressent que pour les éléments périphériques du message comme la couleur et la musique.

Dans cette recherche, en se basant sur ces arguments et les réponses des participants dans l'étude qualitative, plus les consommateurs sont impliqués, plus ils sont intéressés à l'information présentée dans la publicité sur net. Cet intérêt va les inciter à visiter les magasins afin de voir un échantillon physique du produit. Egalement, il sera très facile d'accepter le changement du mode de vie afin que le client reste utilisateur de son produit préféré. « *Pour moi, je suis très impliqué avec mes produits préférés. Je regarde toutes les publicités présentées sur ces derniers. Bien sûr je veux plus changer avec mon produit préféré et j'aimerai plus visiter le point de vente pour voir le nouvel échantillon » : répondant 3.* Donc, **la relation entre l'exposition à la publicité en ligne et le changement du mode de vie est influencée par l'implication avec le produit.** En outre, **la relation entre l'exposition à la publicité en ligne et la disposition à visiter le magasin est influencée par l'implication avec le produit.**

L'élaboration de l'ensemble de ces propositions va permettre de tracer le modèle de recherche à tester en réalisant des études quantitatives.

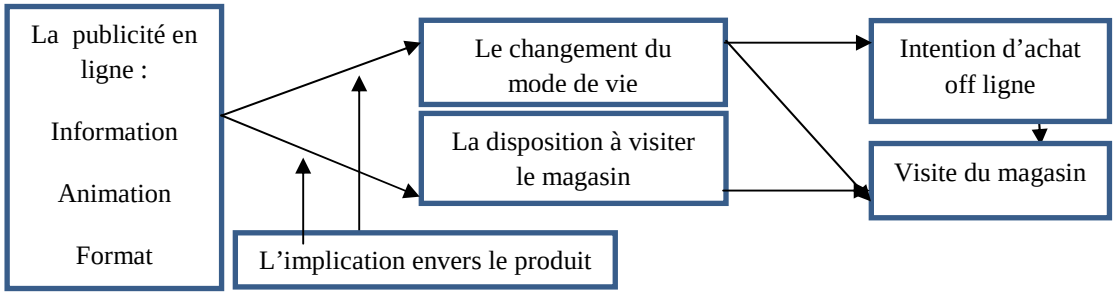

Fig 1 : Le modèle de recherche

Les échelles de mesure

Les différentes échelles de mesures choisies sont synthétisées dans le tableau suivant.

Tableau 1 : Les échelles de mesure des variables étudiées

Construit	Item	Sources
Publicité en ligne	**Information :** Une grande importance est accordée au contenu général de la publicité sur Internet ; Je trouve l'information contenue dans la publicité en ligne adéquate et récente ; L'information contenue dans la publicité en ligne présentée porte sur des nouveautés ; La publicité en ligne communique l'information appropriée pour faire des achats ; L'information contenue dans la publicité en ligne est pertinente car elle m'aide beaucoup dans mes décisions de visiter les sites ; L'information contenue dans la publicité en ligne m'aide à connaître ce que je veux sur le produit ; **Format :** Une grande importance est accordée aux couleurs en surbrillance ;	Dreze et Zufryden (1997) ; Wu, Wei et Chen (2008) et étude qualitative : L'échelle de mesure de Dreze et Zufryden (1997) est utilisée par les chercheurs Wu, Wei et Chen (2008). Pour cette échelle, il y a des items portant sur l'information, sur le format et sur l'animation. Les items générés de l'analyse des entretiens aident a confirmé à propos le choix de cette échelle.

	La publicité en ligne présente un format original dans sa présentation sera très attirant ; La publicité en ligne contenant des couleurs très variées m'attire plus ; Dans la publicité en ligne, les images avec des couleurs bien choisies m'attirent plus ; **Animation :** Une publicité qui contient plusieurs mouvements est plus attirante ; La publicité en ligne est d'autant plus attirante qu'elle contienne des actions d'animations ; Une grande importance est accordée à la conception flash ;	
Changement du mode de vie	**Mode de vie personnel :** Je suis satisfait de mon mode de vie et des produits ou services actuels ; Je n'aime pas trop changer dans ma vie quotidienne et les produits utilisés ; Etre évolué dans ma vie personnelle en utilisant des produits ou services actualisés ; Je n'aime pas la routine dans ma vie ; J'aime changer pour améliorer mes connaissances ; J'aime toujours avoir des produits ou services très modernes ; J'aime le changement dans ma vie personnelle et les nouveautés. **Mode de vie social :** Montrer mon style aux autres ; Changer pour avoir la possibilité de convaincre les autres dans mes discussions après l'utilisation des nouveaux produits ; Avoir les nouveaux produits qui me rendent plus différent des autres ; Je veux être à la mode comme les autres.	Nouvelle échelle résulte de l'étude qualitative : aucune mesure n'est proposée dans la littérature
La visite du magasin	Il est très utile de visiter le magasin après la diffusion de la publicité sur Internet ; je visite automatiquement les points de vente après la diffusion de la publicité sur Internet ; Il est rare que je visite les magasins après la connaissance de la publicité sur Internet ; Je ne réalise pas des visites aux points de vente en tenant compte de la publicité en ligne ;	Nouvelle échelle résulte de l'étude qualitative : La littérature présente des mesures des différents modes de visite. Dans cette recherche, il est nécessaire juste de connaître si le consommateur peut réaliser ou non des visites au point de vente après la diffusion de la publicité en ligne. Une autre solution peut se présenter, il s'agit de construire une échelle à partir des réponses des participants dans l'étude qualitative.
	Après la diffusion de la publicité sur Internet, je réfléchi sérieusement à visiter le magasin ; Après la diffusion de la publicité sur Internet,	Nouvelle échelle résulte de l'étude qualitative : aucune mesure n'est proposée dans la littérature

La disposition à visiter le magasin	je mets en priorité l'idée de visiter le magasin ; Je tends à me diriger vers les points de vente après la connaissance de la publicité électronique ; Après la connaissance de la publicité sur Internet, ma volonté de me diriger vers le point sera plus forte ; En tenant compte de la publicité en ligne, je ne voudrai pas visiter les points de vente ;	
L'intention d'achat	Après avoir visionné la publicité sur Internet, je vais acheter la marque objet de la publicité ; Après avoir visionné la publicité sur Internet, je deviens intéressé à faire un achat du point de vente ; Après avoir visionné la publicité sur Internet, je suis prêt à essayer d'utiliser le produit.	Wu, Wei et Chen (2008) : Les réponses dans l'étude qualitative sont similaires à l'échelle de mesure choisie
L'implication avec le produit	C'est un produit qui compte beaucoup pour moi ; C'est un produit auquel j'accorde une importance particulière ; Je me sens particulièrement attiré(e) par ce produit ; Le seul fait de me renseigner pour en acheter un est un plaisir ; On peut dire que c'est un produit qui m'intéresse ; J'aime particulièrement parler de ce produit.	Strazzieria (1994) : L'avantage de cette échelle est celui de l'exclusion de la notion du risque perçu. De même, elle est utilisée dans des recherches récentes dans le domaine de la publicité.

Conclusion

En rappelant que l'objectif de cette recherche était de déterminer l'effet de la publicité en ligne sur le comportement du consommateur dans le contexte hors ligne, une étude qualitative exploratoire a permis d'identifier quatre conséquences : le changement de mode de vie, la disposition à visiter le magasin, l'intention d'achat et la visite du magasin. Il en ressort de cette étude que les variables changement du mode de vie et la disposition à visiter le magasin (nouveaux construits en termes de définition et échelle de mesure) sont des nouvelles variables médiatrices entre la publicité en ligne et les réactions affectives du consommateur (l'intention d'achat et la visite du magasin). Il s'agit d'une voie future à tester et à valider vu qu'elle n'est pas encore étudiée. En fait, la majorité des recherches antérieures présentent les différentes formes d'attitude (envers la publicité, envers la marque) comme des variables médiatrices. Enfin, il faut confirmer ou infirmer les différentes propositions de recherche élaborées en réalisant une enquête quantitative. Mais, tout d'abord, il est utile et primordiale de vérifier la structure des échelles de mesure présentées en se basant sur le paradigme de Churchill. En fait, il existe des échelles qui sont empruntées de la littérature et d'autres qui sont nouvelles (résultat de l'étude qualitative). Egalement, la réalisation des entretiens de groupe s'avère plus appropriée que les entretiens semi-directifs.

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Publicité Rhétorique Versus Non Rhétorique : Quel Effet Sur L'imagerie Mentale ?

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Abstract

De plus en plus utilisée dans les annonces publicitaires, la rhétorique se présente comme l'ultime moyen pour augmenter la visibilité et l'attractivité de l'annonce publicitaire afin de la rendre plus mémorisable. L'objectif du présent travail est de comprendre et tester l'effet de la publicité rhétorique sur le processus de l'imagerie mentale du récepteur. Des expérimentations ont été réalisées auprès un échantillon de 360 étudiants tunisiens. Les conditions de l'expérimentation ont été contrôlées en fonction de la présence *versus* absence de la rhétorique dans les affiches publicitaires. La phase de création des affiches a donné lieu à trois publicités rhétoriques et à trois autres non rhétoriques. Pour tester l'interaction qui puisse exister entre la rhétorique publicitaire et l'imagerie mentale, une analyse discriminante a été réalisée. Les résultats ont permis de mettre en avant un effet significatif de la rhétorique publicitaire sur le processus de l'imagerie mentale. Face à une publicité rhétorique, le récepteur développe un processus d'imagerie très élaborée ; en revanche, le processus d'imagerie diminue manifestement lorsque l'on traite d'une publicité non rhétorique.

Keywords: Rhétorique, imagerie mentale, analyse discriminante.

Introduction

La surenchère publicitaire à laquelle nous assistons au quotidien oblige les spécialistes publicitaires à se pencher vers des formes d'expression quelque peu conventionnelles. La rhétorique se présente à ce niveau comme la solution créative idéale pour augmenter la puissance à la fois argumentative et attractive des communications publicitaires. L'émergence de la rhétorique est pourtant bien ancienne. Depuis l'époque des sophistes, elle s'impose comme une pratique langagière que l'on craint autant que la force des armes. C'est grâce à Platon alors que les notions de la rhétorique se formalisent et s'installent au cœur de la persuasion. Aujourd'hui encore, la rhétorique est derrière chacune de nos expressions courantes et accompagne les discours usuels que nous proclamons. Utilisée de façon délibérée ou inconscience, la rhétorique nous dote d'une capacité à communiquer efficacement avec autrui. En marketing, la rhétorique acquiert toute son utilité. Elle entretient d'ailleurs des liens étroits avec la publicité si bien que de nombreux chercheurs la considèrent comme une issue automatique pour la construction de n'importe quel type de publicité (LeRoux, 2000 ; Brochand et Lendrevic, 1993). La publicité, dont l'un des objectifs est de convaincre le consommateur du produit ou de l'idée qu'elle présente, trouve dans la rhétorique les recettes de persuasion dont elle a besoin : mises en évidence, hyperbole, redondance, jeux de mots, métaphores, etc. (Leigh, 1994). Force est de constater également que la rhétorique s'inscrit comme une description absurde de la réalité en mesure d'augmenter l'attention du récepteur face à l'annonce (Arens, in Arias et al., 2000) et de l'impliquer davantage dans la lecture de ce qui est derrière la publicité (McQuarrie et Mick, 1999). Pourtant, la publicité rhétorique ne convient pas à tous les goûts et provoque souvent le véhémentement des puristes contemporains à l'encontre des mass-media et de leur langage.

Le succès de la publicité rhétorique dépend, en grande partie, du processus de lecture qui l'accompagne. Ce dernier peut être cognitif ou émotionnel. Herman et Lurgin (2001) rappelle à ce titre que le principal objectif de la publicité rhétorique est de séduire et convaincre le consommateur en empruntant, à la fois, la raison (logos) et/ou l'affect (ethos). Si le processus de lecture émotionnelle implique les émotions du lecteur en tant que base pour les évaluations du stimulus rhétorique, le processus cognitif fait intervenir une variable médiatrice relative au processus de l'imagerie mentale (McQuarrie et Mick, 1999). Les travaux antérieurs mettent en avant le lien étroit

existant entre la publicité verbale et visuelle et l'imagerie mentale (Babin et Burns, 1997; Bone et Allen, 1992; Fennis et al., 2012).

A travers le présent travail, nous ambitionnons à identifier de plus près l'impact des figures rhétoriques contenues dans une annonce publicitaire sur le processus de l'imagerie mentale du récepteur. Pour cela, une analyse discriminante est opérée en vue de comparer, statistiquement, l'effet de deux affiches (avec et sans rhétorique) sur le processus de l'imagerie mentale.

Revue De La Littérature

Rhétorique et publicité

Lors de la conception de leurs messages, les publicitaires sont supposés respecter certaines exigences liées principalement à la manière avec laquelle le récepteur reçoit, perçoit et interprète le message : concision, choix des mots et du ton. Selon Durand (1970), la figure rhétorique est «*une proposition qui, partant d'une opération simple, modifie certains éléments de cette proposition.* » (p70).

Les figures rhétoriques peuvent être regroupées, selon Brouland (2006) en trois catégories : figures de mots, figures de construction et figures de pensées (Schéma1). Les figures de mots servent à donner un nouveau sens aux mots, parfois en se basant sur la sonorité des mots. Les figures de style les plus utilisées sont la métaphore, la métonymie, l'oxymore, la synecdoque, etc. (Barbu-Kleitsch, 2015). La figure la plus utilisée par rapport à la sonorité des mots la paronomase et qui consiste à utiliser des mots voisins dans une même expression, généralement un slogan. Les figures de construction modifient, grammaticalement parlant, les mots en inversant l'ordre. Quant aux figures de pensée, les publicitaires utilisent généralement l'hyperbole, le détournement de citations connues ou d'expressions familières, etc. (Brouland, 2006).

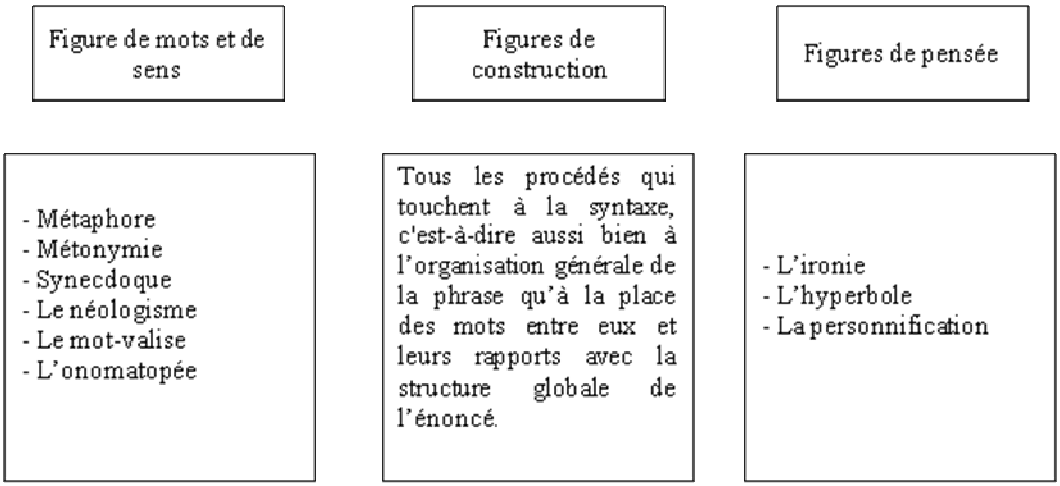

Schéma 1 : Les figures rhétoriques selon Brouland (2006)

Les publicitaires expriment une appétence toute particulière pour les figures rhétoriques vu qu'elles permettent d'améliorer le rappel et de produire une attitude plus positive envers l'annonce. LeRoux (2000) avance dans ce sens que pour éveiller le consommateur d'aujourd'hui, un consommateur lassé par la suprématie publicitaire, l'annonceur « *peut utiliser le placere (i.e. plaire) par des jeux de mots et des figures de styles et/ou le docere (i.e. enseigner) en frappant les esprits par des exemples et des arguments* ». Il fait d'ailleurs ressembler le publicitaire à l'orateur classique qui doit attirer l'attention de la foule assemblée et capter son attention compte tenu de toutes les variables individuelles et contextuelles environnant cet échange communicationnel. La rhétorique pourrait même être utilisée par l'entreprise pour susciter un bouche-à-oreille de la part du consommateur (Fox et Rinaldo, 2014).

Or pour qu'elle acquière toute son importance, la publicité rhétorique, doit conduire à des effets persuasifs chez le lecteur. Chez McQuarrie et Mick (1996), la persuasion publicitaire des annonces rhétoriques passe par le processus de l'imagerie mentale que nous étayons dans ce qui suit.

Rhétorique publicitaire et imagerie mentale : quel rapport ?

Le concept de l'imagerie mentale qui est longtemps resté cloîtré aux domaines philosophique, psychologique et médical, est aujourd'hui intégré au marketing, et plus précisément à la communication persuasive (Chamard, 2000). Par imagerie mentale, on entend toute sorte de traitement visuel de l'information. Appliqué à une annonce publicitaire, ce dernier est à même de rendre compte d'une évaluation globale ou holistique de l'annonce (contrairement au traitement analytique détaillé des éléments de l'annonce) (Euzeby, 2001). Les individus qui s'engagent dans un processus de l'imagerie mentale partent du stimulus (qui est ici l'annonce rhétorique) et créent des représentations mentales imagées (MacInnins et Price, 1987, 1990 ; Ellen et Bone, 1991 ; Babin *et al*., 1992 ; Helme-Guizon, 1998).

L'approche cognitive, basée sur le processus de traitement de l'information, est jugée « *plus pertinente pour la compréhension de l'impact du contenu de l'annonce, sur les réponses cognitives et affectives* » (Helme-Guizon, 1998). En effet, compte tenu de la nature du stimulus (une image rhétorique ou un slogan figuré) et conformément aux études antérieures (MacInnis et Price, 1987 ; Babin et al., 1992 ; Helme-Guizon, 1998 ; Euzeby, 2001), l'imagerie mentale est un concept de base qui est mieux capable d'appréhender le rôle de la rhétorique publicitaire. Ce choix est justifié par (1) le fait que la publicité rhétorique renferme plus d'une stratégie de l'imagerie mentale (stimulus iconique, incitations directes à imaginer, etc.) et (2) le fait que l'inclusion d'une forme rhétorique (au niveau de l'image ou du texte) dans une annonce publicitaire augmente considérablement le travail d'élaboration chez la personne exposée (McQuarrie et Phillips, 2005). En d'autres termes, « *il est possible de démontrer d'une manière expérimentale que l'annonce qui contient des figures rhétoriques (visuelle notamment) produit un plus grand degré d'élaboration relativement à une annonce qui n'en contient pas* » (McQuarrie et Mick, 1999).

Les différents travaux de la littérature consentis autour du concept de l'imagerie mentale reconnaissent que cette dernière est souvent provoquée par un stimulus bien déterminé. Seulement, aucun de ces travaux n'a validé la relation exclusive qui pourrait exister entre la rhétorique de la publicité et l'imagerie mentale. Pour le cas particulier de la publicité rhétorique, McQuarrie et Mick (1999) affirment que les figures de style incluses dans une publicité augmentent considérablement le niveau de l'élaboration à travers le déclenchement d'un processus d'imagerie mentale.

Par ailleurs, d'après la définition de Miller (*in* Chamard, 2000), toute technique de stimulation de l'imagerie mentale utilisée lors du traitement d'un message publicitaire peut être considérée comme une stratégie de l'imagerie mentale. Or, la publicité rhétorique renferme des images et des textes en mesure de provoquer des images mentales. De ce fait, elle peut être considérée comme une stratégie d'imagerie mentale. La publicité rhétorique suscite chez le consommateur un processus d'élaboration (McQuarrie et Mick, 1999). Ce dernier peut être verbal et/ou visuel. Le processus d'élaboration verbal correspond au discours que nous proclamons face au stimulus (les contre arguments, les attributions, les approbations…), alors que le processus d'élaboration visuel correspond au processus de l'imagerie mentale que nous développons (rêveries, fantaisies, fantasmes, résolution visuelle de certains problèmes…) (MacInnis et Price, 1987). Par conséquent, la publicité rhétorique est à même de générer un processus d'élaboration qui peut aller du mode verbal au mode visuel (ou imagerie mentale).

Il serait, de ce fait, pertinent de tester la relation entre la publicité rhétorique et le processus d'imagerie mentale et cerner les différences qui puissent exister entre l'imagerie mentale dans les deux contextes publicitaires rhétoriques et non rhétoriques.

Méthodologie Adoptée

Echantillon

Dans une première étape du processus d'échantillonnage, nous avons procédé au choix de notre population mère : les étudiants en Tunisie. A une seconde étape, nous avons opté pour une méthode d'échantillonnage non probabiliste, notamment la méthode par convenance. Toutefois, l'échantillon n'a pas été restreint à un seul niveau d'études, ni à une seule spécialité. Nous avons, en effet, veillé à diversifier et les niveaux d'études et les spécialités afin d'assurer une meilleure représentativité de la population mère. Aussi, notre échantillon est-il composé de classes du marketing, du management, des études comptables, de la finance et de l'actuariat et assurances. Les niveaux d'études étaient à leur tour variés : des classes de la deuxième, de la troisième et de la quatrième année ainsi que des classes de mastères, de l'ISG et la FSEG de Tunis et de l'ESC de Sfax. L'échantillon interrogé est composé de 360 étudiants.

Choix des stimuli

Pour tester l'effet des publicités rhétoriques *versus* non rhétoriques sur l'imagerie mentale, nous avons d'abord commencé par choisir les stimuli, à savoir les annonces publicitaires. Afin de garantir la qualité de nos annonces, nous avons fait appel à des publicités professionnelles divulguées sur Internet et dans des magazines étrangers. Le but de choisir des publicités qui ne sont pas locales revient à éliminer tout souvenir ou toute expérience vécue qui s'y rapporte, et donc à minimiser les biais au niveau des mesures. Notons, par ailleurs, que la figure de style contenue au niveau de l'annonce est d'une importance cruciale pour notre recherche. En effet, l'affiche doit non seulement être rhétorique, mais encore faut-il que cette forme de rhétorique soit saillante (McQuarrie et Mick, 1999, 2003) et puisse produire de l'imagerie mentale (Chamard, 2000). Il est à rappeler à ce titre que la rhétorique s'exprime sous plusieurs formes (verbale, visuelle, électronique, chiffrée, etc.). Pour le cas de notre stimulus, nous avons opté pour une forme de rhétorique visuelle vu qu'elle a beaucoup plus d'effet que celle des mots (McQuarrie et Mick, 1999) et que les photos sont par définition des générateurs d'imagerie mentale (Rossiter et Percy, 1978). En somme, les annonces publicitaires ont été choisies selon trois critères principaux : (1) la crédibilité de leur exécution, (2) leur contenance en une forme de rhétorique et (3) leur aspect inconnu.

Le choix de la catégorie de produit est très déterminant. En effet, la personne doit être familiarisée avec le produit pour être capable de former des images mentales à son propos (MacInnis et Price, 1987 ; Rossiter et Percy, 1978). Les catégories de produits sélectionnés en vue d'assurer la familiarité entre le produit, sujet de l'annonce, et les étudiants, échantillon de l'enquête sont (1) le déodorant pour homme pour la cible masculine, (2) le salon de coiffure pour la cible féminine et (3) le gel coiffant pour les cibles féminine et masculine. Les affiches sélectionnées ont toutes été sujettes à des réarrangements. Pour y parvenir, nous avons fait appel à deux professionnels en infographie qui se sont chargés tour à tour des manipulations des annonces. Ce travail s'est fait d'une manière séquentielle et chaque affiche est passée par des manipulations de la part de chacun des infographistes. Le but d'un tel exercice était de garantir une meilleure qualité d'exécution. Les réarrangements en question ont touché le nom de marque (création d'un nom de marque fictif), le slogan (traduction des slogans des publicités non françaises et l'adapter, dans certains cas, au contexte tunisien) et le produit. L'étape de sélection des annonces publicitaires a également fait l'objet de vérification de la part deux juges chargés de la lecture des annonces pour vérifier si elles contiennent bel et bien des figures rhétoriques, s'assurer du degré de force de ces figures, identifier la ou les figure(s) spécifique(s) à chaque annonce et arriver à une lecture plus détaillée des annonces (démarche détaillée à l'annexe 1).

Choix de la mesure de l'imagerie mentale

L'échelle de l'imagerie mentale développée par Ellen et Bone (1991) marque un point de départ vers une mesure « *systématique* » du concept de l'imagerie mentale (Euzeby, 2001). Cette échelle de mesure de l'imagerie mentale est en effet formée de 6 variables :

(1) la quantité d'images et
(2) l'élaboration

Ces deux variables sont mesurées par des protocoles verbaux.

(3) la facilité de formation des images mentales mesurées par deux items :
   - Images visuelles formées immédiatement / au bout d'un certain temps
   - Images visuelles formées facilement / difficilement
(4) la vivacité mesurée par un item : Images visuelles formées fortes / faibles
(5) la valence mesurée par un item : Images visuelles formées agréables / désagréables

Ces trois dernières variables sont mesurées via des échelles sémantiques différentielles à 5 points (Annexe 2).

RESULTATS

Une fois la collecte terminée, les données codées et saisies, nous avons procédé à une analyse en Composantes Principales via le logiciel d'analyse de données quantitatives SPSS 18.0. L'échelle de l'imagerie mentale est bidimensionnelle (Annexe 2). Les deux axes qui la décrivent se présentent comme suit :

Axe 1- La facilité de l'imagerie mentale

Axe 2- Les traits des images mentales

Pour explorer le lien entre la présence *versus* l'absence de rhétorique dans l'annonce publicitaire sur l'imagerie mentale, une analyse discriminante a été réalisée. L'objectif principal de cette analyse est d'étudier les relations entre une variable qualitative (présente ou absence de rhétorique) sur une ou plusieurs variables quantitatives (les deux dimensions de l'imagerie mentale) (Fisher, 1936).

Nous apprécions l'interaction entre l'existence de la rhétorique et le développement de l'imagerie mentale à travers un axe factoriel discriminant issu d'une analyse discriminante. Nous cherchons, à cet effet, à discriminer entre les deux types d'affiches (avec ou sans rhétorique) selon les deux dimensions de l'imagerie mentale, découlant des résultats de l'ACP, à savoir la sensibilité aux images mentales et la facilité de l'imagerie. Au niveau de sa construction, cet axe discriminant traduit la part de l'imagerie mentale qui est exclusivement déclenchée suite à l'existence de la rhétorique. En effet, comme on peut voir sur la figure suivante, l'axe discriminant est entrain d'associer une part importante de l'imagerie mentale développée par les personnes exposées à l'annonce à la présence de la rhétorique.

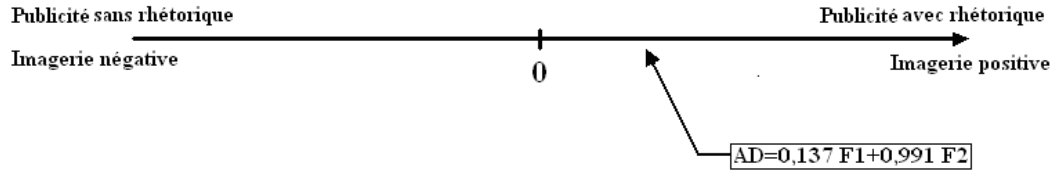

Figure 2 : Présentation schématique de l'axe discriminant

Sur le plan statistique, les résultats de l'analyse discriminante sont apparus très significatifs. Ces résultats se présentent comme suit :

Tableau 1 : Analyse discriminante : *Wilks' Lambda*

Test of Fonction(s)	Wilks' Lambda	Chi-square	df	Sig.
1	0,975	8,161	2	0,017

En effet, comme on peut le constater sur le tableau qui précède, que l'axe retenu montre que la capacité de développer de l'imagerie mentale est d'autant plus élevée lorsqu'il est associé à une publicité rhétorique. Le test de Chi-deux est sans ambiguïté, puisque le niveau de significativité, de 0,017, nous emmène à rejeter l'hypothèse H_0 selon laquelle les deux dimensions de l'imagerie mentale ne permettent pas de discriminer entre les deux types de publicités.

La position des deux types de publicités sur cet axe (avec ou sans rhétorique) est indiqué par le tableau 2 : la publicité avec (respectivement sans) rhétorique associe une valeur positive (respectivement négative) et occupe, par conséquent, le côté droit (respectivement gauche) de l'axe. Parallèlement, ce dernier apparaît comme positivement corrélé avec la sensibilité aux images mentales et la facilité de l'imagerie mentale.

Tableau 2: Analyse discriminante: *Functions at Group Centroids*

Rhétorique	Fonction
Avec	0,187
Sans	-0,135

Toutefois, le tableau 3 montre que seule la dimension de la sensibilité aux images mentales se présente avec un effet discriminant significatif.

Tableau 3 : Analyse discriminante: Test d'égalité des moyennes

	Wilks' Lambda	F	df1	Sig.
Axe 1 (F1)	1	0,149	1	0,700
Axe 2 (F2)	0,976	8,133	1	0,005

De fait, au niveau de la première ligne du tableau 3, nous tentons de faire le test suivant :

H_0 : La facilité de l'imagerie mentale ne permet pas de discriminer entre les deux types de publicités.
H_1 : La facilité de l'imagerie mentale permet de discriminer entre les deux types de publicités.
Ce test est significatif (sig.= 0,7) et l'hypothèse **H_0** n'est pas rejetée ; c'est-à-dire que la facilité de l'imagerie mentale ne permet pas de discriminer entre les deux types de publicités.

En revanche, la deuxième ligne de ce même tableau permet le test suivant :
H_0 : La sensibilité aux images mentales ne permet pas de discriminer entre les deux types de publicités.

H_1 : La sensibilité aux images mentales permet de discriminer entre les deux types de publicités.
Ce test n'est pas significatif (sig.= 0,005) et l'hypothèse **H_0** est rejetée ; c'est-à-dire que la sensibilité aux images mentales permet de discriminer entre les deux types de publicités, rhétoriques et non rhétoriques. En d'autres termes, seul l'axe de la sensibilité aux images mentales peut discriminer entre les publicités rhétoriques et non rhétoriques.

Conclusion

L'analyse discriminante nous a donné les moyens de construire une nouvelle variable[1] qui rend compte de l'interaction entre la sensibilité aux images mentales et l'existence d'une figure rhétorique au niveau de l'annonce publicitaire. Ceci nous permet dès lors de conclure que l'imagerie mentale augmente systématiquement lorsque l'on traite d'une publicité rhétorique. En d'autres termes, les individus exposés à une annonce rhétorique développent un processus de l'imagerie mentale plus poussé que les personnes qui sont exposées à des publicités contrôlées (sans effet de rhétorique). Face à une publicité rhétorique, l'individu développe un processus d'imagerie très élaborée ; en revanche, le processus d'imagerie diminue manifestement lorsque l'on traite d'une publicité non rhétorique.

En somme, il convient d'avancer que l'imagerie mentale a un effet combiné entre la publicité rhétorique et les réponses à l'annonce. Ceci était rendu possible grâce à une analyse discriminante qui montre l'interaction entre la publicité rhétorique et l'imagerie mentale et qui est à même de produire une communication plus efficace. Un tel résultat vient soutenir des travaux similaires (Helme-Guizon, 1998 ; Lee, 2006 ; Chamard, 2000 ; Babin *et al.*, 1997) et infirmer les résultats d'autres (McQuarrie et Mick, 1999).

Les publicitaires devraient, de ce fait, reconsidérer l'utilisation de la rhétorique, principalement les caractéristiques des figures de style appliquées et les moyens de les exploiter en vue de produire une imagerie mentale plutôt positive. Par ailleurs seule la sensibilité aux images mentales (deuxième dimension de l'imagerie mentale) peut discriminer entre les publicités rhétoriques et non rhétoriques. La facilité de l'imagerie mentale (première dimension) devrait dépendre d'autres variables, autres que la rhétorique, et qui pourraient être explorées dans de futures recherches.

En revanche, le présent travail présente la principale limite de se focaliser sur l'imagerie mentale en tant que résultante de la présence ou de l'absence de la rhétorique dans un message publicitaire mais ne met pas l'accent sur l'imagerie mentale en tant que variable explicative des futures réactions des consommateurs, principalement leurs jugements attitudinaux (Euzeby, 2001 ; Lao, 2013 ; Yoo et Kim, 2014), leurs réponses envers l'annonce (attitude envers l'annonce et attitude envers la marque) ou alors leurs intentions d'achat (MacInnis et Price, 1987 ; Bone et Ellen, 1990). L'interaction entre la présence *versus* absence de rhétorique dans l'annonce publicitaire est une étape préliminaire avant de passer à l'examen de l'effet persuasif des messages rhétoriques. Il serait possible, dans de futures recherches, de considérer l'imagerie mentale comme une variable médiatrice entre la rhétorique et l'attitude envers l'annonce, la marque ou l'intention d'achat. Il serait également pertinent d'intégrer des variables individuelles comme variables modératrices telle que l'aptitude à traiter l'annonce qui pourrait déterminer le rapport entre la rhétorique publicitaire comme stimulus et le processus de l'imagerie mentale. D'autres variables culturelles peuvent également être considérées comme modératrices.

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[1] Sur le plan mathématique, elle se présente comme une combinaison linéaire des deux dimensions de l'imagerie mentale : Rhét./Imag.

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Annexes

Annexe 1 : Lecture des annonces rhétoriques et non rhétoriques

La lecture des annonces non contrôlées

Nous avons, en effet, demandé à deux spécialistes en linguistique française de faire une lecture détaillée des éléments des annonces non contrôlées. Chacun des deux juges a transcrit sa propre lecture des trois annonces en question, tout en retraçant les différentes figures de style qu'elles contiennent. Les différences d'identification de la figure appropriée ont été résolues à travers les discussions qui se sont déroulées par la suite entre les deux juges. Les retranscriptions des lectures de ces derniers sont fidèlement reprises dans la partie qui suit.

Les résultats de ces lectures sont présentés dans ce qui suit.

Lecture des trois annonces rhétoriques

Affiches	Lecture de l'annonce	Types de procédés de style
Affiche n°1 : Le déodorant Sure	Cette affiche nous frappe par le nombre considérable de fiches d'électricité femelles qui contournent une seule fiche mâle. La fiche mâle symbolise l'utilisateur du déodorant et les fiches femelles opposées les femmes qui l'entourent. Il s'agit donc d'une **allégorie.** La fiche mâle personnifie le sexe masculin et les fiches femelles le sexe féminin pour donner à l'image un caractère sensuel. Il s'agit là d'une figure rhétorique qui sert comme argument pour inciter le récepteur à utiliser le produit en question. Cette expression par allégorie donne à l'image un caractère dynamique et par les charges négatives et par les charges positives. Ces charges galvaniques connotent ainsi une pulsion très vive. Remarquons, par ailleurs, l'existence d'un **paradoxe** (entre les fiches mâles et femelles) qui déclenche, certes, une attraction. Cette opposition du nombre considérables de fiches femelles à une seule fiche mâle cherche à montrer que le produit (déodorant) est d'une efficacité singulière : plus on l'utilise, plus on a du succès ! Aussi, un **parallélisme** se crée-t-il entre l'utilisation du produit et le succès social. Le but de ce parallélisme est de mettre en relation les différents éléments argumentatifs : le produit se présente comme le moyen idéal pour maintenir l'équilibre, le succès et l'harmonie avec l'entourage social.	- Allégorie - Paradoxe - Parallélisme

Affiche n°2 : Le gel coiffant Style	Quoi qu'elle soit plate et simple en apparence, cette annonce peut être sujette à plusieurs interprétations. Le noir des cheveux, le vert des pupilles dans une surface blanche rejoint l'éclat des dents dessinant un sourire, signe de satisfaction. Le visage du jeune homme comme l'ocre rassemble ses éléments expressifs pour donner à l'image un caractère vraisemblable. On remarque des couleurs plates exprimant la limpidité, la clarté et la simplicité, dans une sphère absolue. Cette simplicité est toutefois brisée par une **métaphore** qui donne aux cheveux la forme d'un bras excessivement musclé. L'affiche acquiert ainsi un caractère impressionnant grâce à un photomontage rassemblant la photo du jeune homme, image de monsieur tout le monde, et les cheveux dressés sur la tête sous forme d'un bras fort. A la **comparaison** (cheveux comparés à un bras musclé), s'ajoute une **hyperbole** pour accentuer l'efficacité du gel. Cette hyperbole a un double emploi de l'impression à la persuasion. Plus les cheveux que nous constatons sont si forts, plus le produit est si efficace. Dans ce **parallélisme**, il y a un rapport de **causalité**. Il s'agit d'un va-et-vient entre la cause (le gel coiffant) et l'effet (la force des cheveux) dont le but est de convaincre le consommateur. Cette annonce, par les procédés qu'on vient de déceler, renvoie à une image amplifiée de la force du gel coiffant Style.	- Métaphore - Hyperbole - Parallélisme

Affiche n°3 : Le salon de coiffure pour dames La Bella	Cette affiche prend à l'initiale une position par l'emploi du terme « vos cheveux ». L'adjectif possessif « vos » implique le récepteur et l'emmène progressivement à participer dans le raisonnement de l'annonceur. Le mot « soucis » suscite une problématique réelle pour arriver à une mise en évidence **hyperbolique** d'un état psychologique perturbé. Le verbe « envahir » implique un caractère excessif. Il est responsable de la situation de morbidité. On déduit une relation de **cause-effet** entre le groupe nominal et le groupe verbal. Cette relation est enflée par une image troublante. En effet, on est en présence d'une dame dont le visage ne manque pas de signes de beauté. Sa grâce est en effet manifeste par rapport à l'envahissement des cheveux qui mettent en évidence un **paradoxe** entre l'état d'âme et les traits physiques. Cette beauté certes est abîmée, étouffée par la laideur des cheveux. Le salon de coiffure vient au secours par ses couleurs gaies : jaune, saumon, beige, bleu ciel…et se propose comme moyen pour délibérer cette beauté et entre en dualité avec la laideur. Cette affiche utilise alors cette **dualité** entre le mal et le bien (thème de tous les temps). Les éléments contrastants entre cheveux et visage montrent que le salon de coiffure dispose d'un pourvoir surnaturel et fait appel aux forces extérieures pour sauver la beauté. On cherche ainsi à convaincre le récepteur de l'utilité, de l'importance, de l'efficacité du salon de coiffure dans notre vie quotidienne. Le point d'interrogation mis en œuvre à travers le questionnement du départ et la photo de la dame met le récepteur dans une situation d'intrigue. Celle-ci constitue, alors, la partie attrayante de l'affiche. Les figures utilisées oeuvrent mutuellement à mettre en valeur le salon en question.	- Hyperbole - Paradoxe - Métaphore

Les lectures élaborées par les deux juges nous ont permis de comprendre le message que les affiches rhétoriques tentent de communiquer et de créer d'autres affiches, déclinées des premières et dont le contenu n'est pas rhétorique. La rhétorique publicitaire est une variable qualitative dont la mesure n'est pas fournie. Nous avons tenté alors de procéder à son opérationnalisation via la création de deux sortes d'affiches : une qui contient une forme de rhétorique et une autre qui n'en contient pas.

La création des affiches à contenu non rhétorique

Au niveau de notre recherche, la rhétorique forme une variable de contrôle. Nous avons opté pour la création d'une déclinaison de chacune de nos affiches à contenance rhétorique[2]. En effet, nous sommes partis d'annonces déjà existantes revendiquant les mêmes produits que nous avons choisis. Des transformations ont été opérées par la même équipe d'infographistes. Elles ont touché aux points suivants :

* Coller le même nom de marque à l'annonce contrôlée

* Orienter le texte du base line et de l'accroche vers un sens très explicite en accord avec l'affiche rhétorique équivalente

[2] Cette méthode a été adoptée par de nombreux chercheurs (exemples : McQuarrie et Mick, 1999 ; Chakraborty et Mowen, 2000)

* Transformation au niveau du visuel pour garantir une image à cent pour cent plate (sans rhétorique).

Les versions finales des annonces contrôlées et non contrôlées ont été produites sous un format professionnel en couleurs, suite à quoi nous avons procédé à nos mesures. Rappelons, par ailleurs, que la rhétorique est une variable qualitative qui a été contrôlée par la création de deux types d'affiches, une avec rhétorique et une autre sans rhétorique, afin d'arriver à la mesurer.

Annexe 2 : Echelle de mesure de l'imagerie mentale utilisée et analyse en composante principale réalisée

Images visuelles formées immédiatement	1-----2-----3-----4-----5	au bout d'un certain temps
Images visuelles formées facilement	1-----2-----3-----4-----5	Images visuelles formées difficilement
Images visuelles formées fortes	1-----2-----3-----4-----5	Images visuelles formées faibles
Images visuelles formées agréables	1-----2-----3-----4-----5	Images visuelles formées désagréables

- **<u>Etape n°1</u> : La vérification de la fiabilité de l'échelle**

Le test de sphéricité de Bartlett et le test de KMO confirmant la validité de l'ACP se présentent comme suit :

Tableau n°15 : Indice KMO et test de Bartlett (Détermination de l'imagerie mentale)

Mesure de précision de l'échantillonnage de Kaiser-Meyer-Olkin.	0,539		
Test de sphéricité de Bartlett	Khi-deux approximé	173.039	
	ddl	6	
	Signification de Bartlett	0.000	

- **<u>Etape n°2</u> : La détermination des facteurs**

	Matrice des composantes		**Matrice des composantes après rotation**	
	1	**2**	**1**	**2**
Item 2.1 : Images visuelles formées immédiatement/au bout d'un certain temps	0.822		0.891	
Item 2.2 : Images visuelles formées facilement/difficilement	0.763		0.864	
Item 2.3 : Images visuelles formées fortes/faibles		0.735		0.835
Item 2.4 : Images visuelles formées agréables/désagréables	0.555	0.563		0.768
Variance totale expliquée	43.112	29.093	39.398	32.808
Valeur propre λ	1.724	1.164	1.576	1.312

- Le nombre de facteurs : Le pourcentage des variances a permis de ressortir deux facteurs dont les indices d'inertie λ sont tous supérieurs à 1. En d'autres termes, l'échelle de l'imagerie mentale utilisée est bi-dimensionnelle (mise à part les items de l'élaboration et de la quantité des images mentales).
- Interprétation des facteurs : La matrice des composantes nous permet de ressortir, suite à la rotation effectuée, les facteurs suivants :

Axe n°1 : La facilité de l'imagerie mentale
Cet axe réunit les items 2.1 et 2.2
Axe n°2 : La sensibilité aux images mentales
Cet axe réunit les items 2.4 et 2.3

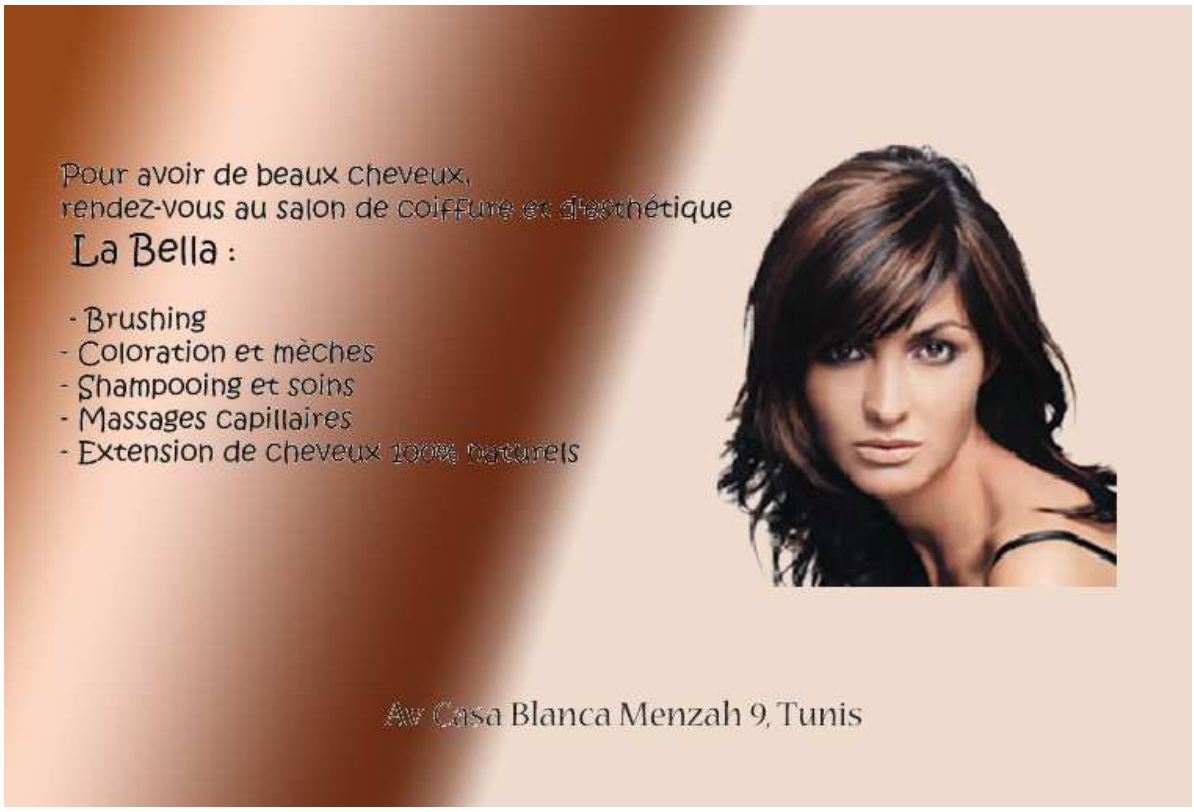
- **Etape n°3 : La qualité de représentation**
-

Items	**Extraction**
Item 2.1 : Images visuelles formées immédiatement/au bout d'un certain temps	0.793
Item 2.2 : Images visuelles formées facilement/difficilement	0.771
Item 2.3 : Images visuelles formées fortes/faibles	0.624
Item 2.4 : Images visuelles formées agréables/désagréables	0.699

Annexe 3: Affiches publicitaires testées

- **Publicité pour déodorant**

- **<u>Publicité pour salon de coiffure</u>**



- **Publicité pour gel coiffant**


MAXI
GEL
EXTRA FIXANT
AUX RÉSINES NATURELLES
Gel
Natural Style
MAX
GEL
BIG
MAXI
Pot 300 ml
TENUE
24H

Assessing Students' Satisfaction with Blog Usage for Learning: Focus on Perceived Enjoyment, Knowledge Sharing Experience, and Technology Acceptance Factors

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Abstract

This study examines the effects of factors such as perceived enjoyment, knowledge sharing experience, perceived usefulness, and perceived ease of use on students' satisfaction with blog usage for learning in a Management Information Systems (MIS) course. A cross-sectional survey was used to collect data from 108 undergraduate students in a small university in a Canadian Province. Relevant hypotheses on the subject matter were formulated and tested. The partial least squares (PLS) technique was used for data analysis. The results indicate that students' perceived enjoyment, perceived ease of use, and perceived usefulness of blogs have positive effects on students' satisfaction with blog usage for learning MIS. However, the data did not provide support for the positive effect of students' knowledge sharing experience - in the context of blogging - on their satisfaction with the use of such tools for learning MIS. The implications of the study's findings for higher education practitioners and academics are discussed, and suggestions for future research outlined.

Keywords: Knowledge sharing experience, perceived enjoyment, technology acceptance model, blogs, undergraduates

Introduction

A weblog (often shortened to "blog") is a type of website that allows a user (blogger) to publish "posts" which appear in reverse chronological order and are usually archived over a long period of time (Luehmann, 2008). Posts contain frequently updated commentaries, descriptions of events, graphics, photos, videos, and links to other blogs and websites (Lu & Lee, 2012). Blogs use visualization tools to enhance information retrieval and knowledge representation (Kim, 2008; Lai & Chen, 2011). To blog, a user needs to use blogging tools or services that are usually provided by a host (e.g., Blog.com, Wordpress.com, and Blogger.com).

Past studies have shown that the use of blogs in higher educational settings offer useful benefits. For example, Williams and Jacobs (2004) asserted that "blogs have the potential, at least, to be a truly transformational technology in that they provide students with a high level of autonomy while simultaneously providing opportunity for greater interaction with peers" (p. 145). Through blogging, students can create a community supportive of social learning environment where students learn from one another and share knowledge with peers (Du & Wagner, 2007; Ellison & Wu, 2008; Shim & Guo, 2009; Halic et al., 2010). Researchers such as Kim (2008) have argued that blogs are better than traditional computer-mediated communication technologies because the former facilitates interactivity, openness, visualization, and decentralization.

Students' learning experience and ability to communicate and express thoughts with instructors and peers are enhanced by course blogs (Maag, 2005; Halic et al., 2010). Blogging for the purposes of learning in higher educational settings increase students' interaction and reflection (Williams & Jacobs, 2004; Lin et al., 2006; Makri & Kynigos, 2007; Du & Wagner, 2007), collaboration (Ellison & Wu, 2008; Shim & Guo, 2009; Jason, 2009; Zhang et al., 2014), and cooperation (Betts & Glogoff, 2004; Lin et al., 2006; Zhang et al., 2014). Indeed, Lin et al. (2006) noted that students who post rarely, but read the entries and comments of peers benefited from received feedback as well. Furthermore, blogs allow discussions to go beyond the physical classroom (Betts & Glogoff, 2004). However, some researchers (e.g., Divitini et al., 2005) did not find evidence to support the view suggesting that blog use for learning enhance productivity with regard to promoting interactivity among students.

As blog usage in the educational sector spread (Williams & Jacobs, 2004; Du & Wagner, 2006; 2007; Ellison & Wu, 2008; Goldman et al. 2008; Zhang et al., 2014), practitioners and academics are beginning to focus attention on how to evaluate the effectiveness of blog-based learning systems (Halic et al., 2010). While several previous research have examined students' participation in blogging (Goldman et al. 2008; Leslie & Murphy, 2008), attitudes towards blogs (Ellison & Wu, 2008; Lin & Shen, 2013), few have investigated factors that increase students' satisfaction with blog usage for learning purposes (Wang et al., 2012b; 2014; Zhang et al., 2014). This study is motivated by this gap in the literature.

The objective of this study is to examine the effects of perceived enjoyment, knowledge sharing experience, and technology acceptance factors on students' satisfaction with blog usage for learning. Prior studies found perceived enjoyment to be positively related students' intention to blog (Wang et al., 2012a). Perceived playfulness, which is akin to perceived enjoyment, was found to be associated with satisfaction in the context of blog learning (Tang et al., 2014). Knowledge sharing experience was shown to be an important antecedent to intention to continuing updating blogs (Lu & Hsiao, 2007). Beliefs about users' experience with blogging positively impacted their satisfaction with learning with blogs (Tang et al., 2014). Several studies of blog usage and related web-based learning systems have demonstrated strong associations between the constructs of technology acceptance factors, i.e., perceived ease of use and perceived usefulness and usage of such tools (Ifinedo, 2007; Tajuddin et al., 2012; Punnoose, 2012; Lai & Chen, 2011).

Following the foregoing discussion, this study research questions are posed as follows. a) What are the effects of students' perceived enjoyment of blogging, knowledge sharing experience, and perceptions of complexity and usefulness of such tools on their satisfaction with usage of blogs for learning? b) Which of the selected factors is more important for improving students' satisfaction with blog use for learning?

Background and Theoretical Underpinnings

In the study of bloggers' intention to continue updating blogs, Lu and Hsiao (2007) drew from Bandura's (1986) social cognitive theory, which posits that psychological factors, among other factors determine user behavior. Lu and Hsiao (2007) used performance accomplishment, which they represented by knowledge sharing experience and information creation ability to explore behavior relating to updating blogs; they found knowledge sharing experience to be a pertinent antecedent factor in their study. Accordingly, the factor of knowledge sharing experience (KNSE) is considered relevant to this study. KNSE in this study describes a student's experience in sharing relevant and valuable information with peers on a blog site.

According to Ryan and Deci (2000), a person can be motivated to engage in an act for the fun of it rather by external prods. In using the construct of perceived enjoyment (PENJ), Wang et al. (2012a) found it to be relevant to the discourse of students' satisfaction with blogs. Likewise, Hsu and Lin (2008) who used PENJ to study blog usage acceptance found it to be enriching. Here, perceived enjoyment refers to ''the extent to which the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use" (Venkatesh, 2000).

According to technology acceptance model (TAM) (Davis, 1989), the two main determinants of users' acceptance of technologies are perceived ease of use (PEOU) and perceived usefulness (PUSS). The literature shows that PEOU and PUSS have been used in studies of blog usage (Hsu & Lin, 2008; Tajuddin et al., 2012). PUSS refers to "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). PEOU refers to "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989, p. 320).

Tang et al. (2014) used the construct of satisfaction (SATN) from the expectation–confirmation model and continuance use of information systems (IS) model (Bhattacherjee, 2001; Spreng & Olshavsky, 1993) to examine factors influencing blog learning. These theoretical models propose that users obtain expected benefits from an engagement through usage experiences, which has positive influence on their satisfaction (Tang et al., 2014). Deci and Ryan (2000) noted that satisfaction is essential for the well-being and healthy development of individuals; hence, the choice to include satisfaction as the dependent variable in this study. In this paper, satisfaction refers to the fulfillment of a student's needs and expectations from using blogs to meet their learning objectives.

Research Model and Hypotheses

Based on the foregoing discussion, the research model, which is depicted in Figure 1, is proposed. It shows the effects of the four independent factors on satisfaction with blog usage for learning. The formulated hypotheses are discussed next.

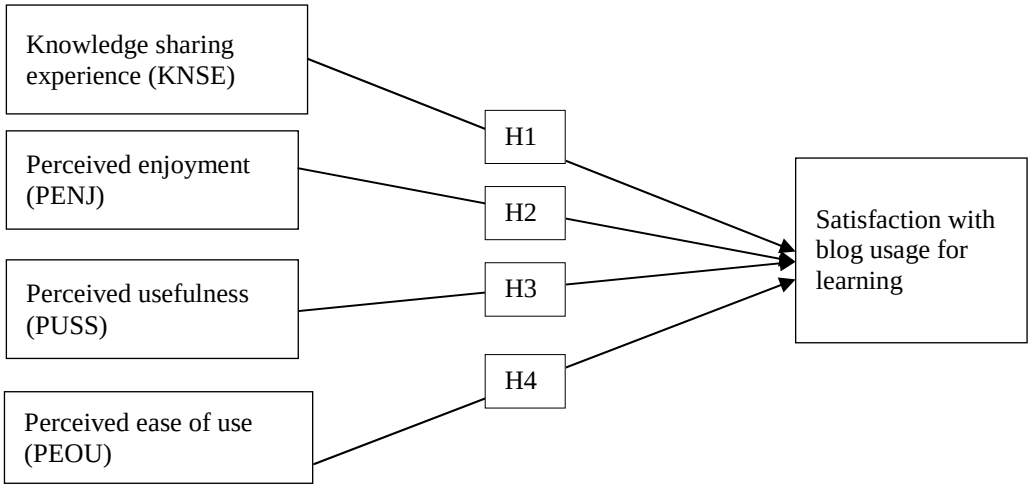

Fig. 1: Research model

The need to collaborate or share knowledge is among the reasons why students use blogging in higher educational settings (Ellison & Wu, 2008; Goldman et al. 2008; Betts & Glogoff, 2004; Lin et al., 2006; Zhang et al., 2014). Studies found that motivation to share knowledge is in fact a key determinant for participant's intention to continue to use blogs (Hsu & Lin, 2008). Others have also reported that students' ability to share knowledge with peers lead to enhanced learning outcomes and satisfaction (Jason, 2009; Ellison & Wu, 2008; Halic et al., 2010; Wang et al., 2014). Lu and Hsiao (2007) who used the construct of KNSE found it to be positively related to intention to continue updating blogs. It is expected that students with knowledge sharing experience will be satisfied with using blogging for learning. Therefore, it is predicted that:

H1: Knowledge sharing experience positively affects students' satisfaction with blog usage for learning.

It is been demonstrated that a technology that brings fun and pleasure to a user will intrinsically motivate the individual to adopt it (Koufaris, 2002; Lee, 2010; Wang et al., 2012a). By the same token, feelings of joy and pleasure matter in explaining user acceptance and usage behavior of web-based learning systems (Saadé et al., 2008). Lee (2012) and Punnoose (2012) who used PENJ to investigate students' motivation to use web-based learning tools found it to be a strong intrinsic motivator. Researchers such as Hsu and Lin (2008) and Lee (2010) revealed that PENJ is an important antecedent to blog usage. Similarly, Wang et al. (2012a) reported that PENJ significantly

influence blogging intention. Thus, it is expected that students who enjoy using blogs to learn will be satisfied with its use in learning environments. Therefore, it is predicted that:

H2: Perceived enjoyment positively affects students' satisfaction with blog usage for learning.

Several studies have demonstrated that the effectiveness of learning technologies is enhanced when learners appreciate the usefulness of such systems (Ferris, 2003; Chang & Wang, 2008). PUSS has a significant effect on user satisfaction in the mandatory technology adoption setting (Adamson & Shine, 2003; Tang et al., 2014). User learning satisfaction benefits from users' perceptions of the usefulness of adopted systems (Chang & Wang, 2008; Lee & Lee, 2008; Sørebø et al., 2009). Also, studies of blog usage have shown that PUSS is positively associated with the users' satisfaction with such technologies (Tang et al., 2014). Therefore, it is predicted that:

H3: Perceived usefulness positively affects students' satisfaction with blog usage for learning.

In general, PEOU relates to ease of access and navigation of technologies (Park, 2009; Agudo-Peregrina et al., 2014). Prior research has shown that technologies used in learning environments are readily accepted when users perceive such to be less complex or easy to use (Ifinedo, 2006; 2007; Chang & Wang, 2008; Lin, 2011; Merhi, 2015). Luehmann (2008) implied that the ease of use of blogs by teachers determined the extent to which they derive benefits from the technology. In fact, PEOU is among key factors that need to be in place in order to enhance bloggers' intentions to continue sharing knowledge through blogs (Hsu & Lin, 2008; Tajuddin et al., 2012).

H4: Perceived ease of use positively affects students' satisfaction with blog usage for learning.

Research Method

Background

A survey research design was used to investigate students' perceptions of and experiences with blog use in an undergraduate class of Management Information Systems (MIS) at a small university (i.e., average class size of 25) in a Canadian province of Nova Scotia. Each student taking the course was asked to create a blog on any concept taken from the course text. Each blog must be unique in its content; similar topics were not allowed to encourage varied blog entries. Students were asked to review the blogs of peers and provide comments/feedback. Students were instructed to respond to all received comments/feedback. Students were also advised to link online resources, i.e., videos and other graphic materials to buttress their points. To motivate students, the instructor informed students that the multiple-choice section of the class tests will include items taken from entries in students' blogs.

The assumption of the blogging task was that "learning occurs by means of reflection and engagement, enabled by the asynchronous nature of the blogs" (Halic et al., 2010, p. 208). The instructor read all the students' blogs. At end of the course, the instructor applied for and received research ethics board approval to survey students' perceptions of blog usage for learning in the MIS class. The questionnaire was self-administered and participation was voluntary. Students were instructed to provide candid opinions on the issues being investigated. Participation was high; the average response rate for the four classes sampled is 94%. The researcher taught the four MIS classes over a period of 18 months. The results of a Chi square test (significant at $p < 0.5$) did not indicate differences in students' opinions on the issues under investigation across the four classes.

Participants

As indicated, the participants in the study were all undergraduate students (n=108), i.e., 51 females and 57 males. They were mainly third and fourth year students. The participants were all Bachelor of

Business Administration (BBA) students. 84% of the participants were aged between 19 and 24 years. 81.5% of them (88) have 8 years and more experience using the Internet. 55.6% (60) were familiar with blogs before taking the course and 44.4% (48) were not. 32.4%, 59.3%, and 8.3% of the students used Blog.com, WordPress.com and other blogging sites, respectively for the assignment.

Instrument

To ensure content validity, the items used to operationalize the study's constructs were obtained from validated sources in the extant literature. Items used to represent knowledge sharing experience were adapted from Lu and Hsiao (2007). The scale items for perceived enjoyment were taken from Lai and Chen (2011) and Lee (2010). Measuring items for the constructs of perceived ease of use and usefulness were adapted from Davis (1989), Lin (2011), and Merhi (2015). Measures used to operationalize the construct of satisfaction with blog usage for learning came from Lee (2010) and Tang et al. (2014). All the questionnaire items used a seven-point Likert-type scale ranging from strongly disagree (1) to strongly agree (7). The Appendix shows the items used in the questionnaire.

Data Analysis

The partial least squares (PLS) technique was used for data analysis. PLS is similar to regression analysis; however, it allows the use of latent constructs (Ifinedo et al., 2010; Kock, 2014). PLS was selected for its suitability for hypothesis testing rather than theory confirmation (Hair et al., 2011). PLS is suitable for studies with small sample sizes like this one (Hair et al., 2011). WarpPLS 4.0 software (Kock, 2014) was used to conduct PLS analysis. Information on the measurement and structural models are provided next.

Measurement model

Information provided for the measurement includes internal consistency, convergent validity and discriminant validity. These assessments ensure that the study's measures are psychometrically sound (Ifinedo et al., 2010; Hair et al., 2011). Two tests of internal consistency of measures are composite reliability (COM) and Cronbach's alpha (CRA) values. Values no less than 0.70 are considered adequate for assessing the internal consistency of variables (Fornell & Larcker, 1981). Table 1 shows that CRA and COM are consistently above the threshold value of 0.70.

To assess convergent validity and discriminant validity, Fornell and Larcker (1981) recommended that the average variance extracted (AVE) should be at least 0.50. In addition, the square root of AVE should be larger than the correlations between that construct and all other constructs. Cross-loadings of the study's constructs were assessed as well; the results for this are adequate (excluded due to space consideration, but are available upon request). Table 1 shows the psychometric properties of the study's constructs.

Table 1: Composite reliability, Cronbach Alphas, AVEs, and inter-construct correlations

	COM	CRA	AVE	KNSE	PENJ	PEOU	PUSS	SATN
KNSE	0.834	0.698	0.631	**0.794**	0.225	0.304	0.202	0.25
PENJ	0.972	0.964	0.875	0.225	**0.935**	0.555	0.774	0.815
PEOU	0.913	0.870	0.727	0.304	0.555	**0.853**	0.577	0.593
PUSS	0.964	0.950	0.870	0.202	0.774	0.577	**0.933**	0.784
SATN	0.969	0.959	0.860	0.25	0.815	0.593	0.784	**0.927**

Note:
a) Cronbach's alpha (CRA); composite reliability (COM); average variance extracted (AVE); knowledge sharing experience (KNSE); perceived enjoyment (PENJ); satisfaction (SATN); perceived usefulness (PUSS); perceived ease of use (PEOU);
b) Off-diagonal elements are correlations among constructs;
c) The bold fonts in the leading diagonals are the square root of AVEs.

Structural model

Information provided in structural models includes the regression coefficient, i.e., beta (β) and their path significance, and the R^2 (coefficient of determination). The WarpPLS 4.0 results for the βs and the R^2 are shown in Figure 2. The independent constructs in the model explained 75% of the variation in the dependent variable: SATN.

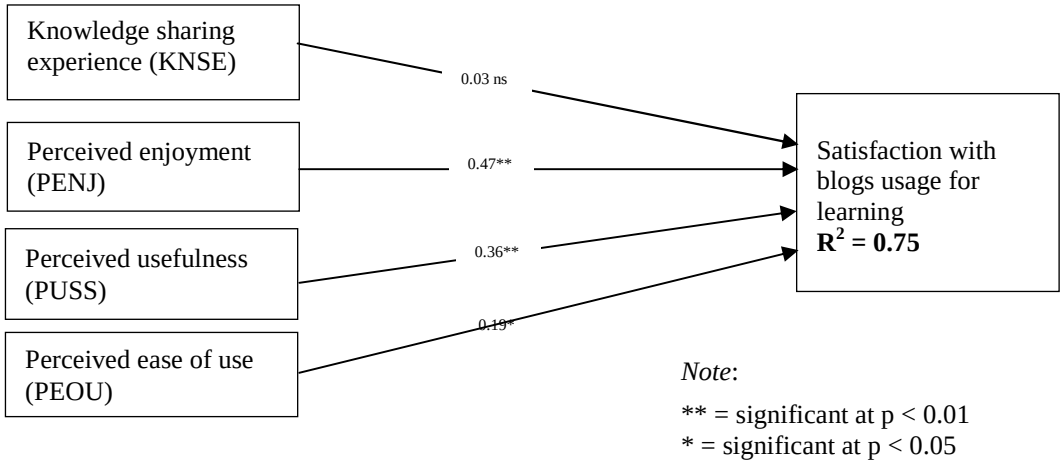

Fig. 2: Results for the proposed model

Three out of the four formulated hypotheses were supported significantly. H1 was unsupported as students' knowledge sharing experience did not have positive effect on their satisfaction with blog usage for learning MIS (β = 0.03, p = 0.37). Students' perceived enjoyment of blogs has a significant positive effect on their satisfaction with using the tool for learning MIS (β = 0.47, p < 0.01) to support H2. The data supported H3, which predicted that students' perceived usefulness of blogs would positively affect their satisfaction with blog usage for learning MIS (β = 0.36, p < 0.01). H4, which predicted a positive association between perceived ease of use of blogs and satisfaction with the tool for learning MIS was also supported by the data (β = 0.19, p < 0.01).

Discussion

Using constructs from relevant theoretical frameworks, this study examined the effects of perceived enjoyment, knowledge sharing experience, and technology acceptance factors on students' satisfaction with blog usage for learning in an MIS course. The proposed model was supported by empirical data, which showed that the selected four independent constructs explained a significant amount of variation in the dependent variable.

The result indicates that students' knowledge sharing experience has no meaningfully relationship with their satisfaction with using blogs to learn in the MIS class. This finding is inconsistent with the body of knowledge indicating that students' experience and ability to share knowledge on blogs positively impacted their learning outcomes and satisfaction (Lu & Hsiao, 2007; Ellison & Wu, 2008; Halic et al., 2010; Wang et al., 2014; Zhang et al., 2014). A plausible explanation for the lack of

support for this hypothesis might be related to the fact that students in the course were asked if they had experience with sharing interesting and valuable information on MIS concepts and topics. Given that MIS is novel to them, responses received might be reflecting their inability to comfortably share useful and relevant information on MIS concepts with peers. Perceptions may vary for other courses.

Perceived enjoyment in the context of this study's research conceptualization was found to be the *most* important factor that can improve students' satisfaction with blog usage for learning MIS. This result supports the viewpoint indicating that students while having fun with learning technologies do derive contentment and satisfaction from the use of such tools. The result is in agreement with the observations of others in the area (Wang et al., 2012a; Lee, 2010; Punnoose, 2012).

Students' satisfaction with blog usage for learning MIS increased with favorable perceptions of the usefulness of the tool. This result is in line with findings in previous studies, which showed that satisfaction with learning technologies, in general (Ferris, 2003; Lee & Lee, 2008; Sørebø et al., 2009) and blog learning satisfaction, in particular (Tang et al., 2014) are favorably impacted by users' perceptions of the usefulness of such technologies.

Implications for research

Discussions on the applicability and limitations of TAM abound. Given that students in this study were mandated to use (Adamson & Shine, 2003) blogs for the MIS assignment, the putative dependent variables of "usage/use" or "intention to use" employed in TAM studies were not considered. Rather, satisfaction was used instead because it signifies the importance of evaluating students' contentment with the tool, and not just its usage. To that end, by employing SATN, this study has helped to shed light on students' contentment with blog use for learning purposes. Other researchers may be enticed to further explore the applicability of SATN in understanding students' acceptance of blogging tools for learning purposes especially in situations where the use of such tools is mandatory. Employing TAM alone may not permit the emergence of useful insights in this regard.

The proposed research model integrated constructs such as perceived enjoyment with TAM's constructs to contribute to the literature on blog acceptance by university students. The study's research model was simplified for parsimony; other relevant relationships among the constructs could be investigated in future studies. For researchers, this study demonstrates that students' satisfaction with blog usage for learning a course such as MIS is impacted *mostly* by the intrinsic motivation of perceived enjoyment derived from using such tools. Others may investigate potential antecedents to this particular factor.

Implication for practice

To encourage effectiveness of blog use for learning, higher education management and instructors should endeavor to promote measures that encourage knowledge sharing skills among students. In particular, necessary tips and information should be provided to students where prior background knowledge and expertise may be required. When students acquire needed expertise and experience, their satisfaction with the technology will accordingly be enhanced.

Efforts to encourage students deriving fun and pleasurable experiences from blogging should be proactively promoted. For instance, students could be asked to link their blogs to online resources, e.g., videos and other materials (academic and otherwise) that support central ideas in the courses they take at school. Millennials tend to use online resources for pleasurable experiences (Wagner, 2013); learning can explore this opportunity as well. The instructor/researcher noticed that students in the MIS course used online resources, e.g. videos extensively for the assignment. Blogging engagements provide a good opportunity to link online fun resources to learning; this can be rewarding, and should be exploited.

University should encourage their learning centres and departments to continually train both instructors and students on the advantages of blog usage for learning and teaching. Training on how to utilize suitable blogging resources for learning and teaching should be encouraged to diminish anxiety among users. Training can improve perceptions of the usefulness and ease of use of blogging tools for learning purposes in higher education settings. In accordance with the tenets of the expectation–confirmation model, satisfaction with blog usage for learning and teaching ensues when users' understanding of the tool is favorably impacted.

Limitations and future research directions

A convenience sample, which was constrained by extraneous factors in the research location, was used for the study. Admittedly, a random sampling method removes selection bias. Non-response bias cannot be ruled out as the researchers did not compare the views of students who used blogs with those who did not. Common method bias exists in this study as both the independent and dependent variables were collected from a single source. As the research subjects who were undergraduate students came from one location, the findings reported in the study cannot be applied to all contexts, including post graduate students and working professionals.

The study's sample size is small; however, PLS places minimal requirement on sample sizes. In fact, the rule of thumb in the PLS literature suggests that a sample size of 40 - based on this study's research model - would have been adequate for the study (Hair et al., 2011). The sampled students' views of blogging were presented from the viewpoint of a single course: MIS. It is difficult to posit with certainty that the same results would be uncovered for other academic courses and disciplines. The noted limitations of this study suggest that caution must be exercised in generalizing the study's findings to all contexts.

Future research can expand this work by considering the following areas. First, efforts must be made to address the noted limitations in the research project. Second, the study's research model did not include all possible factors and constructs from the theoretical frameworks that guided this project; researchers could incorporate constructs such as attitude, confirmation, and intention to further enhance insight. Third, data should be collected from other settings (e.g., larger universities and other countries) to improve the generalizability of the results.

Conclusion

By using relevant constructs, this study aimed to educate on factors that positively affect satisfaction with blog usage for learning in higher learning environments. In this study, students' perceptions of enjoyment, ease of use, and usefulness of blogs were found to have significant effects on their satisfaction with blog usage for learning, in this instance MIS. This study adds to the discourse of students' usage of blogs for learning. It is hoped that information provided in the study will offer beneficial information to administrators and academics on how to enhance the effectiveness and satisfaction with blog usage for learning by university students.

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Appendix: Constructs and items used in the survey

Satisfaction with blog usage for learning
I am satisfied with blogs as learning tools.
I am satisfied with blogs as tools for creating and sharing knowledge.
I feel satisfied using blogs for my MIS course.
I am happy I used blogs for learning in my MIS class.
I am pleased with the experience of using blogs for my MIS course.
Knowledge sharing experience
I have experience in sharing valuable or interesting information with peers on a blog site.
I can share valuable or interesting information with peers on a blog site.
I have experience in sharing relevant information with peers on a blog site.
Perceived enjoyment
Using blogs to learn MIS is pleasurable
I had fun using blogs to learn MIS concepts and topics.
Using blogs to learn MIS is pleasant.
I found blogs to be interesting for my MIS course.
I found the use of blogs in my MIS course to be enjoyable.
Perceived usefulness
Using blogs for my MIS course improved my learning performance in that subject.
Using blogs for my MIS course increased my learning effectiveness in that subject.
Using blogs helped me learn MIS better.
Using blogs in my MIS course are helpful in preparing for quizzes/tests.
Perceived ease of use
My interaction with blogs to support my learning MIS is very clear.
Learning to use blogs is easy for me.
I found it easy to use blogs for learning concepts in MIS.
Overall, I believe that it is easy to use blogs to support my learning of MIS.

The Direct and Indirect Effect through Trust of Size Asymmetry on Alliance Performance: The Case of French SMEs

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Abstract

The purpose of this paper is to explore empirically the effects of size asymmetry between Small and Medium-sized Enterprises (SMEs) and Multinational Corporations (MNCs) on the performance of these companies in an alliance. We analysis the effects of this asymmetry on alliance performance, both direct effects and indirect ones related to trust from the perspective of ten French SMEs operating in the aircraft manufacturing industry. The previous findings suggest a negative relationship between size asymmetry and performance. Our empirical results reveal that size asymmetry between partners have different direct and indirect effects on performance. These effects depend on the specific dimension of performance under consideration. We observe for example that size asymmetry has no negative direct and indirect effects on financial performance and organizational learning of the SME. In addition, we find that there is a direct and significant negative influence of size asymmetry on relational performance.

Keywords: Asymmetry, Strategic alliances, SMEs, MNCs, Trust, Performance

Introduction

Present-day companies operate in a highly complex and dynamic industrial environment. Globalization and the resulting heightened competition explain the need for some companies to turn to strategic alliances as a way of improving their performance. For such companies, strategic alliances involve pooling their tangible and/or intangible resources to achieve their strategic objectives (Lorange and Roos, 1982).

In recent years the rise of strategic alliances has attracted the interest of many researchers in strategic management (Kogut, 1988; Doz, 1988; Nielsen, 2007; etc.). However, it should be noted that most studies focus on strategic alliances between multinational firms. Analyses of strategic alliances between organizations of different sizes, commonly referred to as "asymmetric alliances", whether in developed or developing countries, are still few and far between. One can count for example the works of (Chen et Chen, 2002; Beamish et Jung, 2005; Katila et al, 2008; Nieto and Santamaria, 2010; Diestre and Rajagopalan, 2012; etc.). Most authors showing an interest in asymmetric alliances argue that asymmetries between partners negatively influence the performance of such alliances (Sarkar et al, 2001; Pérez et al, 2012). Similarly, it has been argued that in an alliance where partners are fundamentally different, trust development can be a daunting task which may subsequently affect the results of the relationship (Bucklin and Sengupta, 1993; Doz, 1988). Consequently, the direct and indirect effect of asymmetries on performance is negative. However, several authors take a very different view. For example, Yeheskel et al. (2001) suggest that the dissimilarity in size enables parent organizations to enjoy each other's unique characteristics. In turn, Beamish and Jung (2005), and Dikmen and Cheriet (2014) found a nonsignificant effect of size asymmetry on alliance performance. Finally, there is a certain amount of theoretical controversy surrounding the effects of size asymmetry between partners on alliance results. These contrasting views make the generalization of empirical results more difficult.

The purpose of this contribution is to overcome these controversies by exploring through case studies the direct and indirect (trust) effects of size asymmetry on the alliance performance. Our empirical study covers asymmetric alliances engaged in by ten French SMEs operating in the aircraft manufacturing industry. Only few studies on strategic alliances focus on French SMEs in alliances with large multinational corporations (MNCs), and none of them has examined the effects of size asymmetry on the performance of such alliances. Furthermore, the aircraft industry presents a

number of asymmetric strategic alliances. In our contribution, performance is addressed from the perspective of one of the partners, the SME.

This paper is organized as follows. First we present a literature review on both a direct and trust-mediated relationship between size asymmetry and performance. Next, we describe the method that we adopted. We then present our results and discussion. The results reported here are a set of propositions challenging traditional views on the relationship between size asymmetry and the results of asymmetric alliances. The article concludes by outlining the implications, limitations and areas for future research.

Background

The concept of asymmetric alliances is one of the most controversial in the field of strategic management research. Indeed, there is no single accepted framework in terms of either the definition of asymmetric alliances or their main characteristics. Generally, asymmetric alliances are referred to cooperative arrangements between MNCs and SMEs aimed at pursuing mutual strategic objectives. Thus the asymmetry is based *a priori* on the size differential. This interpretation of asymmetric alliances is relevant (Pérez et al. 2012) because size asymmetry is the source of other differences between partners (i.e: geographical origin of the partners; level of development; experience in cooperation; growth rate; organizational culture; specificity of the assets exchanged; resources and competencies; absorption and learning abilities; innovation capacity).

Extant research in sociology, marketing and inter-organizational theory have long since stressed the fact that dissimilarities between social actors can make pair interactions difficult (Parkhe 1991). Similarity appears to support attraction between parties, which in turn promotes the development of positive attitudes and leads to favorable results. For example, among research which has tried to identify the effects of size asymmetry on the partnership's results, most of them have maintained that differences resulting from size asymmetry negatively affect alliance performance. Indeed, size asymmetry usually results in an imbalance in the management structure (Yan and Gray, 1994). It also results in a lack of a strategic "fit" between parents (strategic and organizational incompatibilities) which may affect both the quality of the relationship and the partners' satisfaction (Geringer and Hebert 1991; Hill and Hellriegel, 1994).

In a transaction cost approach, strategic alliances which are asymmetrical in size appear to involve high governance and coordination costs (Doz 1988). In order to work together effectively, partners generally commit resources to coordinate their internal procedures and policies. Therefore, according to this perspective, the asymmetry in the partners' size has a negative influence on the performance of the alliance (Yeheskel et al, 2001). In addition, it has been noted that size asymmetry may involve a one-way learning process to the advantage of the dominant partner (Inkpen and Beamish, 1997). This increases the likelihood of relationship instability and can lead to the dissolution of the alliance (Park and Ungson, 1997).

Besides the direct effects of size asymmetry on performance, the literature has shown that this dissimilarity can indirectly affect performance through the trust variable. Trust can be conceptualized as a generalized expectation regarding an exchange partner's reliability and integrity (Morgan and Hunt, 1994). Partners who trust each other generate more profits, better serve their customers and are more adaptable (Kumar 1996). According to Bierly III and Gallagher (2007), it seems that size asymmetry negatively affects trust between the partners to the alliance. For these authors, *"The firm will have more confidence in its ability to predict the behaviour of its partner and understand its routinised regimes if they are more similar. In the same way, two firms that are of similar size are more likely to trust each other because there is less threat of the larger firm using its power to take advantage of the smaller partner"* (p.141). Therefore, size similarity leads to a convergence which facilitates mutual understanding and discourages the emergence of competitive trends, strategic conflicts and hidden agendas, all of which are detrimental to the mutual relationship and trust (Doz 1988).

Taking this into account, one may assume an indirect relationship between size asymmetry and performance due to the relational capital between partners.

Research Methodology

Empirical Background and Justification

Our empirical investigation focuses on ten cases in which French SMEs enter into non-equity asymmetric alliances in the aircraft manufacturing industry. These alliances are typically contractual and do not involve the creation of a separate legal entity for the coordination and management of the project. Indeed, in this paper, we can delineate the partnerships essentially into functional contractual alliances (i.e. joint project for technological development, technology transfer relationship, etc.) and commercial contractual alliances namely original equipment manufacturing contract (Chen and Chen, 2002).

The choice of aircraft manufacturing as a research field is justified firstly by the fact that the aircraft manufacturing industry is a high technology sector characterized by a number of alliances between innovative SMEs and large industrial groups. According to the annual report by GIFAS (*Groupement des Industries Françaises Aéronautiques et Spatiales*), in 2013 the R&D expenditure of the aerospace industry represented 14.7% of its total turnover. Secondly, in the aircraft industry, the pace of innovation in SMEs can be considered as fundamental for the big players (aircraft and components manufacturers) given the role that SMEs play in the production and maintenance of their products. Indeed, the components of aircraft manufactured by MNCs are produced by their partners, including numerous contract manufacturing SMEs. Finally, from a theoretical point of view, the choice of SMEs as a study object is justified by the near absence of research analyzing the performance of strategic alliances from the SME's perspective.

Table 1: describes the ten asymmetric alliances studied in this research. They are all long-standing partnerships and are in their operational phase.

Table 1: Asymmetric Alliances Studied

	Numbers of Employees in the SME	**Numbers of Employees in the MNC**	**Purpose of the Asymmetric Alliance**
Case 1	**44**	More than 20000	Joint project for technological development + commercial relationship (original equipment manufacturing contracts).
Case 2	**30**	More than 20000	Commercial relationship (original equipment manufacturing contracts).
Case 3	**35**	More than 20000	Commercial relationship (original equipment manufacturing contracts).
Case 4	**25**	More than 20000	Joint research programs + Commercial relationship (original equipment manufacturing contracts).
Case 5	**86**	More than 20000	Commercial relationship (original equipment manufacturing contracts) + Technology transfer relationship + Joint R&D project.
Case 6	**138**	More than 20000	Commercial relationship (original equipment manufacturing contracts).
Case 7	**130**	More than 20000	Commercial relationship (original equipment manufacturing contracts)
Case 8	**250**	More than 20000	Commercial relationship (original equipment manufacturing contracts) + Joint product development project.

Case 9	**40**	More than 20000	Commercial relationship (manufacturing) + Research project
Case 10	**100**	More than 20000	Commercial relationship (Maintenance + repair)

We consider that the alliance partners are asymmetric in size when one partner is an SME and the other one is an MNC. Size is appraised in terms of number of employees in the company (Pérez et al, 2012). Companies are considered as SMEs when their headcount is between 20 and 250, in accordance with the European Commission definition. MNCs are enterprises with operations in different countries and with a workforce of more than 500.

In this research we adopt a multidimensional approach to performance analysis. Indeed, as our goal is to understand the phenomenon of asymmetric alliances in its entirety, it seems necessary to evaluate performance by simultaneously considering subjective and objective criteria. We therefore integrate three dimensions of performance into our performance analysis framework (relational, financial and organizational learning). Each dimension of performance addressed in this research is defined by means of subjective assessments by the SMEs involved. In this research we do not address the differences in perceptions that may exist between partners. As pointed out by Geringer and Hebert (1991), the collection of perceptions of only one partner may be sufficient to obtain reliable and efficient data.

Data Collection and Processing

The qualitative method of a multiple case study (Yin, 1984) was chosen for this research. This methodological choice was guided by our goal of achieving a more in-depth understanding of asymmetric strategic alliances phenomenon and the factors affecting their performance. This methodological choice is also guided by the fact that we are working on a sensitive subject and focusing on an industry with a significant culture of secrecy. It is very difficult to get answers from questionnaires in this sector. In our opinion, it is easier to get answers from open interviews, as we did.

With this in mind, for each SME in our sample we conducted in-depth semistructured interviews, each lasting about 1 hour to 1 hour and a half. Each respondent is closely involved in the conduct of their company's asymmetric alliances (Director General, CEO, Commercial director, Director of Operations). Each of our interviews resulted in a thematic coding according to items identified in our theoretical model and transcripts (King 1998). Further, the qualitative analysis was manually conducted.
In addition to data derived from our semi-structured interviews, we used secondary data in order to complete our analysis (public data, studies conducted by recognized organizations, and trade press articles). The use of multiple evidence sources helps to develop a case study (Eisenhardt, 1989).

Finally, we performed the relevant organization and reduction of all data collected in order to compare and understand similarities and differences between the ten asymmetric alliances studied, along with their effects on performance.

Results and Discussion

Direct Relationship Between Size Asymmetry and Alliance Performance

Prior research have suggested that the asymmetry of size impacts negatively the performance of asymmetric alliances (Parkhe, 1991; Inkpen and Beamish, 1997; Yeheskel et al, 2001). In this section, we describe the observations that support or contradict this theoretical assertion. First, we observe, considering our results, that the direct effects of size asymmetry on the results of alliances may be assessed in terms of financial performance, organizational learning and relational performance.

Financial performance. In all cases studied (ten out of ten), we observed an increase in turnover and market share for the SME despite the existence of such size asymmetry between partners. This point is illustrated by the following comments from our respondents.

> *"Despite any differences, the relationship generates market share ... "*, Director General of the SME in Case 1;
> *"There has been a significant increase in our sales and market share. For example in 2011 our level of growth was 325%"*, Director General of the SME in Case 2;
> *"There has clearly been an increase in our turnover and market share. Our growth last year stemmed from the fact that we signed new contracts, but it is also related to the fact that our current client is satisfied with what we have provided, and they recommended us"*, Director General of the SME in Case 3;
> *"When we are involved in a technology transfer alliance with X for all airports, there are royalties; and in terms of turnover, it's very significant"*, Commercial Director of the SME in Case 5.

Organizational learning. The majority of SMEs surveyed (9 cases out of 10) observed an increase in their organizational learning, in terms of both development of their knowledge base and transfer of the MNC's managerial competencies to the SME.

Development of their knowledge base: asymmetric alliances have enabled the SMEs to improve their technical and innovation skills (i.e. improvement in manufacturing processes, acquisition of new technological expertise, product development). Similarly, through these alliances, the SMEs showed a development in their experience in management of asymmetric alliances.

> "*We are acquiring knowledge and new technological expertise. We are also learning manufacturing and product development processes, management skills,..."*, Director of Operations of the SME in Case 6.
> "*In these relationships you will learn a lot. It is not necessarily a transfer of knowledge. They encourage us to innovate further. Their needs drive us to think and innovate"*, Director General of the SME in Case 4.

Transfer of MNCs' managerial competencies to SMEs: in their asymmetric alliances, SMEs have benefited from MNCs in terms of orientation and competencies in organizational and management processes. This has enabled them to become more structured by improving and formalizing their internal management processes.

> "*We very quickly modeled our process on theirs …"*, CEO of the SME in Case 9.
> "*We are growing organizationally by working with them. We can copy their organizational models, yes, absolutely"*, Commercial Director of the SME in Case 10.

The data form this research indicate that despite size asymmetry between partners, asymmetric alliances seem to be effective relationships generating positive quantitative results. These positive results are explained by the existence of complementarities between partners' resources and competences. The combination of a small company's resources with those of a larger one's opens up opportunities for synergies (Harrigan, 1988; Parkhe, 1991; Sarkar et al, 2001) that improve both their economic efficiency (increase in turnover and market share) and their strategic private benefits (organizational learning). As highlighted by the respondent in Case 4, "*On one hand, without them we would not have the money and would have to close. It's that simple ... On the other hand, they come to us for our expertise because it is not necessarily their job, their core business ... There is no choice*". Once pooled, these resources and competencies produce important outcomes for both partners.

Ultimately, asymmetry in term of size has no negative effect, either on financial performance or on organizational learning.

This result corroborates the findings of Beamish and Jung (2005), and Dikmen and Cheriet (2014), who point to the absence of a relationship between asymmetry of size and alliance performance. It should however be noted that it is difficult to draw a comparison with previous studies since we used different proxies to define size asymmetry. Furthermore, our results do not confirm the negative link between size asymmetry and organizational learning as identified by Inkpen and Beamish (1997).
We suggest from our observations that,

Proposition 1: the asymmetry of size does not negatevily affect the financial performance of the asymmetric alliance.

Proposition 2: There is a positive relationship between the asymmetry of size and organizational learning.

Relational performance. Our investigation reveals the existence of relational difficulties between the SMEs and MNCs involved in asymmetric alliances (9 cases out of 10). The analysis of Table 2 highlights that the reason for these difficulties is mainly the uneven balance of power between MNCs and SMEs.

Talking about the asymmetric relationships of his SME, the Commercial Director in Case 10 argued that "*... there is a power relationship that is going to be too visible and much more uneven .... We will be much more at their behest ... they are trying to show their full power. Actually, they are not trying, they are showing it."*

Given their size, MNCs tend to establish a relationship of dominance over their smaller and weaker partners. This results in a certain directiveness by the MNCs during the conduct phase. The SMEs then feel exploited and perceive the MNCs' behavior as opportunistic and lacking in respect and trust. All these factors create a sense of frustration among the SMEs and make the relationship more confrontational for them, as reflected by these comments:

"*They call it partnership, but there is no partnership agreement. There are agreements between an ogre who crushes an ant…"*, Director General of the SME in Case 2;

"We are in a master-slave relationship ... the lords are the MNCs and the beggars are the subcontractors; there is a rather condescending relationship", Director General of the SME in Case 7.

Table 2: Effects of Size Asymmetry on Relational Performance

Cases	Consequences of Size Asymmetry	Verbatim Examples
1	Misunderstanding of mutual organizational cultures.	"Communication is difficult with them due to their organization..." Director General of the SME.
2	The uneven balance of power; Lower level of confidence among MNCs and SMEs; Lack of consideration of MNCs relative to the SMEs.	"They renew the contract as many times as they want, all the clauses are for them and are only made to defend their interests," Director General of the SME.
3	Lack of consideration of MNCs relative to the SMEs; Lower level of confidence among MNCs and SMEs.	"MNCs do not trust the small enterprises because they are risky, they are small…" Director General of the SME.
4	No consequences because of: SME's experience in these projects and adaptation of their management processes to those of the MNC.	"We are used to dealing with them ... our relationships with them are our sole activities..." Director General of the SME.
5	Misunderstanding of mutual	"... our responsiveness is different from

	organizational cultures; The uneven balance of power; Lack of consideration of MNCs relative to the SMEs.	theirs ... there can be a lack of understanding ... from the large group to us" Commercial Director. "We wish the relationship is a Win Win relationship, but not a master-slave relationship...", Commercial Director of the SME.
6	Lack of consideration of MNCs relative to the SMEs.	"One of the great difficulties we have with them is to be taken seriously " Operations Director of the SME.
7	The uneven balance of power; Misunderstanding of mutual organizational cultures; Lack of consideration of MNCs relative to the SMEs.	"We are in a master-slave relationship ..." Director General of the SME. "They would like to have a mirror organization of theirs ... They do not realize that if they had a mirror organization, they would not enjoy many benefits with us ..." Director General of the SME
8	The uneven balance of power	"They are clearly in a strong position…because we have competitors..." Director General of the SME.
9	The uneven balance of power; Lack of consideration of MNCs relative to the SMEs.	"MNCs like X behave badly with us ... they loot us more than they help us growing up" CEO of the SME.
10	The uneven balance of power; Lack of consideration of MNCs relative to the SMEs; Misunderstanding of mutual organizational cultures.	"... there is a power relationship that is going to be too visible and much more uneven ...." Commercial Director. "There are difficulties related to our differences ... The MNC's documentary process is time and energy consuming..." Commercial Director.

Additionally, it is clear from our results that size asymmetry often results both in an imbalance in terms of the partners' management structure and in organizational incompatibilities between them that can lead to mutual misunderstandings (Park and Ungson, 1997; Johnson et al, 1996). These consequences in turn negatively affect the quality of the relationship (Doz 1988; Yan and Gray 1994; Geringer and Hebert, 1991; Hill and Hellriegel, 1994). Finally, it can be argued that size asymmetry resulting in organizational culture asymmetry will therefore have the same negative effects on relational performance.

Finally, our results allow us to establish a direct and significant negative relationship between size asymmetry and relational performance. In formal terms,

Proposition 3: There is a negative relationship between size asymmetry and relational performance.

Indirect Relationship Between Asymmetries and Alliance Performance

Literature emphasizes the existence of a negative relationship between size asymmetry and the development of trust between the alliance partners. Responses relative to that assertion are categorized into two distinct groups, the cases that corroborate previous studies and those that do not.

For the first group (5 cases out of 10 with a dual response from Case 9), size asymmetry negatively influences the development of trust between an SME and a multinational involved in an asymmetric alliance. Firstly because of the power relationship established by the multinational relative to the SME. This result corroborates the findings of Bierly III and Gallagher (2007) which sustains that in case of size asymmetry, the larger firm can use its power to take advantage of the smaller partner. Secondly, because of the SME's lack of credibility. Due to its size, less substantial resources and

simpler organization structure, the SME is seen as a risky organization and seems less credible to MNCs. The perception of this lack of credibility negatively affects the development of trust between partners.

For the second group (6 cases out of 10 with a dual response for case 9), size asymmetry has no negative impact, either on trust between partners or on the development of that trust. Indeed, despite relational difficulties arising from size asymmetry, trust in asymmetric alliances can continue to develop. This will happen if, on the one hand, the SME respects its commitments and satisfies the needs of the multinational, and on the other hand if both partners seek to exploit complementarities arising from their different resources and make efforts to understand each other's organization. This result does not support prior research that suppose negative relationship between size asymmetry and trust (Doz, 1988; Bierly III and Gallagher, 2007).

Overall, we do not observe any significant indirect effects of asymmetry in size on the overall performance of asymmetric alliances. Firstly, because this asymmetry affects trust between partners to a lesser extent. The relational performance is therefore indirectly affected only slightly. Secondly, because partners' financial performance and organizational learning remain positive even in the event of a negative relationship between size asymmetry and trust.

Given these results, we propose these relationship,

Proposition 4: There are no significant effects of asymmetry in size on trust between partners.
Proposition 5: There are no significant indirect effects of asymmetry in size on the overall performance of asymmetric alliances.

Conclusion, Implications and Limitations

The main objective of this contribution was to study the effects of size asymmetry between SMEs and MNCs on the performance of their alliances. The findings are a set of propositions which allows to study the direct and indirect effects through trust of asymmetries in terms of size on the performance of asymmetric alliances. Two main results arise from this study. First, size asymmetry can cause relationship problems between partners. However, despite this asymmetry between partners, alliances generate positive results in terms of financial performance and organizational learning due to the complementarity between the resources of the SMEs and the multinationals involved.

This research has several theoretical and managerial implications. From a theoretical perspective, our results indicate the importance of the partners' characteristics and the effects of these characteristics on trust (relational capital) in explaining the performance of an asymmetric alliance. The direct and indirect effects of size asymmetry between partners on alliance results remain largely underexplored from a theoretical viewpoint. In addition, to our knowledge there is no research on asymmetric alliances that analyzes the relationship between size asymmetry and performance by adopting a multidimensional approach to performance. Most prior studies that address this relationship analyze performance in terms of survival (Harrigan, 1988; Kogut, 1988, Beamish and Jung, 2005), longevity (Parkhe, 1991) and effectiveness (Yeheskel et al, 2001). Our results highlight the importance of considering a multidimensional approach to performance in order to obtain a global vision of the consequencces of asymmetric partnerships.

From a managerial perspective, our results may provide SMEs and MNCs involved in asymmetric alliances with certain means to manage and cope with the relational difficulties they face. It is clear from this research that trust is one of the key success factors of asymmetric alliances. It promotes cooperation and reduces the risk of opportunistic behavior and conflict between partners. When partners trust each other, they generate more profit and serve their customers better (Kumar 1996). However, previous research has confirmed the existence of a negative relationship between asymmetry in size and trust building. Our results emphasize that despite this asymmetry between partners, trust can be developed and can continue to grow if the following conditions are respected:

the SME meets the commitments made towards its bigger partner; the partners' aims are to take advantage of complementarities arising from their different resources and competences; and finally the partners understand each others' procedures and mutually adapt their different organizations. SMEs should consider these factors before engaging in asymmetric alliances and should continue to do so during the conduct of these relationships.

While this study makes significant contributions to the literature on asymmetric alliances, its potential limitations should be highlighted. First, we collected our data from only one side of the alliance (the SMEs). The extent to which the perceptions of all partners would have converged is unknown. Next, our sample size is relatively small, as our empirical analysis was limited to ten asymmetric alliances, although they were carefully selected within the aircraft manufacturing industry in France. Thus a generalization of our results to other cases and other industries should not be carried out without due care. In this perspective, future avenues of research could use this model on larger samples in different industries and diverse geographical areas.

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« Du Gouvernement d'entreprise a la RSE : Quels Incidents sur le Processus Décisionnel ? Cas de la SA au Maroc »

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Abstract

Aujourd'hui, si la plupart admettent la convergence des deux notions gouvernement d'entreprise et RSE, on se pose toujours la question de savoir si la RSE est une question de gouvernance et quel est le rôle exact des administrateurs à l'égard de cette notion ?

Nous avons essayé à travers ce modeste travail de répondre à ces questions à travers l'analyse des incidences des deux notions sur le processus décisionnel.

Résultat de l'analyse : la RSE est une question de gouvernance, c'est-à-dire qu'elle doit être considérée comme une question organisationnelle stratégique qui requiert une surveillance étroite de la part du conseil d'administration.

Partant de là, la tâche des administrateurs ne cesse de devenir plus exigeante. Chacune des deux notions les conduit à plus de vigilance et de responsabilisation.

Mots clés : gouvernement d'entreprise ; RSE ; société anonyme ;conseil d'administration.

Introduction

L'expression gouvernement d'entreprise ou gouvernance d'entreprise est la traduction du terme anglo-saxon de Corporate Governance. C'est une expression à laquelle plusieurs tentatives de définitions ont été données.

Pour Hyafil par exemple, le gouvernement d'entreprise recouvre l'ensemble des dispositions qui permettent de s'assurer : 1) que les objectifs poursuivis par les dirigeants sont légitimes 2) et que les moyens mis en œuvre pour atteindre ces objectifs sont adaptés (Hyafil 1997).

Pour Baudry, le gouvernement d'entreprise est « l'ensemble des moyens par lesquels les fournisseurs de capitaux de la firme s'assurent de leur rentabilité » (Baudry 2003).

Quant à Charreaux, il définit le gouvernement d'entreprise comme étant « l'ensemble des mécanismes qui ont pour effet de délimiter les pouvoirs et d'influencer les décisions des dirigeants, autrement dit qui gouvernent leur conduite et délimitent leur pouvoir discrétionnaire » (Charreau 1997).

C'est à la suite des scandales de gouvernance dans les années 1990/2000 qu'est né le concept de gouvernement d'entreprise. La chute d'Enron, de Worldcom ont révélé ce que l'exercice abusif du pouvoir au sein d'une entreprise pouvait causer comme dégât (Finet 2005).

En réaction donc à la situation, la gouvernance d'entreprise est venue protéger les intérêts des actionnaires en minimisant et contrôlant les conflits d'intérêts engendrés par la délégation du pouvoir des actionnaires aux gestionnaires de l'entreprise (conseil d'administration et direction générale).

Mais, dans la continuité de cet objectif, il s'est avéré nécessaire de concilier les exigences des parties prenantes (salariés, fournisseurs, sous-traitants, consommateurs, citoyens…) avec les exigences financières des actionnaires.

C'est dans ce cadre que s'inscrit la RSE. Il s'agit d'un concept dans lequel les entreprises intègrent volontairement les préoccupations sociales, environnementales et économiques dans leurs activités commerciales

et dans leurs interactions avec les parties prenantes (Livre vert 2001). C'est la contribution des entreprises aux enjeux du développement durable .

Partant de là, les deux concepts (GE et RSE) entretiennent des rapports étroits. Ce lien n'est plus à démontrer. Plusieurs recherches ont confirmé cette parenté. Par contre, la question qui se pose est relative aux véritables incidents des deux notions sur le processus décisionnel, surtout si l'on prend en considération le fait que le GE fait référence au hard law parce que prévu par des règles juridiques dont la violation entraine une sanction, alors que les questions de la RSE relèvent du soft law répondant à des engagements volontaires (Cuzacq Nicolas 2012).

Autrement dit, notre problématique, qui se limite à la société anonyme marocaine, se scinde en deux questions :

- Quelle est la situation du conseil d'administration aux prises avec la notion de gouvernement d'entreprise ?
- Quel est le rôle des administrateurs relativement à la notion de RSE ? leur fonction est-elle plus exigeante ? Ne va-t-on pas vers une instauration légale de la RSE ?

Notre analyse part du constat que les implications du GE et de RSE sont mal comprises, parfois même ignorées par les entreprises tant en termes de risques que de création de valeur potentielle. Nous essaierons donc à travers ce modeste travail de rassembler les éléments épars formés par l'ensemble des exigences en matière de GE et de RSE.

Dans une première partie, nous présenterons la nouvelle architecture du conseil d'administration aux prises avec la notion de gouvernement d'entreprise et les différentes missions et responsabilités qui en découlent.

Dans une deuxième partie, nous mettrons l'accent sur les exigences supplémentaires découlant de la RSE, et qui sont dictées par la pression des parties prenantes et par l'intervention de plus en plus grande du législateur.

Première partie : Le conseil d'administration aux prises avec la notion de gouvernement d'entreprise

La société anonyme au Maroc a été pendant longtemps régie par le dahir de 1922 qui a rendu applicable dans notre pays la loi française de 1867. Cette loi est devenue archaique, anachronique et totalement décalée par rapport aux réalités politiques, économiques et sociales de notre pays. Le changement est alors opéré par la loi 17-95 modifiée et complétée par la loi 20-05.

Cette dernière a introduit des innovations importantes au niveau du conseil d'administration en rapport avec le concept de gouvernement d'entreprise. En effet, à côté d'une nouvelle détermination des fonctions et missions de l'organe de gouvernance, elle a introduit la faculté de dissociation entre les fonctions de président du conseil d'administration et celles de directeur général.

Parag 1 : Clarification des fonctions et missions de l'organe de gouvernance

Aujourd'hui, le conseil d'administration a un large pouvoir. Ce dernier impose une indépendance de l'organe de gouvernance tant vis-à-vis de la direction de l'entreprise que de ses actionnaires.

A- Le conseil d'administration a un large pouvoir :

Jusqu'à la réforme introduite par la loi 20-05, les missions et pouvoirs des dirigeants des SA et du conseil d'administration se confondaient. La duplication de la définition des pouvoirs résultait des formulations des articles 69 déterminant les pouvoirs du conseil d'administration et 74 pour le président du conseil d'administration tous deux disposant des pouvoirs les plus étendus pour agir en toute circonstance au nom de la société.

Aujourd'hui, les missions du conseil d'administration sont plus claires. En effet, l'article 69 de la loi 17-95 tel qu'il a été modifié par la loi 20-05 dispose que :

« Le conseil d'administration détermine les orientations de l'activité de la société et veille à leur mise en œuvre. Sous réserve des pouvoirs expressément attribués aux assemblées d'actionnaires et dans la limite de l'objet social, il se saisit de toute question intéressant la bonne marche de la société et règle par ses délibérations les affaires qui la concernent. Le conseil d'administration procède aux contrôles et vérifications qu'il juge opportuns ».

Partant de cet article, la loi confère au conseil d'administration trois missions :

-Il détermine les orientations de l'activité de la société et veille à sa mise en œuvre. Il se voit donc reconnaitre le droit de participer à l'élaboration de la stratégie de la société, ses plans d'actions, sa politique de risques, ses budgets annuels et programmes d'activités, et de s'assurer qu'ils seront suivis par la direction générale.

-Il se saisit de toute question intéressant la bonne marche de la société et règle par ses délibérations les affaires qui la concernent. Le conseil d'administration a donc le devoir de s'intéresser de prés à l'activité quotidienne de l'entreprise.

Dans cet axe, l'organe de gouvernance sera chargé de recruter les principaux dirigeants, de déterminer leurs rémunérations et veiller à ce qu'elles soient adaptées et transparentes en vue d'être admissibles et acceptées par les actionnaires, suivre leurs activités et leurs performances et , le cas échéant, les remplacer et préparer les plans de succession.

L'organe de gouvernance s'occupe aussi de surveiller et de gérer les conflits d'intérêt entre la direction, les membres du conseil et les actionnaires, y compris les abus des biens sociaux ou les abus commis dans le cadre des conventions réglementées.

-Il procède aux contrôles et vérifications qu'il juge opportuns. Dans ce cadre, le conseil d'administration est tenu de vérifier la transparence de la gestion, les performances de l'entreprise, l'intégrité de ses systèmes de comptabilité et de communication financière ou non financière.

De même, il lui revient de vérifier si les principes comptables sont respectés, et si les dispositifs de contrôle interne et de maîtrise des risques existants sont adéquats. L'organe de gouvernance se charge aussi de l'organisation de l'audit externe et les relations avec les auditeurs externes.

Le conseil d'administration surveille également le processus de diffusion de l'information et de communication de l'entreprise, notamment en ce qui concerne : les obligations légales et réglementaires en matière d'information ; les orientations stratégiques ; la politique sociale ; la politique d'endettement et de dividendes ; les conventions réglementées avec notamment les principaux dirigeants et les holdings ; la rémunération des dirigeants.

Pour l'accomplissement de ces différentes tâches, le conseil d'administration a le droit de s'informer par lui-même et peut demander à tout moment, s'il l'estime nécessaire, des informations complémentaires même en dehors des conseils. Ce droit à l'information du conseil porte non seulement sur les points prévus à l'ordre du jour mais aussi sur l'ensemble des informations permettant d'apprécier la situation de l'entreprise.

B- L'indépendance du conseil d'administration

Comme il a déjà été signalé, la tâche principale de l'organe de gouvernance est d'évaluer les performances des dirigeants et de prévenir les conflits d'intérêt. Or, la réalisation de cet objectif nécessite une indépendance de l'organe de gouvernance vis-à-vis de la direction de l'entreprise.

Cette indépendance s'apprécie au niveau de la composition du conseil d'administration. En effet, une place doit être accordée aux administrateurs non exécutifs et aux comités spécialisés.

Un administrateur non exécutif est celui qui ne détient pas de fonctions exécutives ou de management dans l'entreprise. Il est considéré comme indépendant, c'est-à-dire qu'il est un membre libre d'intérêt contribuant par sa compétence et sa liberté de jugement à la capacité du conseil à exercer ses missions. Autrement dit, pour pouvoir être qualifié d'indépendant, le membre du conseil ne doit pas se trouver dans une situation susceptible d'altérer son indépendance de jugement ou de le placer dans une situation de conflit d'intérêts réel ou potentiel.

Cette notion est la transposition du modèle anglo-saxon, celui de l'independent non executive director. Elle est apparue avec la critique du contrôle exercé par le conseil. Elle est la marque d'une méfiance à l'égard des administrateurs dirigeants qui perdent facilement l'idée de démocratisation de la société au profit de ses actionnaires.

Partant de là, les administrateurs non dirigeants ont une mission de contrôle qui consiste à s'assurer que le management se conformait à certains standards de conduite et que la comptabilité est régulièrement tenue. Ils doivent porter un regard objectif sur l'entreprise, contribuer à enrichir la réflexion et la prise de décision grâce en

particulier à leur assiduité, à leur profession et à leur indépendance. A cet effet, l'entreprise doit mettre à leur disposition la formation, l'information et les moyens nécessaires à l'exercice efficace de leur mission.

Ces administrateurs non dirigeants peuvent constituer entre eux des comités spécialisés. Sur ce point, le code de bonne gouvernance recommande de créer au moins deux comités différents à savoir un comité d'audit et un comité de nomination et de rémunération des dirigeants. L'organe de gouvernance jugera de l'opportunité de s'adjoindre d'autres comités (risques, investissement..).L'expérience montre que le rôle de ces comités est essentiel puisqu'ils traitent indépendamment du conseil d'administration certains aspects de l'administration de la société comme la rémunération des dirigeants, la réalisation d'audit, l'aspect stratégique, les questions de nomination des administrateurs et dirigeants.

Toujours dans le souci d'assurer cette indépendance, le code de bonne gouvernance déconseille les mandats réciproques, pratique selon laquelle les dirigeants d'une société sont les membres de l'organe de gouvernance d'une autre société et réciproquement ; cette pratique fait que les administrateurs ne sont pas incités à pratiquer un vrai contrôle dans la société afin de ne pas être symétriquement contrôlés dans la société qu'ils dirigent.

Il est par ailleurs recommandé d'éviter un cumul de mandats de nature à altérer l'exercice de la fonction de membre de l'organe de gouvernance dans les meilleures conditions.

Parag 2 : Choix de maintenir le cumul des fonctions de président et de directeur général ou de les dissocier

La loi 20-05 a introduit le choix entre deux formules : soit la dissociation des fonctions de président du conseil d'administration et de directeur général, soit le cumul des deux fonctions sous le titre de président directeur général.

Le choix du conseil d'administration sera porté à la connaissance des actionnaires lors de la prochaine assemblée générale et fera l'objet des formalités de dépôt, de publicité et d'inscription au registre du commerce dans les conditions prévues par la loi.

A-Dissociation des fonctions

La dissociation des fonctions de président du conseil d'administration et de directeur général constitue sans aucun doute l'un des aspects majeurs de la réforme entreprise par le législateur marocain. Elle reflète la grande influence des thèses d'origine anglo-américaine de gouvernement d'entreprise visant une plus grande responsabilisation des dirigeants des sociétés anonymes et un meilleur équilibre des pouvoirs entre le conseil d'administration doté d'un président, et le directeur général.

Conformément à la loi20-05, le président du conseil d'administration représente le conseil d'administration. Il organise et dirige les travaux de celui-ci, dont il rend compte à l'assemblée générale. Il veille au bon fonctionnement des organes de la société et s'assure en particulier que les administrateurs sont en mesure de remplir leur mission

Quant au directeur général. il est investi des pouvoirs les étendus pour agir en toute circonstance au nom de la société. Il représente la société dans ses rapports avec les tiers. C'est lui qui dirige opérationnellement l'entreprise, et en contrepartie est responsable devant le conseil d'administration et assume la responsabilité civile du chef d'entreprise. Il doit veiller en particulier à transmettre au président toutes les informations qu'il juge utiles pour que le conseil d'administration soit correctement informé. Dans la limite de l'objet social, et sur autorisation du conseil, il a le pouvoir de donner des cautions, avals et garanties. Le directeur général peut également demander au président la convocation d'une assemblée générale.

Comme on peut le constater, il existe une sorte de subordination du directeur général par rapport aux représentants des actionnaires. Le but du législateur est de permettre au président du conseil d'administration de faire contrepoids au directeur général et d'éviter toute omnipotence de sa part. C'est d'ailleurs pour cette raison que nombre d'auteurs ont estimé favorable une telle séparation des fonctions (R.Kosnic (1987)).

B- Le cumul des fonctions

La décision du conseil d'administration de confier la direction générale de la société à son président a pour conséquence de concentrer entre les mains de celui-ci deux sortes de pouvoirs : ceux propres au président du conseil d'administration et ceux confiés au directeur général (Y.Guyon 1993).

Cette formule présente des inconvénients dans la mesure où le dirigeant cumulant le rôle de président du conseil et de directeur général s'érige en acteur incontournable à travers son rôle dans la fixation de l'ordre du jour du conseil (J.Harrison, D.Torres et S.Kukalis (1988)), au travail des divers comités spécialisés, à la réunion et au déroulement des assemblées générales. Il peut donc réduire l'efficacité du contrôle du conseil. (R.Beatty,E.Zajac (1994)).

On se demande donc si le législateur marocain a offert le choix juste pour ne pas brusquer les habitudes dans l'intention de ne garder par la suite que la dissociation des fonctions, suivant sur ce point les pas de son homologue français.

On conclut donc que le gouvernement d'entreprise introduit plusieurs exigences à l'égard des administrateurs en tenant compte des intérêts des actionnaires, qui en tant qu'opérateurs de marché, apportent leur capital et attendent des résultats qui supposent de la part des dirigeants un comportement apte à assurer une bonne gestion de la société. Qu'en est-il de la RSE ? La fonction des dirigeants, risque t -elle de devenir encore plus exigeante ?

Deuxième partie : La RSE et les exigences supplémentaires

Comme nous l'avons déjà définie, une entreprise socialement responsable est celle qui s'engage, au-delà de ses obligations légales, à considérer de manière systématique les différents intérêts qui sont affectés par son fonctionnement afin d'obtenir le meilleur impact de ses activités sur ses travailleurs, ses partenaires et sur le développement durable de manière générale.

Il s'agit donc d'une démarche volontaire impliquant des engagements libres de la part des dirigeants, et à ce titre, on peut penser légitimement que la RSE n'entraine pas d'exigences supplémentaires à la fonction des administrateurs.

Mais, lorsqu'on considère la finalité même de la RSE et qui est la prise en considération des intérêts des parties prenantes, on pense automatiquement à la pression que ces dernières peuvent exercer sur les entreprises, faisant diminuer l'aspect volontaire de la RSE. Constat accentué encore plus par l'encadrement juridique de la RSE.

Dés lors, se pose la question de savoir quel est le rôle des administrateurs à cet égard ? Les modes de management doivent-ils associer étroitement la RSE au pilotage stratégique ? Ou encore quelles sont les véritables incidences de la RSE sur le processus décisionnel des sociétés ?

Parag 1 :L'influence des parties prenantes sur le processus décisionnel

Avec la notion de RSE, les administrateurs se trouvent sur un territoire plus large de gouvernance occupé non seulement par les actionnaires, mais par toutes les parties prenantes (Stakeholders) (Freedman et Market 1984).

Ces dernières regroupent l'ensemble de ceux qui participent à la vie économique (salariés, clients, fournisseurs…) de ceux qui observent l'entreprise (les syndicats, les ONG) et de ceux qu'elle influence plus ou moins directement (société civile, collectivité locale). Autrement dit, les parties prenantes sont toutes les personnes ayant un intérêt dans les activités de l'entreprise (A.Mullenbach 2007).

Ces parties prenantes exercent sur l'entreprise plusieurs pressions d'ordre social, environnemental et économique, qui la poussent à intégrer dans sa stratégie managériale les principes de la RSE, encore encouragée dans cette voie par la médiatisation de certains procès et le caractère stratégique de l'image de marque dans un marché de plus en plus concurrentiel.

Voilà pourquoi certaines pratiques dites de RSE se sont développées, certaines entreprises décidant de doter leurs produits ou leurs services de labels sociaux ; d'autres prenant des engagements publics ou finançant des initiatives de type caritatif qui les mènent ensuite à communiquer.

Les exemples sur le plan international caractérisant la pression des parties prenantes sont nombreux. On peut prendre celui de Nike INC.

Dans les années 1996-1997, Nike a vu sa réputation entachée car elle avait recours à une sous-traitance étrangère ayant une législation peu éthique. En 1997, la photo d'un enfant pakistanais en train de coudre un ballon Nike apparait au public. Les médias, les ONG, les lobbies, les syndicats, les consommateurs… s'acharnent sur la marque et de nombreuses actions sont menées contre la marque. En 1998, Nike assiste à une chute considérable de ses résultats.

Devant cette situation, Nike devait réagir et adopter un nouveau modèle d'organisation de la sous-traitance. Dans ce cadre, de nombreux engagements en rapport avec la RSE ont été pris par les dirigeants. En effet, ces derniers décident de payer les ouvriers au dessus de la moyenne des pays où étaient basées les usines. Ils ont édicté également un code de conduite et ont confié au cabinet Price Watherhouse Cooper (PWC) la mission d'auditer chaque année ses sous-traitants pour vérifier l'application du code de conduite. De même, Nike a confié à sept universités le soin d'établir un rapport sur les conditions de travail dans les usines de la firme. Finalement, Nike s'implique dans une politique environnementale. A titre d'exemple, l'entreprise récupère et recycle les vieilles chaussures.

Le cas de Nike, étudié par Gasmi et Grolleau (2005) montre bien l'évolution des stratégies adoptées par la multinationale face à l'émergence et au développement des critiques relatives à ses sous-traitants.

C'est pour éviter des histoires comme celle de Nike, et cette pression des parties prenantes qui peut être négative, et pour anticiper les contraintes et prévenir les risques, que plusieurs entreprises marocaines ont intégré dans leur stratégie managériale la démarche RSE.

Ces entreprises marocaines ont compris que l'application de la RSE améliore les mesures de précaution et de prévention contre les accidents industriels ou économiques, les risques sociaux, les risques juridiques, les grèves ainsi que tout problème menaçant la réputation et la performance de l'entreprise. Il s'agit donc pour l'entreprise de relever trois défis à savoir un défi managérial, économique et environnemental (Supized 2002, Igalens 2012).

Le processus d'intégration de la RSE dans la stratégie de l'entreprise comporte plusieurs étapes et nécessite un investissement matériel et humain. Mais, d'une manière générale, il est attendu du conseil d'administration d'assimiler les éléments fondamentaux composant les grandes thématiques de la RSE, d'identifier parmi ces thématiques celles qui lui paraissent les plus importantes pour l'entreprise selon le secteur d'activité en distinguant entre celles porteuses de dangers et celles qui recèlent des opportunités, de procéder à l'élaboration de la stratégie opérationnelle de l'entreprise qui prend en compte les attentes des parties prenantes, de rendre compte de sa conduite à cet égard tant aux parties prenantes qu'à l'opinion publique.

Chaque entreprise intègre donc une démarche générale RSE tout en insistant sur les axes les plus importants pour son activité et les inclut dans sa stratégie décisionnelle. C'est ce qui est appliqué par plusieurs entreprises marocaines.

On peut prendre deux exemples d'entreprises opérant dans des secteurs différentts : cas de Managem (Rapport développement durable 2014) et celui de Jet Sakane.

Managem est une société anonyme, c'est un acteur marocain dans le secteur des mines et de l'hydrométallurgie. Il opère depuis plus de 85 ans dans l'extraction, la valorisation et la commercialisation des métaux de base, des métaux précieux, du cobalt et d'autres minerais au Maroc et en Afrique.

Le groupe Managem a intégré la démarche RSE qui l'a placé dans le palmarès des top performers RSE 2015. Cela vient la récompenser pour ses performances en matière de renforcement des compétences et de l'employabilité, le respect du dialogue social, la préservation de la santé et de la sécurité, la contribution au développement des communautés et la promotion de la bonne gouvernance et de l'éthique, la préservation de l'environnement.

Dans ce dernier axe (préservation de l'environnement), les ambitions de Managem sont fortes. Le groupe vise à réduire son empreinte carbone en baissant de 5% à 10% la consommation annuelle de chacun de ses sites, à valoriser les rejets mineurs en ressources.

Signalons qu'en 2013, le complexe industriel de Guemassa a démarré l'exploitation de son usine d'acide sulfurique dont le processus industriel permet de valoriser les rejets de la mine de Guemassa en nouveaux produits destinés à la commercialisation tout en produisant de l'energie propre pour le site.

Le deuxième cas est celui de Jet Sakane spécialisé dans la promotion immobilière. Cette entreprise a pour ambition la mise en valeur de ses travailleurs à travers la liberté syndicale, la parité entre les sexes, la formation, le dialogue social, la sécurité et la santé au travail, la prévention des accidents de travail et de maladies professionnelles…

Les préoccupations pour l'environnement et le bien être des clients sont au cœur de la stratégie de l'entreprise. Ses ensembles immobiliers réservent 30% des supérficies aux espaces verts et prévoient des équipements

sociaux et collectifs. La gestion décennale de la copropriété lui permet d'y déployer des actions à caractère social : cours d'alphabétisation et d'informatique, les crêches, les cours de soutien scolaire et bien d'autres.

L'exemple de ces deux entreprises illustre leur fort engagement envers leurs collaborateurs, leurs clients, leurs partenaires…Cet engagement touche la gouvernance puisque toutes les solutions, toutes les actions se situent finalement au niveau des décisions qui doivent être prises en ce qui concerne la recherche de l'équilibre entre les intérêts des actionnaires et ceux plus vastes de la collectivité.

Parag 2 : Encadrement juridique de la RSE

La démarche RSE à l'origine volontaire s'est traduite peu à peu par des impératifs juridiques adoptés par le législateur.

En effet, aujourd'hui il ya un grand débat sur la question de l'institutionnalisation de la RSE, de sa fondamentalisation, du passage du volontarisme à la coercition, de la justiciabilité renforcée de la RSE (I.Desbarats 2008)…La question est à notre sens très importante. Nous avons déjà déterminé comment la pression des parties prenantes fait sortir la RSE de son cadre volontaire. Si l'on rajoute à cet aspect celui purement juridique, la coercition risque de bousculer encore plus le volontarisme.

Au Maroc, le cadre juridique s'est progressivement modifié pour tenir compte de l'adhésion aux valeurs de la RSE.

C'est ainsi qu'en matière de la législation du travail, on assiste à l'entrée en vigueur en 2004 du code de travail qui précise les principes de base à respecter : mesures relatives à la santé et à la sécurité au travail, au licenciement, à la durée du travail, au travail des enfants, au salaire minimum, aux jours de repos…Par ailleurs, ce code propose des instruments pour l'adaptation de certaines mesures aux spécificités sectorielles et organisationnelles : règlement interne, comité d'entreprise, comité d'hygiène et de sécurité, convention collective…

D'autres aspects laissés auparavant à la discrétion de l'entreprise ont fait l'objet de réglementation. C'est ainsi que dans le cadre de son adhésion aux principes du développement durable et à la RSE, le Maroc s'est doté d'un cadre législatif relativement complet pour la protection de l'environnement et la gestion des ressources naturelles.

On peut citer dans ce cadre la loi 11-03 relative à la protection et à la mise en valeur de l'environnement. Elle a pour objet d'édicter les règles de base et les principes généraux de la politique nationale dans le domaine de la protection et de la mise en valeur de l'environnement.

Cette loi comporte plusieurs dispositions relatives à la protection de l'environnement et des établissements humains, à la protection de la nature et des ressources naturelles, aux pollutions et nuisances, aux instruments de gestion et de protection de l'environnement, à la procédure et la poursuite des infractions…Toutes les entreprises sont tenues de respecter cette loi dans toutes ses dispositions, de s'y conformer dans leur conduite, et de les introduire dans leur politique de management environnemental.

Cette législation trouve son prolongement dans la loi 13-03 relative à la pollution de l'air, ainsi que dans la loi 12-03 relative aux études d'impacts sur l'environnement et la loi 28-00 relative à la gestion des déchets et leur élimination. Ces trois lois ont le même objet. Elles sont toutes animées d'un esprit de participation et d'ouverture aux meilleures pratiques environnementales.

Par ailleurs, le Maroc a adopté la loi-cadre 99-12 portant charte nationale de l'environnement et du développement durable. Cette loi fixe les objectifs fondamentaux de l'action de l'Etat en matière de protection de l'environnement. Elle prévoit des dispositions s'appliquant aux entreprises privées et publiques exerçant une activité industrielle et commerciale. Ces dernières doivent adopter des mesures d'approvisionnement, d'exploitation et de production répondant aux exigences du développement durable, évaluer périodiquement l'impact de leurs activités sur l'environnement et s'engager à réduire les effets négatifs.

D'autres mesures très importantes sont prévues par cette loi :

-La mise en place d'un système d'évaluation environnementale stratégique permettant d'apprécier la conformité des politiques, des stratégies, des programmes et des plans de développement aux exigences de la protection de l'environnement.

-L'application de taxes écologiques et des redevances aux activités caractérisées par un niveau élevé de pollution et de consommation de ressources naturelles, portant ainsi préjudice à l'environnement.

-Institution d'un système d'écolabel visant à promouvoir les produits ou services ayant un impact réduit sur l'environnement et ceux qui se conforment aux exigences du développement durable.

Comme on peut le constater, la RSE perd de son aspect volontaire pour entrer progressivement dans la réglementation juridique s'imposant d'une manière plus forte aux administrateurs qui se trouvent donc dans l'obligation de l'intégrer dans l'organisation stratégique de l'entreprise.

Passé donc l'effet de mode, la RSE devient un levier de compétitivité pour les entreprises, et à ce titre elle a toutes les raisons de figurer au premier rang des préoccupations des administrateurs.

Consciente de ce rôle dévolu à la RSE, la confédération générale des entreprises du Maroc a mis en place le label CGEM pour la RSE qui est une reconnaissance solennelle du respect par les entreprises du Maroc de leur engagement à observer, défendre et promouvoir les principes universels de responsabilité sociale et de DD dans leurs activités économiques, leurs relations sociales et plus généralement dans leur contribution à la création de valeurs. Par cette initiative, on entend encourager les entreprises respectueuses de leur engagement structuré autour de 9 axes :

Respecter les droits humains ; améliorer en continu les conditions d'emploi et de travail ; protéger l'environnement ; prévenir la corruption ; respecter les règles de la saine concurrence ; renforcer la transparence du gouvernement d'entreprise ; respecter les intérêts des clients et des consommateurs ; promouvoir la responsabilité sociale des fournisseurs et sous-traitants ; développer l'engagement sociétal. Plusieurs partenaires se sont associés à la confédération pour promouvoir le label CGEM. Ces partenaires (l'administration des douanes et impôts indirects, la CNSS, le crédit agricole, le groupe Banques Populaires, la BMCI et la direction générale des impôts) octroient aux entreprises labellisées des avantages et traitements spécifiques (tarification préférentielle, simplification des procédures, assouplissement des contrôles, gestion personnalisée, célérité dans le traitement des dossiers…) (15).

Conclusion

De cette étude, on peut conclure qu'aujourd'hui, la tâche des administrateurs ne cesse de devenir encore plus exigeante. S'il ya bien une convergence entre les deux notions (gouvernement d'entreprise et RSE), chacune conduit les administrateurs à plus de vigilance et à plus de responsabilisation.

La RSE vient s'ajouter au concept de gouvernement d'entreprise pour être l'une de ses composantes essentielles : une bonne gouvernance d'entreprise nécessite l'intégration de la RSE. Il s'agit donc d'une question organisationnelle stratégique qui requiert une surveillance étroite de la part du conseil.

Or, et jusqu'à nos jours, si la plupart des administrateurs connaissent la notion de RSE, nombreux sont ceux qui veulent savoir quel est leur rôle à cet égard.

Aujourd'hui, il devient urgent de mobiliser les administrateurs sur les questions de RSE et de faire en sorte qu'elles soient intégrées aux grandes orientations stratégiques des conseils d'administration.

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The Effect of the Country of Origin on the Romanian Consumers' Opinions and Purchase Decision

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Abstract

The aim of this paper is to investigate if the reputation of the country of origin of the wine influences the opinions of the consumers and the purchase decision. Statistical analyze and econometric methods were used, using SPSS: frequency distributions, factor analysis, ANOVA and linear regression. Critical assessment of literature review was made. The author used quantitative methods: 214 questionnaires. There is a strong correlation between the country of origin of the wine and the perceived quality of the wine for consumers, winemakers and Masters of wine; the country of origin cues become more important than the wine cues in the purchase decision. As practical implications, the study found different correlations for consumers' opinions, buying attitudes and purchase decisions. The original element is using Romanian and international wine consumers in a real buying situation; the opinions of Romanian winemakers and of international Masters of wine is an added value due to their expertise.
As limitation, the number of respondents is limited.

Keywords: country of origin effect

I. Literature review

In the literature review body, we can identify two major directions: general country of origin effect regarding wine-similar to country of origin effect regarding any other product durable or non-durable and specific country of origin effect regarding wine only.

The general effect includes: quality assessment, consumer perceptions, information processing, decision making, consumer preferences, purchasing decision, price.

The specific country of origin effect regarding wine only refers to country of origin as an extrinsic wine cue, wine labels, wine range, wine consumers, domestic versus foreign wines.

I.1. Extrinsic cue

Intrinsic cues of the wine such are taste and aroma cannot be usually evaluated by consumers during the buying decision process, or be assessed by visual inspection of the wine in the store, and many consumers take little or no effort for external search before entering the store (Chaney, 2002). Even when these intrinsic information are available, like actual tastings, consumers rely on the origin of the wine in decision making process. (Halstead, 2002), (Goodman, Lockshin and Cohen, 2007), (Veale and Quester, 2008)

Therefore, extrinsic cues and mainly country of origin or region of origin are most important for consumers.(Samiee, 1994), (Nebenzahl, Jaffe and Lampert, 1997)

Although extrinsic cues have no direct bearing on the quality of wine, consumers used them as indirect indicators or substitutes for intrinsic cues(Bilkey and Nes, 1982) or assign a meaning to an entire wine class(Goldberg and Baumgartner, 2002). Country of origin information, price and brand might be used by consumers as extrinsic factors in quality assessment. (Hu *et al.*, 2008)

I.2. Wine labels

Labels are relevant in buying decision of wine for home, party, bar/restaurant consumption for all the consumers (Wolf and Thomas 2007) and especially for wine novices. (Boudreaux and Palmer, 2007). Consumers between 21 and 40 years old found wine labels more intimidating than consumers over 60. Consumers under 30 prefer more creative labels (Qenani-Petrela, Wolf and Zuckerman, 2007) and women use color, image and logo as indicators of purchasing intents more than men do. (Barber, Almanza and Donovan 2006)

There is a positive relationship between label attractiveness, eye-catching properties and buying decision(Wolf and Thomas, 2007). Consumers rated country of origin as the most important attribute of the label(Barber, Almanza and Donovan 2006), although images and colors on the label have strong effects as well.(Boudreaux and Palmer, 2007)

Wine labels are considered a risk reduction strategy (Skuras and Vakrou, 2002) and more reliable compared to wine publications. (Barber, Almanza and Donovan 2006)

I.3. Wine range

Hansard(2010) emphasized the relationship between country of origin of wine and wine range. Quality is crucial for Top Range wines, as well as for Medium range wines. Price is critical for Entry Level, as well as for Medium Range wines. What matters most apart from quality and price is price stability and quality consistency both for Entry Level and Medium Range wines and price/quality ratio for Medium Range wines. For bulk wines, price and size of supply volumes are the most important. Country of origin or region of origin matters most for Top Range wines and Medium Range wines.

I.4. Wine consumers

It all depends on what kind of consumer you are: for non-wine connaisseurs knowing the country or region of origin makes buying easier, for new consumers intrinsic attributes got a great importance (Thomas and Pickering, 2003), for less experienced consumers medals cue are important (Orth, 2002), for less frequently buyers price is very important(Batt and Dean, 2000), for frequently buyers brand is the most important(Batt and Dean, 2000), for wine connaisseurs the wine company, wine brand and experts' opinions on wine matters most(Thomas and Pickering, 2003) and for wine experts country or region of origin matters most. (Rasmussen and Lockshin, 1999)

I.5. Domestic versus foreign wine

Often, if the country of origin of the wine is a developed country or a known wine making, this is considered to be a quality insurance, while if the country of origin of the wine is a less developed country or a less known wine making, the quality of the wine is considered lower. (Kaynak, Kucukemiroglu and Hyder, 2000)

French wines are considered to be expensive, but too dry and rough, Italian wines are considered of a lower quality compared to French ones, yet a better value for the money, Spanish wines are considered cheap and rough, German wines are considered to be safe and reliable(Gluckman, 1990). Canadian wines are perceived of a lower quality comparing to French, Italian, Spanish and German wines. (Wall and Heslop, 1986)

The quality of the Romanian wines significantly improved after the communist period, having France as a model in wine strategy. (Jubénot, 2014)

II. The aim and the hypothesis

The aim of this paper is to investigate if the reputation of the country of origin of the wine influences the opinions of the consumers and the purchase decisions.

The research hypothesis are:
H1: The information regarding the country of origin of the wine matters in the purchase decision.
H2: The reputation of the country of origin of wine influences the buying attitude of the consumers.
H3: The perception of the consumers on the reputation of the country of origin of the wine depends on the perception of the consumers on the reputation and the price of the wine.
H4: Country of origin of the wine is the most important extrinsic cue for the purchase decision of the consumers regarding the wine.
H5: The opinions of the consumers and the masters of wine regarding the reputation of the country of origin of wine are convergent.

III. Methodology

III. 1. The Sample

Sample of respondents consist of four groups, Romanian consumers-RC, international consumers-IC, Romanian winemakers, International Masters of wine, as follows: 52 RC in real buying circumstances during an International Wine Fair held in Bucharest in December 2015; 51 IC also in real buying circumstances in London and Madrid. The IC were participants at two international conferences held in London and in Madrid, same as the author and the questionnaires were filled in the evening before leaving by those participants who actually bought wine as a gift for families and friends. All the consumers were asked to fill in the questionnaires after buying at least a bottle of wine. 52 Romanian winemakers during the above mentioned Wine Fair and 59 Masters of wine who filled in the questionnaires in January 2016 by email. For opinions, beliefs, assessing quality, any kind of consumer could be used in a research, yet for intention to buy or purchase decision, real buyers would be more appropriate, because they can refer to an actual decision or intention, instead of a potential one. Apart from the opinions of the consumers, the opinions of winemakers and Masters of wine are considered an added value due to their specific expertise.

III. 2. The methods

Quantitative methods were used, namely questionnaires, in Romanian for RC and winemakers and in English for IC and Masters of wine. To analyze the questionnaires, frequency distribution, factor analysis, ANOVA, linear regression in SPSS were used.

Therefore for this study the consumers are men or women(in similar proportions), mainly between 25 and 34 years old for IC and between 35 and 50 years old for RC, seeing themselves as having an average income, buying mainly when needed for IC and occasionally for RC, mainly for a celebration for IC and for themselves for RC. IC were from: Algeria, Bulgaria, Colombia, Czech Republic, Germany, Hungary, India, Italy, Jordan, Korea, Nigeria, Poland, Portugal, South Africa, Slovakia, Slovenia, Spain, Thailand, Turkey, UK, USA and the country of origin of the wine they have bought was: Australia, Bulgaria, Chile, France, Germany, Italy, Moldavia, Portugal, South Africa, Spain, UK. The country of origin of the wine bought by RC was: France, Germany, Moldavia, Portugal, Romania.

Out of the 52 Romanian winemakers, 18 work for less than 5 years in this business(34.61%), 14 are in the business for 5 to 10 years(26.92%), 12 for 10 to 20 years(23.07%) and 9 for more than 20 years(17.30%). Their jobs in the wineries they represent are: brand manager(2), commercial manager(2), export manager (1), internship(1), Master of wine OIV(1), marketing manager(4), oenologist(6), PR manager(1), sales manager(10), sommelier (5), Weset level 2(1), wine manager and promoter(4), wine seller(5), wine specialist(2), winemaker(9). Apart for being Master of wine, the 59 Master who were kind to fill in the questionnaires are also involved in wine consulting, wine education, journalism, wine buying, wine import and export, wine selling, some of them have own wineries or are winemakers. Only 2 out of 59 are Masters of wine for less than 5 years and only 3 are Masters of wine for 5 to 10 years, 15 of them are Masters of wine for 10 to 20 years and the rest of 38 for more than 20 years. Both the opinions of the Masters of wine and of the winemakers are valuable due to their great experience.

IV. The findings

IV. 1. The findings regarding the opinions

The consumers were asked to fill in their opinions regarding the following 10 countries : China, France, Germany, Hungary, Italy, Romania, Russia, Spain, UK, USA and the following sentences regarding each of the mentioned countries:
S1: The wines are expensive;
S2: The wines are expensive, but they worth the money;
S3: The wines are famous;
S4: The wines have a high quality;
S5: The wines are available;
S6: The wines are daintiness;
S7: The country is well known for its wines;
S8: The country has a long tradition regarding wines;
S9: The country is a top wine producer;
S10: The country of origin is a guarantee for the quality of its wines.

The 10x10 matrix model was used with countries as lines and sentences as columns and a 7 points Likert scale was chosen with 1 as least important and 7 as most important. The results for consumers are presented in the following table. SPSS was used to compute the means.

Table 1: The means for the opinions of the consumers

Consumers	Country	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
IC	France	5.76	5.58	5.96	5.74	5.66	5.68	5.92	6.05	5.90	5.94
RC	France	5.82	5.71	6.25	6.13	6.32	6.26	6.32	6.38	6.40	6
IC	Italy	5.09	5.31	5.43	5.50	5.29	5.29	5.33	5.60	5.50	5.29
RC	Italy	5.11	5.03	5.42	5.36	5.53	5.5	5.46	5.51	5.61	5.23
IC	Spain	4.72	5.11	5.09	5.078	5.15	4.82	5.25	5.47	5.31	5.09
RC	Spain	4.80	4.78	5.38	5.23	5.34	5.15	5.38	5.38	5.19	4.94
IC	USA	3.52	3.66	3.25	3.41	3.62	3.29	3.05	3.29	3.23	3.23
RC	USA	3.40	3.53	3.28	3.44	3.32	3.15	3.23	3.05	3.11	3
IC	China	2.70	2.88	2.66	2.66	2.92	2.68	2.43	2.54	2.54	2.78
RC	China	2.57	2.65	2.26	2.55	2.65	2.34	2.13	2.32	2.32	2.23
IC	Germany	4.17	4.13	3.62	3.90	4.07	3.52	3.52	3.70	3.70	3.82
RC	Germany	3.69	3.36	3.23	3.32	3.40	3.21	3.09	3.30	3.13	3.21
IC	Hungary	3.54	3.76	3.54	3.54	3.70	3.54	3.17	3.41	3.45	3.49
RC	Hungary	3.48	3.40	3.26	3.44	3.53	3.30	3.26	3.26	3.17	3.05
IC	Russia	3.47	3.50	3.11	3.33	3.45	3.05	2.823	2.96	3.07	3.27
RC	Russia	3.13	3.19	3	2.82	3.03	2.82	2.71	3.019	2.67	2.75
IC	Romania	3.25	3.52	3	3.25	3.33	3.09	2.80	3.27	3.11	3.01
RC	Romania	3.82	4.28	4.51	4.69	4.30	4.76	4.34	4.76	4.15	4.11
IC	UK	4.66	4.56	4.01	4.33	4.31	4.098	3.76	4.01	3.88	4.09
RC	UK	3.71	3.42	3.21	3.15	3.19	2.86	2.73	3.17	2.88	3.01
IC	Overall means	4.09	4.20	3.97	4.07	4.15	3.91	3.80	4.03	3.97	4.00
RC	Overall means	3.95	3.94	3.98	4.01	4.06	3.94	3.86	4.02	3.86	3.75

The sentences were grouped in COO features(S7-S10) and Wine features(S1-S6) and the averages for the two groups were compared. Both for IC and RC, opinions on wine features matters more than on COO features, yet the difference between the two groups is smaller for IC. The averages for IC are bigger than those for RC for both groups, 4.06 compared to 3.98 for wine features and 3.95 compared to 3.87 for

COO features. Although the differences between means are quite small, we will get a better view by looking at the way the consumers ranked the countries according the 10 sentences.
There is a consistency of ranks for IC, the only changing among sentences is for Romania and Russia, each of holding the eighth place five times and the ninth place five times. For RC, only Germany, Hungary, UK and USA are changing the fifth, sixth, seventh and eighth place among them. When comparing the ranks between IC and RC, we can see that they have the same opinions for top three places: France, Italy, Spain, as well as for the last place: China, they also agree for Russia, Hungary and USA for half of the cases.

The winemakers and the Masters of wine expressed their opinions on the following 24 sentences using a 7 point Likert scale from 1 for least important and 7 for most important. SPSS was used for the means of the answers.

Table 2: The winemakers and the Masters of wine scores

Sentence	IC means	RC means
1.It is normal for the wines produced in countries with a solid tradition to be more expensive because they are high quality	3.62069	3.038462
2.For cheap wines the country of origin is of little or no importance	4.155172	4.211538
3.The country of origin is less important for cheap wines compared to expensive wines	5.568966	4.076923
4.For any consumer it is important to know the country of origin when buying wine	4.637931	6.653846
5.The country of origin could be an important information if the wine is not familiar for the buyer.	5.37931	5.903846
6.For a consumer the country of origin matters only if the wine is bought for family or friends.	2.603448	3.211538
7.For high quality wine retailer should display the country of origin of the wine.	6.105263	6.307692
8.For premium wines it is important for retailers to display the country of origin for the wine.	5.931034	6.384615
9.The country of origin is an important information for consumers only for the exclusive wines.	3.034483	4
10. Consumers should not buy a wine if they do not know the country of origin of the wine.	3.333333	4.980769
11. The country of origin of a wine is the most important information for a consumer.	3.206897	4.711538
12.Information regarding to the country of origin of wines could help consumers to choose a wine.	5.660714	4.615385
13.The country of origin of a wine matters in the intention to import wine.	6.051724	5.769231
14. The country of origin of a wine matters in the decision to import wine.	6	5.461538
15. The effect of the country of origin of wines can change in time.	5.862069	4.807692
16. The image of the country of origin of wine matters in promoting wine.	5.896552	5.692308
17.Country of origin of wine guarantees the quality of the wine.	2.155172	4.423077
18.Counry of origin of wine is not a predictor for the quality of the wine.	5.982759	4.826923
19.To find out the quality of the wine it is enough to know the country of origin of the wine.	1.517241	2.596154
20.In your country are foreign wines considered of higher quality compared to national wines.	3.945455	2.5

21.The ethnocentric consumers prefer national wines, regardless of the wine's quality.	4.553571	4.192308
22.The wines produced in developed countries have a higher quality compared to wines produced in developing countries or in less developed countries.	4.210526	3.384615
23.The design of the wine bottle is more important than the country of origin of the wine.	2.877193	4.384615
24.The brand of the wine is more important than the country of origin of the wine.	4.275862	4.423077

The major differences were for sentences 17 and 4 were RC got higher scores, other important differences are for sentences 23, 11, 10, where again RC got higher scores compared to IC, while for sentences 20, 18, 15, 12, 3 IC got higher scores. For the rest of 14 sentences, the differences between IC and RC are not significant.

IV. 2. The opinions of Romanian producers and of the Masters of wine

A factor analysis using SPSS was made for the Masters of wine and for the Romanian winemakers. For the Masters of wine, the highest correlations are for the following pairs of sentences, with the following correlation coefficients: S2 and S3-0.636, S13 and S14-0.866, S17 and S19-0.674. The value of KMO test for measuring the sampling adequacy is 0.538 with Sig=0.000. Eight factors were identified by the analysis, explaining 71.07% of the variance. The first factor "COO and wine quality" explains 17.04% of variance and includes S17 and S19 as initial variables. The second factor "COO and wine imports" explains 15.58% of variance and includes S13 and S14 as initial variables.
For the Romanian winemakers, the highest correlations are for the following pairs of sentences, with the following correlation coefficients: S19 and S20-0.668, S4 and S8-0.613. The value of KMO test for measuring the sampling adequacy is 0.505 with Sig=0.000. Eight factors were identified by the analysis, explaining 70.06% of the variance. The first factor "COO and wine quality" explains 19.08% of variance and include S1, S9, S19, S20 and S22 as initial variables. The second factor, "Importance of COO", explains 12.68% of the variance and includes S4, S7 and S8 as initial variables. The next six factors explains less than 10% of the variance each in either case.

IV. 3. Top countries as seen by the Masters of wine

The Masters of wine were asked to make top 3 countries regarding

A. The best wines they had tasted;
B. The most famous wines in their opinion;
C. With the most expensive wines;
D. With the widely known wine tradition;
E. As successful new players in the wine market;
F. As the main players in the wine market

Table 3: top 3 countries in the opinion of the Masters of wine

Top 3 countries regarding	First place	%	Second place	%	Third place	%
The best wines they had tasted	France	83.6	Italy	47.5	Germany	23
The most famous wines in their opinion	France	100	Italy	77	Spain USA	31.1 31.1
With the most expensive wines	France	96.7	USA	52.5	Italy	50.8
With the widely known wine tradition	France	91.8	Italy	85.2	Spain	63.9
As successful new players in the wine market	New Zeeland	29.5	Chile	24.6	USA	14.8
As the main players in the wine market	France	83.6	Italy	63.9	Spain	39.3

The opinions of Masters of wine regarding all items but E are consistent with the opinions of both IC and RC for France, Italy and Spain. Masters of wine have a higher opinion on Germany than RC and a higher opinion on USA than IC and RC. On item E, the answers were really diverse, including countries from

South America(Chile, Brazil, Argentina), New Zeeland, Australia, South Africa, countries from Europe(Greece, Austria, UK, Hungary, Portugal, Cyprus, Croatia, Romania, Slovenia), countries from North America(USA, Canada), countries from Asia(China, Georgia, Turkey).

IV. 4. The results for the purchase decision

The consumers were asked to rank for the wine they just have bought how important were the following cues for the purchase decision, using a 7 points Likert scale, with 1 for the least important and 7 for the most important.
C1. The quality of the wine;
C2. The price of the wine;
C3. The fame of the wine;
C4. The availability of the wine;
C5. The COO of the wine is among the top wine producers;
C6. The COO of the wine is well known for its wines;
C7. The COO of the wine is among the top wine exporters.

A factor analysis using SPSS was made. The findings are as follows:
For IC, the top 3 correlations could be explained by the COO effect, specifically the correlations between C5 and C7(0.609), C7 and C4(0.487), C5 and C4(0.417). For RC, the top 3 correlations could be explained by the COO effect, specifically the correlations between C5 and C6(0.661), C5 and C7(0.584), C6 and C7(0.579). The KMO coefficient is 0.688 for IC and 0.601 for RC, both of them with Sig=0.000.

For IC, four principal components were identified, explaining 67.493% of the total variance. The first component includes the initial variables C7(0.848), C5(0.798), C4(0.700), C1(0.632) and explains 35.38% of the variance. The second component includes just C2(0.838) and explains 16,83% and the third component includes just C6(0.916) and explains 15.29%.

For RC, three principal components were identified, explaining 64.28% of the total variance. The first component includes C5(0.815), C4(0.795), C7(0.780), C6(0.760), C3(0.633) and C1(0.628) and explains 47.43%. The second component includes just C2(0.965) and explains 16.85%.

Table 4: The means for purchase decision

	The means for	
The cues	IC	RC
The quality of the wine	5.941176	5.692308
The price of the wine.	5.098039	4.403846
The fame of the wine	4.764706	4.480769
The availability of the wine	4.196078	4.865385
The COO of the wine is among the top wine producers	4.28	4.423077
The COO of the wine is well known for its wines.	4.490196	4.596154
The COO of the wine is among the top wine exporters	5.215686	3.942308

Table 4 allows us to see the main similarities and differences between IC and RC. Similarities: both IC and RC considered the quality of the wine as the main cue in purchase decision and the fame of the wine stands on the fourth place. Differences shows an interesting symmetry, for instance, the availability stands on the second place for RC and on the last place for IC, COO is well known for its wines stands on the second place for IC and on the last place for RC. Price stands on the third place for IC and only on sixth place for RC. For RC is important that COO is among the top wine exporters(third place), yet only on the fifth place for IC. COO is among the top wine producers stand on the fifth place for RC and on the sixth place for IC.

ANOVA was used to analyze the influences of age, gender or income on purchase decision(C1-C7) for IC and RC. The findings showed that gender have no influence on purchase decision for IC and for RC, due to the fact that Sig>0.05, therefore the null hypothesis cannot be rejected. The age of RC influenced

the purchase decision only on two variables: C4-The availability of the wine(Sig=0.000) and C6-The COO of the wine is well known for its wines(Sig=0.026). For IC, the age influenced only C1-The quality of the wine(Sig=0.033). The same variable C1 is influenced by income(Sig=0.045) for IC and for RC the income have no influence on purchase decision.

V. Conclusions

For consumers' opinion, the averages for COO cues are slightly smaller than the wine cues for IC and for RC, meaning the cues regarding the wine are more important compared to the cues regarding COO or ROO. The top 3 countries for all cues in consumers' opinions are the same as the top 3 countries in the opinions of the Masters of wine, namely France, Italy, Spain. All three countries are perceived as countries with great tradition and well known for wine, top wine producers and wine exporters, main players in the wine market.

In the opinion of Romanian winemakers and of the Masters of wine, the first factor "COO and the wine quality" explains 17.04% for Masters of wine and 19.08% for the Romanian winemakers of the total variance, emphasizing a strong correlation between the COO and the perceived quality of the wine, that is consistent with the consumers' opinions.

For purchase decision, what mattered most was the quality of the wine for IC, as well as for RC. Now, how could a consumer know the quality of the wine at the purchase point? Of course, if the consumer has expertise on wine, won't be too difficult to process the information on label and take a rational decision. But it was not the case for IC or RC, because only 15.68%, respectively 13.46%, bought wine on a regular basis and their personal opinion weights more than other people recommendation on buying intention. Therefore, at purchase point, an average consumers decide the wine meet his/hers quality expectations based on information written on the label. Along with price, COO/ROO are strong predictors for quality. Again, the averages for COO cues are higher than for wine cues, 4.98 compared to 4.68 for IC and 4.66 compared to 4.58 for RC, a unlike for consumers' opinions. Therefore, hypothesis H1, H2 and H5 are supported. H3 is partially supported only for IC. Hypothesis H4 is rejected and we can conclude that the reputation of the COO did not depend on the price of the wine for both IC and RC and might be explained by the reputation of the wine for IC and by the reputation of the brand of the wine for RC.

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Exploring the Strategic Alignment Concern When Switching Toward Cloud ERP

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Abstract:

Since the development of the Strategic Alignment model (SAM) by Henderson and Venkatraman, the IT-business alignment emerged as an important issue when evaluating the IT projects success and involved several studies showing the necessity of such alignment. When talking about enterprise systems, mainly the ERP (Enterprise Resource Planning), alignment was shown as a critical factor for ERP projects success. The development of cloud computing and the difficulties linked to on-premise solutions implementation are pushing many firms to switch toward cloud-based ERP. However, existing studies on such systems adoption focus basically on benefits and risks issues. Thus, this paper aims to explore the alignment concern when switching toward cloud ERP. Through a literature review, the author first presents the alignment concerns during IT implementation and the factors that could help to achieve alignment. Then, by reviewing the existing studies on cloud ERP in terms of benefits and risks, the alignment concerns linked to such solutions are identified. From this literature review and then a case study conducted within a Tunisian firm, it is showed that cloud ERP alignment is a challenging issue that should involve adaptations (technical dimension) and social practices (social dimension) to be achieved.

Key words: Cloud ERP, alignment, switching, social dimension.

1 Introduction

Since the 90's, many firms (large and small) began to largely adopt the ERP (Enterprise Resources Planning) systems as software packages that can be used to manage all business processes. Besides being connected to a single database, these systems are developed based on “management best practices”. Despite these benefits, implementing or updating an ERP remains difficult and expensive since it involves big changes in technical and business infrastructures.

One of the concerns linked to ERP implementation is alignment. Indeed, ERP systems affect almost all business processes and even some strategic choices of a firm. That is why many researches focus on alignment concerns when studying ERP implementation (Hong and Kim, 2002; Yaseen, 2009; Mezghani and Mezghani, 2014). Nevertheless, with the development of cloud computing, firms are more and more interested in switching toward cloud ERP (Mezghani, 2014). Thus, "their business strategy, IT strategy, business processes and information technologies shall be re-aligned […] These bring great challenges for business–IT alignment of an enterprise in the cloud computing environment" (Li et al., 2011). ". Also, with cloud ERP, data and applications are provider-hosted. So, the way ERP is managed may be redefined and, then, achieving alignment might be different.

Thus, this paper aims to explore the alignment challenge when firms decide to switch toward cloud-based ERP. To do this, the author begins by a literature review to expose the alignment concerns linked to cloud ERP. The theoretical ideas are then contextualized through a case study conducted within a Tunisian firm in two phases ((1) when implementing on-premise ERP, (2) when thinking to switch toward cloud ERP).

1 Literature Review

1.1 IT implementation and strategic alignment

Since the development of the Strategic Alignment Model (SAM) by Henderson and Venkatraman (1993), many studies were conducted to demonstrate the importance of aligning IT implementation with business strategy to gain greater benefits from IT investments. Indeed, according to these authors, the benefits of an IT are marginal if it is introduced without rethinking the existing organization and strategy. Croteau et al. (2001) add that companies that do not harmonize their strategic choices with their technology ones do not benefit from IT contributions to performance.

The importance of considering strategic alignment in IT implementation can be seen when analyzing the numerous studies on such subject, mainly those focusing on identifying the determinants of such alignment (Reich and Benbasat, 2000; Kearns and Sabherwal, 2007; Chao and Chandra, 2012; Mezghani and Mezghani, 2014).

From a literature review, one can note that the main enablers of strategic alignment are closely linked to social and managerial aspects rather than to technical ones. In fact, it is recognized that IT implementation needs technical adaptations to fit the business requirements. However, such adaptations are useless in absence of social interactions between IT specialists and business managers (Mezghani and Mezghani, 2014). Indeed, from the alignment duality perspective developed by Reich and Benbasat (2000), many empirical studies showed that the social dimension (communication, support, involvement,…) is the main factor that creates mutual understanding necessary to keep harmony between IT implementation and business (Schlosser et al., 2015). Moreover, as business and technology choices are continually changing, achieving alignment is considered as a dynamic matter that requires constant interactions between IT specialists and business managers.

Thus, alignment remains an organizational concern that frequently needs "to be addressed if optimal organizational performance is to be achieved" (Renaud et al., 2016).

1.2 Strategic alignment in a cloud computing environment

One of the most important changes noted in IT world last years is the emergence of the computing as a service called cloud computing. According to Mezghani and Ayadi (2016), the adoption of cloud computing involves changing the way to deploy IT within firms. So, "their business strategy, IT strategy, business processes and information technologies shall be re-aligned" (Li al., 2011). Indeed, in a cloud computing environment, misalignments can lead to decreased operating efficiency and losses for organizations (Géczy et al., 2012). However, "no cloud computing service vendor can satisfy the complete functional information system requirements of an enterprise" (Li al., 2011). These authors add that "sometimes, enterprises have to simultaneously use software services distributed in different clouds in conjunction with their intra-IS. These bring great challenges for business–IT alignment of an enterprise in the cloud computing environment". Katsanos (2014) adds that "using a mix of cloud providers may reduce costs, increase benefits and add more flexibility, but this can also create integration issues as well as complicate the enforcement of company security policies and practices".

From previous ideas, it clearly appears that achieving alignment is a real challenge in a cloud computing environment. Such challenge might be greater when a firm adopts an IT that requires much alignment efforts (adaptation, integration,…). It is noted that ERP, as standardized software packages, are largely considered as systems that needs such efforts. Thus, in a cloud environment, achieving alignment when thinking to switch toward a cloud-based ERP would be a more challenging issue. This will be discussed below.

2 Switching Toward Cloud ERP: The Alignment Concern

2.1 Cloud ERP: benefits and risks

Compared to on-premises ERP, cloud ERP propose a set of benefits that make it interesting to change toward such systems. Nevertheless, as cloud-based solutions, they involve some risks that may make

managers hesitant to adopt them. From previous studies comparing cloud ERP to on-premises ERP, Mezghani (2014) presented the main benefits and risks linked to cloud ERP implementation (table 1).

Table 1: Benefits and Risks of Cloud ERP

Cloud ERP benefits	Cloud ERP risks
• **Cloud ERP is cost saver:** moving to cloud ERP reduces costs linked to licensing, maintenance and upgrading (Makkar and Meenakshi, 2012). • **Cloud ERP is time saver:** less time is spent in monitoring IT infrastructure. Besides, tests and trainings are conducted from the first steps of the project which can help to save time (Elragal and Elkommos, 2012). • **High scalability:** according to Arnesen (2013), "you can add or reduce users as your needs change, which works especially well for seasonal businesses or companies on a high-growth path". • **Accessibility:** "as a cloud based solution, cloud ERP modules can be accessed anytime and anywhere through Internet" (Mezghani, 2014).	• **Security:** regarding cloud-based solutions, many managers perceive that the confidentiality and security of business data are not guaranteed (Benlian and Hess, 2011). • **Internet connectivity:** "If you lose connectivity because of a natural disaster or cyber-attack or if the vendor goes out of business, you may have no access to the system or data" (Arnesen, 2013). • **Dependency:** "even if choosing on-premises ERP, firms risk to become dependent on vendors since such systems need regular maintenances and updates. This dependency seems to be greater with cloud based ERP" (Mezghani, 2014). Indeed, according to Arnesen (2013), cloud ERP vendors retain the data and firms have to pay vendors on time or they may lose data access.

Regarding the benefits and risks associated with cloud ERP adoption, it seems that concerns linked to alignment should be considered when to switch toward such systems.

2.2 Cloud ERP alignment: a challenging issue

Linking cloud computing to IT-business alignment is an emerging matter that did not yet involve many studies. Nevertheless, when analyzing the existing ones, it is clear that cloud adoption needs to be accompanied by thoughts about strategic alignment. Indeed, "cloud computing as a new technology is involved in IT strategy. When planning IT implementation, the managers of an enterprise take cloud service as another resource apart from intra-IS. Intuitively, it enlarges the technological scope and extends the scope of IT governance. With high efficiency and flexibility, it also enhances the system competencies" (Li et al., 2011). These authors add that, from a SAM perspective, this change would have impacts on business strategy as well as business processes. According to Géczy et al. (2012), "it is important to align the organization's functional and operating model with the cloud-based model of utilization of information technology resources and services. Misalignments lead to decreased operating efficiency and losses for organizations".

Thus, in order to gain benefits from cloud-based solutions (as cloud ERP), it is necessary to manage the adoption of such solutions at the strategic and organizational level. When cloud ERP is an "enterprise system", the challenge of alignment is greater. Indeed, cloud ERP should normally satisfy all business requirements. "Without possibilities of customization, users and organizations may encounter substantial re-training and adjustment costs" (Géczy et al., 2012). However, as customers neither own the infrastructure nor run the applications, cloud ERP may fail to give customer greater sense of ownership to make the required changes (Salleh et al., 2012). Besides, cloud service provider has its general operational processes that could be adopted in most cases and provided to as many subscribers as possible but would not fit all individual requirements (Li et al., 2011). Arnesen (2013) adds that "Though configuration of cloud ERP is available to all customers, major customizations usually aren't allowed so the vendor can maintain the upgrade path". According to Peng (2015), "an

integrated solution from one single ERP vendor may often not satisfy all business needs of companies… different cloud vendors may use very different technologies and platforms to deploy and host their ERP packages. From a technical perspective, cloud vendors may not be able or willing to customize their ERP system to allow seamless integration between the package and other cloud or on-premise applications". Thus, it is difficult to customize a cloud ERP mainly when its components are purchased from various providers. Moreover, it is difficult to change cloud vendors even in the case of dissatisfaction (Dutta et al., 2013).

If firms opt for adapting their own processes, this involves alignment to an external unit (provider) that does not actively cooperate. Using a mix of cloud providers may also hinder alignment efforts as it can "create integration issues as well as complicate the enforcement of company security policies and practices" (Katsanos, 2014). Also, processes adaptations may require users training to the new practices. Dutta et al. (2013) note here that inadequate users' training on cloud services and usage could lead to resistance to technical and organizational changes. Thus, cloud-based solutions alignment is "more complex than that of past cases" (Li et al., 2011).

2.3 Social and technical dimensions as enablers of cloud ERP alignment

When analyzing previous studies focusing on alignment concerns in cloud computing adoption, one can note an emphasis on the technical dimension. Géczy et al. (2012) insist on the necessity of integration with the existing IT architecture, of customization at several levels to meet the changing demands of users and organization and of the network availability. Li et al. (2011) propose a structured approach that involves mapping the processes in order to identify what they call "collaboration points" to facilitate integration of business processes into the cloud. Although these adaptations may be rapidly run when adopting a cloud-based ERP, users' acceptance of such changes is not guaranteed (Salleh et al., 2012). Also, firms, especially small ones, would not have enough bargaining power to let the cloud providers customize the processes to meet one’s specific requirements (Li et al., 2011).

Thus, focusing only on technical aspects would be insufficient to meet the alignment requirements of cloud ERP. Such matter has been revealed with on-premises ERP projects and previous studies demonstrated the importance of the social dimension in these projects. That is why, considering this dimension when to adopt cloud-based ERP could be a facilitator factor mainly when it is known that alignment of cloud ERP is more complex. Based on the social dimension components and a review of previous studies focusing on cloud ERP, it is possible to present the contribution of the social dimension on cloud ERP alignment as follows:

- Top management support: According to Mezghani (2014), top management support is a key determinant of cloud ERP adoption. By prioritization of cloud adoption, IT managers could more effectively decide where and when to allocate financial resources for the implementation, deployment and maintenance of their complex IT systems (Chebrolu, 2011). From a social perspective, prioritization of cloud ERP adoption means that such adoption is considered at the strategic level (strategic fit). In fact, given the security concerns linked to cloud computing and the possibility to integrate modules from multiple providers, cloud ERP adoption needs to be managed strategically. From an operational level, prioritization means that top management allocates the required resources for customization and organizational change. As on-premises ERP, cloud ERP adoption needs such adaptations which would be facilitated when top management provides the required resources.
- Communication: According to Katsanos (2014), business and IT managers need to collaborate and communicate when to take decisions about cloud adoption (providers choice, security issues,…). As for on-premises ones, cloud ERP implementation requires software customization and organizational changes which needs frequent communication to identify the adaptation possibilities. Besides, adoption of a cloud ERP involves a third party (the provider) who will be in charge of deployment. However, this provider would not accept to make all required customizations (Li et al., 2011). Thus, communication could be a key factor to favor mutual understanding between managers and the provider and to help them identify the alignment possibilities.
- Users' involvement: As for on-premises ERP, cloud ERP adoption involves technological and organizational changes. So, users should be involved, even before choosing the cloud system,

to well identify requirements. If not, extra work would be done during the project and additional costs would be generated to satisfy the requirements. Then, cloud ERP would lose one of its benefits as cost saver. Involvement would be also beneficial for reducing resistances due to the changes of the used technology and business processes. When studying cloud ERP project steps, Makkar and Meenakshi (2012) find that involving end users is the second step and precedes the project team creation. This shows the importance of users' involvement to identify the organizational requirements.

- Training: When to switch toward a new IT, users need to be trained to use it effectively. The importance of training arises when it is about switching toward cloud computing, mainly cloud ERP, due to its limited possibilities of customization. Indeed, according to Géczy et al. (2012), unless customizable, a cloud-based system would require substantial organizational adaptations that involve users re-training to align to new practices.
- Interpersonal skills: Switching toward cloud computing involves changes in the required skills for managers since IT would be deployed by the cloud providers (Lequeux, 2009). So, managers would focus more on business issues of cloud-based solutions rather than technical ones. Then, managers would require less IT skills and more managerial ones. Regarding alignment concerns, as it is already noted, providers would achieve the customizations at a certain limit and that is why managers need to communicate and negotiate frequently with these providers. Having a set of interpersonal skills lets managers be better communicator and more convincing (Mezghani et Mezghani, 2014). Such skills are also useful for change management since successful changes require social practices (users' involvement, top management support,…) (Mezghani et Mezghani, 2007).

3 Research Methodology: A Case Study

Due to the exploratory nature of this research, the author opts for a qualitative approach based on a case study conducted within a Tunisian firm (PRO) specialized in producing and marketing IT goods. According to Yin (1994), the case study may be the most appropriate research method to study a complex organizational phenomenon. IT-business alignment involves many organizational changes that may be difficult to elucidate.

To provide a practical view of the theoretical ideas developed regarding cloud ERP in terms of alignment concerns, a comparative approach through a single-case study is adopted. According to Siggelkow (2007), "a single case can be a very powerful example". In fact, a previous research was conducted within this firm to study alignment during the on-premise ERP implementation. During this research, direct observation during 4 months and semi-structured interviews were conducted with the IS manager and the key ERP users. The concerned ERP is a Microsoft solution (Navision). The implementation project began in 2003 and PRO uses the same ERP till now (with regular updates). Actually, this firm is thinking about the possibility to switch toward a cloud ERP. Thus, an additional interview was conducted with the IS manger (as key informant) to explore the alignment concerns if to switch. The data collected during this interview are classified according the main themes of this research and analyzed manually.

4 Data Analysis and Discussion

To make comparisons between the on-premise ERP and the cloud one, the author begins by presenting the main results of observation and interviews linked to on-premise ERP implementation and alignment within PRO. The author focuses here on the sales process as the first process involved in the ERP project.

4.1 On-premise ERP implementation and alignment

When analyzing the business process and the ERP one before implementation, it is noted that the steps are almost the same. However, some misfit signs are detected when applying the process steps. The main signs are:

- A data entry operator is participating in the process. This is not conformed to the ERP process which predicted the removal of such operator to eliminate the double data entry.
- The goods codification is different (in terms of the characters' number allowed per code).

- The verification of the customers' outstanding amount before preparing their orders (this was not possible, *a priori*, with the ERP).
- When performing his tasks, the salesman uses the delivery orders as necessary documents. The ERP process predicted the removal of such documents.

Thus, the team project, in collaboration with top management, decided to make some adaptations within the ERP system and the business process. During the observation process, it is noted that these adaptations were necessary but not sufficient. Indeed, in the beginning, several adaptations were not concretized due to changes resistance and lack of clarity. The social dimension was then beneficial to achieve real alignment (table 2).

Table 2: Contributions of the Social Dimension to the On-Premise ERP Alignment[i]

ERP adaptations	**Contributions of the social dimension**
Basic configurations	• The project manager **communicates** frequently with the business managers to decide about adaptations. • Many users are **involved** to identify their needs. • The top manager **supports** users to identify clearly their needs.
Specific customization to be able to verify the customers' outstanding amount with the ERP system	• The project manager **communicates** frequently with the business managers to decide about adaptations. • Financial **support** from top management to achieve this additional adaptation.
Business process adaptations	**Contributions of the social dimension**
Converting the data entry operator function into a salesman function	• **Training** the concerned person to the new tasks. • Regular meetings (**communication**) with users to explain them the benefits of such change and track its achievement.
Creating a new codification	• Regular meetings (**communication**) with business managers to decide about the new codification. • Regular meetings (**communication**) with users to explain them the benefits of such change and tracking its achievement.
Removing the delivery orders use	• Regular meetings (**communication**) with business managers to decide about this process change. • **Training** the concerned person to the new method.

The conducted interviews revealed also that both IT and business managers demonstrated an important level of involvement in interactions and willingness in hearing and satisfying the users' needs. This shows that these managers have interpersonal skills which, in turns, helped them to accomplish their interpersonal roles as revealed in table 2.

In the following section, the author will explore if the IS manager is still willing to perform such practices when to switch toward a cloud ERP.

4.2 Switching toward cloud ERP and alignment concerns

As already mentioned, after studying on-premise ERP alignment within PRO, a semi-structured interview is conducted with the IS manager (who was the project manager when implementing the previous ERP) to explore the alignment concerns that could be linked to a cloud ERP implementation. Indeed, PRO is studying the possibility to switch toward a cloud-based solution.

The collected data are coded in reference to three main themes: intention to switch toward cloud ERP, alignment concerns and social dimension (table 3).

Table 3: Interview Results

Intention to switch toward cloud ERP	**Alignment concerns**	**Social dimension**
• IS manager intends to switch but he is actually studying risks and benefits with IT specialists and business managers within the firm. • Benefits: more flexibility for employees, no maintenance, no need to update. • Risks: compatibility, costs, security, connectivity, switching time required.	• "Switching must be **planned strategically**". IS manager affirms that such switching involves a double challenge: "cloud" and "ERP". • "Emergent technology in our context, we should also evaluate the cost efficacy regarding managers' needs". The IS manager insists on cloud ERP **customization** concerns in terms of costs. • IS manager thinks that having many existing applications is a challenge since switching would need **integration** with cloud ERP (technical fit). • IS manager prefers solutions that involve minimum **organizational change**.	• Frequent **discussions** with other managers within the firm to study the compatibility concerns and the eventual organizational challenges if to switch toward cloud ERP. • **Meetings** with cloud providers and IT specialists (outside the firm) to collect information about existing systems and the possibilities to provide offers according to the organizational needs. • IS manager thinks that **training** is an important matter when to switch because it would help users to be familiarized with any organizational change. • "Top management supports innovations". • IS manager thinks that, once provider is selected, regular **discussions** must be engaged to early plan the customizations.

From table 3, it is possible to note that the interviewed IS manager has the intention to switch toward cloud ERP but insists on the necessity to take the required time for evaluating the switching alternative in terms of benefits and risks. The IS manager discourse shows that, besides cloud-linked concerns (security, connectivity), thinking about switching toward cloud ERP integrates alignment concerns. Indeed, as cloud adoption involves big changes in the way the IS will be managed, the IS manager affirms that "switching must be planned strategically". Other alignment concerns can be noted from table 3 as cost efficacy of customizations, technical fits with some existing applications and the eventual organizational changes.

Another interesting result is the presence of the social dimension in the discourse of the IS manager. Indeed, although this manager focused mainly on technical aspects when talking about switching, his discourse integrates terms as "meetings", "discussions", "support" and "training" as practices to help doing customizations and switching.

4.3 Discussion and implications

Both the results from on-premise and cloud ERP studies within PRO show that alignment is a real challenge for ERP implementation. While alignment concerns linked to on-premise ERP were

empirically studied in several researches, the recent interview conducted with the IS manager of PRO can be discussed in reference to recent studies focusing on cloud ERP adoption. Even if "studies on cloud-based ERP are very limited" according to Peng (2015), these studies focus mainly on benefits and risks that can be linked to alignment concerns.

As reported in ERP literature, the ERP alignment can be reached by adaptations on the ERP system or on business processes. Such alternatives are mentioned within the IS manager discourse when talking about cloud ERP alignment:

- Cloud ERP adaptations concerns: the major concern, for the interviewed IS manager, is the cloud ERP customization. Indeed, during the actual period, PRO is collecting information about cloud ERP providers with a focus on the possibilities of customization and integration with other applications rather than on cloud-linked concerns as scalability or efficiency. First, this shows that the IS manager considers, as for on-premises ERP, the technical fit as an important matter when to choose and adopt a cloud-based ERP. Second, this shows that the IS manager is conscious that this fit is difficult to achieve and costly. As mentioned in the literature review, this fit "becomes even more difficult to manage in the cloud environment" (Peng, 2015). So, IS managers should really focus on such concern when thinking about switching.
- Business processes adaptations concerns: if cloud ERP customization is difficult and costly, managers may opt for business processes adaptation. Although the interviewed IS manager does not prefer to do such adaptations, the fact that he mentioned such alternative shows an awareness of it. This reveals a reflection in term of processes alignment and illustrates the challenging issue of this alignment when to switch toward cloud ERP. Indeed, this alternative may cause change resistance. Moreover, Salleh et al. (2012) add that "in terms of organizational change, Cloud ES may fail to give customer greater sense of ownership as they neither own the infrastructure nor run the applications". Besides, when integrating applications from many providers, this involves alignment to many external units. This could be a risky choice that must be well studies before switching.

As during on-premise ERP, the interviewed IS manager is conscious about the alignment-linked risks when to switch toward cloud ERP and insists on the social dimension-linked practices to reduce such risks. Nevertheless, as reported in tables 2 and 3, one can note that while social dimension involves interactions mainly within the firm in the case of on-premise ERP adoption, this dimension is extended to involve external units when thinking about cloud ERP. Indeed, the IS manager insists on discussions and meetings with providers to study closely the customization possibilities. This is evident since cloud solution deployment is assumed by a third party.

To sum up, alignment appears as a real concern even when talking about cloud ERP presented theoretically as an alternative to on-premise ERP that can be adopted quickly and with less concerns. Moreover, it is a true challenge since all kinds of adaptations would be monitored with a third party. From the literature review and the interview results, the social dimension components could be presented as supportive practices to well achieve alignment when reducing risks.

Based on these ideas, a preliminary framework is proposed (figure 1). This framework can be useful to clarify the alignment challenge when to switch toward cloud ERP. Such framework needs to be discussed deeply through additional case studies.

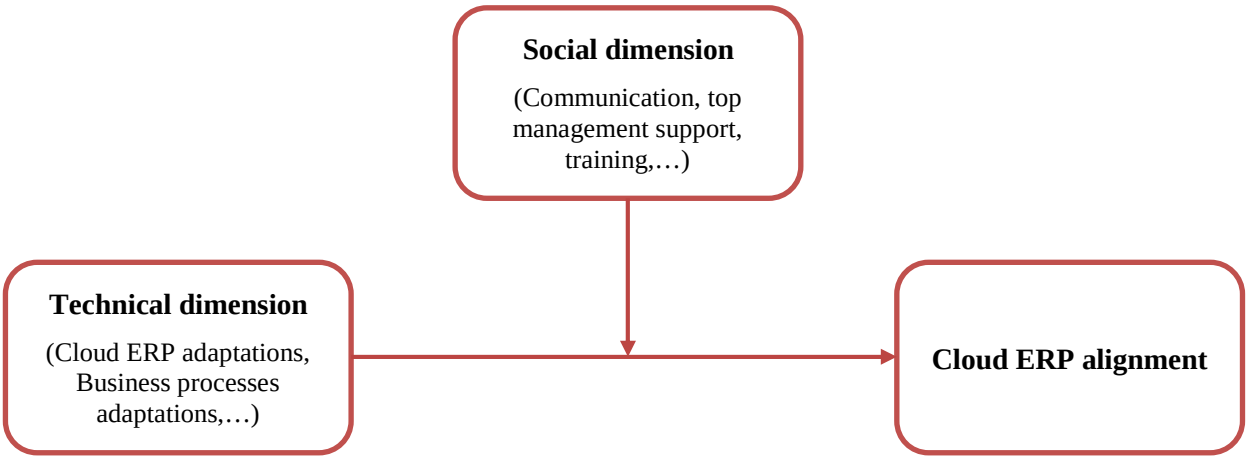

Fig 1: Framework for Alignment Challenge

5 Conclusion

This paper aims to explore the alignment concerns linked to cloud ERP adoption. In fact, since the development of the SAM by Henderson and Venkatraman (1993), it is argued that IT-business alignment is a significant sign of IT projects success. Besides, this concept involved several researches in IT field. When analyzing the evolution of these researches, Parappallil et al. (2012) affirm that there is an on-going trend toward studies focusing on alignment concerns linked to cloud computing due to "the enormous increase in IT outsourcing and investments in Cloud Computing services".

Even the evolution of cloud-based ERP as an alternative to on-premise ERP, "studies on cloud-based ERP are very limited" (Peng, 2015). The existing ones focus mainly on describing benefits and risks without reflection to alignment concerns although such concerns were presented as key factors for on-premise solutions success.

Through a literature review, the author tried to identify the alignment concerns linked to such solutions. It is stated that these concerns are a true challenge since a third party (providers) is closely involved in cloud ERP implementation and deployment. Indeed, as an ERP, cloud one would require system and processes adaptations. However, these adaptations seem more risky since they involve external actors that can be more than one provider (cloud ERP applications can be bought from many providers).

These ideas were supported by a case study conducted within a Tunisian firm in which a previous research focusing on alignment concerns during an on-premise ERP project was conducted. In fact, as for this project, the interviewed IS manager insists on the necessity and difficulty of achieving alignment if to switch toward cloud ERP. The results of this case study join the theoretical statements through which the technical dimension is important to make the required adaptations to reach alignment. However, this dimension may be insufficient to reduce risks linked to adaptations and need to be supported by social practices. Indeed, as for on-premise ERP, potential failure of cloud ERP should be attributed to human problems (Peng, 2015).

From these ideas, a framework is proposed (figure 1). This could be helpful to conduct further research on alignment challenge linked to cloud ERP. This framework needs to be discussed deeply through additional case studies.

From a managerial perspective, this research could help firms thinking to switch toward cloud ERP as the used case study shows empirically some of the alignment concerns and the required practices to overcome them.

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Financial, Anti-Money Laundering and Terrorism Financing Disclosures by Non-Profit Organisations

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Abstract

As many public sector organisations are facing funding cuts, the prominent contributions of NPOs in providing sustainable public services is growing as without these efforts, communities will collapse with devastating effect on the country's development. However, it is vital for NPOs to provide sufficient transparency level through their annual report to facilitate the assessment on their accountability due to the increased public scrutiny regarding the manner in which NPOs are run and managed as there are increasing incidences of fraud and misappropriation of assets by NPOs. Hence, this study examines the extent of disclosure made by the NPOs in relation to financial reporting, anti-money laundering and terrorism financing perspective. The annual reports of 83 NPOs registered with Companies Commission of Malaysia were assessed for the year of 2009 until 2011. Findings of this study for the financial reporting perspective revealed that, the disclosure of NPOs is only at moderate level towards the financial stability, whereas, disclosures for the financial performance and organization efficiency was relatively weak. Similarly, results showed that the disclosures of anti-money laundering and terrorism financing within NPOs in Malaysia is weak. This in turn is expected to provide useful information in strengthening NPOs transparency level with the ultimate aim to increase their credibility to build the public trust.

Keywords: Non-profit organization, financial reporting, anti-money laundering, counter terrorism financing

Introduction

A non-profit organization (NPO) is also widely known as not-for-profit organization comprises of non-governmental organization (NGO) and charities (Connoly and Kelly, 2011). The importance of this NPO is broadly associated with the provision and assurance of reliable public services such as health and social services which are crucial for any commodities. To date, the crucial debate arises that focus on the transparency of NPO as according to FATF (2013), the non-profit sector is associated with money laundering and terrorism financing activities. Financial Action Task Force (FATF) was established in 1989 as a policy-making body that is responsible to generate political will in the development of legislative and political reforms in the areas covering anti-money laundering and terrorism financing. Therefore, it is crucial for NPO to have the quality and transparency in reporting (ICAA, 2013) to maintain, protect and enhance public trust and confidence.

Transparency would form a key element towards the NPO performance and sustainability due to their vital role in societal development. However, the frequently asked questions surrounded the transparency of NPO is to what extend NPO is said to be transparent enough and how to achieve that. As for Malaysia, the current reporting framework only requires compliance with minimum regulatory requirements which caused unsatisfactory impact on the level of transparency. Therefore, the regulatory authorities are engaging various efforts in order to promote transparency as one element of good governance practice for NPO in response to the Asia Pacific Group (APG) requirements as APG is responsible to assess the compliance with recommended practices by FATF in the Asia Pacific region.

Transparency at the same time has become the global phenomenon as enhancing transparency would provide accurate, complete and informative information to particularly regulatory authorities as well as relevant stakeholders in conducting effective supervision or monitoring and effective information gathering and investigation on the non-profit sector (FATF, 2013). However, NPO needs to identify several significant areas to focus on which would be parallel with their mission to mainly discharge the social activity which overrides any financial motive so that there would be a sustainable pipeline in order to meet the needs of diverse range of stakeholders which include investors, beneficiaries and the public itself so that they are able to be more self-sustaining. At one time, NPO might experience the challenge in reconciling this new demand. Nevertheless, increasing recognition of their role in discharging the public services and a better understanding of how this might be achieved is vital. This paper seeks to bring clarity on the magnitude of transparency in order for NPO to gain its sustainability and able to improve their performance to social at large through clarity of any inconsistencies and ambiguities right from the start.

The understanding of NPO and its role is vet through to clear the ambiguity of imprecise distinction between organizations as well as to give clearer notion of NPO. Then, this paper discusses on the transparency which focuses on the financial reporting perspective, anti-money laundering and counter terrorism financing. This is significant in determining the milestone currently the NPO has set in relation to their accountability and the factors that influenced such actions and this paper also explores the magnitude of transparency in relation to sustainability of NPO and its performance by taking into account the contextual factors in which the NPO operates.

Understanding the NPO and its Role

NPOs fall under the third sector which is also known as charitable sector, voluntary sector or social sector. According to Macedo and Pinho (2006), NPO is an association of individuals who perform public tasks that have been delegated by the state and perform public tasks for which there is demand that neither to be performed by the state nor for-profit organizations. NPOs also influence the direction of policy in the state, the for-profit sector or other NPOs. According to the International Classification of Non Profit Organizations (ICNPO), there are 12 categories of NPOs in the system, namely, culture and recreation; education and research; health; social services; environment; development and housing; law advocacy and politics; philanthropic intermediaries and volunteerism promotion; international activities; religion; business, professional associations and unions; and lastly those that are not elsewhere classified.

There are countless significant roles carried by NPOs which focus totally on society as NPOs are not interested in profit (Gonzalez, Vijande and Casielles, 2002). NPOs are becoming an important part of our society as it offers important services that are relevant for the society such as health, social welfare and education (Duque-Zuluaga and Schneider, 2006) as well as cultural, religious and public objectives (Bottiglieri, Kroleski and Conway, 2011) which are not provided by for-profit sector. According to Mokwa (1990), the main purpose of NPOs has been established as to organize and oversee voluntary social action to solve the humanitarian problems which embrace significant social ideas and perform critical social function such as attracting resources, for example, funds and volunteers, establishing priorities for social action program and allocating resources to beneficiaries. Moreover, Salamon (1999) argued that, NPOs are established in order to serve four critical functions, namely, providing programs and services to the community, providing a mechanism for promoting individual initiatives for the public good, providing means for drawing public attention to social issues and developing a sense of community among the citizens by providing means of engaging in social welfare.

Methodology

Sample and Data Collection

This study focuses on the 83 NPOs from various backgrounds that have registered the establishment with the Companies Commission of Malaysia. The research approach involves the content analysis of annual

reports which consist of the 3 years data under reviewed collected from year 2009 until 2011. Content analysis has been widely used in prior studies (e.g. O'Donovan, 2002; Clemens and Douglas, 2006) for the purpose of measuring voluntary and mandatory disclosures in annual reports. This study emphasis on the data disclosed in relation to the financial reporting perspective, anti-money laundering and counter terrorism financing.

A summary of the main categories of data disclosure is shown in Table 1 below.

Table 1: Main Categories of Data Disclosure

Category 1 Information on Financial Reporting Practices	**Disclosure Items**
	Financial Position/Stability (15 items)
	Performance of Financial Policies (5 items)
	Organisational Efficiency (3 items)
Category 2 Information on Anti-Money Laundering and Counter Terrorism Financing	**Disclosure Items**
	Board Committee, Policies and Strategies (9 items)
	Sources of Revenue (6 items)
	Fund Management (3 items)
Total number of items	**41 items**

A summary of the disclosure items under Category 1 of data disclosure are listed in Table 2.

Table 2: Summary of Disclosure Items under Category 1

Financial Position/Stability	
1	Statement of income (receipts) and expenditure (payments)
2	Statement of financial position
3	Statement of changes in equity
4	Cash flow statements
5	Revenue from principle activity
6	Details of revenue from principle activity
7	Other sources of revenue
8	Details of other sources of revenue
9	Other expenditure
10	Details of other expenditure
11	Commitments and contingencies
12	Accounting policies
13	Accounting treatment on provision of bad debts
14	Accounting treatment on current assets
15	Accounting treatment on assets and liabilities
Performance of Financial Policies	
1	Summary of management and performance policies
2	Explanation of reflection on performance during the period covered by trustee
3	Operating statement
4	Budget information and overhead allocation
5	Auditors opinion on financial performance of organisation
Organisational Efficiency	
1	Program spent
2	Fundraising method and expenses
3	Capital management statement

A summary of the disclosure items under Category 2 of data disclosure are listed in Table 3.

Table 3: Summary of Disclosure Items under Category 2

AML Committee, Policies and Strategies	
1	Anti-fraud policies strategies
2	Oversight board committees
3	Anti-money laundering (AML) training for members
4	List of directors
5	List of members
6	List of employees
7	List of volunteers
8	Statement of changes in circumstances
9	Statement of unusual nature item
Sources of Revenue	
1	Types of charities
2	Revenue from principal activities
3	Details of revenue from principal activities
4	Other sources of revenue
5	Details of other sources of revenue
6	Investment income - if any
Fund Management	
1	List of activities for generating funds
2	Details of fund distribution
3	Details of fund utilisation

It is important to understand the types of information reported as well as determine the extent of information being reported by NPOs in their annual reports. Therefore, this study investigates the extent of disclosure using the disclosure score as per Table 4 below.

Table 4: Disclosure Score for Data Disclosed

Financial Reporting Practices	
Score	**Indicators**
0	No disclosure
1	Briefly disclose, mainly descriptive and qualitative information
2	Disclose with quantitative and qualitative information
Anti-Money Laundering and Counter Terrorism Financing	
Score	**Indicators**
0	No coverage/No disclosure
1	Minimum coverage/Less detailed
2	Detailed and honest, including organisation's shortcomings and commitments

A content analysis of the data gathered was carried out using Statistical Package for Social Science (SPSS) software that resulted with various descriptive statistics covering the main categories of data disclosure.

Financial Reporting, Accountability and NPOs

Concern about the lack of transparency in NPO sector has been expressed by the donors and relevant stakeholders. Past literature highlighted the refusal of most NPOs to disclose information in their annual reports (e.g. Burger and Owens, 2010; Behn, DeVries and Lin, 2010). Financial reporting should be transparent in order to encourage trust within and of the NPOs and the external pressure for transparency

come in placed as it deals with public fund (Chartered Accountants of Canada, 2011) and works for the public benefit. NPOs need to combat on the common perspective of their financial reporting to be less trustworthy, less useful and less relevant. Therefore, the annual report represents the best way to demonstrate the extent of transparency that should meet the best practices by providing comprehensive disclosure on its achievements and future plans. According to Flack and Ryan (2002), annual report is a useful mechanism to provide sufficient transparency through the information disclosed for discharging accountability to the stakeholders as a whole. The proposal for increased financial reporting requirements was due to the increasing voices from the public to observe the accountability of NPOs (Calabrese, 2011). This in overall could increase the credibility of NPOs in the long run.

Financial Position / Stability

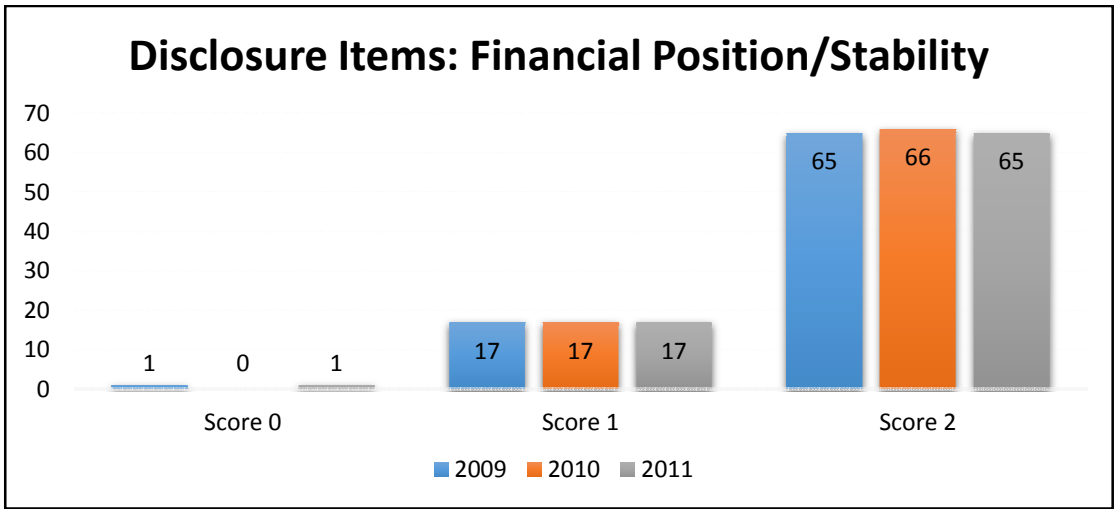

Figure 1: Financial Position/Stability Disclosures

The review of 83 NPOs' annual reports showed that 67% of the disclosure items under financial position/stability have been disclosed constantly by nearly half of NPOs throughout the three years under review, that is 37 NPOs in year 2009, 38 NPOs in year 2010 and 36 NPOs in year 2011. This is a good signal for NPOs to gain the public trust as most of the companies willing to demonstrate their transparency, in particular, to provide useful information in relation to financial position, sources of revenue received and expenditure incurred which could be the main focus by the stakeholders. It is an important strategy showed by NPOs in ensuring their stability in the long run by communicating relevant information on financial position to the current and future resource providers.

Furthermore, due to the current economic environment, many public sector organisations are facing funding cuts. Therefore, the prominent contributions of NPOs in providing sustainable public services is growing and it is paramount for the NPOs to record and provide details information on the sources of revenue received since NPOs rely on a mix of revenue sources such as donations, government grants, earned income and investment income which ultimately would be scrutinized by the public at large. Withdrawals of support by the donors and other stakeholders might happen in the situation where NPOs fail to communicate sufficient information regarding the effectiveness in managing the resources. This negative perception should be avoided as accountability increases credibility of the organisations (Gray and Bebbington, 2006) with consequent positive impact on organisational sustainability.

There is an important link between transparency and sustainability of NPOs as the provider of public services. The ability of NPOs to establish these relationships is expected to result in the flow of resources to the organisations. However, NPOs are still not taking full advantage of the financial statements as communication device to gain donors and public trust based on five best practices, namely, completeness,

accessibility, transparency, full disclosure and relevance (Gordon, Khumawala, Kraut and Neely, 2010). As a consequence, limited disclosure by NPOs due to the incomplete of record keeping, limited financial monitoring and unstructured volunteer management would hinder NPOs growth, sustainability and effectiveness (Minzner, Klerman, Markovitz and Fink, 2014).

Performance of Financial Policies

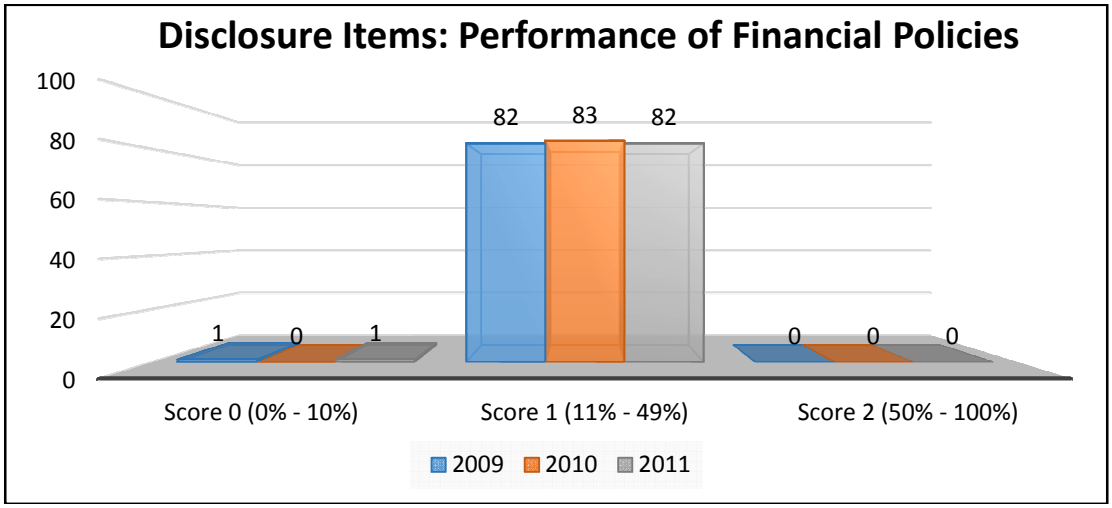

Figure 2: Performance of Financial Policies Disclosures

According to Gonzalez et al (2002), NPOs can be defined as the organisations without a financial objective, under private control which aims to generate a social benefit for a specific sector of society. The result gathered from the 83 NPOs showed that only 33% of the disclosure items under performance of financial policies have been disclosed by the NPOs. From the result obtained, it can be agreed with the judgment of Gonzalez et al (2002) as no comprehensive disclosure has been made in relation to the financial performance of the organisations which can be relied upon to contradict with the negative perception. Moreover, it is believed that NPOs tend to delay the disclosure due to unfavorable news (Reheul, Caneghem and Verbruggen, 2014) which ultimately might affect the donation decisions as publicly available information is used as a guidance tool (Lammers, 2003). This is supported by Breckell, Harrison and Robert (2011) whereby only 8% of charity under review provided impact information in relation to external reporting, while on the other hand, 68% provided some information on outcomes. However, only few disclosed targets, reported the failure, all of which this kind of important information would be helpful for stakeholders' judgment.

Accountability involves ensuring the various aim and expectations of stakeholders are met. Therefore, it justified the requirement to have the comprehensive disclosure on the financial performance as the outcome of accountability lies with transparency. The study done by Said, Mohamed, Mohd Sanusi, Syed Yusuf (2013) showed that good internal control system enhance transparency of the mosque which caused programs carried out by the mosque will be improved as a consequences of enhanced donor's confident to contribute more fund. Apart from that, any opinion on the improvement of the financial performance of NPOs is essential to be disclosed so that it is answerable to the stakeholder in order to prove on the ability of NPOs to retain a portion of annual income for the purpose of reinvestment and sustainability since their mission may not be driven by the profit motive (McDonald, 2007).

Organisational Efficiency

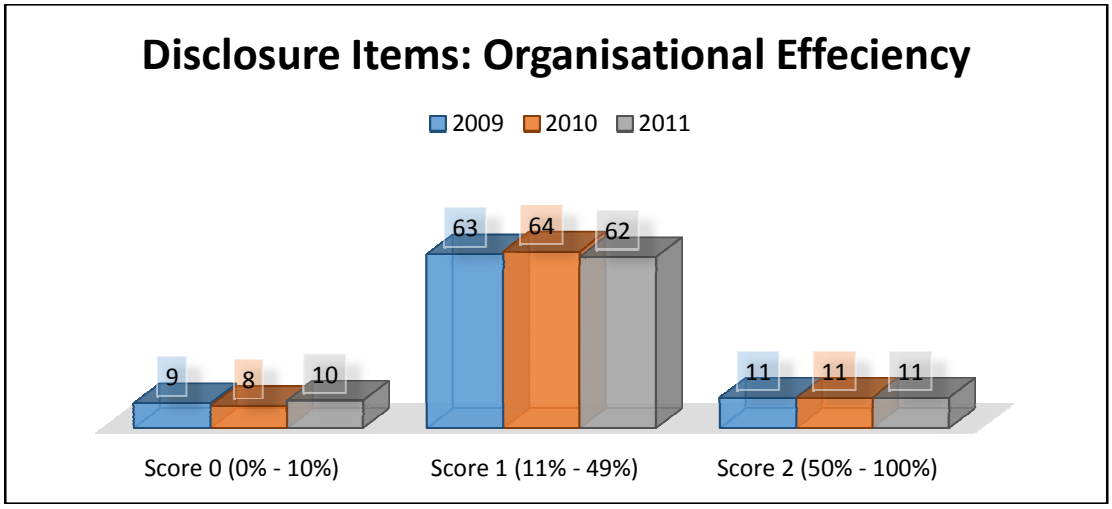

Figure 3: Organisational Efficiency Disclosures

It is paramount for NPOs to remain publicly accountable for very substantial public funds as their income would depend on mix sources such as public donations and government funding and fees. Therefore, the inflow and outflow of the public fund needs to be properly recorded and disclosed as individuals' belief that their contribution will be put to good use based on their trust (Taniguchi and Marshall, 2014). However, based on the reviewed data from the annual reports, the NPOs involved were only constantly disclosed 44% of the disclosure items under organisational efficiency. This shows that, there are still a lot of rooms for improvement need to be taken into consideration by NPOs to be more transparent in terms of their efficiency as they also face pressure from the external resource providers to present the evidence on how the resources are used and achievement acquired although they can voluntarily decide to measure on the social impact for their own purpose (Arvidson and Lyon, 2014).

The outcome of accountability is transparent as any actions must be answerable to the stakeholders. Therefore, the transparency should emphasis on the three areas which include, transparency on how funds are spent, transparency in the method of intervention and lastly, to conduct regular monitoring and evaluation involving the stakeholders or making the outcomes of these known to the stakeholders (McGann and Johnstone, 2006). Apart from that, NPOs should aware that the extent of disclosure made on the efficiency particularly on the spending of public fund would have a significant effect on donations (Marudas, 2004). In particular, NPOs would survive substantially from public funds if they can manage the flow of resources and reduces the uncertainty in their environment (Pfeffer and Salancik, 1978).

The availability of NPOs information regarding the operation is crucial for donation decisions among the current and future donors. This will justify the efforts and efficiency of usage since the decision of donors would be based on the type of activities and effectiveness of the activities conducted (Iwaarden, Wiele, Williams and Moxham, 2009) to suit the primary purpose of having NPOs in delivering the public services. Even though there is no clear measurement on how to assess the effectiveness of NPOs, the accessibility of information disclose can actually assist donors and relevant stakeholders on their decision on donations so long as NPOs are able to convey the efficiency and effectiveness of the operation directly to them (Parsons, 2007). Therefore, the comprehensive disclosure in the financial reporting would indeed support the decision making among the donors besides building and strengthening the public trust.

Anti-Money Laundering and Counter Terrorism Financing Reporting

NPOs are organizations established with specific social missions which rely heavily on the contributions from supporters. NPOs normally process and manage a large amount of fund from various sources. However, since NPOs operated under a less formal regulatory control compared to public listed companies, thus, tendency of NPOs fund to be misuse for money laundering and terrorism financing is high. Issues of non-profit sector being misused for money laundering and as terrorist entities have been a long held practice (Winer, 2008). For example, according to Bricknell, (2011) one of the NPOs known as Irish Republican Army (IRA) was doing fundraising for their paramilitary activities. Besides, there is also known exploitation of charitable giving by some groups such as Hamas and Hezbollah. Due to the terrorist attack of 11 September 2001, NPOs were identified as potentially significant contributors towards terrorism financing, thus, have been included in Financial Action Task Force series in combating the issue. FATF has given some serious recommendations to increase the transparency of NPOs. Among of them are to adopt methods of best practice with respect to financial accounting, verification of program specifics as well as development and documentation of administrative (FATF, 2013). Thus, a comprehensive disclosure among NPO sector is required to ensure NPOs are not being misused for money laundering and terrorism financing.

AML Board Committees, Policies and Strategies

Special Recommendation by FATF advises countries to review their laws and regulations to protect the NPO sector from being misused by terrorist organizations posing as legitimate entities. The establishment of board committee to develop policies and strategies regarding money laundering and terrorism financing is crucial to ensure charities are capable in dealing with this complex and specialized issue. Besides, it also helps in building community trust and demonstrates charities responsiveness towards anti money laundering and counter terrorism financing. According to UK Corporate Governance Code, the board committee should be represented by members that have appropriate and sufficient skills, experience, independence and knowledge in order for them to discharge their duties and responsibilities. Thus, the appointment of board committees is crucial in managing anti-money laundering and terrorism financing. Besides, oversights boards can also be one of the options for the charities in oversee the issues.

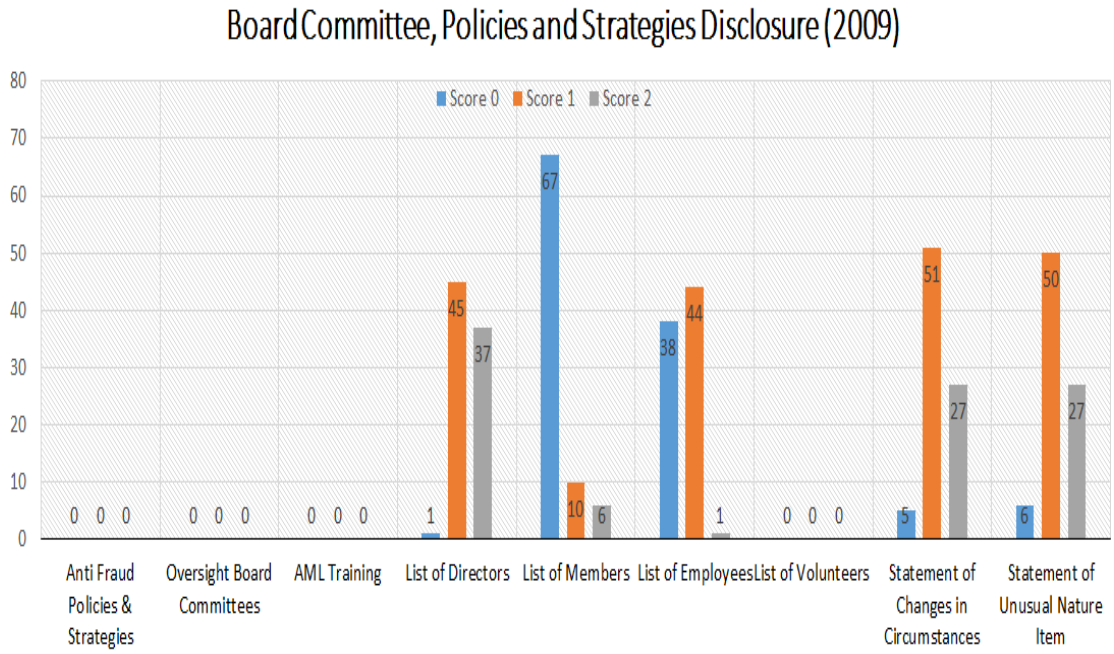

Figure 4: Board Committee, Policies and Strategies Disclosure (2009)

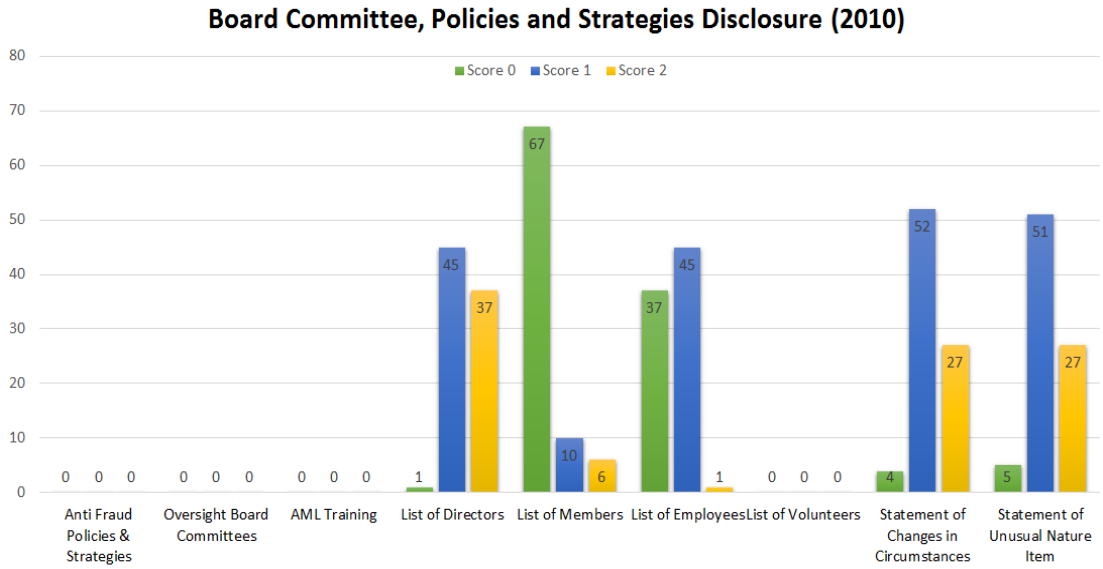

Figure 5: Board Committee, Policies and Strategies Disclosure (2010)

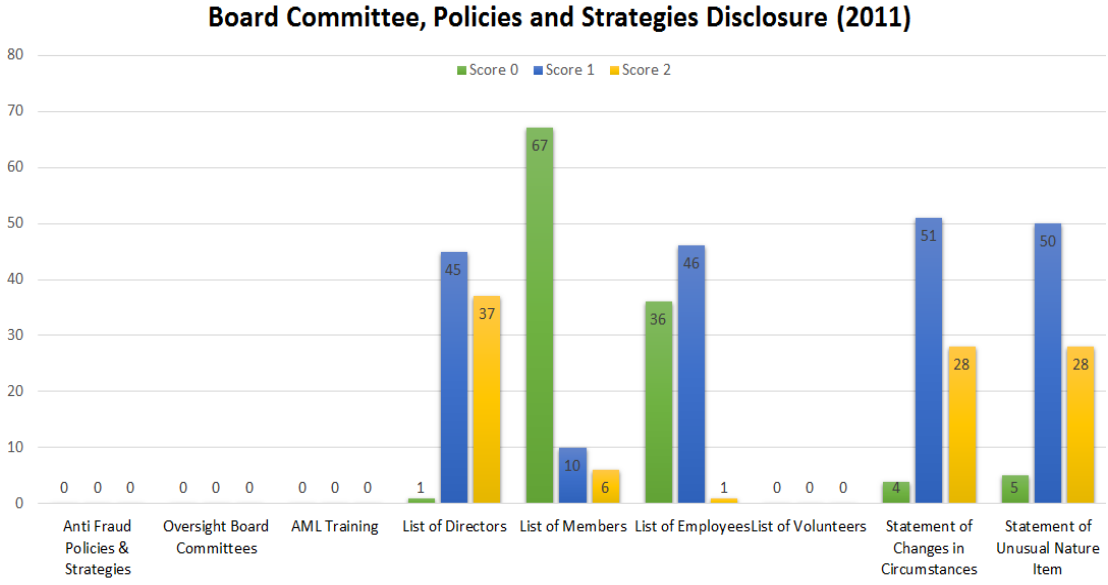

Figure 6: Board Committee, Policies and Strategies Disclosure (2011)

From the analysis run throughout the three years (2009-2011), it is found that none of the charities in Malaysia discloses information regarding the board committee, policies and strategies in combating money laundering and terrorism financing. Besides, there is also no information regarding sending the charities members to be involved in anti-money laundering courses and training. The results might indicate that, out of all the 83 charities, none of them has established Anti-Money Laundering board committee and has not started to initiate information on anti-fraud policies and strategies. We might also say that NPO sector in Malaysia is not responsive enough and lacks of awareness towards these issues, which lead to NPOs in having high potential to be misused for money laundering and terrorism financing. However, if the charities have undertaken the establishment of board committee, policies, strategies and

ongoing training of anti-money laundering and terrorism financing, good governance requires those to be disclosed in the charities annual reports.

In addition to the disclosures of board committee, charities in the first place should emphasize on the list of directors, members, employees and volunteers. However, from the analysis conducted throughout the 3 years, none of the charities disclose information on volunteers involved in their activities and only 20% (16) charities disclose information on members of the charities. Besides, more than 50% (42) of the charities disclosed the minimum disclosures about their employees. From the analysis, it is found that most of the charities, 99% (82) disclosed information on their directors. However, only 45% (37) of charities explained in detail and uses director biographies to demonstrate skills, experience and diversity of board of directors. Out of 83 charities, about 6 of them did not disclose any information in the statement of changes in circumstances and unusual nature. In addition, 34% (28) of the charities explain detailed information on changes of circumstances and unusual nature.

The charities in Malaysia are encouraged to disclose information on the AML board committee members by giving brief biographies of the board trustees so that users can understand the range of skills and the diversity of the trustees. Policies and strategies on anti-money laundering and terrorism financing should exist and the disclosures should be in detailed sentences including how often the policy is reviewed. This is in accordance to Statement of Recommended Practices (SORP, 2013) which highlighted that good reporting is when the charities provides a coherent explanation of the charity's policies and strategies, also explaining the activities undertaken to combat money laundering and terrorism financing.

Sources of Revenue

In response to the dynamic environment, NPOs become more financially concerned towards attracting revenues to help them succeed in delivering their mission-related activities. Jiao (2011) has reported that NPOs have been found to be involved in business professional operations or having other trading income as a backup to serve the community better. Thus, disclosures of revenue in the charities annual reports are crucial since there is a diversification in their revenue sources. In the case of money laundering and terrorism financing, disclosures of revenue sources helps to provide information on where the money comes from and how the money are being used.

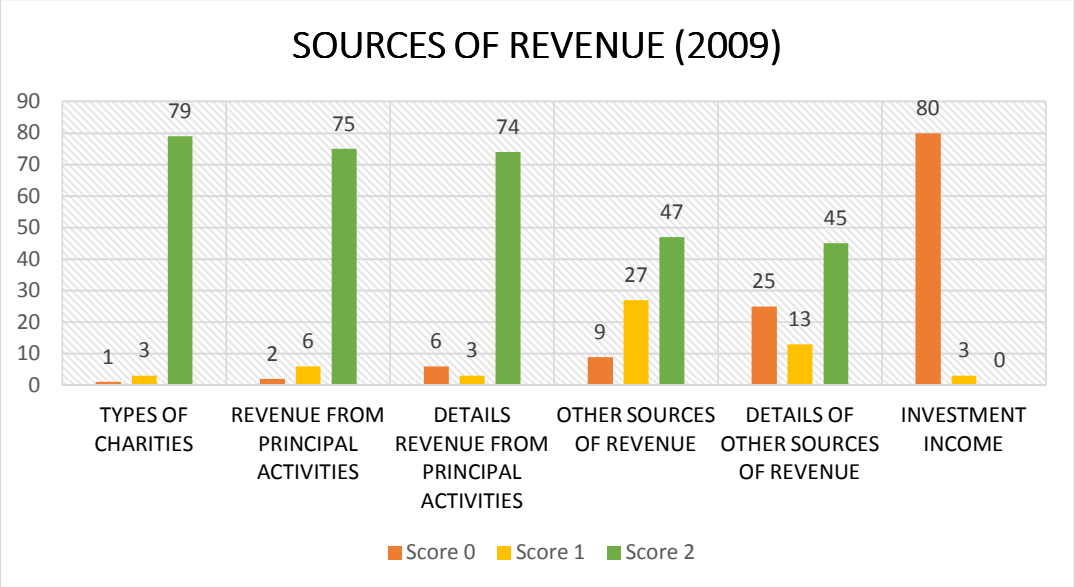

Figure 7: Sources of Revenue Disclosure (2009)

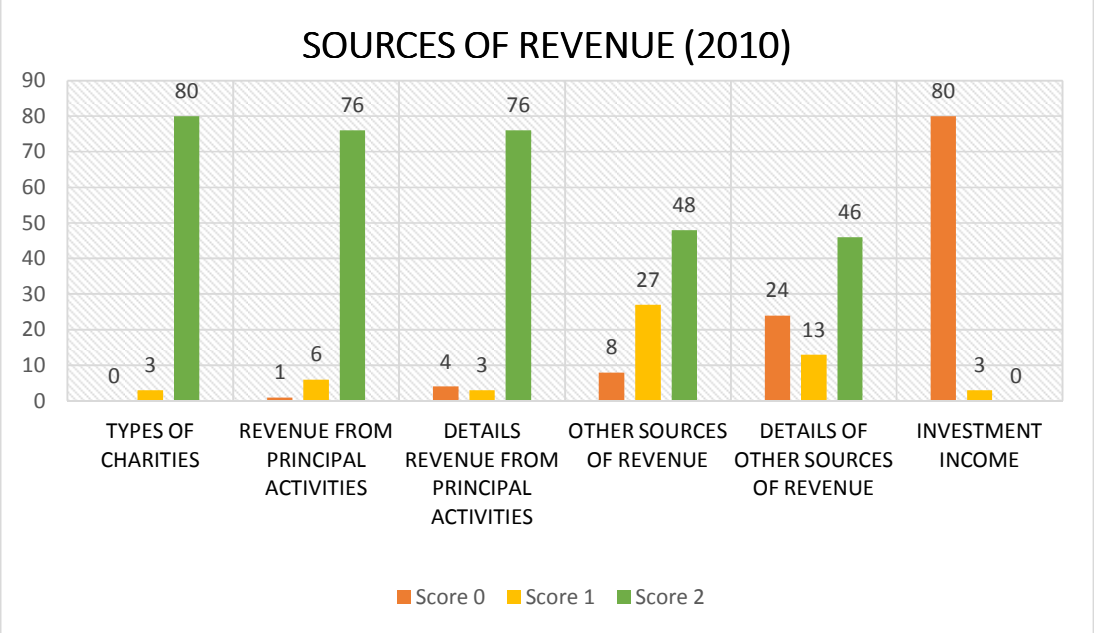

Figure 8: Sources of Revenue Disclosure (2010)

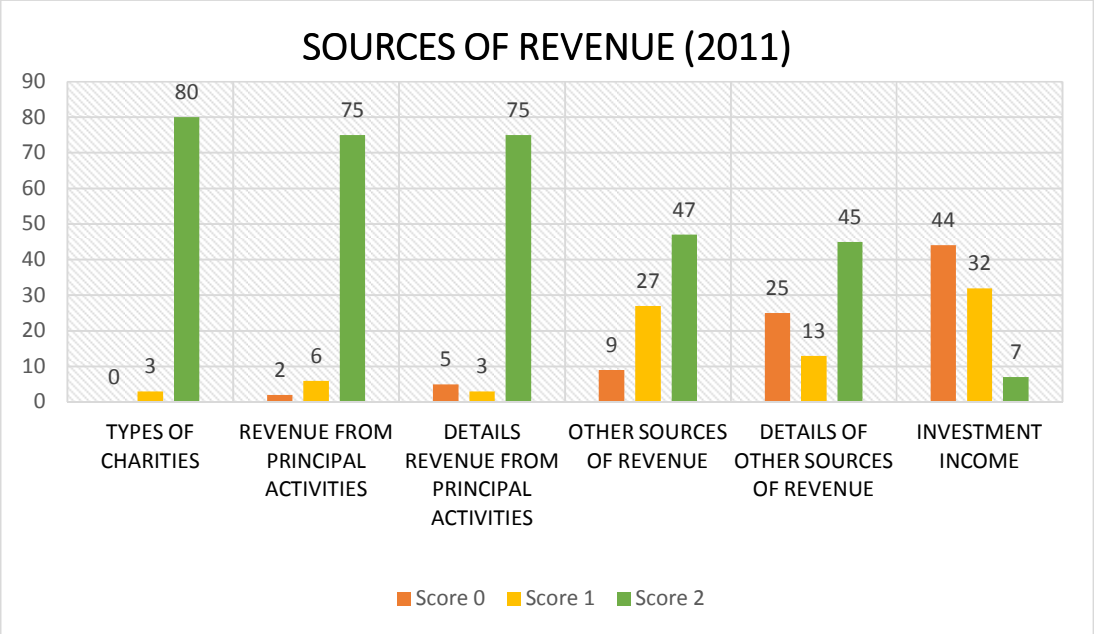

Figure 9: Sources of Revenue Disclosure (2011)

From the analysis, 96% of NPOs disclose in details the type and nature of charities; also details of revenue from their principal activity which are mainly from membership fees, grants and donation. However, information on the other sources of revenue such as investment income and business generation income are not disclosed even with a brief explanation except for the year 2011 whereby 7 out of 83 charities started to provide information on investment income such as rental, dividend and bonuses. This suggests that for year 2009 and 2010, all charities are highly dependent on their principal activities. On

the other hand, starting from year 2011, some charities have started to generate their own income through investment and business activities. However, no disclosure is required for charities that might not have other sources of income. Therefore, if charities income comes from many sources of revenue apart from the principal activity, best practice requires charities to give detail disclosures of every type of income generated as an indication of good governance.

Fund Management

Transparency in disclosures of fund management in the charities annual reports is important because disclosures of information helps the resource provider or public to monitor the management of the fund given to the NPO and the effectiveness of the programs conducted beneficial to society. According to (FATF, 2013) charities can be misuse for the name, status and funding. This can be done by concealing the funds under legitimate purposes and disbursed it to terrorist organizations and activities. Besides, charities might be used to launder money through transmission of funds between multiple locations. Thus, being transparent by disclosing the details of fund distribution, utilization and list of activities in generating the fund are important to build public trust by showing that the particular charities do not involved in money laundering and terrorism financing.

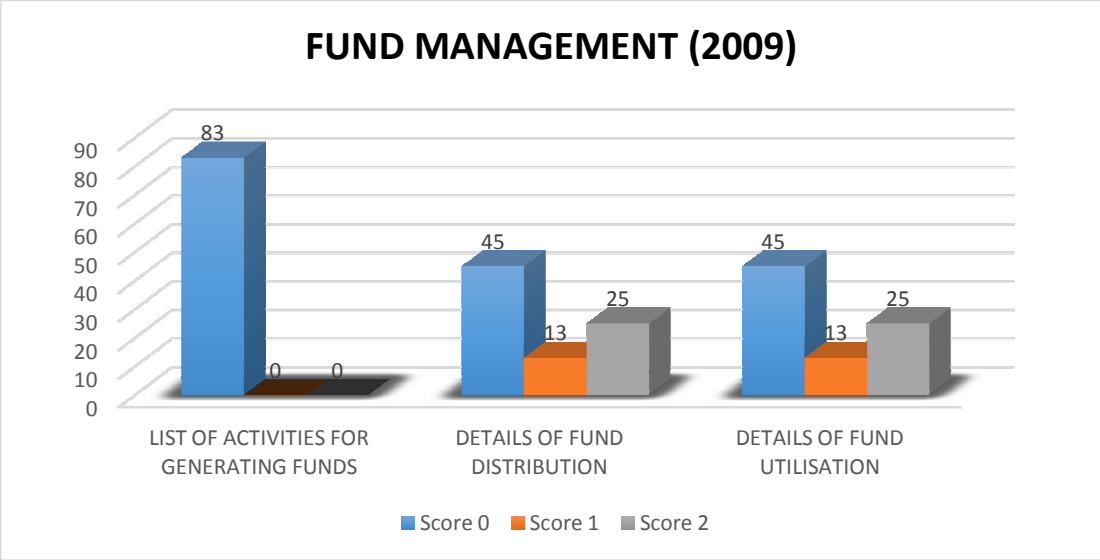

Figure 10: Fund Management Disclosures (2009)

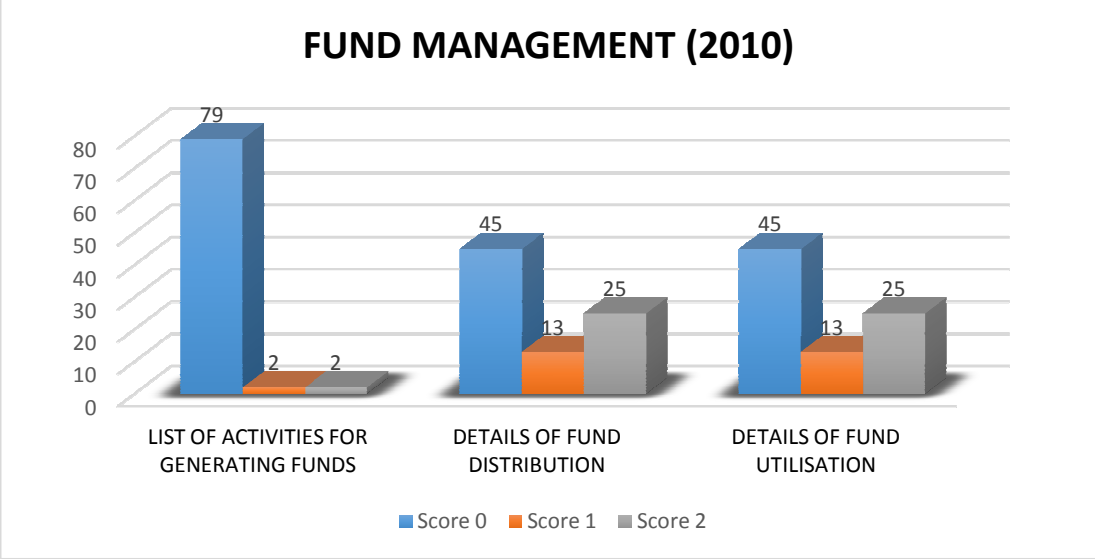

Figure 11: Fund Management Disclosures (2010)

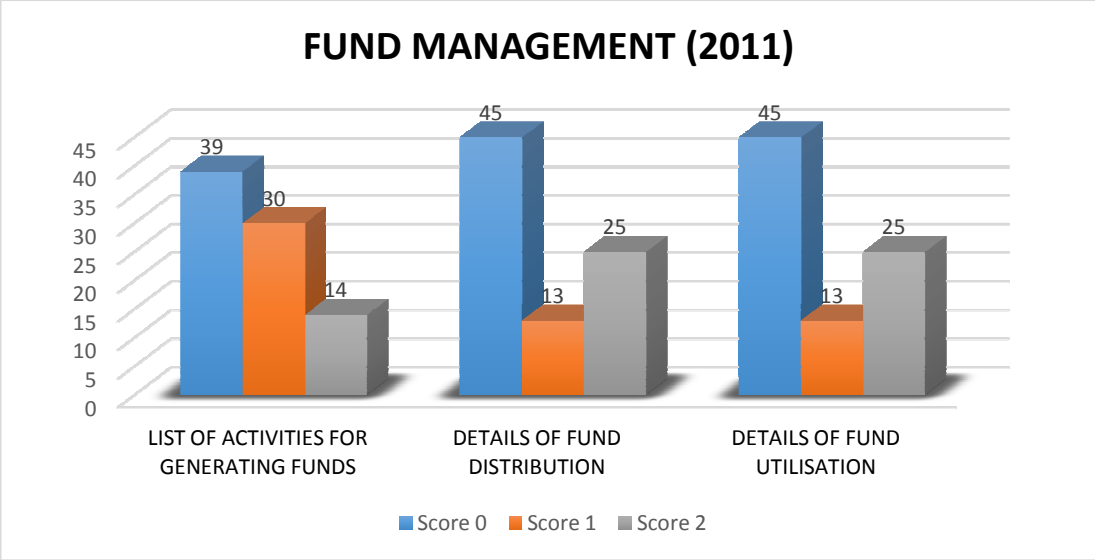

Figure 12: Fund Management Disclosures (2011)

The analysis for year 2009 and 2010 show that, out of 83 charities, none of them disclosed information on the list of activities held to generate charities fund. In 2011, 53% (44) of charities started to disclose activities conducted to generate fund and also explain on how they plan to fund their activities and continue as a going concern in future. However, most of the charities seem to neglect information on the funds distribution and utilizations towards the beneficiaries inside and outside the organizations. From the data analyze, only 46% (38) out of 83 charities give detailed information on how they plan to distribute and utilized their fund throughout the years.

Conclusion

This paper provides a content analysis on the level of information disclose in the annual reports of NPOs in Malaysia, focusing on the information on items related to financial, anti-money laundering and counter terrorism financing. The quality of information disclosed in annual reports could enhance NPOs transparency and accountability towards a more comprehensive reporting. This is indeed an essential part to maintain NPOs credibility in their long run and to create the awareness of the importance of third sector to the community at large. This study found that the level of financial disclosures among NPOs in Malaysia in relation to financial stability can be considered at a moderate level, whereas, disclosure is relatively weak for financial performance and their efficiency. Besides, disclosures of the items related to money laundering and terrorism financing are also weak among the NPOs in terms of disclosing their policies and strategies, sources of revenue and fund management. These indicate several important insights relating to the non-profit sector. First, NPOs in Malaysia are still reluctant to disclose detailed information regarding their activities. This might be due to these information is a voluntary disclosures as stated by the higher authority. Secondly, NPOs in Malaysia have high potential to misuse the information disclosed for money laundering and terrorism financing due to the limited extent of information disclosed in the annual reports. Finally, comprehensive disclosures integrating financial and anti-money laundering can potentially help to improve NPOs' transparency and subsequently their performance for the benefit of the public as a whole.

Taking into accounts the characteristics of NPOs in Malaysia, the development of comprehensive reporting framework is needed to assist and facilitate NPOs in preparing and presenting their annual reports. Reporting guidance or best practices promoted by regulatory authorities are expected to enhance the transparency of annual reports prepared by the NPOs. Therefore, the analysis on the extent of disclosure made by NPOs in Malaysia is essential to support in the development of the comprehensive reporting framework so that it can be used as a guide in developing the appropriate framework and meet the best practice in promoting good governance. However, the results of this study might not be generalized due to limitation of the number of samples selected and it is possible that non-disclosure of some items by some charities are due to no specific framework as guidance in preparing and reporting the annual reports.

Acknowledgement

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The Relationship between Emotional Intelligence (EI) and Job Commitment (JC) Among Malaysian Public Librarians (MPLs)

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Abstract

This study aimed to investigate the relationship between emotional intelligence (EI) and job commitment (JC) of librarians working in public libraries in Malaysia. A total of 180 librarians were selected as the respondents. The instrument used in this study was adapted from Emotional Competency Inventory (ECI) and Job Commitment Questionnaire. All the formulated hypotheses (self-awareness, self-management, social awareness and relationship management) of EI and JC were supported after correlation test and regression analysis were conducted. The findings indicate that a high level of EI can lead to high commitment. Practically, the study implies that an on-going concept of EI and training in the library is needed to produce librarians who are empathetic, willing to accept the opinions of other employees, to provide cooperation and motivate employees. This will indirectly increase commitment and loyalty to serve and work, improving work performance while increasing productivity and job satisfaction in the workplace. Essentially, this study has three main implications: theoretical, methodological and practical that can be used by relevant agencies.

Keywords: Emotional Intelligence, Job Commitment and Malaysian Public Librarian

Introduction

To adapt to various situations and to fulfil one's potential, having the skills and the ability to act is crucial. This assertion is supported by Goleman (1999), who asserts that a person's ability to accept challenges that are inconsistent is closely associated with a person's ability and emotional stability. More importantly, Mayer and Salovey, Bedell, Detweiler, and Mayer (2000) argue the ability to understand and manage oneself and others is known as emotional intelligence (EI). Studies have shown that EI and job satisfaction play an important role in improving the work commitments of individuals and groups

(Mayer& Salovey, 1997; Goleman, 1995; 1999). Hence, it can be argued that EI is a personality trait that should be possessed by every information service provider in order to succeed in his/her career. The ability to understand the level of EI provides librarians with instructions and information in assessing the effectiveness of oneself and is a catalyst in increasing work commitments. There is a possibility that librarians who have high EI may have high work and organizational commitment.

Redmond (2016) asserts that commitment is seen as a necessity in the development of the organization. Awards are given to employees who have high commitment as they usually do everything that is entrusted (David, 2013). In contrast, Kamau (2015) cautions that job satisfaction, job commitment, truancy, lack of concentration and stable-working conditions can affect the quality of work. Disagreeing with Culverson, Bennett, and Durkin (2000) believe that in general, workers are committed to the job and the organization and have no problem to carry out work more than they should. Therefore, every organization as well as public libraries should pay attention to its human resource assets and emphasize commitment to the organization.

In relation to this, the operation of MPLs is generally under the jurisdiction of the state government, however in terms of consultation, policy development, service and supports, the tasks are assigned to the National Library of Malaysia (NLM). As public libraries, their major role is to serve the community in terms of their information needs. In addition, they are also responsible for developing and maintaining the national collections from various resources, providing facilities for their users as well as providing advices concerning library matters. These roles are in line with the national agenda to inspire a culture of knowledge in the development of the country and to foster a reading culture among Malaysians.

It seems that the work at MPLs is complex and there are numerous factors that affect the JC of library employees in providing wide-ranging services to all communities (IFLA/UNESCO, 2001), building a high performance work culture or Key Performance Index (KPI) and Government Transformation Programme (GTP), (Jabatan Perdana Menteri, 2010 and Najib, 2010) and dealing with a more demanding clientele (Jomo & Wee, 2004), along with multi-tasking.Awareness of the importance of planning, allocation and use of resources are factors that influence employee commitment in public organizations and can determine the ability of the organization (Mondy & Noe,2005; Culverson, 2002).

Given the importance of EI and its role in behavior and practice, the need for more research can be felt to confirm or refute previous findings. Hence, this study has been conducted with the aim of investigating the relationship between the dimensions of EI and JC of librarians in MPLs. Identifying a relationship between EI and JC can assist early employees programs from the beginning of the hiring process in order to invest resources on recruitment, selection, and training for librarians who will exhibit a long-term commitment to their job.

Literature Review

Emotional Intelligence

According to Goleman (1998), EI is the ability of individuals to identify and manage their own emotions and motivate themselves and identify the emotions of others and establish friendly relations with them. Noriah (2005) stipulates that intelligence is one set of emotional competencies or skill-based emotions that allow someone to manage life better. This intelligence involves the ability to (i) explore one's own emotions to understand and assess the situation itself, (ii) use emotional tendency, that is to guide or facilitate the achievement of an objective, (iii) recognize others' feelings, needs, wants, problems or annoyance, (iv) recognize the importance of religion as a pioneer life, and (vi) use life experience (oneself or a client's) as a guide in solving problems. In the context of this study, EI is measured by four domains of EI (self-awareness, self management, social awareness and relationship management).

An organization may experience non-productive periods because its employees lack EI skills and a positive attitude. Therefore, each individual in the workplace should be given exposure and skills on how

to build and improve his/her EI. Individuals who are emotionally intelligent and have a positive attitude appear fit and motivated and are able to control themselves and the situation. High personal and work productivity and integrity help to build a winning organization.

Job Commitment

Overview of Job Commitment

Commitment is a word often emphasized in order to produce excellent workers. To nurture commitment, employees should learn the correct and appropriate coping strategies in planning an action plan to deliver the given task. Commitment is defined as a strong the relationship between workers and the organization (Colarelli & Bishop, 1990). Commitment viewed from various perspectives refers to a variety of criteria, circumstances and the employee behaviour (Hernon, 2009). Typically, there are symbioses with the requirements of the organization. Employee commitment is to establish links between both. Organizations need ability, efficiency, diligence and loyalty of its members while for the workers, the need to meet their needs, at least the basic requirements, before they can show commitment (Oludeyi, O. S., 2015).

Organizations usually highly appreciate the commitment of its employees as employees that have a strong commitment tend to be associated with increased productivity, job satisfaction, less absenteeism rates, and stable work atmosphere (Rakowska, A., Juana-Espinosa, S.de and Valdés-Conca, J., 2016). In fact, it is easier for organizations to achieve additional contributions such as innovation and creativity when the workers are committed, which, in turn, will contribute to higher ability of the organization (Jafferian ,. S. L. (2016). Therefore, commitment to the organization should be taken into account as soon as possible, as each organization should give attention to its human resource assets.

Employee commitment to the task can be accomplished if they comply with the discipline and the work ethics and have a positive attitude and judgment in carrying out the task entrusted. The value of this positive attitude can be measured when a person feels good and happy to start the day with work. A work environment that is supported by this kind of attitude and excitement can create a positive practice that transforms work as a form of worship, induces high commitment among employees; motivates ready cooperation between employers and employees (Mondy & Noe, 2005).

When an employee joins an organization, it is assumed that the individual has agreed to contribute his/her efforts achieve the goals of the organization. Therefore, the individual must give full commitment to the organization as organizational productivity can be increased through his assuming responsibility. Commitment can be defined as a psychological bond between the employee and the organization and a person's desire to remain with the organization (Simosi, Xenikou, 2010). Yahya, Johari, Adnan, Jesus, and David (2008) refer to the interpretation by Sinani, S. (2016) as commitment to strong individual wishes to remain a member of an organization despite opportunities to change jobs. Therefore, there are two aspects that can be interpreted as commitment to organization: aspects of loyalty and engagement aspects (Cohen & Higgins, 2007). Aspects of loyalty are affection and a sense of pride in the organization and wanting to remain a part of the organization while aspects of participation are sought without pressing the interest of the organization (Yavuz, 2010).

Determinants of Job Commitment

According to Meyer and Allen (1997), JC is closely related to emotions, ideas, philosophy and values held or internalized by the individual while performing his/her duties. Porter also defines JC and Smith (1976, p. 89) cited in Mishra, and Shyam (2005) as:

- a strong belief in and acceptance of the individual‟s goals and values;
- a willingness to exert considerable even if everyone on behalf of the organization;

- a strong desire to maintain membership in the organization.

Alnıaçıka Alnıaçıka, Akçinb and Erat (2012) argue that career motivation theory examined the effects of individual, situational and extra-work variables on JC. These three types of determinants are defined as follow (London, M., & Noe, R. A. (1997):

1) Individual variables are defined as needs, interests, and personality variables potentially relevant to one's career;
2) Situational variables are work environment factors that can influence career motivation, such as "staffing policies and procedures, leadership style, job design, group cohesiveness, career development programs, and the compensation system" (p. 621);
3) Extra work variables are mostly related to the demands of work and family.

There are multiple determinants that influence JC including organizational culture (Sinani, 2016) competence and motivation (Fabiene, E. E. and Kachchhap, S. L., 2016), gender (Razzaq, M. A. and Ullah, N., 2014), education and organizational culture and loyalty (Oludeyi, O. S., 2015), absenteeism (Brunetto et al., 2012), and environmental settings (Ingersoll et al., 2002).

Workers in the civil service specifically in public libraries contribute to achieving the effectiveness of the delivery system of the country. This group is responsible for ensuring that programs, services, activities and agenda of the library can be realized. In this exercise, employees of the public library have a dual role, not only as an organization but also act as the aspirations of the government in developing the country (Garmer, 2014). Therefore, this sector is not only part of the foundation of national development but also a driving force in achieving the government's vision and mission. A study on employee commitment to the organization is not new. Studies by Varona (1996), Barrows and Wesson (2001) and Culverson (2002) associate employees with various levels of commitment factor. In fact, studies by Razali (1993; 1996) and Jaye (1999) specifically examine the lack of commitment in the public sector in Malaysia.

However, there are issues with the quality of work within a library compared to other sectors that offer better rewards (Razali 1993). The scenario of workers moving to a better organization is not something new. The remuneration, benefits and privileges offered in the private sector are more favorable than the offer of the public sector is a common fact. Thus, the effort to retain employees as valuable assets is constantly evolving over time and is extremely important for the organization, particularly the public library. Therefore, factors affecting employee commitment to the organization should be studied and made known. High intent to leave was found to be influenced by friends, but also feelings of job stress and "being burnt out" (Ryan, Ghazali & Mohsin, 2011). Studies on the JC determinants showed multiple findings as indicated in Table 1.

Table 1: Job Commitment Determinants

	Personal or Demographic	Social	Culture	Organizational	Environmental	Situational	Job Characteristics	Personality	Others
Sinani, S. (2016)			/	/				/	
Vagharseyyedin SA (2016)		/		/	/		/	/	/
Alkahtani, A. H. (2016)				/	/				/
Ryan, Ghazali&Mohsin (2011)		/							/
Fabiene, E. E. and Kachchhap, S. L. (2016)				/					
Oludeyi, O. S. (2015)				/					
Rakowska, A., Juana-Espinosa, S.,de and							/		/

Valdés-Conca, J. (2016).									
Razzaq, M. A. and Ullah, N. (2014)		/	/	/	/		/		/
Mathew, A. (2016)				/			/		
Ahmed, M., Hidayat, I., Faisal-ur-Rehman (2015)		/	/	/		/			

Job Commitment among Librarians

In the context of librarianship, studies examining JC include Burd (2003); Luzius and Ard (2006); Bromann (2004); Burnam and Green (1991); Popoola and Oyewumi, O.O. (2006) and Millard (2003). Gboyega and Popoola (2010) have shown that work commitments are influenced by demographic factors. Furthermore, there are studies like Millard (2003) which revealed that the commitment of librarians at the center of English Canada is more important than other factors (organizational commitment, personal factors, or economic factors) to their retention in the librarian profession. In line with Millard, the findings of Burd (2003) also revealed how librarians will not leave their posts (committed) and are satisfied in the library due to factors such as organizations that support participatory management, open communication, opportunities for achievement, and relationships built on honesty and trust.

These findings are supported by Millard (2003) who argued that the key to the library and to continue to serve in their profession is a career commitment. For Hoggan (2003), he is compelled to solve problems such as bureaucracy; budgetary issues, poor supervision and leadership, faculty status and burnout as these factors hinder eternal loyalty of librarians to serve in libraries. In contrast, the study by McCormick and Tiffin (1994) which shows that employees like their values realized in the workplace and having a positive attitude is a factor to commit to the library. Additionally, Martins (1991) found economic factors, salary, status, promotion, and lack of social security also affected the career commitment, work motivation and effectiveness of a librarian. Factors such as working conditions, rewards, job security, and opportunities for promotion, social status, salary, social services, powers, and responsibilities are part of a librarian's professional commitments (Kaya, 1995). Oberg (1995) concludes that the status of librarians should be defined, the campaign must rely on objective criteria, and the development of technology can be used to inject new ideas. Motivation factor can also be considered as a factor influencing the level of self-efficacy and career commitment (Popoola, Tella & Ayeni, 2007).

Emotional Intelligence and Job Commitment

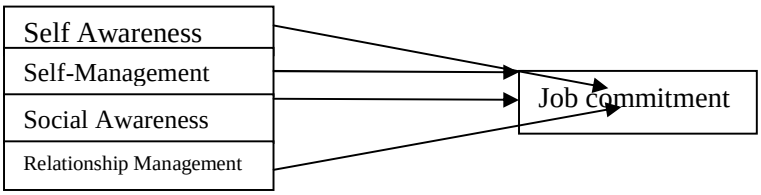
Past analyses have tried to find if there is a relationship between the EI of a public employee and their job commitment, with diverse results. Without doubt EI has been found to be one of the contributing factors to job commitment. Nonetheless these studies involved professionals other than librarians as exhibited in Table 2. In the context of librarians, the influence of EI on JC is yet to be studied. Contemplating that the landscape is as such for librarians, the researchers argued that EI may also be persuasive in predicting the JC of librarians.

Table 2: Studies Linking EI and Job Commitment

Author	Subject Study	Findings
Brunetto et al. (2012)	Policemen	The survey, involving 193 police officers in Australia found that there is a positive relationship between job satisfaction and wellness, employee involvement and commitment to the organization
Jin Kyoung Ma (2016)	Clinical nurses	There were significant correlation between emotional intelligence and organizational commitment of coaching types excluding the commanding type.
University of Haifa. (2016)	Public services	EI positively influences the motivation of public service workers, which in turn increases the level of their affective commitment

Chehrazi, S & Shakib, M. (2014)	Employees of united bus company	Using structural equation modeling, the study has confirmed that emotional intelligence influenced on organizational citizenship behavior and commitment.
Veisi and Alizadeh (2012)	Oil Products	A positive relationship was gained between self-control, unanimity, social skills with emotional and professional commitment.
Jafferian ,. S. L. (2016)	Substance Abuse Treatment Centers	Results showed that participants who rated their supervisor high on emotional intelligence were less likely to report an intention to leave than were participants who rated their supervisor low on emotional intelligence.

Given the range of empirical evidence on the relationship between EI and JC, this study examines the relationship between EI and JC by changing the setting to the library service using a different approach. Therefore, the following hypotheses were developed:



H1 - Self Awareness of EI is significantly related to JC
H2 - Self-management of EI is significantly related to JC
H3 - Social Awareness of EI is significantly related to JC
H4 - Relationship management of EI is significantly related to JC

Methodology

This study adopted a survey research design using questionnaires. According to Salovey et al. (2000), research on emotional intelligence is a study to enhance abilities, self-assessment and efficiency; therefore this type of research is more appropriate. The focus of the study is librarians in Malaysia serving in the public libraries including the National Library. A total of 180 respondents were involved, covering a wide range of grades, experiences and states (in Malaysia). Stratified sampling method was used given the large population. In this study, the researchers used a questionnaire for collecting data regarding emotional intelligence, and employee commitment.

The questionnaire used in this study contains five sections:

Part A: The questionnaire measures emotional intelligence via Emotional Competence Inventory (ECI) built by Boyatzis, Goleman, and HayMcBer (1999). [Self-Awareness, Self-Management, Social Awareness and Relationship Management]. Part B: The questionnaire measures modified work commitments (Mowday, Steers, & Porter, 1979) and Section C is on the profile of respondents. The ECI test tool has a high reliability of .93 Cronbach alpha values. For each dimension, the reliability is .88 for the dimension of self-awareness, .85 for self-management, social awareness and .86 to .91 for relationship management. The test tool also has the commitment to work reliability of 0.78.

Two types of statistics were used in data analysis, descriptive and inferential statistics. Descriptive statistics of the data were analyzed using frequency distribution, percentage, mean and other calculations, which can reflect the distribution of the data more clearly. Inferential statistics were used to test hypotheses formed in study, which is to see the relationship between the variables. Level of 0.05 ($p < 0.05$) was defined in this study as a significant level to accept or reject a hypothesis. In this study the researchers formed four hypotheses to be tested.

Findings

The Relationship between EI and Job Commitment

Numerous past studies have investigated the relationship between EI and organizational commitment but limited studies have been done in the context of job commitment. Hence this study further identifies the relationship between EI and job commitment. As shown in Table 3, the correlation analysis between the abovementioned variables against the JC variable produced a moderate correlation. However these correlations between variables exist and are still significant at the 0.001 level.

The correlation *r* between the four dimensions of EI and Job Commitment (JC) of occupational performance is illustrated in Table 3. The purpose of the study is to examine whether Emotional Intelligence (EI) is significantly related to the JC of Malaysian public librarians by focusing on four major aspects of EI, that are self-awareness, self-management, social awareness and relationship management. Noticeably, all dimensions show a moderate relationship and correlation or above 0.5 (Cohen, 1988). The strongest relationship is between self-management and JC, which stood at 0.578***r*-value. The relationship between self-awareness and JC and between social awareness and JC, recorded a confident Pearson *r-value* of 0.576**. The lowest *r*-value is the relationship between relationship management and JC, which scored a Pearson *r-value* of 0.568**. To test the hypotheses H1, H2, H3 and H4 in this study, regression analysis is conducted as discussed in subsections 4.1.1 to 4.1.4. The results of the analysis, which are shown in Table 4 below, suggest that all the four formulated hypotheses are supported, justified by the *p* values, which are less than 0.05.

Table 3: Results of the Reliability and Correlation Analysis

		Correlations				
Variables	**Cronbach Alpha**	**SAW**	**SMA**	**SOW**	**RMG**	**JCT**
Self_Awareness (SAW)	0.856	1	0.690**	0.585**	0.563**	0.576**
Self_Management (SMA)	0.861	0.690**	1	0.656**	0.724**	0.578**
Social_Awareness (SOW)	0.887	0.585**	0.656**	1	0.746**	0.576**
Relationship_Mgt (RMG)	0.938	0.563**	0.724**	0.746**	1	0.568**
Job Commitment (JCT)	0.858	0.576**	0.578**	0.576**	0.568**	1

Table 4: Results of Linear Regression Using Specific EI Dimensions of Self Awareness, Self-Management, Social Awareness and Relationship Management to Job Commitment

	Self-Awareness	**Self-Management**	**Social Awareness**	**Relationship Management**
R	0.232	0.491	0.393	0.491
R Square	0.171	0.241	0.155	0.241
Adjusted R Square	0.113	0.237	0.150	0.236
Sig.	0.004	0.000	0.000	0.000
B	0.744	1.202	0.680	0.854
Std. Error	0.153	0.160	0.119	0.114
Beta	0.343	0.491	0.393	0.491
t	4.844	7.526	5.704	7.513
Sig.	0.000	0.000	0.000	0.000

The Relationship between Self-Awareness and Job Commitment

To determine the relationship between self-awareness and JC, the study hypothesizes *H1: Self-awareness is significantly related to job commitment.* Table 4 depicts that the *r* value is 0.232 which can be interpreted as positive with a very low correlation between the variables of self-awareness of EI and JC. Bivariate linear regression analysis found that self -awareness is significantly related JC (R square = .017, F = 23.49, p = .00). In other words, the higher the librarian's self-awareness components, the better JC would be. The research findings express that there is a relation between self-awareness and employees, self-awareness in a way that these dimensions of EI also have a positive effect on JC. H2 therefore is supported. However, only two percent of variance in the dependent variable was explained by self-awareness, suggesting that the predictive relationship between the two is weak. This result provides some evidences in explaining the relationship between public librarians' EI specifically self-awareness and JC which is parallel with other studies. (eg. Ragins, Cotton & Miller,2000; Erez & Judge,2003; Pawar,2009). Without doubt this finding is similar to the study conducted by Mousavi, et al. (2012) and Maheswari and Krishnan (2012) who found the relationship between the related dimension of self-awareness and JC.

The Relationship between Self-Management and Job Commitment

In determining the relationship between self-management and job commitment, it is postulated that *H2: Self-management is significantly related to job commitment.* The Bivariate regression analysis which is shown in Table 4 indicates that self-management is significantly related to JC (R square = .024, F = 56.64, p = .00. Hence, H2 is also supported, thus confirming the previous findings of Davis et al. (2000); Hoekman, McCormick, & Barnett (2005); Stroud (2009), Fatima, Imran and Zahir (2010) and Duccan (2011) and revealed a positive relationship between the variables within self-management such as emotional self-control, transparency, adaptability, achievement orientation and optimism with JC.

The Relationship between Social Awareness and Job Commitment

The study also posits that social awareness of EI is significantly related to JC. Thus it is hypothesized that*H3: Social awareness is significantly related to job commitment.* Based on the result of the correlation analysis as presented in Table 3 and regression analysis in Table 4, the hypothesis H3 is evidently supported. Social awareness is also measured as a positive significant predictor of JC as 39.3% of the variation in it can be explained by $F = 32.53$, p =.00 social awareness alone. H3 therefore is supported despite the predictive indicator between the two is just moderate but positive. In sum, aforementioned outcomes provide supporting evidence for accepting H3 hence further strengthening the findings of Pool (2000); Brown, George-Current and Smith (2003); Lytle and Timmerman (2006) that exposed social awareness competency of empathy, organizational awareness and service orientation have a positive and significant relationship with JC.

The Relationship between Relationship Management and Job Commitment

Relationship management inculcates a set of competencies, which include essential social skills, analysing and influencing others and inducing desirable responses in others. Effective relationship management helps in developing others, which is a hallmark of management and leads to JC within the organization (Reed, 2005). This aspect is also addressed in this study, which posits that *H4: Relationship management is significantly related to job commitment.*

In determining the relationship between relationship management and JC, the correlation analysis (Table 3) and regression analysis (Table 4) unveiled that Pearson's $r = 0.568^{**}$, while $R^2 = 0.49$, with F = 56.443 and p = 0.000. These figures denote a significant relationship between management and JC. Thus, H4 is also supported. Upon further inspection of the relationship between these variables, it is apparently moderate. This result is similar to past studies (eg. Rashear et al. (2006), Raabe and Beehr (2003); Bass (2002); Hysong et al. (2008); Posthuma (2011); Cohen (2007); Fosmire (2008); Grassian and Kaploowitz

(2005) and Hernon (2007) that determined the various dimensions of relationship management (such as transformational leadership, influence, developing others, change catalyst, conflict management, teamwork and collaboration and communication) are related to JC. Similarly, the current study found this factor to be linked to JC.

Discussions and Conclusion

The results show a correlation between EI and JC. This indicates a significant relationship between EI and the level of JC of public librarians in Malaysia. However, the value of this correlation is moderate, indicating EI is one of the main factors working at the level of commitment of librarians. These findings do support Adeyemo (2007), Humphreys, Brunsen and Davis (2005), Nikolaou and Tsaousis (2002), Singh (2004) and Sinha and Jain (2004). According to them, an organization that practices the competencies of EI such as self-awareness, self -management, social awareness and relationship management and concern for humanity (humanistic), enables its employees to continue to remain resilient in the organization. With this, each employee will provide maximum cooperation and voluntary participation, thus contributing to JC.

They will be more committed when they realize the strengths in themselves can overcome their weaknesses. Appropriate training can make them more committed to provide the needed services. Awareness of self-improvement makes them highly committed to thinking about the willingness of the management. This is supported by Goleman (1998) who explains that the awareness of self as a component of EI is central to the work commitments of the organization. Employees who are aware of their purpose will have a clear understanding and are committed in relation to their suitability to organizational goals.

On the other hand, librarians who consider themselves not as part of the members of the library services or self-management will show a low level of commitment. In other words, self-management of EI is linked to JC. New staff in the library usually knows little about the role of such organizations and have problems in adapting to others. They also lack integrity, have less initiative and are pessimistic in the workplace. New library staff usually has less understanding and fewer clear pictures of the tasks given to them. According to Warshaw (1979) in Othman Mohd. Yunus (1986), individuals that do not know how to adapt in an organization and do not know what benefits to be gained by them, give less attention to their responsibilities or lack commitment to the organization. Hence, the relationship between self-management and JC is validated and parallel to studies done by Fatima, Imran and Zahir (2010), Davis et al. (2000), Duccan (2011), Stroud (2009) and Hoekman, McCormick and Barnett (2005).

A positive work culture within the library will be able to attract librarians to be committed, loyal and feel proud of their work, and can ultimately result in doing the best. In this way, it can help improve knowledge, skills and boost confidence so that librarians become more valuable to the library and the profession and eventually can enhance a sense of pride in the services.

Given the tendency of service workers to be committed to helping others, it is not surprising that JC has significant relationships with EI. Normative JC focuses on the individuals' obligation to their occupation. The findings of the present study conclude that good communication with others; great teamwork and collaboration, using emotions in solving problems, and expressing emotions adaptively have significant correlation to JC. Using emotions in creating good relationships with others has the strongest significant correlation suggesting librarians who are able to use this skill are also likely to have a stronger commitment to their occupation based on obligation and networking. A possible explanation for this may be the strong sense of purpose that many service workers have when choosing to work in the profession.

The findings show that social awareness and relationship management fit the concept and theoretical issues raised by Goleman (1995), which involves social competence. The social competent is to identify themselves, organize themselves emotionally, motivate themselves, recognize emotions of others and develop social relationships. All these attributes, if owned by librarians will help prevent them to stop

working in their current careers. In relation to this Goleman (1998) agreed that the emotional competencies are two times more important than cognitive ability in determining employee excellence. Therefore, in the case of public librarians, EI can predict success in any place, including in the workplace. Social awareness and relationship management of EI can help individuals to work in teams and work more effectively and be committed to each other.

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SQMS – A prototype for a Supplier Quality Management System

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Abstract

Within the supply chain, the customer does not simply buy parts or services from suppliers, but also buys supplier capabilities, which results in quality products and services. Having a tool that handles the Inspection as well as the Nonconformance, Complaint, Corrective Action and Concession processes is key to successfully track the supplier performance. Taking as a case study a Supplier Quality Management (SQM) currently in operation in an Original Equipment Manufacturer (OEM) for automotive industry, this paper presents a platform to support a Supplier Quality Management System (SQMS), that fits the technical specification ISO/TS 16949 requirements. This prototype is composed by a web platform and a mobile App, having flexibility and mobility as key main characteristics.

Keywords: Supplier Quality, Total Quality Management, ISO/TS 16949.

Introduction

The automotive production of modern days, had come a long way since it was first developed and the quality became more important in this industry, with the start of the mass production era. The use of relevant tools according the organization's needs, became strategic and essential for the industry in the competitive environment of todays. Using the proper tools and optimizing processes, industries can improve their performance and thereby increase customer satisfaction and enhance supply chain. The entire automotive industry pursues the adoption of standards, specifications, procedures and other practices in order to improve the final quality of its products. However, they still have difficulties in finding the right tools to their production environment and often these processes are carried out with less appropriate tools to ensure the good practices required.

An organization spends substantial time and money, purchasing raw materials and managing suppliers. Therefore, supplier quality, meaning quality parts, on time delivery, on right quantity, can substantially affect the overall quality and cost of a product. We believe that quality management procedures and tools are instruments that help to increase and improve the efficiency throughout the complete supplier chain.

A company cannot produce a quality product if the components of which it is made are faulty. One of the keys to obtain high quality products is to work with the suppliers to achieve the same quality level has attained within the organization and this is why supplier quality management is mandatory in the complete chain of automotive industry, and it is one of the requirements of the technical specification ISO/TS 16949 (ISO, 2013). To apply this method successfully, the proper tools play a decisive role. This paper presents a prototype for a supplier quality management system of model defined in (Sousa, Cunha, Morais, & Gomes, 2015), which was based case study of a Portuguese company in the auto industry that supplies parts to the major automobile manufacturers. The prototype follows the ISTO/TS 16949 standard, implementing the functioning of their processes.

With this prototype, we expect to improve the evaluation and selection of the supplier network and increase the efficiency of approval process of new suppliers. Handling the inspections and non-

conformance will help the tracking and management of raw material quality, ensuring that all the non-conformance will be addressed and that appropriate actions will be requested.

The remainder of this paper is structured as follows: section 2 (background) discusses the Total Quality Management (TQM) and ISO/TS 16949. Then we present the modulation of SQMS platform and chosen architecture. Sections 4 and 5 present the web application and mobile application developed. Finally, we provide some discussion and future work.

Background

The quality term exists since always and is a subjective concept that is related to the perception of each individual and related to several factors such as culture, needs and expectations. In the past the quality of a product only meant to comply with the customer's requirements. Since industrial revolution, the quality has developed until the present day mainly through four eras (Dahlgaard, Kristensen, & Kanji, 2002): age of inspection, focused on the product; age of statistical quality control, focused on the process; age of quality assurance, focused on the system; and age of Total Quality Management, focused on the business (Bovas Abraham, 1998):

- age of inspection: by monitoring the parts, only focused in the separation of "Good" and "Bad" parts;
- age of statistical quality control: applied statistical techniques for process control in order to identify and minimize or remove special causes of variation that could affect the product. Emerged the management style where the defect causes are identified and actions in them are taken.
- quality assurance era: the cost of rework and consumer displeasure are considered. A preventive management started with positive implications in terms of quality and consequently resulting in the reduction of waste.
- age of TQM: it is a natural evolution of the previous three stages, integrating them, being however wider as it applies to quality in all areas of a business, including sales, finance, purchasing, among others and not only the productive ones.

Total Quality Management definition

The term TQM stated to be used in the mid of 80s and became recognized part of the quality related language in the late the same decade (Martínez-Lorente, Dewhurst, & Dale, 1998). TQM is a process that was applied successfully in industries in the US in the 1980s. By using the process, large companies, such as Texas Instruments, Xerox, IBM and Motorola, were able to improve their business positions by overcoming threats from global competition and other changes in the business environment (Lozier & Teeter, 1996). The TQM is a comprehensive and structured approach to organizational management focusing on the maintenance and continuous improvement of products, people, services and processes with the goal to meet or exceed customer expectations (Flynn, Schroeder, & Sakakibara, 1994; Goetsch & Davis, 1997; Shiba, Walden, & Graham, 1993).

TQM is a philosophy with customer focus and results orientation with the involvement of all. It is a systematic approach to quality management across the business, which is based on the use of tools and techniques of continuous improvement in all organizational processes. It is in this environment that global automotive industry fits, which requires a high level of product quality, productivity and competitiveness, having as engine the continuous improvement (Asif, Awan, Khan, & Ahmad, 2013; Lanza, 1997; Li, Markowski, Xu, & Markowski, 2008)..

To achieve these goals, the vehicle manufacturers insist that their suppliers need to be certified to the quality management standard known as ISO/TS 16949 (Sroufea & Curkovicb, 2007). This standard was

developed by the industry, the IATF (International Automotive Task Force), to stimulate the improvement of the supply chain (Radley M. Smith, Roderick A. Munro, 2004). The purpose of ISO/TS 16949 is the development of a quality management system that generate continuous improvement through avoidance of defects, reduction of deviation and waste minimization, on the entire supply chain of the automotive industry (Foster Jr., 2008; Hoyle, 2005). By applying this quality system standard, automotive manufacturers could offer superior products and good services to customers. It is in this context that supplier quality management has become mandatory, in an industry that needs to ensure same quality level in all steps of complete supply chain.

SQMS Model and Architecture

In (Sousa et al., 2015), were presented and described the procedures that are part of the SQM currently in operation in an OEM for automotive industry in the north of Portugal and the way they are implemented.

In this section it will be presented the proposed model and architecture that will support this model.

Modulation of SQMS

The Fig 1, shows the class diagram in Unified Modelling Language to describe the classes and their relationships. This diagram was the start point to define the prototype class structure.

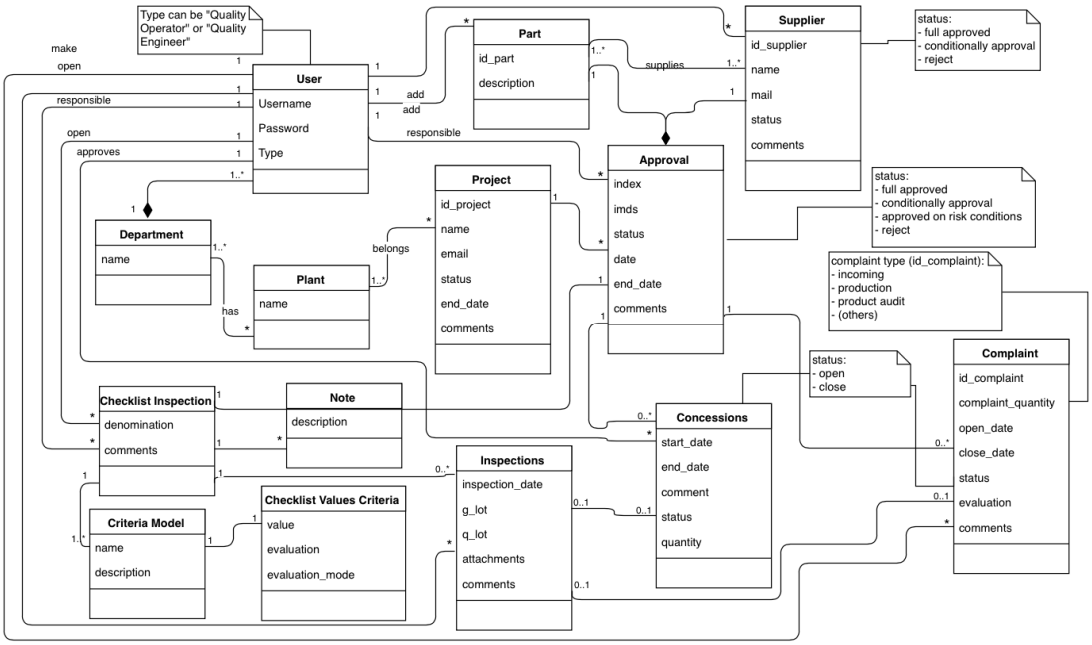

Fig 1: Class Diagram of the SQMS Prototype

The Fig 2, shows the relational model diagram of the database of the SQMS prototype. The database is composed by 28 tables to hold all the system data. Following, it will be described some of the most relevant information of the main tables of the database. The table Approval hold all the parts approvals identified univocally by the part id, supplier id and index. All the parts need to be approved to be part of the system. The table HistoricalApproval records all changes that happen in the status during the part approval process, and who made these changes. The table ProjectPlan indicates which are the projects

that belong to each plant of the company. A project may be associated with more than one plant. The table InspectionChecklist saves the inspection checklists of the parts, each part has only one inspection checklist. The table CriteriaModel relates the checklist criteria with the inspection checklist and the table ChecklistValuesCriteria contains the collected values during an inspection. The table Inspection relates the inspection made with the parts, one part can be inspected several times. The Complaints table records all claims made during an inspection or approval. An inspection or approval may raise to several complaints.

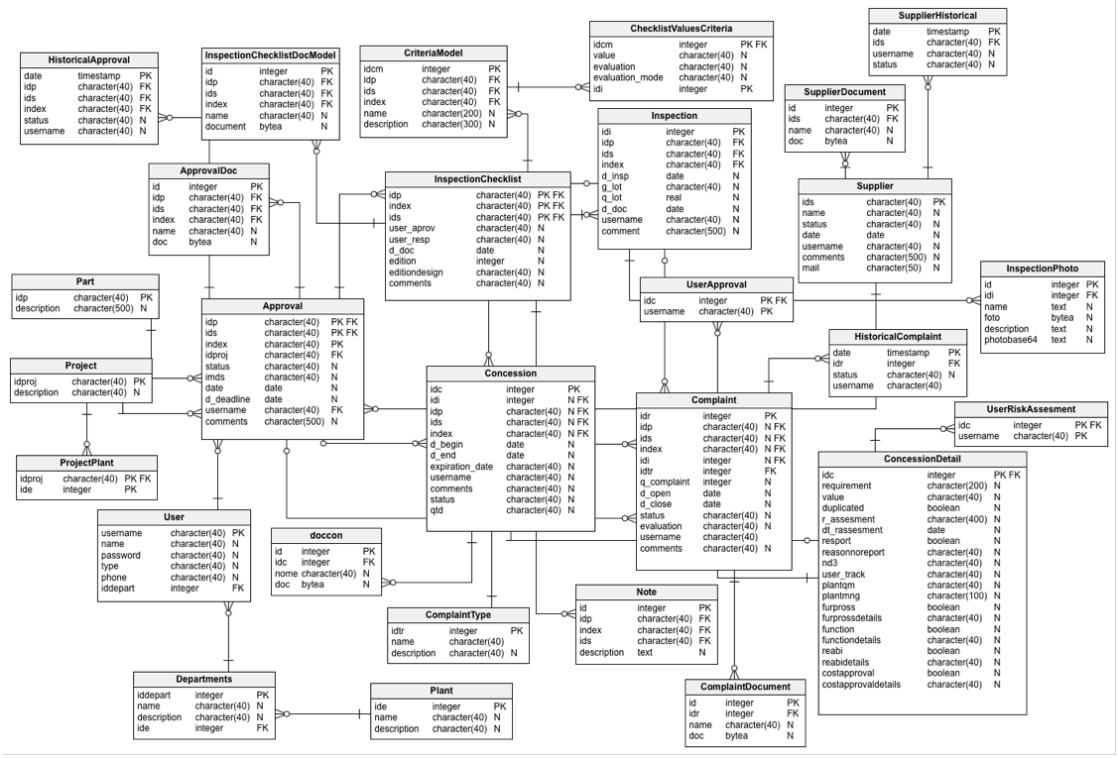

Fig 2: Database Entity Relationship Model Diagram.

Architecture of SQMS

To implement the model defined in (Sousa et al., 2015), we implemented a platform set by two parts (Fig 3): a web platform and a mobile app. This architecture is supported mainly by a Tomcat Application Server, a PostgresSQL database to storage the data and the already existing Directory Server to authenticate the users. The SQMS was built using the Google Web Toolkit (Google, 2014), Android SDK, and Java language.

To provide the mobility required to do some tasks out of the office area, we also implemented a mobile app to run on a tablet. This app will be used by the quality operators to consult inspection checklists and launch inspections data directly on the system. It also allows to add photos, video or audio to the inspection guides to generate the claims reports to the supplier.

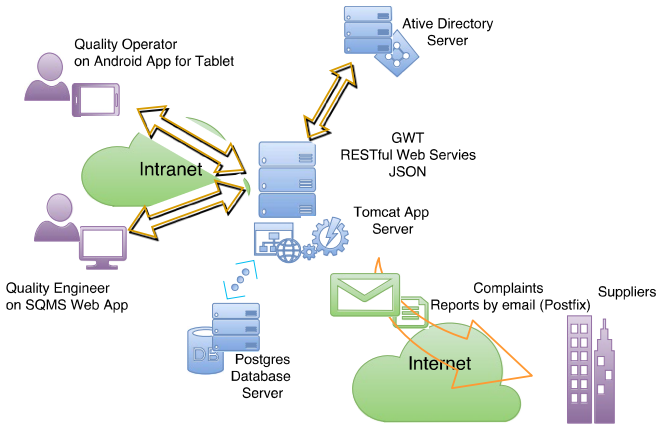

Fig 3: High Level Architecture to support the SQMS model.

Web Application

One of the SQMS prototype parts developed was a Web platform. The choice to implement a web based architecture brings several advantages already described in (Sousa et al., 2015). In order to help the system to be more usable to all users it also supports internationalization to adapt to the different languages because the organization has plants in different countries. The SQMS prototype it is in advanced stage, and this section will present some of the most important options of it.

The Fig 4, shows the main window after the user has logged in. The left side of page has a vertical menu with the main options divided in three main sections:

- Searches: which allows the user to quickly search by parts approval, inspections, claims, concessions, parts, and projects. This feature was requested by the quality team to easily find some of the items by the part id.
- Data Management which is divided in the fowling options: Approvals, Inspections, Complaints, Concessions, Suppliers, Parts and Projects. All these options allow the data management of each of them.
- Administration which offers the fowling options: Users, Logs, Plants, Departments and Complaints Type, related with the platform administration.

On the right side of the main page lies the desktop area based on Tab Layout Panel that will be opened by the selected option. When the employee logs on the application, will see a panel that can not be closed, with all the alerts about pending claims, expired concessions or open approvals. If the user finds that the procedure concerning to one of these alerts can be updated, he has the chance to do it directly in this panel. Such as in the case: if the 8D format report is received from the supplier, and it was approved by the quality engineers, the user can update immediately the claim to the closed state.

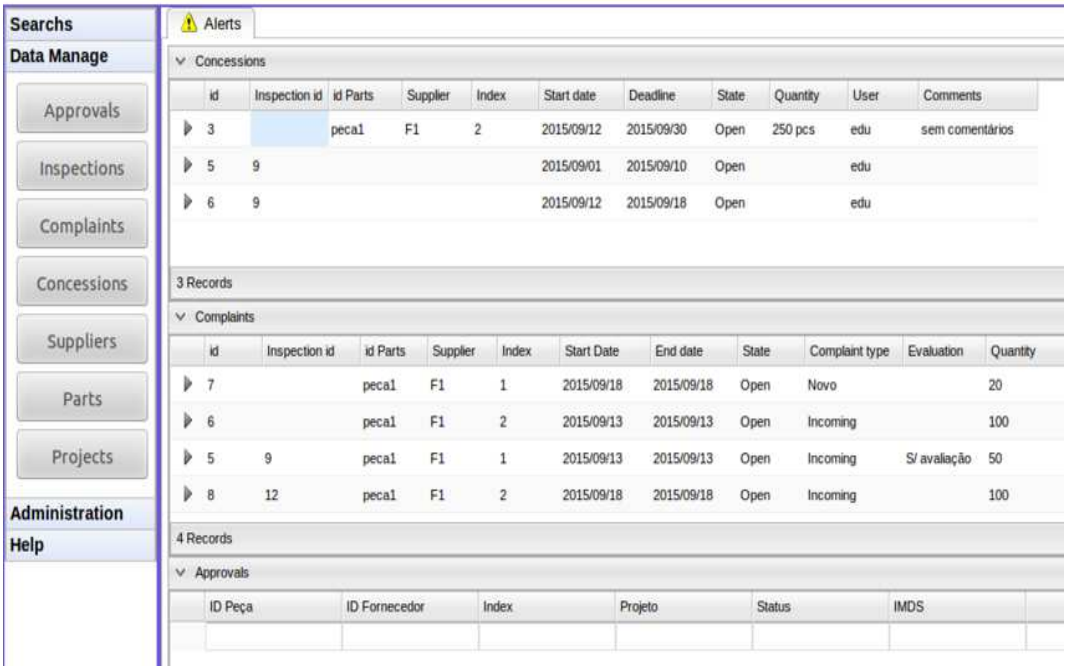

Fig 4: SQMS Alert panel.

The Fig 5 show the concession panel where is possible to view or edit all the concession, or to add a new concession. A new concession is created in case of deviations from product or process characteristics and is always limited in quantity or time that parts in that status can be used. For each concession an action plan is needed to detect and eliminate the root cause of deviation, so new several documents can be uploaded related to that concession.

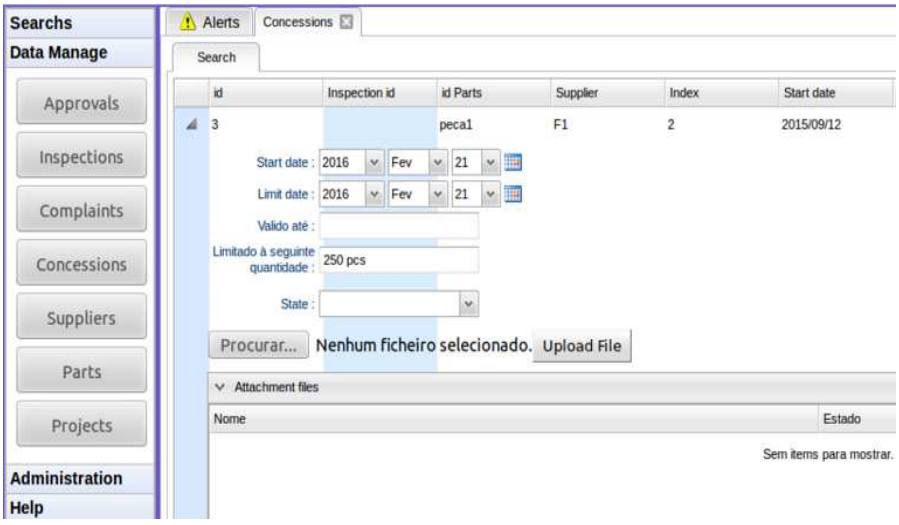

Fig 5: SQMS Concessions panel.

The Fig 6, shows Inspection Panel where is possible to view all, edit or add a new inspection. This feature is also provided by SQMS mobile App, that allows to make inspections in the production line or incoming warehouse. The inspections are done with the support of checklist form that contains the items to evaluate and its inspection criteria and record through the SQMS mobile App form. Usually photos are attached and notes are taken to better describe the non-conform part, if found. If a new checklist model is needed to make new inspection part, its possible to make a new checklist model that will be available to the quality operators after the approve of the quality manager.

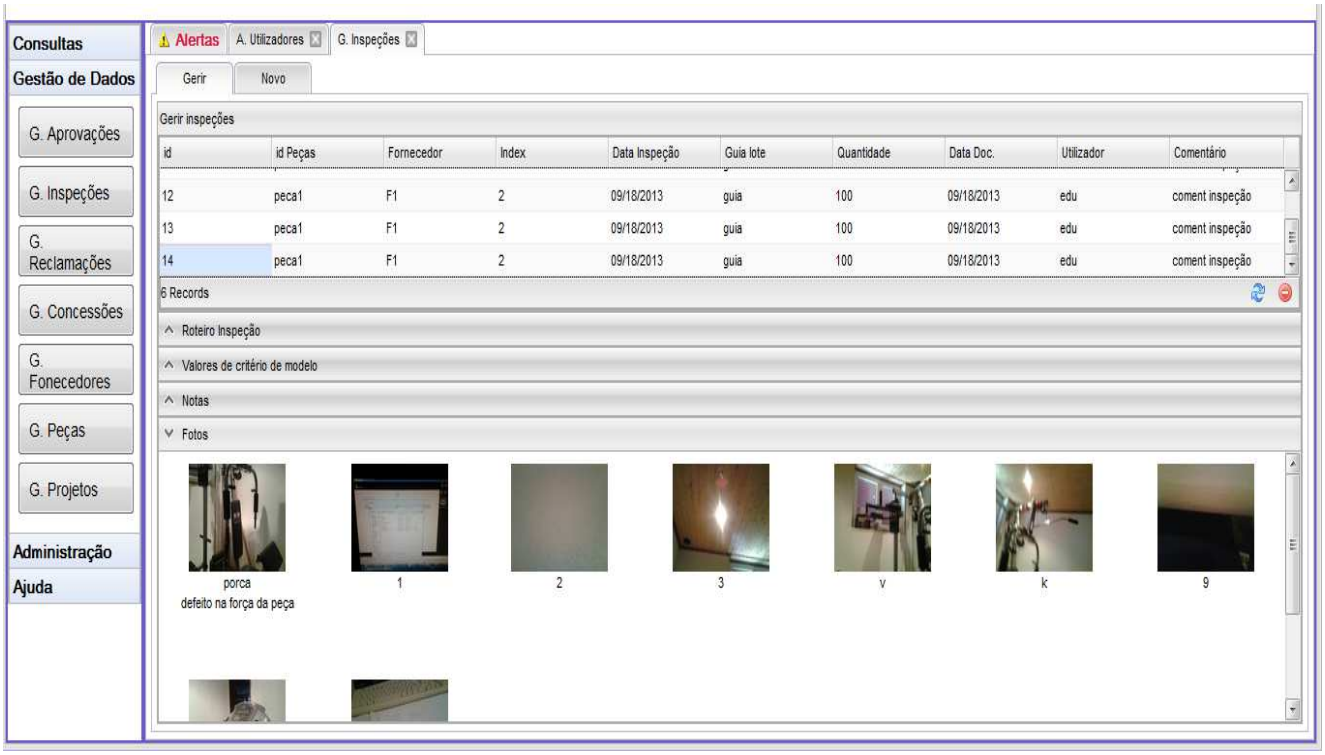

Fig 6: SQMS Inspections panel.

The Fig 7, illustrate the panel view, edit, delete or add a new supplier to the system. Because the approval of a new supplier has done by a defined procedure and an established checklist to evaluate the general capabilities of supplier, this new supplier options allows to attach some documents like contracts, NDA (Non-Disclosure Agreements), audit results, among others.

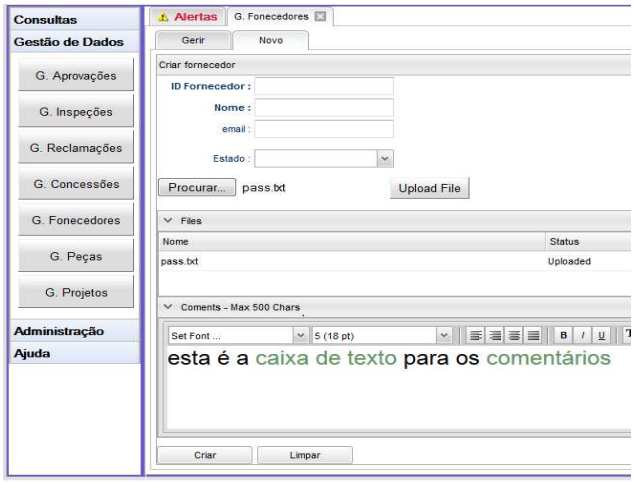

Fig 7: SQMS Supplier panel.

The Fig 8, shows the complaint panel that display all the open complaints, allowing to create, edit or delete a complaint. Several reports describing the failure can be attached and a report is created to the supplier. When an answer from the supplier is received its analyzed by the quality engineer. If accepted, then the first parts received after actions implemented need to be inspected and positive evaluated that complaint can be closed. The closed complaints do not appear in the panel and only be accessible in the historical panel.

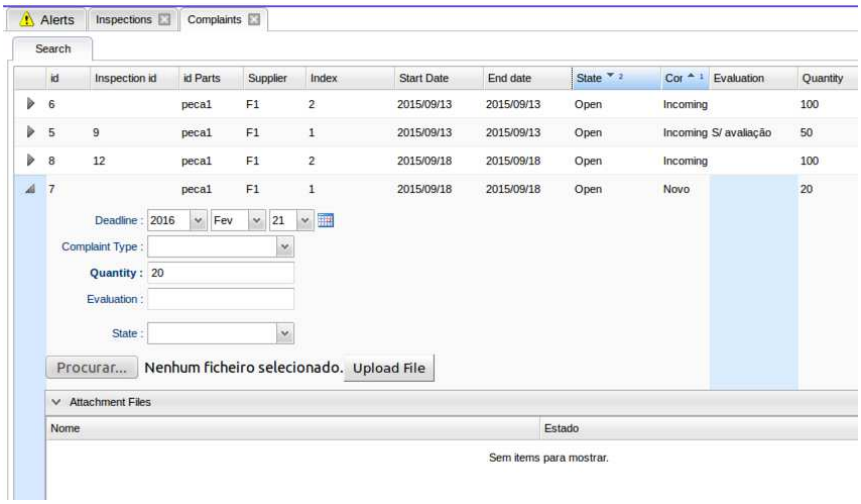

Fig 8: SQMS Complaints panel.

The Fig 9, shows the historic of all operations done in the system. Each record shows the id operation, date and the user which made the operation.

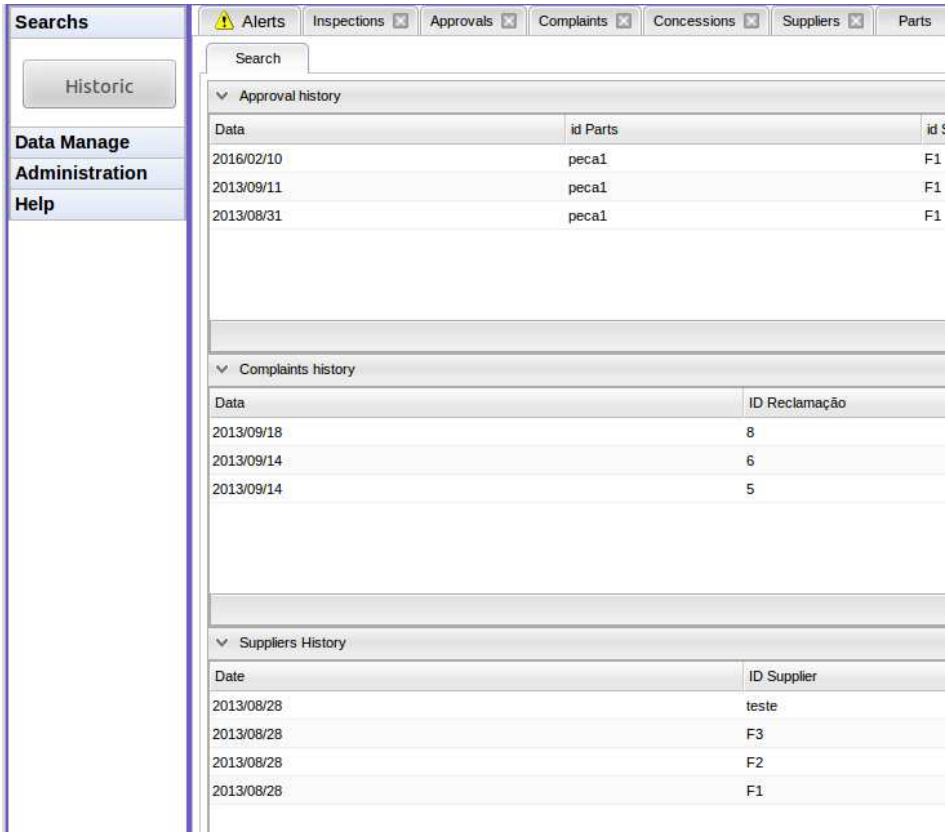

Fig 9: SQMS Historic panel.

Mobile App

A mobile App to be used on a tablet was developed to allow the quality operator access and manage data of the SQMS platform. Some of the most import features are to consult the checklist that contains the items to evaluate and its inspection criteria. The quality operators can also use this app when they are in the production line or incoming warehouse making inspections and record these inspection data using a form and save then into the system database (Fig 10 – left screen). If a non-conform part is found the deviation need to be analyzed and according severity of the defect the parts will be blocked and claimed to the supplier or a concession will be issued. During the inspection process, old inspections or open complaint related to that part can be checked to assist the quality operator (Fig 10 – right screen). This feature solves a common problem that have been reported, that in different plants of the same group, were found defects in common parts and this was handled independently, consuming time and resources.

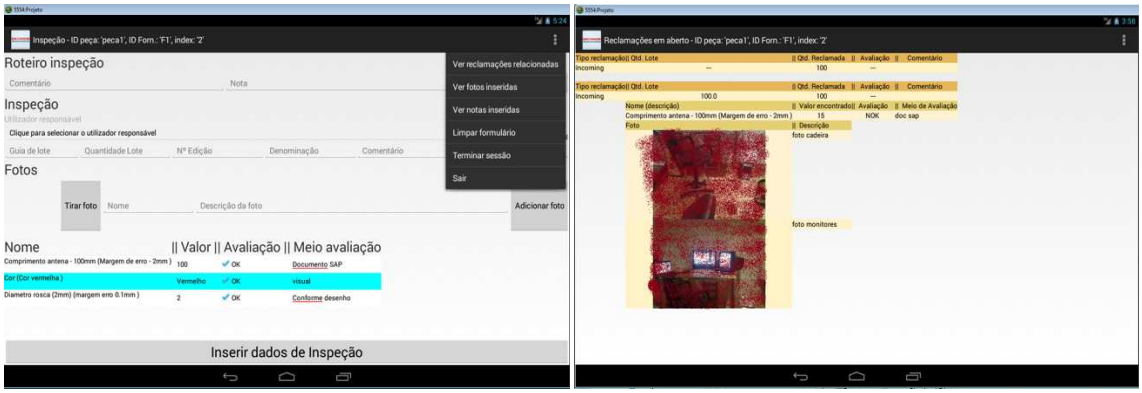

Fig 10: SQMS Mobile App

Discussion and Future Work

With a more global supply chain, it turns more difficult to answer and act on time, when a problem appears. The use of lead technologies as specific software and mobile devices, helps to strengthen the supply chain, making it possible for operator within plant to consult or input richer data (text, audio, photos, videos) from anywhere, using any mobile device. These data stored on a database, can be quickly viewed and analyzed by the management, allowing to take decisions more quickly and in a correct way.

With the SQMS system we expect to improve the internal processes to control the quality of the parts and suppliers. It is also expected to ensure that all quality employees within plant (operators, quality engineers and management quality) follows the quality processes adopted by the company.

In this paper we have presented the SQMS prototype which supports a Supplier Quality Management System of particular OEM Car Manufacturer. The major contribution of this work is the implementation of a platform that automates the several parts of the supplier quality processes in the scenario of a multinational company with several plants across the world.

A prototype was developed to validate the proposed model and architecture. With this prototype we intend to collect data in a scenario of manufacturing environment, to evaluate the real impact that this system can have in the overall efficiency of the supplier quality management process of this OEM automotive industry.

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Measurement of Expected Inflation in CEE Countries On the Basis of Consumer Survey Data

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Abstract

This paper attempts to provide an overview of the different techniques used to convert qualitative assessments from surveys into quantitative data, i.e. the balance statistic, the Carlson-Parkin method and the Pesaran's regression approach. These techniques are then used to determine and compare inflation expectations in Romania, Czech Republic, Poland and Hungary by using data from the European Commission Consumer Survey. The results show an underestimation of actual inflation by the Polish and Czech consumers, while Romanian and Hungarian consumers seem to be more pessimistic, overestimating the actual inflation in a systematic manner.

Keywords: survey data, quantification methods, inflation expectations

Introduction

Expectations regarding future inflation play an important role in the pricing policy of enterprises and in wage negotiations. Also for a monetary policy that is geared towards maintaining a low and stable level of inflation an assessment of how the public forms inflation expectations is of crucial importance as it provides important information about the effectiveness of monetary policy and the credibility of the central bank.

Inflation expectations cannot be observed directly, they have to be derived either from the prices of inflation-indexed financial market instruments or from survey data. In case of the emerging economies the second option is usually preferred due to the still low development level of financial markets in these countries.

There exists a great variety of surveys concerning the expectations of various economic agents regarding the future developments of prices, production, employment etc. One well-survey is the European Commission (EC) Consumer Survey, conducted on a monthly basis and containing questions about the financial and general economic situation, price developments and unemployment. The principle of harmonisation underlying the Commission's survey programme produces a set of comparable data for all Member States. Concerning the price expectations two questions are of interest: one question asks how prices are now compared to 12 months ago and the other aims to find out what the survey participants expect of the future price development. The data from the survey are qualitative in nature, providing a direction of change and not an exact value, and need to be quantified for further analysis.

The focus of this paper is to present different quantification methods of expected inflation on the basis of survey data and to apply these techniques to determine and compare inflation expectations for Romania, Czech Republic, Poland and Hungary using data from EC Consumer Survey. These countries are new European Union member states from Central and Eastern Europe with an explicit inflation targeting monetary policy regime, so inflation expectations and, in particular, how they change over time is of crucial importance for the policymakers.

The paper is related to the contributions of Nardo (2003) and Łyziak (2010). Both papers offer a critical review of the different quantification methods, highlighting the limits of their use in macroeconomic modelling. However Nardo (2003) approach is only theoretical; in contrast, as mentioned, this paper also presents consumers' inflation expectations derived on the basis of qualitative data from the EC Consumer

Survey for Romania, Czech Republic, Poland and Hungary. Moreover, departing from Łyziak (2010), it also provides a comparison between the 4 countries mentioned with respect to perceived and expected inflation, based on the balance statistic indicator, as determined by the EC.

The remainder of the paper is organised as follows: section 2 gives an overview of the data, section 3 describes the methodologies used for converting qualitative survey data into quantitative measures of agents' expectations, while section 4 presents the results. Finally, section 5 concludes.

Data

The Directorate General for Economic and Financial Affairs (DG ECFIN) conducts regular harmonised surveys for different sectors of the economies in the European Union and in the applicant countries. They are addressed to representatives of the industry (manufacturing), services, retail trade and construction sectors, as well as to consumers. Based on the detailed results of the Harmonised Programme, the Commission calculates and publishes a set of monthly composite indicators.

Question number 5 and 6 from the Consumer Survey, which deal with the perceived and the expected inflation, are of interest for the analysis conducted here. *Table 1* shows the exact wording of both questions and the possible answers for the respondents:

Table 1: Questions 5 and 6 from the EC Consumer Survey

Q5: How do you think that consumer prices have developed over the last 12 months? They have…	Q6: By comparison with the past 12 months, how do you expect consumer prices to develop over the next 12 months? They will…
++ Risen a lot (PP^p) + Risen moderately (P^p) = Risen slightly (E^p) - Stayed about the same (M^p) -- Fallen (MM^p) Don't know (N^p)	++ Rise a lot (PP^e) + Rise moderately (P^e) = Rise slightly (E^e) - Stay about the same (M^e) -- Fall (MM^e) Don't know (N^e)

Source: EC Consumer Survey

The countries considered in the analysis are Romania, Czech Republic, Poland and Hungary. These are all new European Union member states with an explicit inflation targeting monetary policy regime. The time span is May 2001-February 2016 for Romania and Poland, January 2001-February 2016 for Czech Republic and February 1993-February 2016 for Hungary respectively (the complete set of available observations for each country).

Figure 1 and *2* illustrate the data, i.e. the weights corresponding to the possible answers for each of the 2 questions extracted from the survey. It is obvious that for the analysed period most of the respondents perceived/expected an increase in prices, although the percentages corresponding to these categories have decreased significantly in the last 2 years as a result of the low inflation environment.

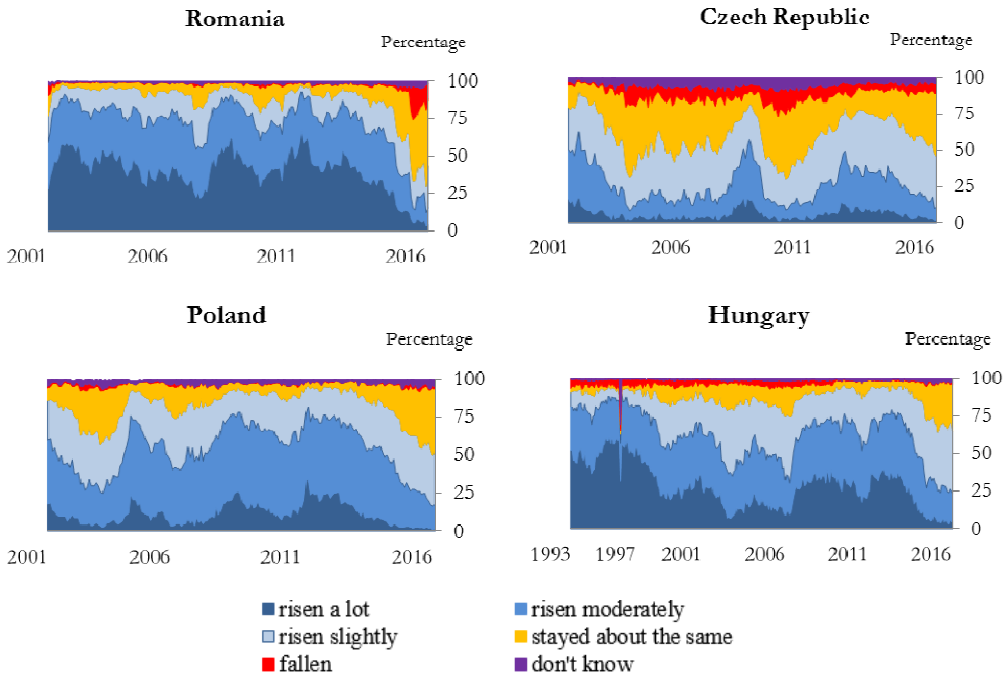

Figure 1: The corresponding weights for each possible answer to the question 5 from the EC Consumer Survey

Source: EC Consumer Survey

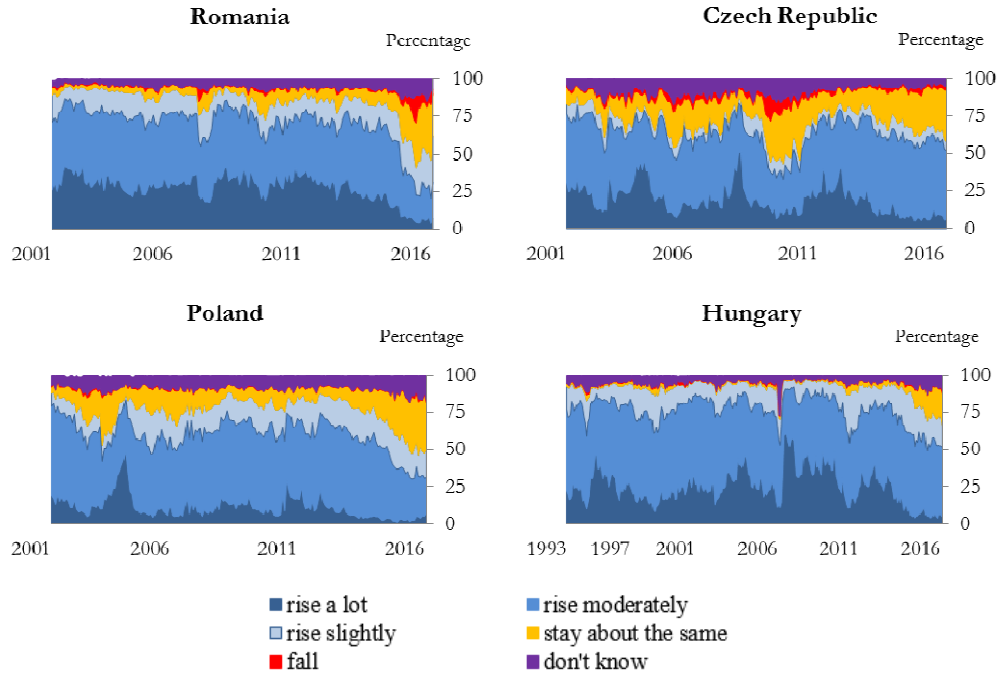

Figure 2: The corresponding weights for each possible answer to the question 6 from the EC Consumer Survey

Source: EC Consumer Survey

Quantification Techniques of Consumer Inflation Expectations on the Basis of Survey Data

The methods proposed in the literature for converting qualitative survey data into quantitative measures of agents' expectations are essentially three: the balance statistic used by Eurostat, the Carlson-Parkin method and the Pesaran's regression approach.

Balance statistics

Balance statistics offer the easiest way to summarize the responses to survey questions of this kind. They are constructed as the difference between the percentages of respondents giving positive and negative replies.

An example of balance statistic is the one currently used by the European Commission when building composite indicators:

$$BS^{p/e} = \left(PP^{p/e} + 0.5 \cdot P^{p/e}\right) - \left(0.5 \cdot M^{p/e} + MM^{p/e}\right) \quad (1)$$

where $PP^{p/e}$ and $P^{p/e}$ represents the fractions of respondents perceiving/expecting increases in prices of different magnitudes, $M^{p/e}$ represents the fraction of respondents not perceiving/expecting a movement in prices and $MM^{p/e}$ represents the fraction of respondents perceiving/expecting a decrease in prices (see *Table 1*).

Although balance statistics provide a useful and synthetic measure of the opinions expressed in survey, they do not measure expected or perceived inflation directly, being possible that the same distribution of responses to the survey questions to reflect significantly different values of expected/perceived inflation in economies or time periods characterized by high or low inflation (Łyziak (2010)). Also, as shown in Łyziak (2003), an improvement in opinions regarding future price movements, as disclosed by balance statistics, does not necessarily mean that inflation expectations have been reduced but, instead, a higher perceived rate of inflation and, implicitly, higher inflation expectations.

The next two quantification methods were developed in order to overcome these problems and to obtain numerical measures of perceived and expected inflation.

Probability method

The probability method was first employed by Theil (1952) but it was the seminal paper of Carlson and Parkin (1975) that made it popular. It was originally developed to survey questions with three response categories – the so called trichotomous survey. As in this paper data from the EC Consumer Survey is used, the extended version of the probability method due to Batchelor and Orr (1988) that deals with the pentachotomous case will be considered. As there are six possible answers to questions number 5 and 6 from the survey (see *Table 1*), the number of respondents that have chosen the "don't know" option is distributed proportionally between the other response categories.

In the probability method it is assumed that respondents answer survey questions using the median of their own subjective distribution of future inflation, $f_i(\pi_{it}^e/\Omega_t)$, where π_{it}^e represents the time *t* expected future percentage price change of agent *i* for the next 12 months and Ω_t the information set at time *t*. The distribution is segmented by indifference intervals which are considered to be symmetric and equal for all agents: respondents are supposed to report at time *t* an increase/decrease in the price level if the expected future inflation rate is at least θ_t units above/below 0; moreover, they will report a more/less rapid increase in the price level if the expected rate of inflation is at least ε_t units above/below the perceived inflation for the last 12 months, π_{it}^p (*Figure 3*).

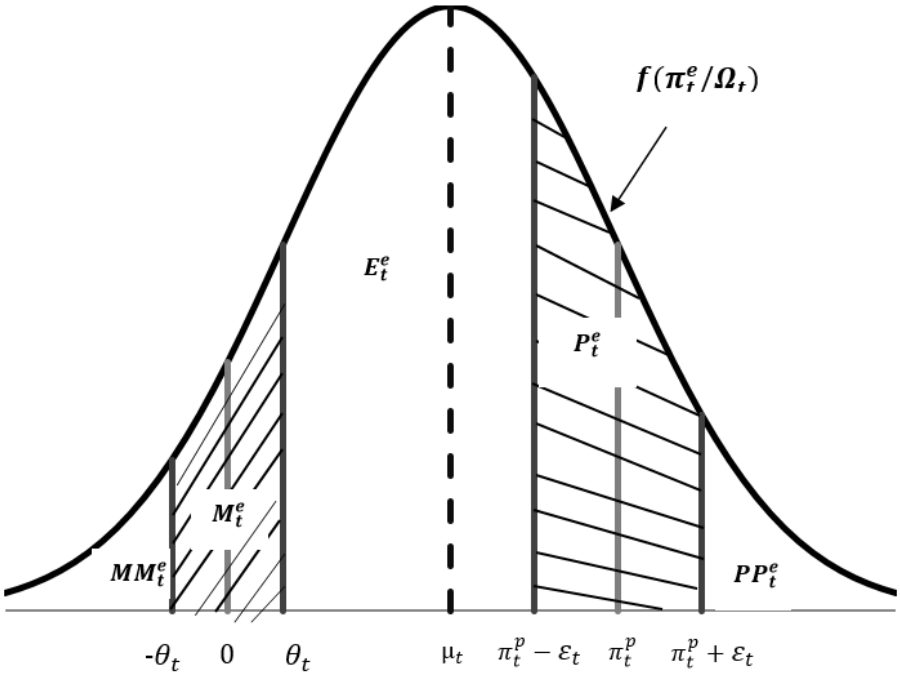

Figure 3. Quantification of pentachotomous survey data for a normal distribution function

If the individual distributions have the same form, are independent across agents and, furthermore, have finite first and second moments, the survey results can be interpreted as a sampling from the joint probability distribution $f(\pi_t^e/\Omega_t)$, with mean $\mu_t = \pi_t^e$, i.e. the expected price change at time *t*, and variance σ_t^2. In this case, the share of respondents replying to each category can be viewed as maximum likelihood estimates of areas under the density function of aggregate inflation expectations:

$$\begin{cases} P(\pi_t^e \le -\theta_t) = \int_{-\infty}^{-\theta_t} f(\pi_t^e/\Omega_t)d\pi_t^e = F(-\theta_t) = MM_t^e & (2) \\ P(-\theta_t \le \pi_t^e \le \theta_t) = \int_{-\theta_t}^{\theta_t} f(\pi_t^e/\Omega_t)d\pi_t^e = F(\theta_t) - F(-\theta_t) = M_t^e & (3) \\ P(\theta_t \le \pi_t^e \le \pi_t^p - \varepsilon_t) = \int_{\theta_t}^{\pi_t^p - \varepsilon_t} f(\pi_t^e/\Omega_t)d\pi_t^e = F(\pi_t^p - \varepsilon_t) - F(\theta_t) = E_t^e & (4) \\ P(\pi_t^p - \varepsilon_t \le \pi_t^e \le \pi_t^p + \varepsilon_t) = \int_{\pi_t^p - \varepsilon_t}^{\pi_t^p + \varepsilon_t} f(\pi_t^e/\Omega_t)d\pi_t^e = F(\pi_t^p + \varepsilon_t) - F(\pi_t^p - \varepsilon_t) = P_t^e & (5) \\ P(\pi_t^e \ge \pi_t^p + \varepsilon_t) = \int_{\pi_t^p + \varepsilon_t}^{\infty} f(\pi_t^e/\Omega_t)d\pi_t^e = 1 - F(\pi_t^p + \varepsilon_t) = PP_t^e & (6) \end{cases}$$

where $F(\cdot)$ represents the cumulative distribution function of $f(\pi_t^e/\Omega_t)$.

Using a standardized variable, the system above can be written as:

$$\frac{-\theta_t - \mu_t}{\sigma_t} = F^{-1}(MM_t^e) = mm_t \quad (7)$$

$$\begin{cases} \dfrac{\theta_t - \mu_t}{\sigma_t} = F^{-1}(MM_t^e + M_t^e) = m_t & (8) \\ \dfrac{\pi_t^p - \varepsilon_t - \mu_t}{\sigma_t} = F^{-1}(MM_t^e + M_t^e + E_t^e) = e_t & (9) \\ \dfrac{\pi_t^p + \varepsilon_t - \mu_t}{\sigma_t} = F^{-1}(MM_t^e + M_t^e + E_t^e + P_t^e) = p_t & (10) \\ PP_t^e + P_t^e + E_t^e + M_t^e + MM_t^e = 1 & (11) \end{cases}$$

Solving for the unknown parameters, μ_t, σ_t, θ_t and ε_t, we obtain:

$$\begin{cases} \mu_t = \pi_t^p \cdot \dfrac{mm_t + m_t}{mm_t + m_t - e_t - p_t} & 12) \\ \sigma_t = -2\pi_t^p \cdot \dfrac{1}{mm_t + m_t - e_t - p_t} & 13) \\ \theta_t = \pi_t^p \cdot \dfrac{mm_t - m_t}{mm_t + m_t - e_t - p_t} & 14) \\ \varepsilon_t = \pi_t^p \cdot \dfrac{e_t - p_t}{mm_t + m_t - e_t - p_t} & 15) \end{cases}$$

The parameters depend on the choice of the distribution function (in order to determine p_t, e_t, m_t and mm_t respectively), as well as on the perceived inflation rate π_t^p, that has a scaling role for the expected inflation rate.

There is no consensus in the literature regarding the actual distribution of expectations, a number of alternatives to normal distribution being considered: the uniform distribution (e.g. Lyziak (2003)), the logistic distribution (e.g. Batchelor and Orr (1988), Nielsen (2003)), the central and non-central t distributions (e.g. Nielsen (2003), Jelea (2013)) and the triangular distribution (e.g. Lyziak (2003)). Without access to individual responses to the survey is it impossible to check the accuracy of the different possible distribution assumptions. However there is evidence in the literature that the chosen distribution makes little difference to the derived expectation series (Nielsen (2003), Batchelor (2006)). In this study the assumption of normality of the underlying aggregate distribution function is chosen, more easily to handle and extensively explored. For this specific case, $F(\cdot)$ represents the cumulative standard normal distribution function.

As far as the scaling parameter is concerned, there are primary two proxies used in the literature: the most recent official inflation rate available to the survey participants and the measure derived on the basis of the survey question concerning past prices. The first proxy implies the rather strict hypothesis that the respondents perceive correctly the officially published inflation rate, so the second method was preferred. The same methodology as the one described above is applied to question number 5, the role of the scaling parameter being replaced by a measure of the moderate rate of inflation which represents the consumers' best guess of the permanent or trend rate of inflation (Batchelor and Orr (1988)). In order to determine the moderate rate of inflation, the Hodrick-Prescott filter is applied to the actual inflation rate for each of the 4 countries considered in the analysis.

The main drawbacks of the probability method concern the fact that it imposes a causal relationship between the current inflation and expected inflation and that the quantified measure is a function of a specific distribution function, although, as mentioned, the chosen distribution seems to make little difference for the derived expectation series. Furthermore, if the distribution is defined over $(-\infty, +\infty)$ the method breaks down if one of the extreme responses of the survey question is chosen by none of the respondents, as, if the value of the aggregate distribution function is zero, the value of the inverse of the normal distribution function approaches minus infinity. This was the case in some periods of the analysed samples, when none of the respondents perceived/expected a decline in prices. The approach used was the

one presented in Sabrowski (2008), more exactly $1/(2n+1)$ was added to the response category that equaled zero, where n represents the number of available observations.

Regression approach

As an alternative to Carlson-Parking method, Pesaran (1984, 1987) developed the regression approach, along the lines suggested by Anderson (1952). This method is based on the assumption that the estimated relationship between current inflation (as measured by official statistics) and its survey perception by respondents holds also between expected inflation and qualitative opinions of respondents concerning future price changes. Thus, in contradiction to probability method, quantitative expectations determined using the regression method are a function of a specific regression model, rather than a function of a specific probability distribution.

There are several models that can be employed in order to approximate the relationship between inflation and the survey data. This paper tests four of them, in line with the study of Łyziak (2010): a simple model based on the balance statistic determined by the European Commission, as well as the models proposed by Anderson (1952), Pesaran (1984, 1987) and Smith and McAleer (1995). *Annex I* provides a complete description of the models employed.

Each model can be summarized by the following equation:

$$\pi_t = \pi_{t+}^{p} \cdot (PP_t^p + P_t^p + E_t^p) - \pi_{t-}^{p} \cdot MM_t^p + \varepsilon_t \quad (16)$$

where the estimated coefficients represents implied average price dynamics perceived by the group of respondents claiming that prices have risen (π_{+}^{p}) and the group of respondents declaring that prices have fallen (π_{-}^{p}) respectively. The structure of the equation, with the official inflation used as the dependent variable and the survey responses as independent ones, imposes unbiasedness of inflation perceptions. Cunningham (1997) argues that in order to obtain unbiased and efficient estimates of the relationship between the survey and official data, the survey data should be the dependent variable because it may contain measurement errors, while it is assumed that the official data is not subject to revision. However, in practice, the differences between this approach and the one suggested by Smith and McAleer (1995) are very small.

According to regression method, the expression above holds not only for realizations, but also for expectations:

$$\pi_t^e = \widehat{\pi_{t+}^{p}} \cdot (PP_t^e + P_t^e + E_t^e) - \widehat{\pi_{t-}^{p}} \cdot MM_t^e \quad (17)$$

It is not mandatory to have a linear relationship between the official inflation and the survey responses as this depends on the way π_{t+}^{p} and π_{t-}^{p} are defined. As pointed out by Nardo (2003), in case of a non-linear relationship between the official inflation and the survey responses - Pesaran's model (1984, 1987), Smith and McAleer model (1995) - *equation (17)* represents only a first approximation of π_t^e, conditional upon qualitative information. Finding π_t^e from a non-linear equation involves also the knowledge of means and variances of qualitative information which is not possible since the individual responses to the survey are not available.

There are several drawbacks to regression approach too. A first one questions the key assumption of the method: there is no clear evidence that people judge the past in the same way as they formulate expectations about the future. Moreover the method is not well suited to work with polychotomous survey, requiring an aggregations of three fractions of respondents perceiving or expecting increases of different magnitudes in prices, this being equivalent to a loss of information. Also it imposes unbiasedness of inflation perceptions, a causal relationship between the current inflation and expected inflation and it does not offer an unique solution for the values of inflation expectations as the reestimation of regression models (for example in order to incorporate new releases of data) leads to different values for the estimated coefficients.

Results

This section presents the results obtained by applying the methodologies described above to the consumer survey data for Romania, Czech Republic, Poland and Hungary.

Balance statistics

Figure 4 shows monthly data for annual CPI inflation as well as the balance statistics of consumers' opinions on perceived and expected inflation determined as presented in *equation (1).* The balance statistic of expected inflation has been shifted forward 12 months, i.e. the actual inflation and the balance statistic of perceived inflation respectively are compared with the expectation for the current period that has been formed 12 months before.

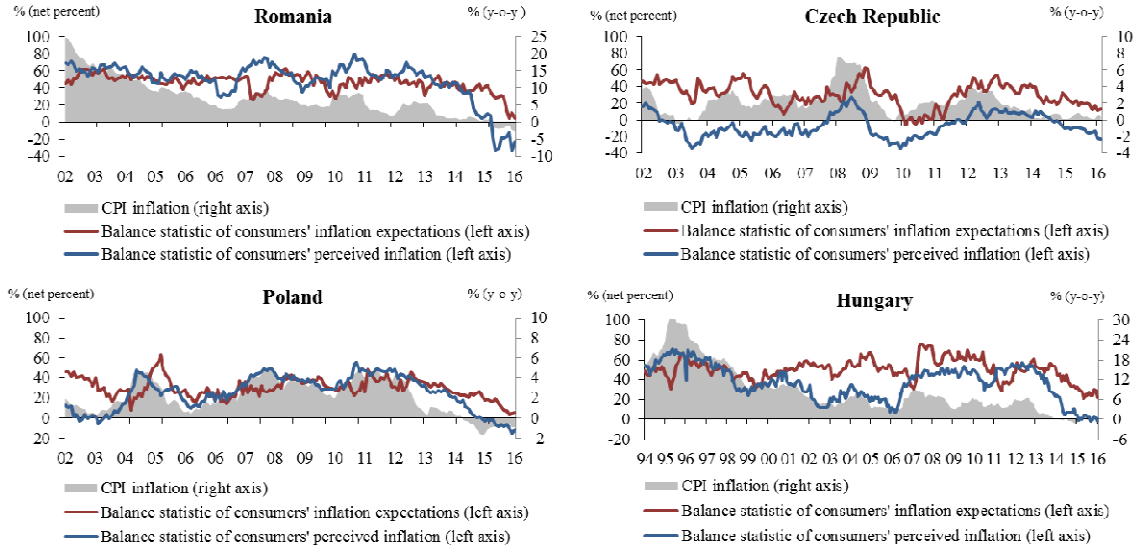

Figure 4: Balance statistics of perceived and expected inflation
Source: EC, INS, CZO, NBP and MNB data

To compare the balance statistics of expected/perceived inflation with the actual inflation the method suggested in Łyziak (2013) is used, i.e. the official CPI inflation is translated into a qualitative measure as follows:

$$\pi_t^{BS} = \begin{cases} 100, if\ \pi_t > \pi_{t-12} \\ 50, if\ \pi_t = \pi_{t-12} \\ 0, if\ 0 < \pi_t < \pi_{t-12} \\ -50, if\ \pi_t = 0 \\ -100, if\ \pi_t < 0 \end{cases} \quad (18)$$

The results are presented in *Table 2*. The average price dynamics expected/perceived as compared to the average of actual inflation suggest that the Polish and Czech consumers form their opinion in an optimistic manner, while Romanian and Hungarian consumers in a pessimistic one. Considering average balance statistics for the period May 2002 – February 2016, for which observations from the survey are available for all the 4 countries analysed, the consumers in Czech Republic seem to be the most optimistic in terms of perceived changes in price level, while Romanians are the most pessimistic. The Czech and Polish consumers reveal the highest degree of optimism when assessing future price changes, while Hungarian consumers the lowest one, followed by Romanians.

Table 2: Average balance statistics of inflation expectations/perceptions and actual inflation

	The complete set of observations			*Common sample (May 2002 - February 2016)*		
Country	Average expected inflation	Average perceived inflation	Average actual inflation	Average expected inflation	Average perceived inflation	Average actual inflation
Romania	46	49	18	46	49	18
Czech Republic	30	-7	36	30	-7	37
Poland	30	25	30	30	25	30
Hungary	50	37	29	51	31	30

Source: Author's calculations based on EC, INS, CZO, NBP and MNB data

In order to compare the consumer capacity to correctly detect the current/future movement in prices, the correlation coefficients between the balance statistics of perceived/expected inflation and the current CPI inflation have been determined. The results are shown in *Table 3*. The consumers from Poland have the highest correlation between the balance statistic of perceived inflation and the current inflation, while the ones from Czech Republic the lowest ones. All the countries present a low degree of correlation between the balance statistic of expected inflation and the current inflation. In Romania the consumers' expectations regarding future inflation follow developments of perceived inflation closely (correlation coefficient of 88% between the two balance statistics): in periods of perceived rising/declining inflation consumers' opinion on expected price changes tend to worsen/improve.

Table 3: Correlation coefficients, common sample (May 2002 – February 2016)

	Correlation coeficient between expected inflation/current inflation	Correlation coeficient between perceived inflation/current inflation	Correlation coeficient between expected inflation/perceived inflation
Romania	44%	63%	**88%**
Czech Republic	23%	53%	34%
Poland	40%	**88%**	55%
Hungary	**55%**	59%	45%

Source: Author's calculations based on EC, INS, CZO, NBP and MNB data

Quantification methods for obtaining numerical measures of perceived and expected inflation

As mentioned in Section 3.2, in case of the probability method the assumption of normality of the underlying aggregate distribution function is employed, more easily to handle and extensively explored. As far as the moderate rate of inflation is concerned, the Hodrick-Prescott filter is applied to the actual inflation rate for each of the four countries considered in the analysis.

Regarding the regression approach, the final version of the estimated equation for each of the economies (*Table 4*) was selected on the basis of a comparison of statistical properties, but also taking into consideration the economic interpretation of the estimated coefficients (e.g. correct signs in accordance with economic theory). For all the 4 countries considered in the analysis an extended version of the model proposed by Smith and McAleer (1995) was preferred.

Table 4: Selected regression models

Country	Model	Estimated equation	$\overline{R^2}$
Romania	Smith and McAleer (1995)	$\pi_t = \frac{0.005 \cdot (PP_t + P_t + E_t) + 7.276 \cdot \pi_{t-1} \cdot MM_t}{1 - 0.982 \cdot (PP_t + P_t + E_t)}$	78%
Czech Republic	Smith and McAleer (1995)	$\pi_t = \frac{0.009 \cdot (PP_t + P_t + E_t) + (3.608 \cdot \pi_{t-1} - 0.030) \cdot MM_t}{1 - 0.867 \cdot (PP_t + P_t + E_t)}$	79%
Poland	Smith and McAleer (1995)	$\pi_t = \frac{0.005 \cdot (PP_t + P_t + E_t) + (14.18 \cdot \pi_{t-1} - 0.227) \cdot MM_t}{1 - 0.898 \cdot (PP_t + P_t + E_t)}$	67%
Hungary	Smith and McAleer (1995)	$\pi_t = \frac{0.009 \cdot (PP_t + P_t + E_t) + (3.52 \cdot \pi_{t-1} - 0.020) \cdot MM_t}{1 - 0.869 \cdot (PP_t + P_t + E_t)}$	92%

Notes: [1] All coefficients are statistically significant at the 5% level of significance. [2] In the estimation the Newey and West (1987) variance-covariance matrix of the coefficients was used for its consistency in the presence of both heteroscedasticity and autocorrelation. [3] The equations are estimated using the complete sets of available observations. Where necessary, dummy variables were added for a better fit of the model.
Source: Author's calculations based on EC, INS, CZO, NBP and MNB data

The series of expected inflation, determined by applying the 2 methodologies and the actually inflation, are represented in *Figure 5*. As the expected inflation concern the next 12 months, the actual inflation is compared with the expectations that have been formed 12 months ago.

Summarizing the results, a couple of points could be made. Firstly, the two proxies of consumers' inflation expectations follow similar tendencies, the only exceptions being the pre-inflation targeting monetary policy regime periods in Romania and Hungary, characterised by a disinflation process. Secondly, expected inflation lags behind the actual inflation, which may have two possible explanations: the expectations are formed in an adaptive manner or the survey participants consider a shorter time span than the twelve months period when answering the questionnaire (Nielsen (2003)). Thirdly, the series of inflation expectations obtained by applying the regression method are more volatile than the ones obtained using the probability method.

The averages of inflation expectations and of actual inflation respectively are reported for the complete sample of available information and for the inflation targeting period (*Table 5*): from the four countries analysed, the Romania was the last one to adopt the inflation targeting (IT) monetary policy regime in August 2005; Czech Republic adopted it in January 1998, Poland in January 1999 and Hungary in June 2001. The results obtained when analysing the balance statistics of expected/perceived inflation are confirmed: the Polish and Czech consumers form their opinion in an optimistic manner, usually underestimating the actual inflation (in the case of Czech consumers the quantification of inflation expectations using the regression approach suggest an overestimation of the actual inflation in the analysed period), while Romanian and Hungarian consumers are more pessimistic, overestimating the actual inflation.

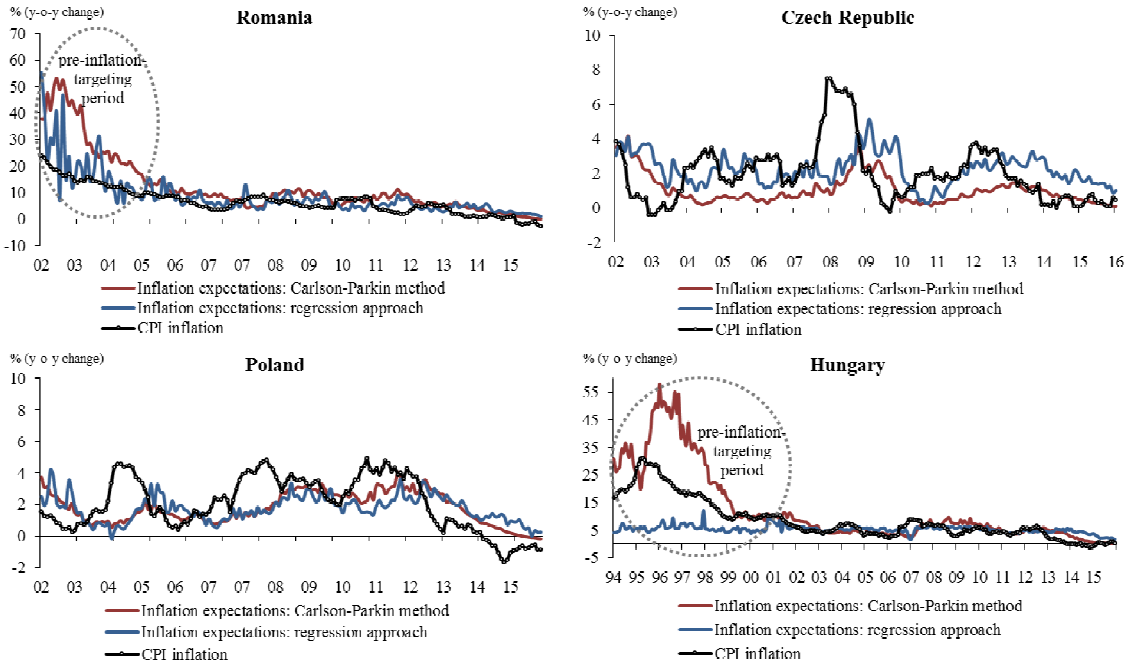

Figure 5. Expected inflation and actual annual inflation

Source*:* Author's calculation based on EC, INS, CZO, NBP and MNB data

Table 5: Averages of inflation expectations and actual annual inflation

	The complete set of observations			*Inflation-targeting period*		
Country	Inflation expectations: Carlson-Parkin method	Inflation expectations: regression approach	CPI inflation	Inflation expectations: Carlson-Parkin method	Inflation expectations: regression approach	CPI inflation
Romania	12.3	8.7	6.7	6.9	5.7	4.5
Czech Republic	1.1	2.2	2.0	1.1	2.2	2.0
Poland	1.8	1.8	2.1	1.8	1.8	2.1
Hungary	12.4	5.3	8.5	5.0	5.0	4.3

Source: Author's calculations based on EC, INS, CZO, NBP and MNB data

Conclusions

Inflation expectations influence the time path of the economy due to their often substantial impact in the process of agents' decision making. Qualitative survey data that assess the economic agents' expectations regarding future price developments are available. However, for modelling and forecasting purposes this data need to be numerically quantified.

This paper attempts to provide an overview of the different techniques used to convert qualitative assessments into quantitative data, i.e. the balance statistic, the Carlson-Parkin method and the Pesaran's regression approach.

The balance statistic indicator, as calculated by the EC, is used to compare inflation perceptions and expectations in 4 Central and Eastern European countries, i.e. Romania, Czech Republic, Poland and Hungary. Probability and regression methods are used in order to provide numerical estimates of the expectations for the aforementioned countries. The results show an underestimation of actual inflation by

the Polish and Czech consumers, while Romanian and Hungarian consumers seem to be more pessimistic, overestimating the actual inflation in a systematic manner.

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ANNEX I: Regression models

Balance statistic regression model:

$\pi_t = \alpha + \beta \cdot BS_t + \varepsilon_t$, where $BS_t = \left(PP_t^p + 0.5 \cdot P_t^p\right) - \left(0.5 \cdot M_t^p + MM_t^p\right)$

Anderson (1952): $\pi_t = \alpha \cdot (PP_t^p + P_t^p + E_t^p) - \beta \cdot MM_t^p + \varepsilon_t$, where $\pi_{t+}^p = \hat{\alpha}$ and $\pi_{t-}^p = -\hat{\beta}$

Pesaran (1984, 1987): $\pi_t = \frac{\alpha \cdot (PP_t^p + P_t^p + E_t^p) - \beta \cdot MM_t^p}{1 - \lambda \cdot (PP_t^p + P_t^p + E_t^p)} + \varepsilon_t$, where $\pi_{t+}^p = \hat{\alpha} + \hat{\lambda} \cdot \pi_t$ and $\pi_{t-}^p = -\hat{\beta}$

Smith, McAleer (1995): $\pi_t = \frac{\alpha \cdot (PP_t^p + P_t^p + E_t^p) - \beta \cdot MM_t^p}{1 - \lambda \cdot (PP_t^p + P_t^p + E_t^p) - v \cdot MM_t^p} + \varepsilon_t$

where $\pi_{t+}^p = \hat{\alpha} + \hat{\lambda} \cdot \pi_t$ and $\pi_{t-}^p = -\hat{\beta} + \hat{v} \cdot \pi_t$

Smith and McAleer (1995), extended version:

$\pi_t = \frac{\alpha \cdot (PP_t^p + P_t^p + E_t^p) - \beta \cdot MM_t^p + (PP_t^p + P_t^p + E_t^p) \cdot \sum_{j=1}^{J} \lambda_j \pi_{t-j} + MM_t^p \cdot \sum_{k=1}^{K} v_k \pi_{t-k}}{1 - \lambda_0 \cdot (PP_t^p + P_t^p + E_t^p) - v_0 \cdot MM_t^p}$

where $\pi_{t+}^p = \hat{\alpha} + \hat{\lambda}_0 \cdot \pi_t + \sum_{j=1}^{J} \hat{\lambda}_j \pi_{t-j}$ and $\pi_{t-}^p = -\hat{\beta} + \hat{v}_0 \cdot \pi_t + \sum_{k=1}^{K} \hat{v}_k \pi_{t-k}$

Notation:

PP^p, P^p and E^p respectively represents the fractions of respondents perceiving increases in prices of different magnitudes

M^p represents the fraction of respondents not perceiving a movement in prices

MM^p represents the fraction of respondents perceiving a decrease in prices

π_t represents actual inflation

π_+^p represents implied average price dynamics perceived by the group of respondents claiming that prices have risen

π_-^p represents implied average price dynamics perceived by the group of respondents claiming that prices have fallen

Consumers and Supermarkets Leaders in Global Value Chain

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Abstract

In a Global Value Chain, the changes in organizations are a direct result from the requirements of lead firms. An ideal context to test these affirmations is the Horticultural Value Chain, where producers with close business relationship with large supermarket chains have made a series of strategic organizational changes to respond to consumer demands.

Keywords: Producer, Sustainable Products, Organizational Behaviour, Governance.

Introduction

For the study of Global Value Chain (GVC) it is important not to miss three components mentioned by Kaplinsky and Morris (2001): that the chain is a store of wealth, its operation involves some degree of governance and the existence of various types of chain.

Governance ensures that interactions between firms meet organizational coordinated action, not mere chance. This indicates that the chains are governed when parameters requiring product, process and logistics are closely linked to activities, actors, roles and functions of the nodes that comprise it (Kaplinsky and Morris, 2001). The term, according to Humphrey and Schmitz (2001), is used to emphasize the role of leadership imposed by certain companies over others.

Focused on the exporting horticultural sector in Sinaloa, Mexico which has existed for a century and has an exporting tradition to the United States, this Horticultural Value Chain (HVC) is a product of the interaction between firms responding to coordinated action, where the process and logistics are linked through activities and defined by the actors that make up each of its nodes responsibilities. Between these actors who take the responsibility of increasing the capabilities and quality of the participants involved, have an outstanding role as they exert governance, setting the parameters of that particular market.

The HVC is characterized by being managed by the purchaser, implying that the supermarkets are in charge of governance where capital is its main carrier. The areas of opportunity in order to compete are design and commercialization. And one consideration of major importance in the configuration of the chain is development around perishable goods, which in this case are vegetables.

If it added that supermarket chains respond to the interests of consumers. This is how the working hypothesis was established: *The changes in a GVC of perishable goods are result of the consumer preferences led by supermarket chains.*

Discussion

In the book by Carman, Cook and Sexton (2004) cited from 2000 to nowadays the supermarket chains increased their leading role in American consumer's life, offering a wider range of merchandise, establishing themselves in ample number of cities and adapted themselves to the population's eating habits changes.

Supermarkets got systems that identified consumer's preferences, changes and taste more effectively; this was reflected in their strategies and influence over other stages in the chain. This favored consumers' habits to prefer products that supermarkets offered since these satisfied their requirements, quality needs, quantity and diversity. A producers' readjustment was necessary to satisfy the new market's requirements.

In research study by Reardon, Berdegué and Timmer (2005) stablished demand was not the only factor that justified the fast growth of the supermarkets in the nineties and XXI century. Among others are the detailed commerce liberation and commercial opening by the end of the eighties, accompanied by an organizational adjustment in the mid-nineties that reduced big chains' transaction costs, allowing the establishment of big and small branches in cities in the United States.

Big supermarket chains turned into one of the main distributor's purchasers, which main governance faculty was to transmit market signals to the producers and give support in the improvement of production processes and vegetable quality.The aim is to face consumers with a better knowledge of what it is appropriate to eat.

Supermarket chains have focused in getting to know their clients better, and not only that, but also in offering them high quality products that are good for their health. Based on that experience and knowing they're the most important detailed market at the present time they are aware of their privileged position in the negotiation.

Focusing the consumer on the axis of the economic system producers should expand their knowledge about their characteristics, tastes and preferences. Brambilia (2006) mentioned in order to define what, how and when to produce, borders disappear leaving the import and export flow products that meet consumer demand.

Knowledge about consumer must focus on:

- Identify the product it will give greater value
- The most appropriate presentation
- Establishments to buy more frequently
- Frequency of purchase
- Consumer preference
- Habits and income

As a pilot, observation method was used in some supermarket chains and wholesalers located in Sinaloa (Walmart, Ley, MZ, Comercial Mexicana, Sam's Club, Costco, City Club), itwas possible to detect when the consumers buy vegetables:

- The highest percentage of consumers select for theappearance, assuming that the product has quality
- Most of them buy the products on offer
- A minority buy organic products
- During the morning and those who buy organic products use sportswear
- About 60% of customers are women and 40% men
- If a consumer wants to know the diversity of vegetable (for example, organic, hydroponic or other) employees lack information

- There is no information that allows consumers to try new products or grown with healthy methods
- Most consumers are adults

In survey of 400 customers:

- 89 percent are buying vegetables at the supermarket
- 11 percent in other establishments (wholesale stores or other retailers)
- 23.5 percent consume organic products every day

With consumers more informed and aware of what they eat. Supermarket chains have to know their costumers profoundly in order to offer the most suitable selection of products that also fulfill their health requirements. Especially when it tends to sustainable products.

Conclusion and Implications

There are no precise records on the motivations, tastes and preferences by which consumers opt for horticultural products. However, attributes related to quality are considered determinants. Which leads to supermarket chains to set high standards when selecting their suppliers. Knowledge that allows them to establish leadership in the HVC.

Supermarkets then define quality to producers that require and demand specific presentations, safety and excellent appearance. Therefore, consumers have as preferred supplier to chains, which are guaranteed quality.

It should be understood, trading vegetables involves a consumer who has become an active player, concerned about their food, who exercises more frequently and reporting on the implications of the consumption of unhealthy foods. Therefore, the implications of the research are to understand consumer preferences, the role of supermarket chains as experts in the market and identify changes in the growing demand for healthy products (sustainable products).

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Formal Verification of Business Processes using Model Checking

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Abstract

The solution against the changing business environment is construction of flexible business processes in order to be aligned with actual business needs and requirements. The reliability of a business process can be increased through modelling of the process before the implementation of code, followed by the verification of its correctness. Verification of a business process involves checking whether the process in question behaves as it was designed to behave. Model checking is a technology widely used for the automated system verification and represents a technique for verifying that finite state systems satisfy specifications expressed in the language of temporal logics. Formal verification of business process models aims checking for process correctness and business compliance. This paper presents a suitable approach for automatic verification of a business process using Alternating-time Temporal Logic (ATL). In development of a user-friendly supporting tool, we will use our original ATL model checker.

Keywords: Business Process, Formal Verification, ATL model checking

1 Introduction

Languages such as UML, Java, C++, C# and programming paradigms like Object Oriented Programming (OOP), while necessary to implement IT solutions, are not intended for communication with business people, and so do not facilitate the necessary connection they need to have.

Business Process Management (BPM) methodology is a paradigm which is focused on business processes, under the assumption that a business will be as efficient as the processes that it runs. A Business Process Management Suite (BPMS) represents a technology platform through which can be implemented BPM. BPMS allows implementation of business processes quickly and provide the agility and speed required in order to adapt to the changes occurring in the business environment. A BPMS platform provides a single integrated environment tool for the development and deployment of business processes through its enabling technologies: BPMN (Business Process Modelling Notation) modelling tools, process engine, business rules engine, orchestration engine, analysis and simulation tools and an integration environment to connect processes with applications and external sources.

Almost everything we do with software development can be seen as processes. To develop a process-based application of any type, we generally respect some or all of the following steps, using different features provided by BPMS platforms (Bonitasoft documentation, 2016):

- Model the process;
- Define process data;
- Define forms;
- Define business rules;
- Integration with other Information Systems;
- Define users (actors);
- Simulation;
- Implementation;
- Monitoring and reporting.

In this paper we will use Bonita as BPMS platform. It offers the advantage of being fully process oriented and provides all the tools necessary to model, implement, manage and control the business process life cycle, allowing the development of a process-based application fast and efficiently.

Because testing and simulation can give us only confidence in the implementation of a software system, but cannot prove that all bugs have been found, we will use a formal method, namely model checking, for detecting and eliminating bugs in the design of a business process.

Design validation involves checking whether a system design satisfies the system requirements. Model checking is a technology widely used for the automated system verification and represents a technique for verifying that finite state systems satisfy specifications expressed in the language of temporal logics.

Alur, Henzinger and Kupferman (2002) introduced Alternating-time Temporal Logic (ATL), a more general variety of temporal logic, suitable for specifying requirements of multi-agent systems. ATL is also widely used to reason about strategies in multiplayer games. The semantics of ATL is formalized by defining games such that the satisfaction of an ATL formula corresponds to the existence of a winning strategy.

Using the approach presented in this paper, the reliability of a process-based application can be increased through the validation and verification of its Business Processes modelled using the BPMN 2.0 semi-formal notation in the first step of the development life cycle.

Starting from a model of a process given in BPMN 2.0 we provide a mapping to a formal specification in the form of concurrent game structures. This transformation makes possible formal and automatic verification of desired quality requirements of a given business process.

Using the Java version of our ATL Library, the standard methods of the Bonita BPM Engine have been overwritten such that building of the ATL model to be done in parallel with the definition of the business process. Thus our method is also suitable for business processes that were constructed directly using BPMN engine API calls.

The paper is organized as follows. In the next section, we provide some background material related to Alternating-time Temporal Logic. We present the definition of the concurrent game structure, the ATL syntax, the ATL semantics and a short description of our ATL model checker. In Section 3, we describe the formal model of a business process, the ATL model used to define the formal mappings and the visual model (using BPMN) of the formal verification approach we propose. A case study is presented in Section 4. We report related works in Section 5. Finally, are presented some conclusions and opportunities for future investigations in Section 6.

2 Alternating-Time Temporal Logic

The ATL logic was designed for specifying requirements of open systems. An open system interacts with its environment and its behaviour depends on the state of the system as well as the behaviour of the environment.

The model checking problem for ATL is to determine whether a given model satisfies a given ATL formula. ATL defines “cooperation modalities” of the form <<A>> φ, where A is a group of agents. The intended interpretation of the ATL formula <<A>> φ is that the agents A can cooperate to ensure that φ holds (equivalently, that A have a winning strategy for φ) (Kacprzak and Penczek, 2005).

ATL has been implemented in several tools for the analysis of open systems. In a paper by Alur et al. (1998) is presented a verification environment called MOCHA for the modular verification of heterogeneous systems. The input language of MOCHA is a machine readable variant of reactive modules. Reactive modules provide a semantic glue that allows the formal embedding and interaction of components with different characteristics (Alur and Henzinger, 1996).

In a paper by Lomuscio and Raimondi (2006) is described MCMAS, a symbolic model checker specifically tailored to agent-based specifications and scenarios. MCMAS takes a dedicated programming language called ISPL (Interpreted Systems Programming Language) as model input language.

Specifications of our original ATL model checker can be found in the paper by Stoica (2015). We will use our tool in this paper because it allows a transparent building of the ATL model at runtime, using the native language of the BPMN engine (Java).

In the following we will present the computational model used by ATL to describe compositions of open systems, called Concurrent Game Structure (CGS).

2.1 The Concurrent Game Structure

A concurrent game structure (CGS) is defined as a tuple $S=\langle \Lambda, Q, \Gamma, \gamma, M, d, \delta \rangle$ with the following components:

- a nonempty finite set of all agents $\Lambda = \{1, \ldots, k\}$;
- Q denotes the finite set of *states* ;
- Γ denotes the finite set of *propositions* (or *observables*);
- γ: $Q \rightarrow 2^{\Gamma}$ is called the *labelling* (or *observation*) function, defined as follows: for each state $q \in Q$, $\gamma(q) \subseteq \Gamma$ is the set of propositions *true* at q;
- M represents a nonempty finite set of moves;
- the *alternative moves* function d: $\Lambda \times Q \rightarrow 2^{M}$ associates for each player $a \in \{1,\ldots,k\}$ and each state $q \in Q$ the set of available moves of agent a at state q. In the following, the set $d(a,q)$ will be denoted by $d_a(q)$. For each state $q \in Q$, a tuple $\langle j_1,\ldots,j_k \rangle$ such that $j_a \in d_a(q)$ for each player $a \in \Lambda$, represents a *move vector* at q.
- the transition function $\delta(q,\langle j_1,\ldots,j_k \rangle)$, associates to each state $q \in Q$ and each move vector $\langle j_1,\ldots,j_k \rangle$ at q the state that results from state q if every player $a \in \{1,\ldots,k\}$ chooses move j_a.

A *computation* of S is an infinite sequence $\lambda = q_0, q_1, \ldots$ such that q_{i+1} is the successor of q_i, $\forall i \geq 0$. A *q-computation* is a computation starting at state q. For a computation λ and a position $i \geq 0$, we denote by $\lambda[i]$, $\lambda[0,i]$, and $\lambda[i,\infty]$ the i-th state of λ, the finite prefix $q_0, q_1,\ldots,q_i$ of λ, and the infinite suffix $q_i, q_{i+1} \ldots$ of λ, respectively (Alur, Henzinger and Kupferman, 2002).

In the paper which introduced ATL, the moves of agents are encoded by natural numbers (Alur, Henzinger and Kupferman, 2002). We have extended the original definition of concurrent game structure allowing that moves to be encoded by abstract objects of a set M. This will help us to define mappings between BPMN and CGS.

2.2 ATL Syntax

We denote by $F_S(A)$ the set of all well-formed ATL formulae defined over a concurrent game structure S and a set of agents $A \subseteq \Lambda$. Each formula from $F_S(A)$ can be obtained using recursively the following rules:

(R1) if $p \in \Gamma$ then $p \in \mathcal{F}_S(\mathcal{A})$;
(R2) if $\{\varphi, \varphi_1, \varphi_2\} \subseteq \mathcal{F}_S(\mathcal{A})$ then $\{\neg \varphi, \varphi_1 \vee \varphi_2\} \subseteq \mathcal{F}_S(\mathcal{A})$;
(R3) if $\{\varphi, \varphi_1, \varphi_2\} \subseteq \mathcal{F}_S(\mathcal{A})$ then $\{\langle\langle \mathcal{A} \rangle\rangle \circ \varphi, \langle\langle \mathcal{A} \rangle\rangle \Box \varphi, \langle\langle \mathcal{A} \rangle\rangle \varphi_1 \, U \, \varphi_2\} \subseteq \mathcal{F}_S(\mathcal{A})$.

The path quantifiers in the ATL logic are parameterized by sets of players from Λ. The operator $\langle\langle \, \rangle\rangle$ is a path quantifier, and $\circ$ ('next'), $\Box$ ('always'), $\Diamond$ ('future') and U ('until') are temporal operators. A formula $\langle\langle A \rangle\rangle \varphi$ expresses that the team A has a collective strategy to enforce φ. Boolean connectives can be defined from $\neg$ and $\vee$ in the usual way. The ATL formula $\langle\langle A \rangle\rangle \Diamond \varphi$ is equivalent with $\langle\langle A \rangle\rangle$ *true* U φ.

2.3 ATL Semantics

Consider a game structure $S=\langle \Lambda,Q,\Gamma,\gamma,M,d,\delta\rangle$ with $\Lambda=\{1,\ldots,k\}$ the set of players. We denote by D_a the set of available moves of agent a within the game structure S.

A *strategy* for player $a\in\Lambda$ is a function f_a: $Q^+\rightarrow D_a$ that maps every nonempty finite state sequence $\lambda=q_0q_1\ldots q_n$, $n\geq 0$, to a move of agent a denoted by $f_a(\lambda)\in D_a\subseteq M$. Thus, the strategy f_a determines for every finite prefix λ of a computation a move $f_a(\lambda)$ for player a in the last state of □.

Given a set $A\subseteq\{1,\ldots,k\}$ of players, the set of all strategies of agents from A is denoted by $F_A=\{ f_a \mid a\in A \}$. The *outcome* of F_A is defined as $out_{F_{\mathcal{A}}}: Q\rightarrow P(Q^+)$, where $out_{F_{\mathcal{A}}}(q)$ represents *q-computations* that the players from A are enforcing when they follow the strategies from F_A and $P(Q^+)$ represents the set of parts of the set Q^+. In the following, for $out_{F_{\mathcal{A}}}(q)$ we will use the notation $out(q,F_{\mathcal{A}})$. A computation $\lambda=q_0,q_1,q_2,\ldots$ is in $out(q,F_{\mathcal{A}})$ if $q_0=q$ and for all positions $i\geq 0$, there is a move vector $\langle j_1,\ldots,j_k\rangle$ at state q_i such that (Alur, Henzinger and Kupferman, 2002):

- $j_a=f_a(\lambda[0,i])$ for all players $a\in\mathcal{A}$, and
- $\delta(q_i, <j_1,\ldots,j_k>)= q_{i+1}$.

For a game structure S, we write $q\models\varphi$ to indicate that the formula φ is satisfied in the state q of the structure S. For each state q of S, the satisfaction relation $\models$ is defined inductively as follows:

- for $p\in\Gamma$, $q\models p \Leftrightarrow p\in\gamma(q)$
- $q\models\neg\varphi \Leftrightarrow q\not\models\varphi$
- $q\models\varphi_1\vee\varphi_2 \Leftrightarrow q\models\varphi_1$ or $q\models\varphi_2$
- $q\models\langle\langle\mathcal{A}\rangle\rangle\circ\varphi \Leftrightarrow$ there exists a set $F_{\mathcal{A}}$ of strategies, such that for all computations $\lambda\in out(q, F_{\mathcal{A}})$, we have $\lambda[1]\models\varphi$ (the formula φ is satisfied in the successor of q within computation λ).
- $q\models\langle\langle\mathcal{A}\rangle\rangle\Box\varphi \Leftrightarrow$ there exists a set $F_{\mathcal{A}}$ of strategies, such that for all computations $\lambda\in out(q, F_{\mathcal{A}})$, and all positions $i\geq 0$, we have $\lambda[i]\models\varphi$ (the formula φ is satisfied in all states of computation λ).
- $q\models\langle\langle\mathcal{A}\rangle\rangle\varphi_1 U\varphi_2 \Leftrightarrow$ there exists a set $F_{\mathcal{A}}$ of strategies, such that for all computations $\lambda\in out(q, F_{\mathcal{A}})$, there exists a position $i\geq 0$ such that $\lambda[i]\models\varphi_2$ and for all positions $0\leq j<i$, we have $\lambda[j]\models\varphi_1$.

2.4 Implementation of an ATL Model Checker

Our ATL model checker tool contains the following packages:

- ATL Compiler – the core of our tool, is an algebraic compiler (Cacovean, 2009), embedded into a Web Service (ATL Checker) (Stoica and Boian, 2012);
- ATL Designer – the GUI client application used for interactive construction of the ATL models as directed multi-graphs;
- ATL Library – used for development of custom applications with large ATL models. Versions of this library are provided for C# and Java.

For □ ATL operator we use in our tool the # symbol. Also, we denote the ◊ ATL operator with ~ symbol and the ○ operator is replaced by @ symbol. The software can be downloaded from http://use-it.ro (binaries and examples of use).

For a better understanding of the ATL model checking process, in Fig. 1 is represented the Use Case Diagram of our model checker. The Web service will receive from a client the XML representation of an ATL model and an ATL formula. After deserialization, the original form of the ATL model is passed to the ATL compiler. For a syntactically correct formula, the compiler will return as result the set of states in which the formula is satisfied. If the ATL formula is not valid, the Web service will return a message describing the error.

In this paper we are using the ATL Library to build and to verify the ATL model of a business process which was defined using methods of the *ProcessDefinitionBuilder* class of the Bonita BPMN engine, but our methodology can be adapted to any BPMN engine, using its API for defining executable business processes.

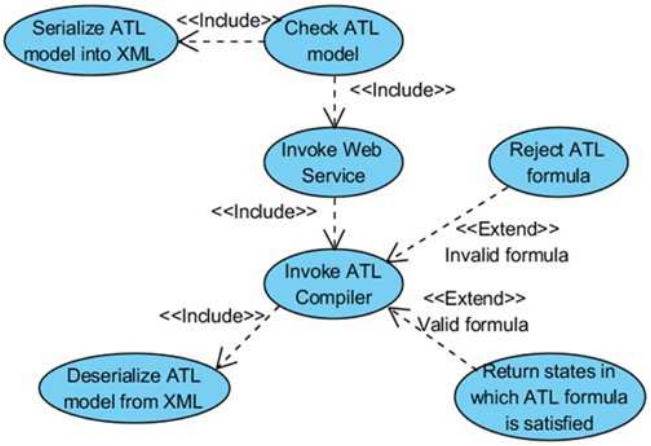

Fig. 1: The Use Case Diagram of the ATL model checker

Our experimental evaluation has been conducted within our ATL model checker (Stoica, 2015). Exploring the business process model, branching occurs only with reference to exclusive gateway. This gives us the possibility to explore alternative paths and avoid state explosion phenomenon (Falcioni et al., 2012).

3 Verification of Business Processes using ATL model checking

3.1 A Formal Model of the Business Process

A business process occurs when people interact in a coordinated manner to achieve a common business goal. Business Process Modelling Notation (BPMN) is a standard that allows the building a visual model which expresses a workflow's business requirements graphically.

In the following we present a formal model for a business process depicted using a BPMN Diagram composed by three basic categories of elements: Flow Objects, Connecting Objects and Swimlanes, which are described in the Fig. 2. Flow Objects are the main graphical elements to define the behaviour of a Business Process. There are three types of Flow Objects: Tasks, Gateways and Events (BPMN 2.0 reference, 2016).

A Pool contains a single, complete process. Swimlanes are used to help organize the process, to organize and categorize tasks. Because lanes are purely for organizational clarity, we do not include them in our formal model of the business process. We will consider in the following three types of Connecting Objects:

1. *Uncontrolled flow*: refers to flow that is not affected by any conditions or does not pass through a Gateway;
2. *Conditional flow*: has a condition expression that is evaluated at runtime to determine whether or not the flow will be used;
3. *Default flow*: this flow will be used only if all the other outgoing conditional flow is not true at runtime and will have a diagonal slash that will be added to the beginning of the line.

A Business Process is a tuple $BP = (F, C, \Pi, \pi, s_e, E_F, ce, \delta_{BP})$ where:

- $F = T \cup G \cup E$ is the set of Flow Objects, composed by Tasks (T), Gateways (G) and Events (E).
- $C = C_U \cup C_C \cup C_D$ denotes the set of Connecting Objects, composed by Uncontrolled flows (C_U), Conditional flows (C_C) and Default flows (C_D).
- Π denotes the finite set of names of Flow Objects (F) and Connecting Objects (C).
- π: $F \cup C \rightarrow \Pi \cup \{none, default\}$ is called the *labelling* function, defined as follows: for each business process diagram object $o \in F \cup C$, $\pi(o) \in \Pi$ is the *name* of the object o. Uncontrolled flows and Default flows will have assigned the name *none* and respectively *default*.
- s_e is an element of the set of events E, denoting the *start event*.
- $E_F \subseteq E$ is the set of *end events*.
- The function ce: $C \rightarrow \Pi \cup \{none, default\}$ assigns to each connecting object from C its *condition expression*. For simplicity, we will define ce as restriction of π to C:
  $ce = \pi_{|C} : C \rightarrow \Pi \cup \{none, default\}$ where:

$$ce(c) = \begin{cases} none \text{ if } c \in C_U \\ default \text{ if } c \in C_D \\ \pi(c) \text{ if } c \in C_C \end{cases}$$

- The transition function $\delta_{BP}(f_o, c_o)$, associates to each flow object $f_o \in F$ and each outgoing connecting object $c_o \in C$ the flow object connected to f_o by c_o.

Flow Objects	
Tasks Gateways Start Events Int. Events End Events	Tasks are performed in the process by users or by automation (service tasks). Gateways are used to join or separate process flow. Events are used to start or end a process and to manage specific actions during a workflow. An event is something that "happens" during the course of a business process.
Connecting Objects	
Flow	The sequence flows are used to show how the workflow evolves.
Swimlanes	
Swimlanes	A pool contains a single process. Lanes are used to organize and categorize activities.

Fig. 2: BPMN graphical objects used in Business Process Diagrams

This model will help us to elaborate the mapping rules between ATL and BPMN concepts.

3.2 ATL Model of the Business Process

For a Business Process model defined in section 3.1, the equivalent concurrent game structure $S=\langle \Lambda, Q, \Gamma, \gamma, M, d, \delta \rangle$ is defined as follows:

– There is only one agent, i.e. $\Lambda = \{1\}$;
– The set of states is $Q = F$;
– The finite set of *propositions* is defined by $\Gamma = \pi_{|F}(F)$;

– The *labelling* function γ: $Q \rightarrow 2^{\Gamma}$ is defined as follows:

$$\gamma(q) = \pi_{|F}(q)$$

– The nonempty finite set of moves *M* contains all *condition expressions*, i.e.:

$$M = \bigcup_{c \in C} ce(c)$$

– The *alternative moves* function $d{:}\Lambda \times Q \rightarrow 2^{M}$ is defined by $d(1,q) = \bigcup_{c \in C_q} ce(c) \forall q \in Q$ where C_q represents the set of connecting objects outgoing from *q*.

– The transition function □ is defines as follows:

$$\delta(q, < j >) = \delta_{BP}(q, j) \forall q \in Q \, and \, \forall \, j \in \bigcup_{c \in C_q} ce(c)$$

3.3 Formal Verification of a Business Process

Automated verification of a Business Process (BP) by ATL model checking is the formal process through which a given specification expressed by an ATL formula and representing a desired behavioural property is verified to hold for the ATL model of that BP. Using proposed approach can be discovered conformance failures for a given BP (discrepancies between actual and expected results) which may indicate any of the following: implementation bug, modelling error, specification error or design error of the verified BP.

For a given BP, its formal verification using the ATL model checking is done in two steps:

1. For the beginning, the corresponding ATL model is constructed following rules described in section 3.2;
2. Then, a given specification (ATL formula) representing a desired behavioural property is verified to hold for the model obtained at step 1.

The entire process of verification of a BP using ATL model checking is presented in the following process diagram:

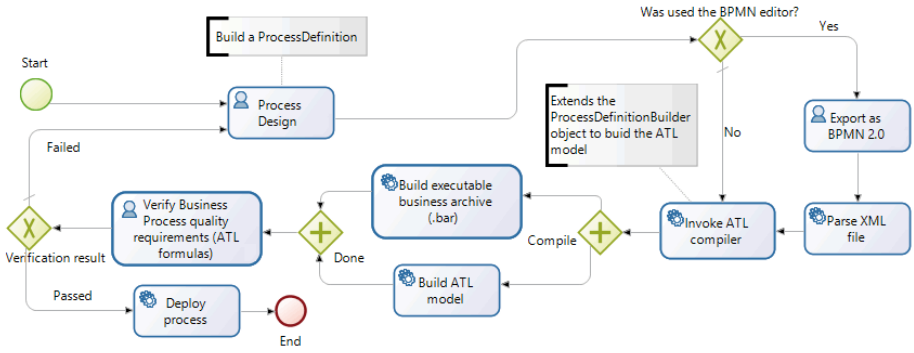

Fig. 3: Formal verification of a BP using ATL model checking

The core of our ATL model checker is the ATL compiler which translates a formula φ of a given ATL model to set of nodes over which formula φ is satisfied. The original implementation of the model checking algorithm is based on Relational Algebra expressions translated into SQL queries (Stoica, 2015). The broad goal of our research was to develop a reliable, easy to maintain, scalable model checker tool to improve applicability of ATL model checking in design of general-purpose computer software.

In order to use the ATL model checker in verification of business processes, we have extended the ATL compiler with a component that addresses the parsing of a process definition provided by *ProcessDefinitionBuilder* class of the BPM Engine. Our parser uses the Java version of the ATL Library –

a component of our ATL model checker, used for development of custom applications with large ATL models – to enhance the functionality of the standard methods of *ProcessDefinitionBuilder*, adding the code necessary to build in a transparent manner the ATL model of the verified business process, using mappings between formal models as they were defined in sections 3.1 and 3.2. These mappings are carried out by the classes and methods presented in Table 1 (ignoring the call parameters):

Table 1: Overwriting the methods of BPM engine to build transparently the ATL model

BPM engine API	ATL model checker (ATL Library)
ProcessDefinitionBuilder	ATLGraphModel
addStartEvent, addUserTask, addAutomaticTask, addGateway, addEndEvent, etc.	addNode
addTransition, addDefaultTransition, etc.	addEdge

4 A Case Study: Approval Process for an Employee Vacation

In the following we will consider a simplified process for requesting approval of vacation in a company. A vacation request submitted by an employee will be approved or rejected by the HR manager. However the HR manager may request other submission, thus delaying the final decision. The equivalent diagram in Bonita BPM Studio is as follows:

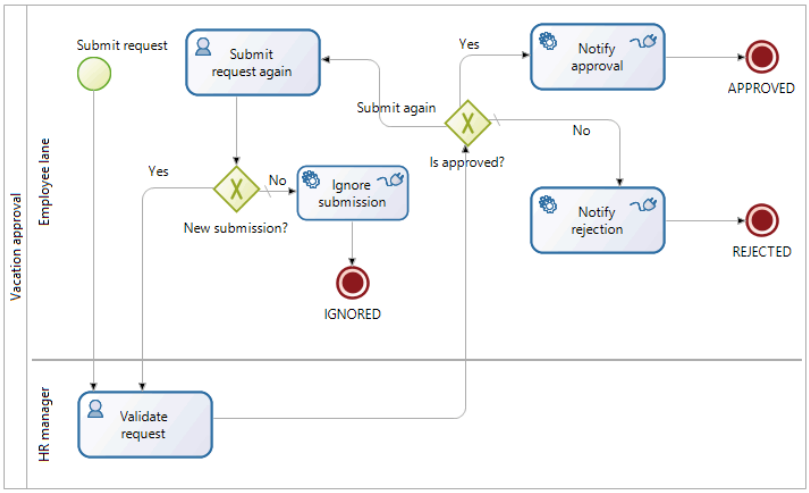

Fig. 4: The BPMN 2.0 specification of the approval process

According to the process design, an email notification is sent to an employee when the HR manager has approved the request or when the request has refused. The email notification will be sent to the employee who has submitted the request. For a request identical with one previously sent, the employee will receive the message „*Vacation request already submitted!*"

After building of the executable model and deployment of the business process application, users will use the Bonita BPM Portal to view tasks and take actions. Our example application contains web forms (created with Bonita BPM Studio) which are displayed to the end users when they trigger the creation of the process instance or perform their assigned tasks.

In the Fig. 5 is presented the form to be used by all employees, and which gathers all the required information to submit a vacation request and respectively the form to be used by the HR manager to review the requests submitted by the employees.

Using the ATL model, the analyst can establish the quality properties of the Business Process (BP) to be checked. The properties to be verified are described as goals to reach or conditions that BP states have to satisfy and are expressed by ATL formulas. The ATL model checker tool automatically assesses the quality of a designed BP with respect to defined quality requirements. In case some properties are violated, the BP designer will be asked to review the process model.

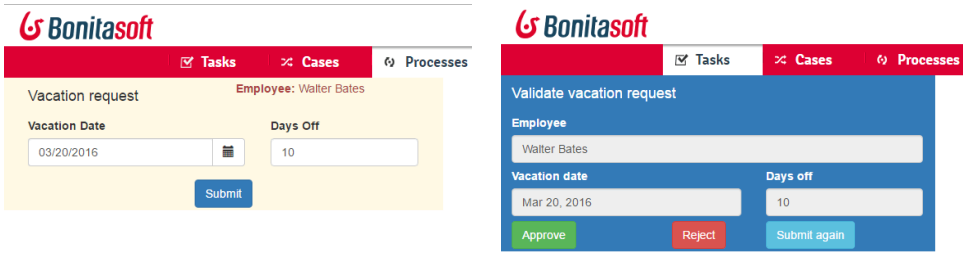

Fig. 5: Web forms provided by business process application

The ATL model of the business process, built by our tool described in section 2.4 and loaded in ATL Designer is presented in the Fig. 6.

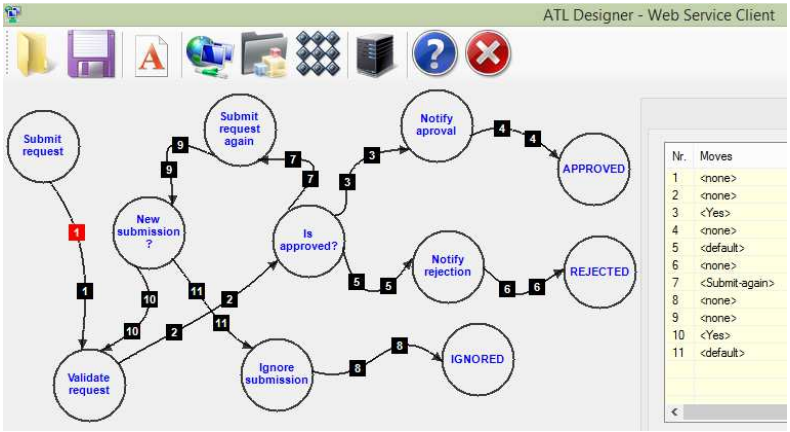

Fig. 6: The ATL model of the business process

The model checking problem for ATL is to determine whether a given BP with its structure described in a mathematical model (a concurrent game structure) satisfies a given ATL formula.

The model checker takes as input the concurrent game structure of the BP and the ATL formula φ (the property to be checked), and provides as output $Q'=\{q \in Q \mid q \vDash \varphi\}$ – the set of states where the formula φ is satisfied. Using this approach can be detected error states (the states of the model where the ATL formula does not hold) and thus the design of the verified BP can be corrected / improved.

For the BP analysed in this section, a natural requirement is that each request submitted by an employee to be rejected or approved and thus the employee to be notified of the result of his request. The ATL formula checked is:

<<A>>~ (APPROVED or REJECTED)

As we can see from the Fig. 7, the desired behavioural property expressed by ATL formula does not hold for the entire model. The formula does not hold in states 8 and 9. This can lead to unexpected results at runtime.

Indeed, if upon the request received from the HR manager to reformulate its request, the employee resends an identical request to previous one, its submission will be ignored (probably assuming that it was already analysed).

To correct this error, a constraint must be enforced at the task "*Submit request again*" to ensure that the employee always will send a request different from the previous one.

The formal verification of a BP using ATL model checking is accomplished using the prototype tool presented in Fig. 8.

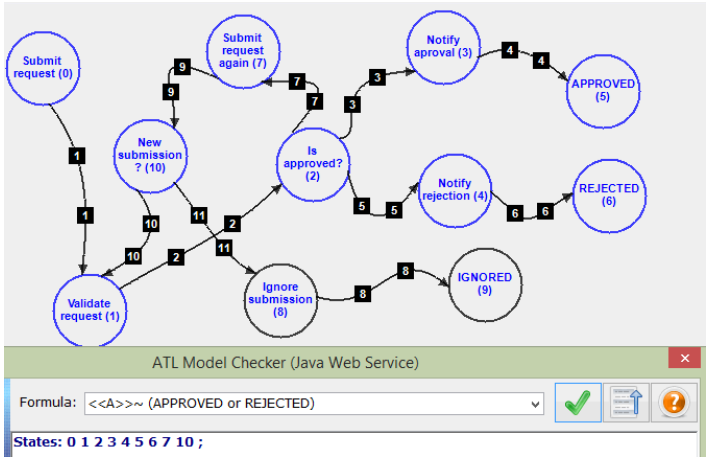

Fig. 7: Verification of the BP model

The developed tool uses the following APIs:

- BPM Engine API and ATL Library to build the process definition and its corresponding ATL model and also to build and deploy the executable business process (.bar file);
- Web REST API for access to all Bonita BPM objects (processes, tasks, users, etc.);
- ATL Library for checking the ATL model of BP.

Our tool are using JSON data-interchange format for communication with BPM Engine and to convert the output provided by ATL model checker.

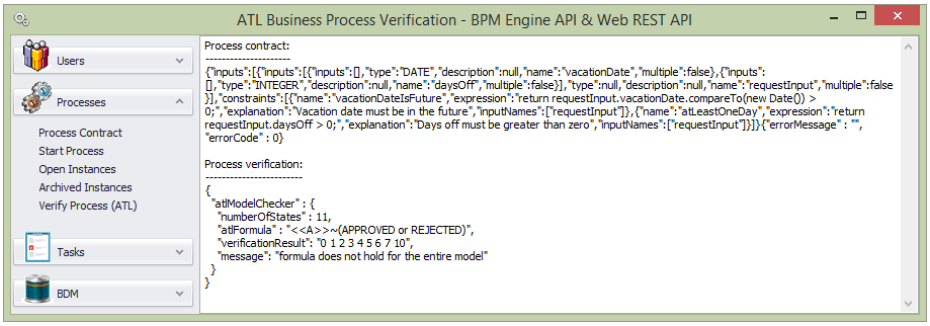

Fig. 8: The tool for verification of BP using ATL model checking

5 Related Works

Formal verification of business process models is of interest to a number of application areas, including checking for process correctness (verifying properties such as reachability and termination) and for business compliance.

The research paper by Morimoto (2008) provides a survey on BP verification techniques and an interesting classification of approaches for formally modelling BP: automata, Petri Nets, Process Algebras. A very detailed survey is presented in a research study by Groefsema and Bucur (2013), where are classified the verification techniques and are reviewed the frameworks used in the business process model checking. In the paper by Dijkman, Dumas and Ouyang (2010) is proposed a mapping from BPMN to a formal language, namely Petri Nets to enable the static analysis of BPMN models. The formalisation also led to the identification of deficiencies in the BPMN standard specification.

An approach related to the definition of a mapping from BPMN to a formal notation is discussed by Wong and Gibbons (2011). The authors demonstrate how process algebras such as Communicating Sequential Processes (CSP) can be applied to model complex workflow systems and have provided a formal semantic for BPMN elements in CSP processes using Z notation (Wong and Gibbons, 2008).

In a research paper by Polini, Polzonetti and Re (2012) is described an approach for BP design and verification in the field of public administration. In order to enable automatic verification of BP, the different BPMN constructs were mapped to the input formalism accepted by the PAT model checker and quality requirements have been encoded as temporal properties in Linear Temporal Logic (LTL). More exactly, a BPMN specification is mapped to a Communication Sequential Process (CSP).

In the paper by Falcioni et al. (2012) is proposed a BP verification technique based on an optimized unfolding algorithm taking advantage of the specific BPMN 2.0 semantic.

In a research study by Corradini et al. (2010) the BP verification is applied in the domain of e-Government Service Delivery. The authors introduce a methodology and a tool to formally and automatically assess the quality of a designed business process with respect to defined quality requirements. The tool integrate PAT as model checker and uses CSP formalism as input language.

Software Architecture Description Language (SADL) and a CTL model checker were used for formal verification of domain-specific applications (Cacovean, 2010). The CTL model checking was also used in a research paper by Cacovean et al. (2009) for determination of the behaviour of actors involved in capital market.

The ATL model checker used in this paper was successfully used in verification of JADE agents with Finite State Machine (FSM) behaviours (Stoica and Boian, 2015).

To the best of our knowledge the approach we present is the first attempt based on Alternating-Time Temporal Logic that tries to provide an easy to use tool for verification of process-based applications.

6 Conclusions and Future Work

Business Process Modelling Notation (BPMN) intends to bridge the gap between business process design and implementation of enterprise information systems such that both the business and technical sides of the organization can share a common language, with significant benefits in the deployment of new and more flexible applications. Although Business Process Modelling (BPM) is effective for the development of process-based applications, a diagram modelled with the BPMN notation may have various interpretations and lacks strictness. Thus, before utilizing BPM, we must define strict semantics of the models and verify formally the business process diagrams.

In this paper we presented an approach for detecting conformance failures of complex Business Processes (BP) modelled using BPMN 2.0 as early as possible and in any case before the deployment of the BP in production. Our formal verification technique of business process diagrams is intended for design-time verification. The verification of the BP using our approach helped in identifying dangerous traces, aiming the business compliance of the BP but it is also suitable for verifying basic properties such as reachability and termination.

The current implementation of the approach raise the reliability of business process diagrams performing automatic check if a business process model satisfies the quality requirements encoded as temporal properties in Alternating-time Temporal Logic. In the future we intend to improve our tool by adding support for complex branching features of the modelling formalism (e.g., to support parallel gates and execution loops). At the same time we will consider the runtime verification issues of BP. Other extension of the ATL model can be achieved by inclusion in the set of agents of all actors defined at the pool level.

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Endogenous Evolutivity and Organizational Adaptiveness towards Research Framework

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Abstract

The aim of the paper is to conceptualize the construct 'endogenous evolutivity' as well as to refer that to the organizational adaptiveness phenomenon. The method that has been used is deepened literature study. We have envisaged that high endogenous evolutivity comprehended as organizational routines' embeddedness would rather hinder organizational adaptiveness in terms of fluidity, strategic flexibility, and non-financial performance.

Keywords: adaptiveness, endogenous evolutivity, routines' embeddedness, organizational routines.

Introduction

It has been envisaged that endogenous evolutivity as organizational routines' embeddedness would rather hinder organizational adaptiveness. This article presents work in progress. To conceptualize research framework we use some pre-existing mental conception of what we are seeking. The aim of the paper is to (1) conceptualize the construct 'endogenous evolutivity' and (2) refer that to the organizational adaptiveness phenomenon.

The method that has been used is deepened literature study. The structure of the paper is four-fold. The first section presents the considerations in the scope of organizational adaptiveness and its strategic rationale. The second part illustrates the endogenous evolutivity concept as routines' embeddedness. Then, the initial research design has been proposed. Finally, the brief conclusion, main limitations and future research directions have been highlighted.

Organizational Adaptiveness: in Search of Strategic Rationale

Professional literature on the subject of strategic management offers a multitude of divagations on the concept of strategic adaptiveness (Hughes & Morgan, 2008; Nordqvist & Melin, 2008), strategic flexibility, fitness, and fluidity. This aspect is analysed in the context of strategy realization potential and describes the need for adjustment between all elements of the organization and its surroundings. This type of adjustment was perceived as a prerequisite for organization's performance. Even today, adjustment criteria are often adopted in the process of evaluating the effectiveness of strategies (Huffman, 2001). Complexity and uncertainty of the surroundings, however, require a new perception of the organizational "fit" idea. At present, it may be more useful to focus on organizational "fitness", i.e., the ability to learn and adapt (Beer et al., 2005). The potential to meet the requirements of changing environment rises in significance. The system of management should be geared towards exploiting and exploring future possibilities and this task can only be facilitated by endless learning as a way to improve operations (Baird & Griffin, 2006). Consequently, the organization may develop the ability to change and react at the operational level (operational flexibility). However, a dynamic organizational system is characterized not only by operational flexibility, but also—and more so—by its strategic flexibility (de Toni & Tonchia, 2005; Matthyssens et al., 2005). Hence, the strategic flexibility constitutes a key success factor and makes strategy

temporal (Eisenhardt, 2002). Flexibility as an ability to do something different from originally intended and as a response to environmental change and uncertainty (Volberda, 1998; Sharma et al., 2010; Gupta & Goyal, 1989) in its various forms has long played an important if not critical role in the organizational change and strategy literature (Dunford et al., 2013; Volberda, 1998).

Specifying, strategic flexibility might be considered as "an organization's capability to identify major changes in the external environment, to quickly commit resources to new courses of action in response to change, and to recognize and act promptly when it is time to halt or reverse such resource commitments'' or as the company's ability to restructure itself internally as well as restructure its relationship with the external environment (Roberts & Stockport, 2009). Quite similarly, Golden and Powel (2000) define flexibility as the organizational capacity to adapt to environmental changes and describe how different conceptions of flexibility vary. Moreover, strategic flexibility is more considered as an organizational process rather than an economic strategy (e.g. Volberda, 1998). What seems to be interesting, Johnson et al (2003) situate strategic flexibility within a resource-based view of the firm: the firm must develop a portfolio of capabilities that creates a bundle of options. The capacity for manoeuvres gained significant importance in management practice and literature (Singh et al., 2013; Roberts & Stockport, 2009) and at the operational level it is created through routines (Heng et al., 2013), at the structural level through adaptiveness and at the strategic level through overall strategies (Volberda, 1998).

Endogenous Evolutivity as Routines' Embeddedness

Endogenous evolutivity constitutes the propensity of a routine to evolve over time (Mickaël & Rowe, 2013). Complexity and uncertainty, interdependence, time pressure are regarded as the antecedents of the stability of routines propensity to evolve (Becker et al., 2005). Additionally, routines are embedded in cultures, technologies, etc., and these may constrain change over time (Howard-Grenville, 2005). The context in which routines are embedded shapes their use and, to a considerable degree, whether and how they alter over time. Howard-Grenville (2005) referred to the embeddedness of routines in technological, cultural, and coordinative structures within an organization, theorizing that routines that were more strongly embedded in these would be more resistant to change over time, even if actors performed them flexibly.

Firms act on the real world through their routines. Firms assess their choice of routines against the alternatives available, and against the performance of their activities relative to those of their competitors. A central argument of evolutionary-based work is that routines or capabilities are the fundamental units of analysis, and that the organization should be conceptualized as the central repository of routines and capabilities (Nelson & Winter, 1982).

Specifying, endogenous evolutivity might be explained by the routines' embeddedness. Strong embeddedness increases variations in routine performances, but not in the abstract general pattern of the routine. Furthermore, there is a natural tendency of routines to become increasingly embedded in resources over time (Guérard & Seidl, 2013).

Research design. Measurement tools and general propositions

Examining the role of endogenous evolutivity in organizational adaptiveness is planned to be conducted by means of the survey amongst team members and leaders in IT enterprises. The choice of the sector is justified with its dynamics what means that in a relatively short period the changes occur and, as a result, the short time of an observation enables to identify the premises of adaptation. Specifying, the following constructs would be examined: endogenous evolutivity and organizational adaptiveness.

Endogenous evolutivity

Endogenous evolutivity is proposed to be measured with the degree of routines' embeddedness. The more embedded routine is the less adaptive it is as well. To measure routines' embeddedness the

Howard-Grenville's (2005) ontology is going to be used (sticky routines: very persistent; little impetus or change from within, accommodative routines, pervasive routines, arbitrary routines, pragmatic routines, and adaptive ones: relatively easily adapted to new uses). The scale has been created on our own – 6 degree Likert scale.

Organizational adaptiveness

Adaptiveness is understood as organizational fit that apart from efficiency and effectiveness constitutes one of the organizational performance measurement indexes (Ruekert et al., 1985). It is going to be measured using the following categories: fluidity, flexibility, and non-financial performance. The fluidity is proposed to be measured using the constructs developed by Doz & Kosonen (2010), i.e. decoupling, modularising, dissociating, switching, and grafting.

Flexibility and its levels are intended to be measured using the categories proposed by Levy & Powell (2005) and Evans (1991): preemptive, exploitive, protective, and corrective flexibility.

Non-financial performance would be measured with the scale proposed by Bolat & Yilmaz (2009) and Tseng & Lee (2014). The Cronbach's alfa is 0.963. The scale consists of twelve items and the exemplary statement to be assessed (7-degree Likert scale) is 'Our company is able to grasp the right timing for launching new products or services.'

The last but not least research remark regards control variables. The most salient control variable for the research proposed seems to be environmental dynamism as it determines the conditions of the research in terms of selected population characteristics (it should concern high-velocity environment – the research is planned to be conducted in the IT sector). The environmental dynamism is proposed to be measured using Schilke's scale (2014). The Cronbach's alfa is 0.81. The measure involves six items and the exemplary statement is 'The modes of production/service change often and in a major way.'

Propositions

Taking into account the considerations aforementioned, the following general propositions have been formulated:

Proposition 1: The higher endogenous evolutivity, the weaker tendency to change the flexibility model from decoupling (customer/segmentation-based value domains) to grafting (acquiring to transform oneself).

Proposition 2: The high endogenous evolutivity implies rather exploitive and protective technology usage than pre-emptive and corrective one.

Proposition 3: The higher endogenous evolutivity, the less company's tendency to vigorously invest on the development of new market and technology and the higher degree of automation operation.

Conclusion

The implication of this framework would be the chance for exploring the associations between organizational routines' embeddedness (endogenous evolutivity) and organizational adaptiveness in terms of fluidity, strategic flexibility, and non-financial performance what contributes to the evolutionary approach complement in terms of studies on organizational routines. With regard to the future research directions, the framework requires empirical examination. The limitation of the study proposed might constitute the fact that not all proposed measures were validated in prior studies.

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Adaptive and Organizational Performance
The Role of Routinization and Climate for Innovation

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Abstract

The purpose of this paper is to argue that the incorporation of climate for innovation perspective and routinization into the study of organizational performance will result in a more complex and broad picture of this phenomenon that will serve to advance the scientific knowledge of adaptive performance and the role routinization plays in the process and to help organizations stimulate responses in face of environmental challenges. Conceptualization on climate for innovation and routinization as constructs that influence adaptive performance and subsequently overall organizational performance is carried out.

Keywords: organizational performance, adaptive performance, routinization, climate for innovation

1. Introduction

The essence of management is coping with change. Recent decades have seen an increased focus on innovation and performance [Tidd & Bessant 2009]. Understanding how organizations overcome significant difficulties and function adaptively has captured the imagination and interest of practitioners and scholars throughout the years. The incorporation of climate for innovation perspective into the study of organizational performance will result in a more complex and broad picture of this phenomenon that will serve to advance the scientific knowledge of adaptive performance and the role routinization plays in the process and to help organizations stimulate responses in face of hard times. Organizational performance is a function of the potential return and managers should consider organizational climate enabling it to execute its routine [Reichard 2002; Schein 2011].

In this paper I conduct a conceptualization on climate for innovation and routinization as constructs that influence adaptive performance and subsequently overall organizational performance. Then, I proceed with rationale for including such constructs in the stream of research focusing on performance to emphasize the main concern of climate for innovation and routinization to build adaptive performance. Finally, I highlight that routinization and climate for innovation can be regarded as evolving insights into organizational performance and adaptation research.

2. Organizational Performance as the central construct

Organizational performance is one of the most important variables in the management research. A research regarding organizational performance has been related to exploring factors that contribute to organizational success. As a result, there is several perspectives organizational performance approaches deal with.

The concept of organizational performance is very common; nevertheless there is not a widely accepted definition of this construct. According to Kaplan & Norton [1993] performance is basically a set of financial and nonfinancial indicators. Hence, organizational performance is in the area of organizational attention as well as the outcome of organizational activities provide strong linkage to the long-term perspective and consequently organizational survival.

On the other hand organizational performance, however, means different things to different organizations. Therefore, there are many parameters an organization may use to measure its

performance. Since the ultimate goal of most business organizations is profitability, most organizations will measure their performance in terms of objective financial data. Nonetheless there are also ample studies that have reported significant correspondences between subjective and objective measures of organizational performance. There is, as would be expected, researcher choice whether he/she employs objective or subjective measures of performance. However, Singh, Darwish and Potočnik [2016] argue that subjective measures can be successfully employed to assess organizational performance. This is because often consistent, reliable and comparable compatible objective data on organizational performance measures is difficult to collect. For instance, Bontis, Crossan and Hulland [2002] developed 10-item scale to collect perceptions of firm performance, arguing that this scale represents a 'reasonable substitute for objective measures of business performance'.

Furthermore, there are numerous research concerning a range of factors influencing organizational performance, such as, human resource management decisions unique influence on organizational performance [Becker & Gerhart 1996], diversity and its impact on organizational performance [Starlene, Simons & Rowland, 2011]; management and leadership and performance [García-Morales, Jiménez-Barrionuevo & Gutiérrez-Gutiérrez 2012], structure impacting performance [Hao, Kasper & Muehlbacher 2012], the impact of organizational culture on organizational performance [Kotter 2012]; along with innovation and performance [Walker, Damanpour & Devece 2011].

Our objective here is to identify and consider climate for innovation and routinization as constructs that influence adaptive performance and subsequently overall organizational performance.

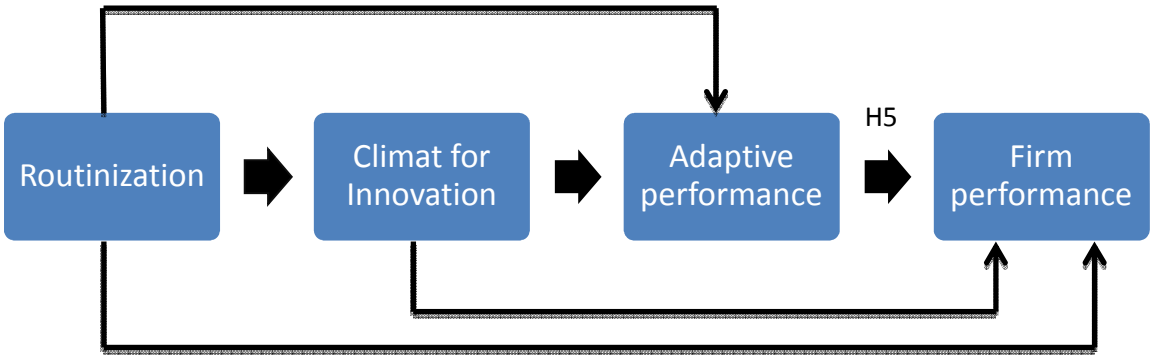

Figure 1: Conceptual Model

The presented research attempts to develop a conceptual model incorporating interrelationships of such constructs, and their effects on the performance, as illustrated in Figure 1. The model comprises two main elements: climate for innovation and routinization. Within the climate for innovation, the model includes five key constructs: team cohesion, supervisory encouragement, resources, autonomy, and openness to innovation [Nybakk, Crespell & Hansen 2011]. Routinization is perceived as frequent social interaction, frequent use of fixed goals, and frequent comparative cost analysis [Becker, Knudsen 2001]. The performance construct is represented by two sub constructs: adaptive performance and organizational performance. As enablers, all of the climate constructs are hypothesized to have a joint direct effect on the adaptive performance and subsequently on

organizational outcomes. Further, the model proposes that routinization as a hinder directly determines the climate for innovation. In addition I hypothesize routinization direct effects on adaptive performance and organizational performance. Finally, a direct relationship between adaptive performance and organizational performance is proposed. Hence I propose following:

H5: Adaptive performance affects firm performance positively.

The next sections further extend the model's constructs, and the rationale behind its development and its presumed relationships with other constructs.

3. Climate for Innovation and performance

Numerous studies have produced evidence which highlights the importance of culture to organizational performance [Wilkins & Ouchi 1983; Kotter & Heskett 1992]. There is a strong view in the literature that organizational culture lead to increased organizational performance. However, an organizational culture impact on organizational performance is characterized by ambiguities. Pearce and Robinson [2004] observe that culture is a strength but can also be a weakness. Nevertheless, organizational culture is a social phenomenon as well as climate conducive to innovation. The later one is especially worth to consider according to the general tendency to innovate. Accordingly, the exact nature of the relationship is mixed.

Organizational culture and performance relation has been examined by many researchers [Ogbonna & Harris 2000; Rousseau 1991; Kotter & Heskett 1992; Marcoulides & Heck 1993], not much research has been done on climate for innovation as a factor influencing organizational performance [Magee 2002].

The concept of organizational climate was first developed by Lewin, Lippitt and White [1939]. Climate represents the behavior, attitudes and feelings of the organization which in turn affect its operational processes in terms of communications, problem solving, decision making and how it learns. A climate for innovation, therefore, is the perception employees hold about innovation in the organization and it consists of workers' feelings, attitudes, and behavioral tendencies measured by their perceptions [Payne & Pugh 1976].

While some theories emphasized on structural forms, adaptability and capability of the organizations as the foundation of the management of organizational performance, other models considered organizational atmosphere, participative management and incentives for innovation as the core requirement for managers to be able to organize and lead organization. Organizational success is indispensably conditioned by the organizational culture and climate. Lawson and Samson [2001] identified four components of organizational climate: a) tolerance of ambiguity by bringing manageable level of uncertainty, putting tight control over project milestones and initiating effective information management; b) empowerment of employees by investing and respecting in people's ability and exceptionality; c) allocation of creative time by allowing flexible deadlines and permeable environment and d) knowledge sharing and communication among within the company and its network by means of cross-technological, cross-hierarchical and cross-functional exchanges.

Innovativeness is described as the propensity to create and/or adopt new products, processes, and or business systems [Knowles et al. 2008]. Innovativeness can be seen as a cultural attribute that captures the openness to new ideas and, hence, an organization's orientation towards innovation [Hurley & Hult 1998]. Climate for innovation is the observable manifestation of a pro-innovation culture and has a positive impact on innovation as does innovation strategy [Crespell & Hansen 2008]. Several scholars have documented a positive relationship between an climate for innovation and performance [e.g. Deshpandé & Farley 2004]. Climate tends to be supportive of an individual's and team's adaptive performance because it creates supportive environment. As such, adaptive performance as well as organizational performance is likely to be complemented by the climate for innovation. Therefore, two following hypotheses are proposed to test:

H3: Climate for innovation affects adaptive performance positively

H4: Climate for innovation affects firm performance positively.

4. Routinization and performance

Within the scope of research, it is assumed that routinization along with climate for innovation affects adaptive performance and firm performance in due course. In order to investigate the relationships among them, the following research hypotheses are developed:

H1: Routinization affects climate for innovation negatively.

H2: Routinization affects adaptive performance negatively.

H6: Routinization affects firm performance negatively.

Research suggests that one way of achieving a strong climate for innovation is through leader behavior [Schein 2011]. The ability to adapt to a changing environment is necessary for the survival of organizations. The role of organizational routines is therefore a fundamental issue. Organizational routines have been regarded as the primary means by which organizations accomplish much of what they do [Nelson & Winter 1982]. In many research, the emphasis is on the constraining characteristic of routines. Sometimes, the advice is that routines have to be 'broken' in order to enable a change. Hence it is important to take into account a dual-role that routines have: routines are seen as not just constraining, but also as enabling [Foss 1996; Hodgson 1997; Foss 1997; Cohen 2007]. According to the different studies, organizational routines result in either inertia or continuous adaptation or in both simultaneously [Mickaël, Frantz 2013]. Organizational routines attract increasing interest among scholars of organization [Parmigiani & Howard-Greenville 2011; Salvato & Rerup 2011]. They promise unique opportunity to explain how organizations change [Nelson & Winter 1982] and why certain organizations surpass others [Abell et al. 2008]. They emerge from the interrelation of individual action. Those who use routines make adjustments to their performances in response to prior outcomes [Feldman 2000]. Becker & Knudsen [2001] selected idea to capture routinization as frequent social interaction (use of task groups), frequent use of fixed goals (for cost control), and frequent comparative cost analysis. As they suggest, this is a useful basis from which a routinization can be measured.

Madhavan et al. [1998] suggested that changes of interaction patterns within routines may be characterized by the "occasions", nature, and direction of structural change. The change of the interaction patterns among members of routines is associated with routinization. The performances of routines are context depended. The context, for instance climate for innovation, may be followed by altered performances what may lead to change of patterns of interaction [Feldman & Pentland 2003] and subsequently to adaptive performance.

7. Concluding remarks

In order to be effective, the organization must adapt to external environmental influences. Without a climate for innovation, it is unlikely that inspired ideas will be transformed into innovation. In the same manner, even though an organization decided to adopt a particular innovation, such innovation is not likely to be fully utilized if the employees perceive no support from the firm. Therefore, to increase organizational performance as well as adaptive performance, it is imperative that the firm ensures the climate for innovation is in place and can be perceived by all members. Naturally, routinization matters. This paper studied climate for innovation and routinization and adaptive and organizational performance on the basis of prior scholars' researches, and build up the contingency model of constructs impacting on organizational performance, proposing organization should pay attention to the impact of intangible organizational aspects on organizational performance

Based on the results, the hypotheses associated with the conceptual model that the two constructs (i.e. routinization, climate for innovation) would influence adaptive performance which, in turn, would influence organizational performance has been formulated.

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Agile Movement and its Application to Software Project Management

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Abstract

The purpose of this study is to define and describe agile movement and its application to software development and other projects. The agile movement has brought about significant evolution in the process of software development. Its methods have increasingly been adopted globally and as a result, they have become one of the main software development approaches that are used today. It has provided businesses with a much faster and nimbler method for developing software. This is especially important for the ever-growing internet software industry and the emergent mobile technology. To achieve this goal, this study will provide a brief background regarding the development of the movement by focusing on its origin and famous agile manifesto. Characterization of the agile software processes is essential in explaining how the process can be used to shorten the lifecycle of projects. This study will also cover various agile methods that have received recognition in project and software management. In line with this, arguments have been put forth concerning agile projects being more successful than other types of projects. This study will clarify this argument. A set of agile principles that are likely to be applied to all types of projects will also be discussed.

Keywords: agile movement; software development; internet; software industry; characterization; agile principles; agile manifesto; agile methods; agile projects

Introduction

For a long time, the process of project management has been undergoing transformation in terms of information system design. Such evolution of project management in the field of information system does not come as a surprise. Developing systems today has become more than just technically correct or best engineering systems. This is no longer enough for users who currently demand for a system that is practical in nature and can address their specific needs. It is from this perspective that agile movement has been developed. Cervone (2011) defines agile movement as a set of principles used in software development that provides an alternative way of managing projects [1]. It can also be defined as a form of movement for change existing in the sphere of software development methodologies. For the sake of this study agile movement will be used interchangeably with the term agile software development. By providing an alternative way, the agile movement promotes adaptive planning, evolutionary development, early release, and continuous improvement of the software development process [12]. From this perspective, it is used as a way of moving software development away from traditional methods which have been described by agile users as heavy methodologies that lead to projects collecting dust on shelves in documentation. Williams (2010) also states that traditional methods have been found to require a huge effort during their planning phase and more often half of the resources for a project are expended before actual development begins [10].

Literature Review

Dingsøyr, Dyb˚a, and Brede Moe (2011) consider that the rise of the agile movement in the early 2000s can be traced back to the history of software engineering [4]. In 1974, a paper was written introducing an adaptive software development method. By mid 1990s, a collection of lightweight software development techniques evolved in reaction to traditional software development methods which were considered heavily regulated and micro-managed as explained by Dingsøyr, Dyb˚a, and Brede Moe (2011) [4]. Some of these lightweight methods of software development included dynamic system development method (DSDM), scrum, crystal clear, and extreme programming (XP) which were developed in 1994, 1995, 1996, and 1996 respectively according to Corbucci, Goldman, Katayama, Kon, Melo, and Santos (2011) [3]. Thus, the idea of agile techniques has been present since the 1970s and since these lightweight methods were not taken seriously from the beginning, it took them nearly 30 years to become recognized as effective methods of developing software according to Conboy and Fitzgerald (2010) [2].

Agile Overview

The overview will include the agile manifesto which was instrumental in making the software development and project management method become recognized and accepted. The overview will also feature characterization of the agile software development which will provide an insight into how the process shortens the lifecycle of projects.

The Agile Manifesto

The idea of agile software development was accepted and realized in 2001. This happened when a group of independent practitioners with significantly strong links in the software industry decided to come together and establish the agile movement. According to Williams (2010) this group consisted of 17 software experts [10]. The meeting resulted in the crafting of the agile manifesto whose purpose was to popularize the agile movement and produce high quality and valuable software. It was also meant to provide a form of umbrella name that would bring together various lightweight software development approaches that were in existent at the time. The agile manifesto has four main values [1]. The first value is individuals and interactions over processes and tools. This value demonstrates the agile movement's emphasis on the relationship and communality of software developers together with a human role being reflected in contracts instead of institutionalized processes and tools. The second value of the manifesto is working out software for comprehensive documentation. This value aims to show that the main goal of a software team is to continuously turn out tested software within a short time frame while keeping code simple and straightforward so as to reduce documentation. The third value is customer collaboration over contract negotiation. This means that the relationship formed between software developers and customers was more meaningful compared to ordinary contracts. The final value of the manifesto is responding to change by following a plan. This value means that a development group which was to be comprised of software developers and customer representatives ought to be well informed, competent, and authorized to place any form of consideration on possible adjustment needs that may emerge during the process of development.

Following the formation of the manifesto, some of its authors came together and formed a nonprofit organization known as the Agile Alliance. Its purpose was to promote software development according to the values and principles of the formulated manifesto. Santos and Goldman (2011) make the assertion; the one thing that is new about the agile methods of software development is the recognition of people as the main drivers of the success of a project together with a deep focus on effectiveness and maneuverability.

Characterization

Santos and Goldman (2011) provides the following characteristics of the agile software development process [9]. Most of the characteristics involve a fast delivery perspective that focuses on shortening the lifecycle of a project. One of such characteristics is incremental process approach. This approach allows functioning application to be built in small steps. This makes the application building be carried out in a manner that makes it possible to identify any kinks in the process thus ensuring high quality results. Another significant characteristic of the agile software development process is the fact that it is people oriented. In this sense, the process values people over process, procedures, and technology. This makes the end result be something that actually meets the needs of people who are the reason for the software development. Software that is developed via the agile process has parsimony. Parsimony in the development process is essential for the elimination of all activities that are deemed to be unnecessary. This makes the process of software development more effective and faster. A final characteristic of agile software development process is the fact that it is time bound with iteration cycles that run from one to six weeks. This is noteworthy because it leads to weekly production of the first delivery that makes it possible to achieve an early win and rapid feedback.

Agile Methods

There a number of software development methods following the values and principles of the agile movement. They are referred to as agile software development methods. Four agile software development methods will be discussed. The methods will be reviewed in a systematic way. This will entail discussing the method process, role and responsibilities, scope of use and the current research regarding them. Two main agile methods that will be highlighted are Extreme Programming and Scrum.

A. Extreme Programming (XP)

XP is an agile development method that affirms simplicity, feedback, and community in software development. The method has brought about evolution by eliminating many of the problems that were caused by traditional development cycles. The method was named extreme as a result of taking common development principles and practices and pushing them to extreme levels.

Process: The XP development process is encompassed of three iterative phases [4]. The three phases are planning, development, and acceptance. Planning is carried out at the beginning of a project. It entails dividing the project into iterations of 1 to3 weeks. Furthermore, during this phase story cards representing features of the project are created and the release date of the project is established. During the second phase the actual development begins with the high level design sketch being placed on a white board. At this phase, two programming teams are formed and programming is carried out in pairs whereby both team members are given the same responsibilities for a given code. In the last face of acceptance, the whole code developed by the team members is tested by an automated acceptance test that is chosen by a customer. A review meeting is then held with the aim of giving a feedback.

Role and Responsibilities: According to Corbucci, Goldman, Katayama, Kon, Melo, and Santos (2011), there exist different roles in XP intended for different tasks and purposes [3]. Some of the most vital roles include the following. The first role is that of a programmer. In this sense, programmers are charged with the task of writing up tests and keeping the program code simple and well-defined. This process equally entails communication and coordination with fellow programmers. The second role is that of the customer. The customer usually writes functional tests and is the one who decides that a requirement has been met. They also establish the implementation priority for the requirements. Tester plays another role. The tester aids the customer in writing the functional test. They are also in charge of running the developed functional tests on a regular basis and disseminate information on the results of the tests to concerned parties.

Scope of Use: The scope of the use of XP is limited as it is not suitable for being used everywhere as a result of its restrictions. For instance, the use of XP is oriented on small and medium sized teams. Cervone (2011) affirms that the size of these teams has to be within the range of 3 to 20 members [1]. In regard to the physical environment where the project is supposed to take place the team members must be able to communicate and coordinate with each other effectively.

Current Research: According to Santos and Goldman (2011), research on XP is still growing [9]. There are a significant number of studies on various aspects of XP. However, due to the development method being perceived more as a practical one, most of these studies are focused on individuals' experiences regarding the use of XP.

B. Scrum

This is a lightweight agile project management framework. It is extensively applied for managing and controlling iterative and also incremental projects. It is usually perceived as an empirical approach that applies ideas and theories of industrial process control to the development of systems. This results in the development of an approach that seeks to reintroduce flexibility, adaptability, and productivity in project development.

Process: The process of the scrum method consists of four main phases; planning, staging, development, and release. The purpose of the planning phase is to establish the goal vision and expectations that the project will be undertaken and the necessary funding for it will be allocated. All this is usually accomplished during pre-game planning. It is also vital to note that the project is usually subdivided into iterations known as sprints. During staging which is the second phase of scrum, requirements for the project are identified. Priorities are then established for iteration. Therefore, this stage starts with sprint planning that helps to lay down the plan for iteration. During the process of prioritizing external stakeholders are usually engaged. Following the creation of the plan, there can be no additional sprints. During the third phase of development, a systems implementation is carried out during a period of 30 days of iterations [2]. It is then prepared for release following this implementation. In addition, during this phase, the work in sprints is usually divided into daily blocks that bring daily builds. Conboy and Fitzgerald (2010) further affirms that meetings are held on a daily basis for approximately 15 minutes in which the status of the sprints is updated [2]. In addition, it is during these meetings that team members select what tasks they are going to be working on next. In the final phase of release, the system is deployed. This involves presenting a system to external stakeholders with the aim of receiving feedback. After reviewing the feedback received, future directions are then set.

Role and Responsibilities: Some of the major roles and responsibilities of Scrum assigned with different tasks during its practices include Scrum master, product owner, and Scrum team [3]. The Scrum Master is a management role that is responsible for making sure that a project is completed according to practices, values, and rules of Scrum. Product owner is the one who is responsible for a project. The Scrum team refers to the project team which has the authority to make decisions regarding the actions necessary for achieving goals of sprints made.

Scope of Use: The scope of use of the Scrum method is small teams encompassing of less than 10 members according to Williams (2010) [10]. In the event that there are more people, more teams will have to be created.

Current Research: According to Imran (2016), the latest research aims to integrate XP and Scrum [5]. This is because Scrum is able to provide a project management framework that can be supported by XP practices. More research is being conducted to provide more information on this aspect.

Agile Principles

There are some agile principles that can be applied to all types of projects and not just necessarily software development alone. Some people question whether agile methodologies can be implemented

for any kind of project. This is because the iterative, cooperative, and user focused approach seems to be suitable only for certain types of projects such as XP related ones. The truth however is that agile methodologies and in particular principles are suitable for all types of projects. Some of the agile principles that are suitable for all types of projects include the following. One of such principles is working in smaller chunks. According to Conboy and Fitzgerald (2010), this means that requirements and tasks can be broken down into much smaller and easily manageable chunks [2]. This will help to complete a project in a shorter time period that can range from days to several weeks. This will be essential for ensuring that tasks will not end up taking more resources than those originally allocated for them. Another significant agile principle that can be applied to all projects is the principle of seeking quick feedback and continuous improvement. This applies to all projects because the truth is that this involves criticism which is a bottleneck to improvement. Santos and Goldman (2011) explain that this is because human nature detests being criticized [9]. However, criticism is necessary for not only software development but for all other types of projects because it allows for mistake to be identified in good time and thus ensures that only the best results are achieved.

Embracing change and working accordingly is another agile principle that can be applied to all types of projects. It is imperative to realize that no matter how hard one works on a project and how well they plan for it, the truth is that unexpected things happen all the time which forces developers to adjust their plans. This does not happen in software development alone, but in all other kinds of processes and projects according to Moe, Dingsoyr, and Dyb˚a (2010) [7]. Thus, in terms of projects development, this can be handled by planning less for long term processes since it is not possible to foresee the future. It is advisable to seek feedback on a project sooner rather than later so as to avoid making changes to a project when there is little time left for it to be completed.

Success of Agile Projects

It has been claimed that agile projects are more successful than other types of projects. This to a great extent is true. This is because there is evidence in support of this claim. The success of agile projects is based on projects being on time, on budget, and containing all the planned features. Evidence supporting this claim is provided in a study that was conducted by Mah (2012) in which he concludes that results from participants in the Columbus area demonstrate a business system which is comprised of 50000 lines of code that can be completed by 31% faster compared to industry average [6]. This can be found in the QSM industry database of projects that have been completed. These results were obtained following the analysis of agile methodologies of a programming community in Columbus. The purpose of the study was to provide answers concerning the development projects that were scheduled and budgets.

More significant evidence illustrating that agile projects are more successful than other types of projects is provided in a study by Rico (2008) who affirms that an early study of agile project management illustrates 10 to 20 percent improvement in revenues, quality, and cycle time [8]. Rico (2008) further conducted another study in which he showed 50 to 60 reductions in cost and a staggering ten times flexibility in development [8]. Rico states in his study that the agile project management benefits are a result of various factors however the main factors are productivity and quality [8].

Personal Experience and Opinion

The first time that I was introduced to the agile movement and its methods, I found it to be a bit difficult to comprehend. This is because of its nature of being different from the traditional methods that I was used to. Agile methods significantly reduce the amount of documentation, and even claim that the code itself should act as a document [13]. Agile methodologies are well-known for emphasizing in communication and customer involvement [11]. Agile software development methods were developed to provide more customer satisfaction, to shorten the development life cycle, to reduce bug rates, and to accommodate changing business requirement during the development process [12]. In general, the use of agile development is that at the moment it is the best way of project and software development [13]. I found some of my colleagues' have opinion that agile

software development is harder and more confusing, the process has no methodology and is chaotic. This claim is far from being true. It is true that the process offers a certain degree of freedom to software development and project management, but it does follow any form of order. The only difference is that the level of rules and regulations including documentation has been decreased. The truth is that using agile methods for project development is actually advantageous [13].

Conclusion

In conclusion, since its inception in the 1970s and its recognition in the early 2000s, the agile movement has proved to be a leading software development and project management method that has been praised in many fields. The agile manifesto which is credited with bringing the agile methods into the lime light in 2001 also brought about a way of organizing various lightweight software development methods. Therefore, it paved way for agile methods to be developed in a manner that brought about clarity as to what they were all about. The characterization of the agile software development process presents them as fast delivery methods that aim to focus on shortening the lifecycle of projects. Currently, there are a number of agile methodologies that have been developed. XP and Scrum are some of the commonly known examples. Researchers continue to carry out additional research on these methods in a bid to fill the gaps which have been left by previous research. Agile projects have been proved to be more successful than other types of projects. Studies conducted have shown that projects developed via agile methodologies are usually on time, budget, and contain all the featured plans. The process has proven to be so effective that some agile principles are being applied to all kinds of projects. Therefore, the use of agile methods is significant in changing software development and project management process whereas in IT projects, selecting developing methodology is a complex decision. IT project managers need to consider project size, risk, time, complexity, available, user requirements, resources, business priority for projects and other factors.

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Academic Achievement of Bachelor Accounting Students: A Study on Attributes of High Achievers

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Abstract

This exploratory study seeks to understand the characteristics of high achievers for the Bachelor of Accountancy Program. Data on 67 high performing students' are obtained from the university's records database. The instrument for this study was a survey questionnaire, administered to third-year undergraduate accounting students who scored cumulative grade point average (CGPA) of 3.5 and above out of 4.0. A set of questions were prepared to measure students' motivation, learning time and effort. The findings indicate that majority of high achievers are female (86.6%), and 97 percentage of them pursuing bachelor accounting degree to satisfy their personal goal or to continue a career that they love. Sample students are with a very high pre-admission grade. Regarding specific characteristics of high achievers, the results show that they are highly motivated students, and put a great effort into their studies that help them to succeed in their academics. The results also provide evidence that on average, students who entered with diploma scored higher grade point average (GPA) in their third-year examination in comparison to students who entered bachelor degree with matriculations. However, no difference in the overall performance (CGPA) between these two groups indicating, students who enter the program from matriculation were not able to maintain their performance when the subjects become tougher at the higher level.

Keywords: Academic performance, accounting students, accounting knowledge, motivation.

Introduction

Malaysia needs about 60,000 accountants to become a developed nation by 2020. However, despite hundreds of accounting graduates produced every year, the country is still facing the shortage of accredited accountant especially bumiputra accountant. To date, there are approximately 32,000 professional accountants in Malaysia. This shortage is perhaps due to many of bumiputra accounting students graduated with average performance and therefore not interested in pursuing professional accounting qualification or accounting career after graduation.

This study forms part of an ongoing investigation into factors affecting accounting undergraduate program achievement at a Malaysia public university. More specifically, the study examines students' pre-admission qualification performance, their endogenous factors of motivation, effort, and learning styles. The preliminary results of attributes of high achievers will enhance the university and educators understanding of issues which affect students' achievement in higher education.

Literature Review

Research in accounting education has been an important area of research that provides a significant contribution towards education development particularly in higher education institutions (HEI). Understanding factors that may influence students' performance is important to help the institutions achieve their objective to produce students with excellent academic performance. Considerable prior literature focuses on students profiling to examine factors that may influence students' performance

in HEI (Muller & Prinsloo, 2007; Trejos & Barboza, 2008; Diseth, Pallesen, Brunborg & Larsen, 2010). Muller and Prinsloo (2007) for example, examined the profile of successful accounting student using the Chi Square Automatic Interaction Detector (CHAID) technique.

Findings from the research show students who obtained high academic achievement are those having high motivation in their studies and also able to manage their time effectively. Trejos and Barboza (2008) in another study, examined the relative contribution of students' characteristic on performance. Finding is consistent with Muller and Prinsloo (2007) which found that effort is relevant and statistically significant factor in determining student's performance. Using profile analysis, Diseth, Pallesen, Brunborg & Larsen (2010) also found effort particularly the amount of time spent on studying found to be significant predictors of performance and academic achievement.

Prior research has produced contradictory findings in the relation between prior accounting knowledge and academic performance (Waples & Daraysey, 2005; Baldwin and Howe (1982); Mooi Tho, 1994). Having accounting foundation does not necessarily help the students to perform better in future (Baldwin and Howe (1982). He found no difference in the performance between the two groups. Those with basic accounting knowledge perform better in earlier examinations, but their performance has dropped later. Additionally, there is also no difference in the dropout rate between the two (2) groups. However, a study in a Malaysian Public University found the basic knowledge in accounting, mathematics and economics obtained at high school level are three (3) academic factors that influence the students' performance in the first tertiary accounting course (Mooi Tho, 1994).

The same evidence documented by Waples & Daraysey, (2005) who found that students with basic accounting knowledge and high overall academic ability have the better opportunity to perform well in the intermediate accounting subjects. A Proper foundation of basic financial accounting knowledge (measured based on cumulative GPA before enrollment), passing grade in introductory financial accounting and introductory managerial accounting and score on diagnostic assessment are important indicators of students to perform well in their accounting studies (Waples & Daraysey, 2005). To understand the issues better, Mooi Tho (1994) also suggest extending the accounting education research in the Malaysian context, to examine the influence of other factors such as students effort, personality, learning styles and students' economic and social background on the academic performance.

Data collection and measurement of variables

The sample comprises of third-year dean's list students at the Faculty of Accountancy, Universiti Teknologi MARA Malaysia. Dean's List students are students who scored cumulative CGPA of 3.5 and above out of 4.0 for the semester of study. Students are admitted based on their performance in the Diploma in Accounting (DIA), or the Sijil Matriculation from Ministry of Higher Education. The entrance of students into the Bachelor of Accountancy (BACC) program is determined by the overall performance measured in terms of student's CGPA in the DIA or Matriculation.

Students' achievements at the BACC program are measured by their overall GPA (CGPA), and their grade point average (GPA) scored in the most recent examinations in Jan 2016. Endogenous factors of pre-admission academic performance, gender, study effort, motivation, and extended learning time are examined. Study effort, motivation and learning time are measured by a set of items included in the questionnaire. There are four items used to measure study effort and five items each for both motivation and learning time. The maximum score for each item is 20, 25 and 25 respectively.

Findings

Table 1 presents the sample students by pre-admission qualification. The result shows that out of 67 dean's list students included in the sample, only twenty-four students or 35.8 percent are students who entered with matriculation qualification. Another forty-three or 64.2 percent are students who entered with DIA as the pre-admission qualification. The statistics also show that High achievers are

students with high pre-admission academic performance with average CGPA of above 3.50 out of maximum score of 4.00.

Table 1: Sample students by pre-admission qualification

	Sample students N (%)	Pre-admission qualification (mean CGPA Diploma or Matriculation)
Diploma Entry students	43 (64.18%)	3.79
Matriculation Entry students	24 (35.82%)	3.94

Table 2: Sample students by gender

Female N (%)	Male N (%)	Total N (%)
58 (86.6%)	9 (13.4%)	67 (100%)

Table 2 presents the sample of study by gender. The statistic shows that out of 67 dean's list student, only nine or 13.4 percent are male students while another 58 (86.6%) are female. This statistic indicates the majority of high achievers are female. This observation is consistent with the result of Tho (1994) who reports superior female performance in accounting in a Malaysia setting.

Table 3: Descriptive statistics

Variable	Max score	Mean	Std. Dev.
GPA	4.00	3.57	0.250
CGPA	4.00	3.58	0.116
Effort	20	17.55	1.869
Motivation	25	19.92	2.439
Learning time	25	20.39	2.668

Tables 3 presents the descriptive statistics for the recent semester academic performance (GPA), overall performance (CGPA), and mean score for three students endogenous factors. It can be noted that the mean score of recent examination result (GPA) is slightly lower than the average cumulative grade point (CGPA). This indicates, on average, students scored lower grade in current semester compared to the previous semester. These perhaps explained by the difficulty in the courses at the higher level of the program.

In terms of students endogenous factors, statistics above show that dean's list students are students who are highly motivated and put great effort into their studies. The statistics also shows that high achievers spend more time on learning the subject outside the classroom. Empirical studies documented evidence that formal learning time in the classroom positively associated with performance. However, due to economic benefit of shorter class contact, it is suggested that extended learning time may help to raise participants' academic performance (Ismail and Ali, 2015).

The high motivation of the students is reflected in other findings of the survey. Statistics in Table 4 shows that 97 percent of the students pursuing a bachelor degree in accounting to satisfy their personal goal and majority of them (64.2%) enrolled because of the reputation of the program and not for other reasons (refer Table 5).

Table 4: Motivation for pursuing bachelor accounting degree

	Number of students	%
Satisfy a personal goal to pursue a career that I love	65	97
Follow the advice of a parent or guardian	2	3

Table 5: Reason for choosing the faculty and University

	Number of students	%
Reputation of the program	43	64.2%
Convenience/near home town	5	7.4%
Financial incentive (relative lowest cost of tuition, scholarship, etc.)	19	28.4%

Table 6 presents the results of students' performance in their third-year final examination which was conducted in January 2016. Comparing their grade point average by entry qualification, the results show that GPA of DIA admission student is significantly higher in comparison to the other group of students. The GPA of DIA entry students is 3.62 compared to 3.47 for matriculation students' and the mean difference is significant at the 5 percent level.

The result also indicates that students who entered the program using matriculation qualification on average did not get dean's list status for their third-year examination. The difference in CGPA is however not significant which probably due to higher GPA scored by matriculation entry students at the lower level of bachelor degree program. Indirectly, this indicates they are not able to maintain their performance when the subjects become tougher at the higher level of the program.

Table 6: Students' performance in the third year examination

Student's entry qualification	n	Mean GPA	t-stats (sig.)	Mean CGPA	t-stats (sig.)
DIA	43	3.62	2.41	3.59	0.844
Matriculation	24	3.47	(0.019)	3.56	(0.402)

Conclusions and directions for future research

This study explored the attributes of the high performer in their bachelor of accounting program. It found that high academic achievement students are students with high pre-admission academic achievement, are highly motivated, put considerable effort into their study and they voluntarily extending their learning time. The results also found that students who entered with the diploma as pre-admission qualification performed better than matriculation students in their third-year examination. However, no difference in the overall performance between these two groups indicating, students who enter the program from matriculation were not able to maintain their performance when the subjects become tougher at the higher level. Future study may want to extend the sample students to test whether the attributes of high achievers documented in this study are factors determining the achievement of accounting students.

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A Proposed Business Model to Reinforce Universities-Industry Collaboration in Open Innovation

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Abstract

In the context of Europe 2020 Strategy, smart growth is strongly linked with research/innovation through public and private investments in order to create a better environment for research, development and innovation processes. One of the key aspect (at the EU level but mainly at the country level) is the reinforcement of universities collaboration with actors of the business environment, particular with industry. This will support innovation and will positive impact all the European targets of the Vision 2020. In this context, the article research aims to present an evaluation model for the university-industry collaboration in open innovation. The approach's core consists of a related ontology of the university-industry collaboration development based on the reference review and the creative common work of a research group of experts. The ontology dimensions and their characterization items were chosen based on the theory of the university new role in the society. Furthermore, the ontology structure and elements has contributed to the development of a survey based on a questionnaire for the university-industry collaboration diagnosis (considering the university local, regional market) and it has been proofed as an effective support of the decision-making process when establishing a contract, project, or partnership with industrial or business organizations. The proposed evaluation model has been tested and validated in the case of three Romanian universities. Based on the applicative research results a business model for the university-industry collaboration in open innovation has been proposed and it is debated in this article.

Keywords: university-industry collaboration, innovation, business model.

1. Introduction

1.1. European Requirements in the Vision 2020

In the context of Europe 2020 Strategy 92010), smart growth is strongly linked with research/innovation in order to combine public and private investment and to reach 3% of EU's GDP as well as better conditions for research, development and innovation processes. In this requirement context, one of the key aspect (at the EU level but mainly at the country level) is reinforced of universities collaboration with actors of the business environment. Beside these aspects, there is a strong need for industrial modernization in Europe, and these could be based on *innovative business models*, that include cooperation with different stakeholders, as universities, public or private research institutions.

There are two key constraints to enhance collaboration between academia and business, in accordance with the European Commission report done by Idea Consulting in 2012: "the low absorptive capacity of enterprises for research and a gap in the availability of applied research capability that enterprises can readily access. Policy makers can assist in closing this gap by stimulating industry collaboration in small and large research programs. In addition, support to companies to (temporarily) employ an academic or (PhD) student can stimulate the transfer of knowledge between academia and industry".

In Romania, policy makers have tried to close these gaps by requiring large partnership research projects, most of them involving industry collaboration. In the last years, it has been established a common practice that project proposals (of different types) are more competitive for funding if they

include some commitment to collaboration with industry or they are developed in a partnership with different actors or stakeholders from business environment.

The article will present an example of good practice of universities-industry collaboration and the description of a proposed business model that have been developed. The research aims to demonstrate the feasibility of the research approach that consists of the following stages: (1) the definition of the university-industry collaboration ontology in order to activate open innovation between partners; (2) demonstration of the ontology usefulness in the case of evaluating the state of university involvement in such collaborations; (3) description of the proposed business model for the university-industry collaboration. The theoretical researches are associated with research results, debates and good practice, from three Romanian universities.

1.2. A Changing Paradigm of Universities New Roles in the Knowledge and Innovation Economy

In present times, universities (as public or private bodies) have extent their traditional roles (or primary functions) of education and research, to an integrative one, more related to society. Different approaches as the Entrepreneurship University and Knowledge-Based University were developed in order to explain the new meaning and content to the traditional role of these types of organizations. In some previous research studies done by Draghici et al. (2015a, 2015b, 2015c) the development tendencies of higher institutions together with the analysis and evaluation of their innovation potential (including their capacity for the transfer of innovation and knowledge) Has been shown. These studies have underline the research and innovation specific in the case of three Romanian universities together with some remarks related to their development at the European Level.

The previous work developed by Draghici et al. (2015a, 2015b, 2015c) try to extend the concepts (and define a framework of collaboration) presented in the research done by Nonaka et al. (2000), where there have been described the way university could be considered as a BA space included in the BA of different actors in the market where they operate. Networking and involvement in different communities are important aspects of university BA space creation. This approach could be seen as a generalized one and that do not exclude the developments related to the dynamics of universities innovation models as Model 2, the Triple Helix of university-industry-government relations, presented by Etzkowitz and Leydesdorff (2000).

Furthermore, as presented in the book edited by Curaj et al. (2012), today European universities' third mission is focused on engagement with wider society. This third mission is strong related to the technology transfer (including knowledge and innovation) to industry or economic partners, participation in policy making or in public engagement and societal debate. There have been recognized that an important element of the universities third mission is their role in addressing societal challenges. The pillars of the Europe 2020 strategy reflect this fact (considered in the European agenda for the next years), too. In addition, Curaj et al. (2012) has sustained that this agenda puts forward three mutually reinforcing priorities: Smart Growth, Sustainable Growth and Inclusive Growth, which are further divided into seven flagship initiatives to catalyse progress under each priority theme.

Above all these considerations there can be seen that the ideas and tendencies presented by Curaj et al. (2012) in their book are strongly related to the dynamics of the university BA space and the way changes are managed in order to support the new business models that include strategies on how education and research are done, but also, how their results are valorised for the benefit of the entire society.

In addition, the academic enterprise concept was introduced, defined and characterized by Kwiek (2013), at the European level, in an integrative manner by taking into consideration the broad features of concept complexity as they are described in Fig. 1. Kwiek (2013) has recognized that, the pressure of last year's (perpetual) reform in Europe affects the European academic enterprises: "in all ongoing reform initiatives throughout Europe, there is a hidden dynamics of changes in relationships between the state, or the major sponsor of teaching and research, and academics, or the major beneficiary of state sponsorship of the academic enterprise".

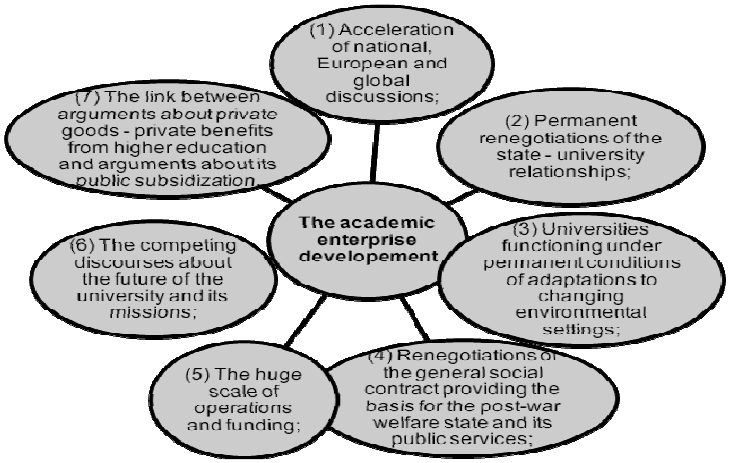

Fig. 1: Features of the academic enterprise complexity

Started from these considerations, the article presents the research approach for defining an evaluation model, based on a related ontology, for the university-industry collaboration in open innovation. Furthermore, the proposed methodology has been tested and validated in the case of three Romanian universities and based on the experimental results a global overview or diagnosis was done. The following chapters will described the research approach.

2. The Ontology of the University-Industry Collaboration

The study of Chesbrough (2003) was underlining that in the last period, universities have moved from a so call, "closed innovation system" to an "open innovation system". Other researchers' studies as Geuna and Muscio (2009), Larédo (2003), Draghici et al. (2015a) were concerned of the university implications in open innovation processes.

While the term "open" may include a number of factors as legal, economic etc., the process of supporting and encouraging networking (for innovation increasing) refers to public-private partnerships as university-industry cooperation or collaboration. Researchers and practitioners from the academia have considered this new innovation context as a key element for the European universities (particular to their research units). Massen and Stensaker (2011) have underlined that universities "play a leading global role in terms of top-level scientific output, but lag behind in the ability of converting this strength into wealth-generating innovations".

Taking into consideration the new changes and challenges for the case of university-industry collaboration, there have been established the research approach with the aim of identifying and characterising Romanian universities level of development in open innovation (by considering their third mission and their potential of collaboration with business actors). The phases of the adopted methodology are shown in Fig. 2. The following chapters of the article will present the research results and findings by followed the suggested phases.

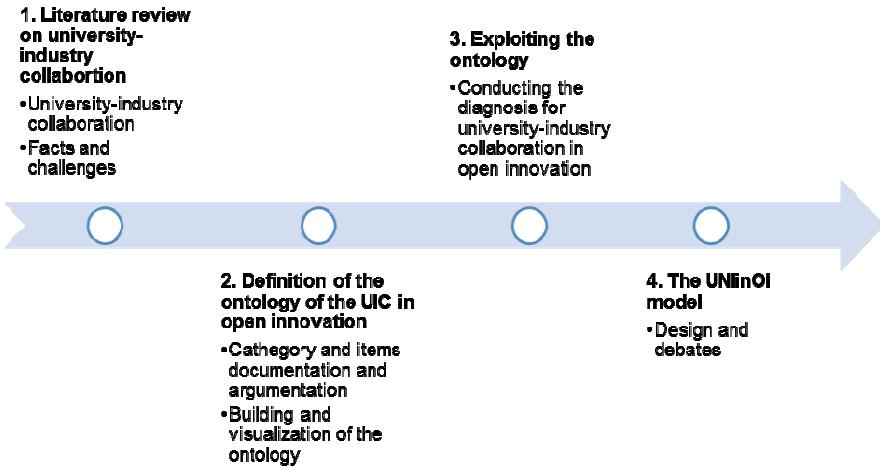

Fig. 2: The research methodology schema

2.1. The University-Industry Collaboration Ontology Definition

In order to define a coherent model of the university-industry collaboration, after the first phase there have been created the conditions for the creative work related to the ontology definition (second research phase). The established framework consists of five dimensions described by 30 relevant items, which could be considered then for the evaluation model. The main issues of interest are (inspired mainly from the study of Ankrah (2007) and analysed by Draghici et al. (2015a)): 1) Identification of motivation factors (8 items); 2) Barriers (8 issues); 3) Channels for the knowledge transfer (7 issues); 4) Benefits (3 issues); 5) Disadvantages of the university-industry collaboration in the open innovation context (4 issues). Fig. 3 described the main branches of the designed ontology.

The preliminary literature review have conducted to the establishment of the issues or factors of interest on each category (main branches) considered in the ontology:

1) Issues related to the identification of motivation factors for established based on researches described by Ankrah (2007), Padilla-Melendez and Garrido-Moreno (2012), and Van de Vrande et al. (2009);
2) The characterization issues for the barriers or obstacles that could appears in the university-industry collaboration were based on the studies of Bruneel et al. (2010), Howells et al. (2012), and Van der Meer (2007);
3) The issues that are of great interest for the channels for the knowledge transfer between university and industry partners were considered similar as in the case of previous researches done by Bruneel et al. (2010), and Alexander and Martin (2013);
4) Benefits of the university-industry collaboration were characterized through three issues similar to the research described by Ankrah (2007);
5) Disadvantages of the university-industry collaboration in the open innovation context were considered similar to those of the research done by Ankrah (2007).

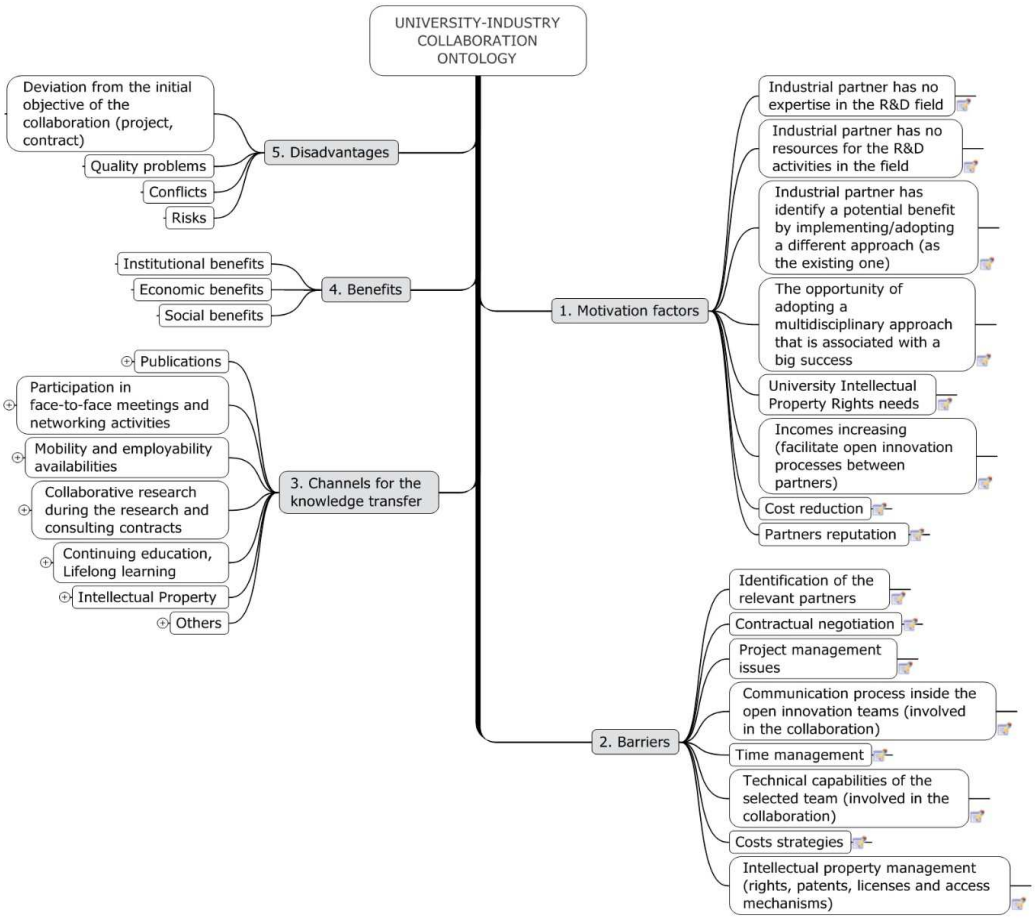

Fig. 3: The university-industry collaboration ontology general overview (knowledge map)

2.2. Ontology Visualization

The ontology design is a result of a creative work developed in a collaborative manner with specialists from three universities in Romania. Using their experience and expertise in university-industry collaborations, the ontology was used as a basis for the evaluation approach regarding the state of Romanian universities involvement in collaborative projects or contract with actors from the business environment (particularly with industrial actors). In order to achieve this task, several face-to-face and virtual sessions of the researchers were developed in a collaborative manner, from October 2014 till July 2015. The university-industry collaboration ontology versions' visualization have been done using the facilities of the MindManager software tool. This has been a useful tool for the graphical modelling of the designed ontology, too.

3. Ontology Exploitation: the Evaluation Model for University-Industry Collaboration in Open Innovation

3.1. Evaluation Model Development – Methodological Aspects

In the third phase of the research, the university-industry collaboration ontology categories and items has been used for designing a questionnaire. This was considered the tool to support the survey for the characterization of the main dimensions of the university-industry collaboration in open innovation. The designed questionnaire allow the collection of responses related to each category and items (same as in the previous designed ontology but with an adequate formulation). Respondents' opinions (answers) were evaluated based on the Likert scale with 5 points (1, totally disagree /

unimportant, …, 5, totally agree / very important). The categories considered for the analysis together with their items for characterization were codifying as shown in Table 1. In addition, there was established a mathematical model for the related scores calculated for each category (dimension, in this case: D1, D2, D3, D4 and D5) and also, for the total score of the evaluation approach (T). The mathematical formulas used for the scores calculation are shown in Table 1. In the case of the dimension D3 "channels for knowledge transfer", there was included an open question that was not considered for the mathematical approach. Finally, the developed model for the evaluation of the university-industry collaboration in open innovation consists of 5 dimensions and 29 related items.

The questionnaire was distributed on-line in the case of three research communities that belong to three public universities (managers from different levels of the research domain and research staff were subjects of the survey). The collected responses were processed (using Excel software facilities) by each university responsible person and the global research results were determined as a university-industry collaboration foot print (radar graphic) and by calculated a total score.

Table 1: The university-industry collaboration foot print determination based on the designed ontology presented in Fig. 3 (the mathematical model adopted)

Code	Dimension	Score / Item / Dimensions' score
D1	Motivation factors	$X_1 \dots X_8$ – absolute value of the score by each item of characterization $X_i = (1\,x_1 + 2\,x_2 + 3\,x_3 + 4\,x_4 + 5\,x_5) / 5,\ i = 1, \dots, 8$ $x_1 \dots x_5$ – number of responses related to the Likert scale points $D1 = (\sum X_i) / 8,\ i = 1, \dots, 8$
D2	Barriers	$X_1 \dots X_8$ – absolute value of the score by each item of characterization $X_i = (1\,x_1 + 2\,x_2 + 3\,x_3 + 4\,x_4 + 5\,x_5) / 5,\ i = 1, \dots, 8$ $x_1 \dots x_5$ – number of responses related to the Likert scale points $D2 = (\sum X_i) / 8,\ i = 1, \dots, 8$
D3	Channels for the knowledge transfer	$X_1 \dots X_6$ (X_7 was transformed into an open question) – absolute value of the score by each item of characterization $X_i = (1\,x_1 + 2\,x_2 + 3\,x_3 + 4\,x_4 + 5\,x_5) / 5,\ i = 1, \dots, 6$ $x_1 \dots x_5$ – number of responses related to the Likert scale points $D3 = (\sum X_i) / 6,\ i = 1, \dots, 6$
D4	Benefits	$X_1 \dots X_3$ – absolute value of the score by each item of characterization $X_i = (1\,x_1 + 2\,x_2 + 3\,x_3 + 4\,x_4 + 5\,x_5) / 5,\ i = 1, \dots, 3$ $x_1 \dots x_5$ – number of responses related to the Likert scale points $D4 = (\sum X_i) / 3,\ i = 1, \dots, 3$
D5	Disadvantages	$X_1 \dots X_4$ – absolute value of the score by each item of characterization $X_i = (1\,x_1 + 2\,x_2 + 3\,x_3 + 4\,x_4 + 5\,x_5) / 5,\ i = 1, \dots, 4$ $x_1 \dots x_5$ – number of responses related to the Likert scale points $D5 = (\sum X_i) / 4,\ i = 1, \dots, 4$
T	Total score	$T = (D1 + D2 + D3 + D4 + D5) / 5$

3.2. Evaluation Methodology into Action: Experimental Research Results

Table 2 presents the research results gained after the responds were processed, for each university responsible. In Fig. 4 are presented the university-industry collaboration foot print graphs for each universities involved in the research together with the global graph.

Table 2: Research results

Calculations results for the dimension, D_i, *i = 1, …, 4*		
Politehnica University of Timisoara - UPT (212 subjects)	University of Oradea - UO (154 in the subjects)	Technical University of Cluj-Napoca – UTCluj (232 subjects)
D1 = 3.784788	D1 = 3.857955	D1 = 3.745151
D2 = 3.898585	D2 = 4.112825	D2 = 3.967134
D3 = 3.242138	D3 = 3.494589	D3 = 3.41822
D4 = 3.281447	D4 = 3.500000	D4 = 3.346264
D5 = 3.542453	D5 = 3.435065	D5 = 3.479526
T_{UPT} = 3.55	T_{UO} = 3.68	T_{UTCluj} = 3.59
Global score for all three universities: T_{global} = 3.61		

The research results show similar opinions and attitude of the subjects related to the university-industry collaboration in open innovation. The Total/university (3.55; 3.68 and 3.59) and the global scores of 3.61 demonstrate the existing collaboration with difficulties of strategic and tactics related to complete attending of the universities objectives and in the field of knowledge, innovation transfer. Furthermore, Romanian universities do not have a coherent business model (definition, implementation in relation with the strategy) for their collaboration with industrial actors and this is a problem related to the top management. According to the responds given by the university researches, there have been observed that they understand well the D2, "barriers" dimension of the collaboration with industrial partners (the scores calculated for D2 are near the value 4, in the case of all investigated universities).

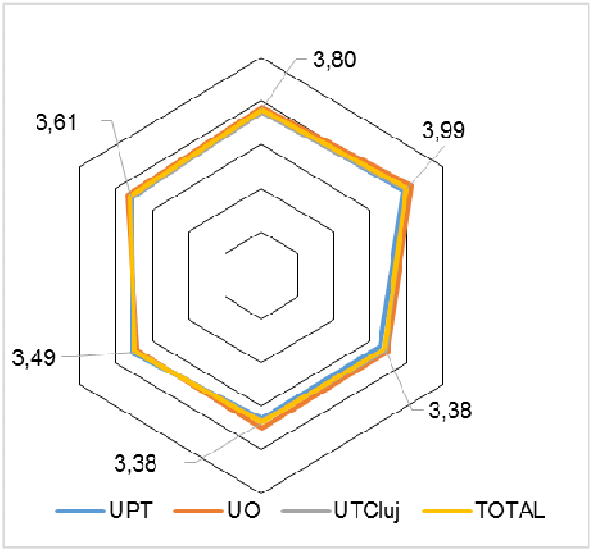

Fig. 4: The university-industry collaboration foot print (research results)

Additional conclusions were elaborated per each university in order to explain the lower scores value for some dimensions:

- Politehnica University of Timisoara researchers do not understand and trust the exiting "channels for the knowledge management transfer" (D3) at the university level. This is an internal communication gap of the organization because UPT research responsible staff do not promote, internally, the facilities created in order to support D3 dimension (i.e. the Office for Innovation and Technological Transfer and the Office for Research Valorisation);
- University of Oradea researchers have express less fear about the "disadvantages" (D5) in their collaboration with industrial partners. They do not consider that this type of collaboration could be in their disadvantage. This is a consequence of the fact that UO is well implicated in industrial collaboration, and the results of such collaborations are well known by the researchers community from academia and the economic environment;
- Technical University of Cluj-Napoca researchers do not have a good perception (they do not realize) on the "benefits" (D4) gained because of their collaboration with industry. This fact is caused by the low perception of the organization benefit (people have low perception of their belonging to the organization). The considered items for the characterization of D4 dimension do not include personal benefits (extra salaries obtained by the researchers through their collaboration with industry).

According to the average profile determined for the three universities, there have been observed low scores for "channels for the knowledge management transfer" (D3 = 3.38) and "benefits" (D4 = 3.38) dimensions and the general causes could be similar with those presented earlier.

4. The Proposed Business Model of University-Industry Collaboration in Open Innovation (UNIinOI)

4.1. The case of UNIinOI at Politehnica University of Timisoara (Romania)

According to the Research Reports in 2012, 2013, 2014 and 2015 there have been underlined that "the research activity carried out by the university was financed through external sources, obtained either from national and international calls for projects, or through agreements with private companies" (economic organizations, mainly located in the West Region of Romania). These information are public, available on the Politehnica University of Timisoara web page (2015). A strength aspect of this organization, according to the last national evaluation is that Politehnica was granted a university of advanced research and education.

The research activity is supported by the infrastructure related to the twenty-five research centres hosted by the university. "The important number of research centres, respectively teams of researchers constituted ad-hoc, on different themes, successfully put in practice the scientific research strategy of the university, within the framework of numerous grants and contracts won by competition. The results of the research are materialized in papers, patents and products, all bringing for the University prestige, as well as important funds".

Collaboration with industrial or other economic partners (institutions, associations, other research institutes etc.) refers to research projects implemented by different national and international partnerships in which the University is part. In addition, Universities research teams that belong to a research centre, can act and establish as a supplier of innovative solutions for industry. Research and collaboration projects can be supported by public funds, both national and international, or private funds awarded by companies.

The key success factors of the university-industry collaboration are considered:

- The university prestige and excellence (95 year of research and education experience celebrated in 2015), including the developed infrastructure for research (25 research centres and a centre for transfer of innovation and know-how);

- The research staff (academic and technicians) expertise that are recognized national and international (proofed by the publications, patents, awards and other relevant honorary degrees that recognize scientific excellence);
- Dissemination actions as scientific events organization, own scientific bulletins publication and books (considered as part of the research and development marketing activity).

4.2. The case of UNIinOI at Technical University of Cluj-Napoca (Romania)

According to the public information on research activity available on the Technical University of Cluj-Napoca web page (2015), the quantity and quality of scientific research that is carried out by the university have a primary role in classifying these at international level, because of the necessity of sustaining and consolidating the activity of the structures of scientific research. The scientific research constitutes an important source of income and of image both for the university globally, and for each researcher. An important aspect of the research field of activity is given to the ongoing support for the process of creating new research structures, and especially for the merging and collaboration process of the research structures into larger units characterized by inter and multi-disciplinary (research platforms, research institutes). This is considered a necessity, clearly demonstrated by the setting up of excellence poles within major impact domains for the social and economic environments. The university has proposed to gain national and international visibility in several major domains of scientific research and technological innovation. To that aim, concrete managerial actions have been taken in order to define the major interdisciplinary domains and to create the necessary research structures.

The main directions of interventions in the research domain that support the university-industry collaboration are:

- Increasing the autonomy and development of the research structures;
- Setting up and modernizing of the high impact research laboratories;
- Establishing an interdisciplinary research institute affiliated to the university,
- Attracting, developing, and maintaining the highly qualified human resource,
- Supporting the publication of the results of research in prestigious journals and conference proceedings,
- Supporting the international conferences with a large visibility, organized by the university,
- Supporting the high performance scientific research,
- Developing the capacity and competence of the university within the technological transfer activity.

The research teams enjoy the freedom of choosing their topics depend on their expertise. However, institutionally, in order to sustain the vision of the Technical University of Cluj-Napoca, that of becoming a pole of international excellence in several domains of research, the following multidisciplinary domains of research are supported, domains reflected by the worldwide, European and national tendencies (as mention in the European Commission's strategy vision to 2020): information and communication technology; advanced materials; advanced products and processes and green energy. The development of the high priority research domains is achieved through the efficient turn to good account of the human, material as well as the financial resources coming from the budget, self-financing and institutional development.

The key success factors of the university-industry collaboration are considered:

- The university research structures and teams prestige (each faculty has groups of research that define research units - 76 research centres and laboratories), described by their infrastructure and research staff for research). Each research units was recognized by the University Senate or the National Council for Research and Development in Romania based on their research results (publications, patents, books) and successful projects implementation;

- The research staff (academic and technicians) expertise that are recognized national and international (proofed by the publications, patents, awards and other relevant honorary degrees that recognize scientific excellence) because of their remarkable research results.

Many professors of the University were involved in the national research and education institutions (in different level of management, including Ministry of Education) and that has been created a great opportunity for the research activity development (including financial approval of the different projects presented in national competitions);

- Dissemination actions as scientific events organization, own journals publication and books (considered as part of the research and development marketing activity);

The successful business model applied for research that assures the increasing of external, additional financial resources of each research unit and researcher.

4.3. The case of UNIinOI at University of Oradea (Romania)

According to the public data available on research on the University of Oradea web page (2015), the University benefits from highly specialized human resources (the university has a multi-specialization offer including art, humanities, engineering, economics, social sciences, medical sciences, theology etc.) so that research activities are a natural consequence, with positive implications for the education processes (transfer of knowledge from research activities to education and vocational training). An important effect of the research activity is attracting funding research (through national, international projects and private founds) for projects and infrastructure development (as a measure of the degree of compliance with the real needs of knowledge and quality of research).

The research activities are achieved through the contribution of university teaching staff and research staff in the framework of different type of collaboration with other universities or economic partners. The main research activities are developed through research projects, competitive system accessed through the research programs of national, European or international, bilateral cooperation projects with institutions in country or abroad or contracted projects with various customers, interested in areas that carry out these activities.

The five specific objectives of the research activities are:

- "Specific objective 1: Research orientation toward priority areas declared national strategy for research and development, focusing on areas where the University of Oradea is well represented;
- Specific objective 2: University of Oradea development as a centre of excellence in relation to the economic, social and community involvement;
- Specific objective 3: Development of the research-development-innovation, University of Oradea;
- Specific Objective 4: Increasing human resources involved in research, development and innovation;
- Specific Objective 5: Improved performance of research, development and innovation."

At the university level, there are recognized 22 research centres (including specialized laboratories with research staff and adequate infrastructure) and a Technology Transfer Centre that support the small and medium size enterprises and other economic organizations to implement innovative technologies through training and consulting activities. The University acts mainly in the North-West Region of Romania and is very active in supporting the trans-border programs between Romania and Hungary. The key success factors of the university-industry collaboration are considered:

- The university research structures and teams/members prestige (by the research entities that exist at each faculty). Each research units was recognized by the University Senate or the National Council for Research and Development in Romania based on their research results (publications, patents, books) and successful projects implementation;
- Funding opportunities and excellent partnerships and alliances in research, that were developed with other universities (from national and international level), industrial partners and other economic organizations;
- The research staff (academic and technicians) expertise that are recognized national and international (proofed by the publications, patents, awards and other relevant honorary

degrees that recognize scientific excellence) because of their research results. The main advantage of the research staff is its diverse competencies and expertise that can easy support trans-disciplinary and inter-disciplinary projects and collaborations;
- Dissemination actions as scientific events organization, own journals and bulletins publication and books (considered as part of the research and development marketing activity).

5. The Proposed Model for the University-Industry Collaboration in Open Innovation

The research analysis done on the three universities has underlined the main elements that should be considered in the proposed model (or framework) for the university-industry collaboration in open innovation, named the UNIinOI model (related to the fourth phase of the research). From the results of the cross-case analysis (done during a focus group with the researchers of the universities involved in this study) of the three universities research activities that can support collaborative projects with industry, it was concluded that a framework model for the effective collaboration should reflect six key areas:

1. A well-established research structure (in the university) that could support efficiently the administrative activities related to the research projects. Romanian university research centres and transfer of innovation centres do not have financial autonomy (they could not act independently from the university financial rules);

2. Providing high quality project management, particularly with regard to objective setting, progress monitoring, effective communication and deploying only trained, high quality project managers to run the collaboration

3. Understanding (continue maintain contact) the specific of the university-industry economic and social environment. Particular attention should be given to identify the trends and specifics of the roles of researchers, post-graduate students (included in the alumni), the specific requirements of industry. In addition, there should be understand the cultural gaps and the divergent interest between industry and university (academic);

4. Develop new partnerships and nurture the existing one by valorising the funding opportunities. Factors such as trust, commitment and continuity of human resources have been shown in the literature to be important to collaboration success. This study has reinforced that these factors enable researchers in having successful collaboration with industry, *in* terms of mutual benefit;

5. Nurture the organizational culture that recognized the power of research and the benefits of it for the university. This could be a *veritable weapon* for the human resources continuous development (research should be a challenge for their expertise recognition) and that will positively impact the university reputation;

6. Establish a coherent strategy of research activity dissemination (of high quality) and support the marketing activities associated with this.

The proposed model (or framework) for the university-industry collaboration in open innovation is represented in Fig. 5. The described framework incorporates all the above mention factors found to have had a significant impact on the perceived success of the university-industry collaboration, taking into consideration the specifics of Romanian universities. Many of the success factors incorporated in the model are also, supported by the research of other workers in the field (as reported in the published literature), therefore providing evidence of the broader applicability of this model beyond the cases examined here.

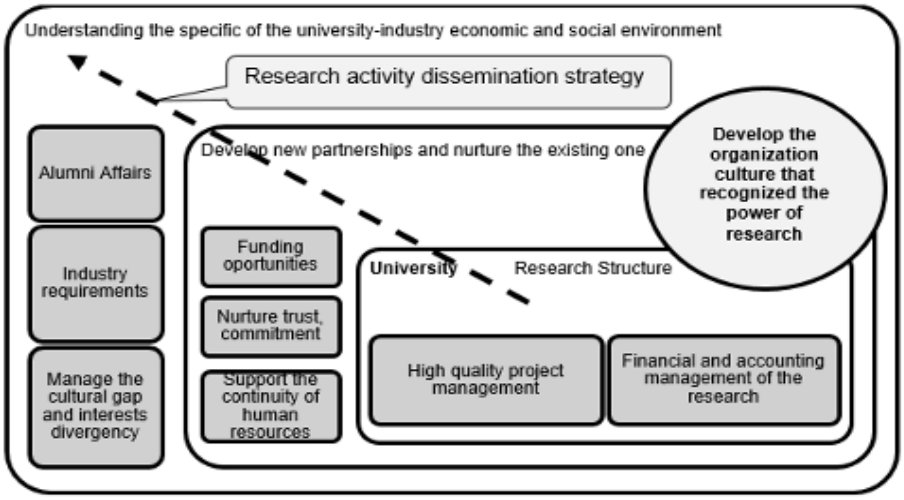

Fig. 5: The proposed model for the university-industry collaboration in open innovation

Finally, this research also identified two new success factors: the role of the lead researcher and the role of postgraduate students (part of the university alumni). These findings are important features of collaborative projects of this kind and as such require attention and careful management if the university-industry collaborations are to be effective and successful.

Conclusions and Future Work

The described approach for the definition of the UNIinOI model, for the university-industry collaboration in open innovation. The research steps were: (1) literature review in the field; (2) definition of the university-industry collaboration ontology (five dimensions and 30 items of characterization); (3) exploiting the ontology for the development of an evaluation process regarding the state of the university-industry collaboration. In this phase there have been shown research results for three cases of three Romanian universities. The purpose of the experiments done was to test and validate the ontology together with the methodological approach; (4) the UNIinOI model definition.

The experimental research has proofed that the research approach of phase 2 and 3 (considered also, as a diagnosis of the actual situation of the university-industry collaboration) could help to identify the strategic direction to be followed by the universities in order to better valorise their potential of innovation with the support and involvement of industrial partners. In addition, the evaluation model could be used to define the universities orientation for business, for profit generation through their research activities develop in partnership with industry.

According to the analysis done, Romanian universities are able to support and they proof the capacity to develop feasible collaborations with industrial partners, because of the key success factors considered (research results):

- The well defines structure of the research and the research entities that exist at the faculty level. In addition, transfer of innovation centres are established and they support the small and medium size enterprises by priority in order to increase their internal innovation process;
- The research staff of high expertise that exist in each university. The actual tendency is to link the research activity to the PhD schools and to engage more and more young researchers in collaboration projects with industry;
- Funding opportunities and excellent partnerships and alliances in research that could assure additional funding for universities and individual researchers, too;
- Dissemination actions as scientific events organization, own journals publication and books (considered as part of the research and development marketing activity).

Among the many important issues raised by this research, some common themes emerged, indicating that a standardized good practice model for the effective management of collaborations between university and industry would provide a useful framework, which could be applied to future collaborative research projects. The proposed UNIinOI model or framework could be useful also, as a mean of systematically improving collaboration management practice and thereby improving the probability of collaboration success.

The next research priority will be the improvement of the proposed model and its testing and validation through different cases of universities' collaboration with industrial and business partners. By this, there should be developed a comparative study between the opinion of the university staff and industry staff, for three distinguish areas in Romania. Furthermore, future researches will be focused on the development of a software product in order to evaluate the level of adoption of open innovation in the framework of university-industry collaboration projects.

Acknowledgement

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Managing the Utilised Agricultural Areas - Key in Obtaining Better Results in Holdings

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Abstract

The present paper aims to highlight the importance that managing the utilised agricultural area has in obtaining better results in agriculture. There were chosen to be compared eight member states of the European Union, with different areas, different conditions, different level of development and different way of land exploitation. The study investigates the link between the legal status, the size of the holding and their results, by analyzing relevant indicators, and it also formulates, in the conclusion, solutions on how to manage the size of the holding in order to improve the holding activity and its result.

Keywords: utilised agricultural area, legal status, agricultural holding, holding size.

Introduction

Utilised agricultural area of a state reflects the measure in which the agriculture represents an important occupation and income source for the population. The agriculture represents a basic branch of the economy, but an underperforming practicing of agriculture, incapable to supply satisfying results raises problems for some states. As Popescu (2001) mentioned in his paper, "the relation between land property and agricultural exploitation has represented a permanent concern in history".

The increasing interest in practicing the "green" agriculture influences the resizing of holdings. Cunha, (2009), described that "pressures from environmental groups, and from the media and public opinion, were identify as of growing importance, from a low base in 1992 to real considerable in 2003."

Each state influences the size of holdings by the policy applied. The opinion of Floyd, (1995); Harrington and Reinsel, (1995) was "The policy context and policy changes have been identified as important drivers of structural change."

Regarding the exploitation, according to legal status on Eurostat there are found: sole holder holdings, holdings that are legal entity and holding group. The understanding of functionality for each category and the measure in which are found in each state ant the results they have is very important. Also the physical size of agricultural holdings in each state justifies the results obtained in agriculture. In his work Ciaian, (2010), mentioned that" Amongst the productive factors, land is the one which most often limits farm development and which is most directly applicable as an indicator of farm size" The decisions of Common Agricultural Policy (CAP) also influence the holdings size. Bartolini, Viaggi concluded that
"CAP payments seem to play a role, both affecting exist strategies and preferred farm size".

The orientation towards other types of activities non-agricultural related in rural area had an impact on the holding sizing. Lange (2013) concluded that "farm size and the share agriculture of household income are higher than the impact of landscape features".

Understanding how to manage the utilised agricultural area, adjusted to each state characteristic, in order to generate the best results is a progress that can help the development of rural areas, as long as agriculture still represents a big part in the rural area activities.

Materials and Methods

The study is conducted by calculating, analysing, comparing and interpreting data, such as utilised agricultural area, average surface of an agricultural holding, legal status of the holdings, standard output. The indicators were selected with the purpose of demonstrating how important really is managing the utilised agricultural area in development and results. The data utilised are extracted from EUROSTAT data base and follows eight member states of the European Union – Belgium, Bulgaria, Germany, Spain, France, Italy, Netherlands and Romania during the period 2005-2013. There were selected states with different surfaces, different utilised agricultural area, different conditions, and different level of development in order to see their evolution concerning the results obtained.

Utilised agricultural area

It is very important to understand the potential given by the utilised agricultural area in the eight member states of the European Union submitted to analysis. For this purpose there are presented the agricultural land surfaces of each state and the evolution between 2005 and 2013.

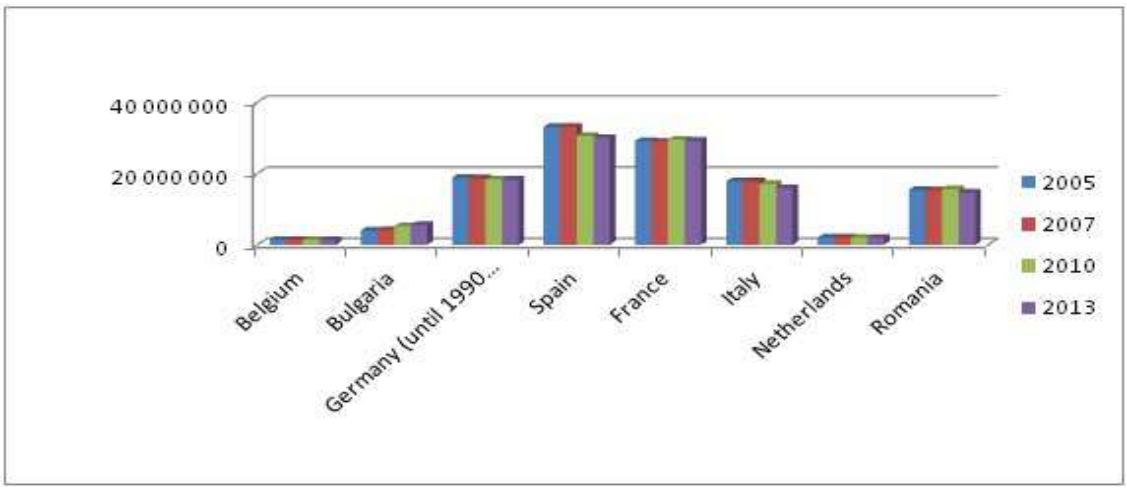

Fig 1: Utilised agricultural area(ha)

The chart no. 1 presents the utilised agricultural area measured in hectares in Belgium, Bulgaria, Germany, Spain, France, Italy, Netherlands and Romania in the years 2005,2007,2010,2013.

By analyzing the chart it may be concluded that from all the states presented, the smallest utilised agricultural area is held by Belgium while the state with the largest utilised agricultural area is Spain. The explanation of this conclusion may be found in the total surface of each state. Therefore, if it is considered that in the year 2013, in Belgium 1 350 200 hectares of 3 052 800 (44,23%) represents agricultural land, in Bulgaria 5 608 980 hectares of 11 099 400 (50,53%) are intended to agriculture, in Germania 18 305 150 hectares of 35 734 000(51,23%), in Spain 30 042 210 hectares of 50597000(59,38%), in France 29 264 400 hectares of 63283360 (46,24%), in Italy 15 933 790 hectares of 30 207 300(52,75%), in Netherlands 2 008 870 hectares of 4154000(48,36%) and in Romania 14 661 380 of 23839100(61,50%), it can be noticed that the utilised agricultural area of each state held an important percent in total surface of the concerned state. In the Romania's case the percent of 61,5 may point out the fact that a high number of persons are occupied in agriculture, that there are a high number of subsistence and semi-subsistence holdings and also that there is a lack of available jobs in others fields.

It can be noticed that during the analyzing period 2005-2013 there are oscillations regarding the number of hectares of utilised agricultural area, but the increases and / or decreases were not major. While in Spain, Germany and Italy there was an obvious reduction, Belgium and Netherlands tended to maintain the values of the utilised agricultural areas and Romania and France showed both decreases and increases. The explanation in this regard is found in changing the land destination, decreased/increased interest in practicing the agriculture, unfavourable conditions for practicing the agriculture. The agricultural surface of a state reflects the degree to which the agriculture as branch is important to the economy.

Utilised agricultural area per capita

This indicator reflects how many hectares of agricultural area exist per capita in each analyzed state and its evolution between 2005 and 2013.

Table 1: Utilised agricultural area per capita(ha/capita)

State/year	2005	2007	2010	2013
Belgium	0,13	0,13	0,13	0,12
Bulgaria	0,35	0,40	0,60	0,64
Germany	0,21	0,21	0,20	0,21
Spain	0,57	0,56	0,51	0,50
France	0,44	0,43	0,43	0,42
Italy	0,22	0,22	0,22	0,20
Netherlands	0,12	0,12	0,11	0,11
Romania	0,65	0,65	0,66	0,65

Source: Own calculation based on EUROSTAT data

The values for this indicator were obtained following a simple calculation by dividing the entire utilized agricultural area to total population of each state. Analyzing the results obtained allows to conclude that between 2005 and 2013 there were no major changes in the analyzed states except Bulgaria which went from 0,35 ha/capita to 0,64 ha/capita, it almost doubled its value. Romania has the highest value of this indicator, in 2013, 0,65 ha/capita, followed by Bulgaria, Spain with 0,50 ha/capita(a decrease from 0,57 ha/capita in 2005), France with 0,42 ha/capita(a decrease from 0,44 ha/capita in 2005), Germany and Italy have approximately 0,20 ha/capita and Belgium and Netherlands 0,12 ha/capita. Worth to be mentioned is the fact that the evolution of this indicator is highly influenced by giving other destination to the land and also by an increase/decrease of population.

Average surface of an agricultural holding

In the table no. 1 there are presented the average surface of an agricultural holding in Belgium, Bulgaria, Germany, Spain, France, Italy, Netherlands and Romania and also its evolution between 2005-2013.

Table 2: Average surface of an agricultural holding(ha/holding)

State/Year	2005	2007	2010	2013
Belgium	27,47	29,27	32,32	35,76
Bulgaria	7,51	8,29	14,20	22,05
Germany	48,33	50,44	61,47	64,22
Spain	30,67	31,77	30,93	31,13

France	51,45	54,90	57,25	61,97
Italy	10,30	10,62	10,54	15,77
Netherlands	24,87	27,04	27,91	29,77
Romania	3,62	3,88	4,07	4,04

Source: own calculation based on EUROSTAT data

By analyzing the data of the table no. 1 it can be noticed that the states under analysis had a generally ascending trend regarding the average surface of an agricultural holding, except Spain where the average surface decreases from 31,77 hectares to 30,93 hectares between the years 2005-2013, Italy where the average surface of an agricultural holding diminishes from 10,62 hectares to 10,54 hectares and Romania where the average surface of an agricultural holding reduces from 4,07 hectares to 4,04 hectares. The explanation of this situation is found in the economic crisis in 2008 that stroke all the activity sectors, but also through the reducing of the entire utilised agricultural area, the reorganization of the agricultural holdings and by the politics concerning the agriculture formulated and implemented by each state.

It can also be noticed the fact that there are big differences between average surface of the agricultural holdings in the analyzed states. Therefore, while Germany reached in 2013 an average surface of agricultural holding of 62,22 hectares, Romania registered in 2005 only 3,62 hectares per holding. The explanation are found in the degree of economic and social development of each state, so regardless the utilised agricultural area held, the developed states had higher values of the average surface of agricultural holdings. In the year 2013 France and Germany had an agricultural holdings average surface of 61,97 hectares respectively 64,22 hectares; Spain, which has the biggest utilised agricultural area of the analyzed states, had 31,13 hectares per holding. States whose agricultural potential, in terms of utilised agricultural area was small, compared to the other analyzed states, the Belgium and Netherlands case, had agricultural holdings with 35,76 hectares respectively 29,77 hectares as average surface. Italy had an agricultural holdings average surface of 15,77 hectares. This situation may be explained by "the separation" of Italy: the north side which is industrialized and not based on agriculture and the south side which is less industrialized and where is practiced more agriculture. Bulgaria and Romania the second-last states to became members of the European Union had an agricultural holdings average surface of 4,04 hectares respectively 22,05 hectares in 2013. Remarkable is the ascent of this indicator in Bulgaria, in 2005 the average size was only 7.51 hectares and by 2013 it reached 22.05 hectares, an increase of nearly 3 times higher compared to 2005. Romania has also registered an increase in 2013 compared to 2005 but this increase is very small. Romania held a high potential in terms of utilised agricultural area, but registered the lowest value of the agricultural holdings average surface, compared to the states analyzed. The main cause of this situation is represented by the excessive fragmentation of the agricultural land, which determined a high number of holdings, due to politics and laws adopted beginning with the year 1991.

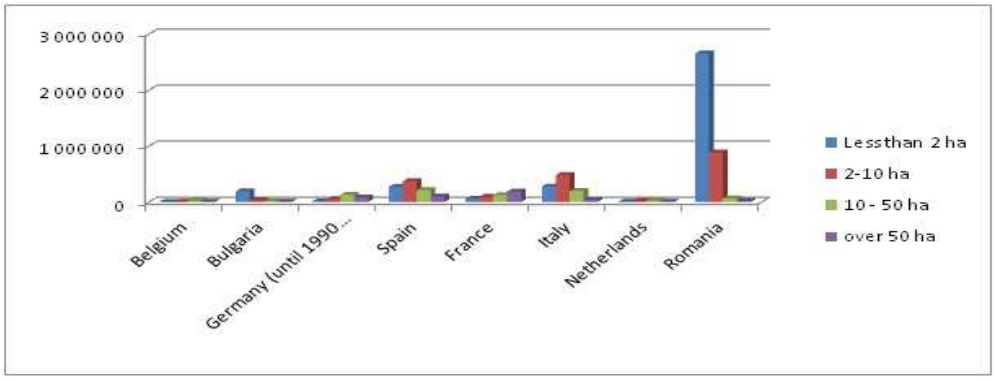

Fig 2: Physical size of holdings, 2013

From the chart no. 2 it may be observed that regarding the physical size of the agricultural holdings in Romania there were, in the year 2013, by far the highest number of agricultural holding with less than 2 hectares. It can also be the case of Italy and Bulgaria but not at the same level. The chart highlights clearly the fact that Romania had in 2013 a huge number of agricultural holdings and the majority were holdings with the size under 2 hectares. States as Belgium, Germany, Netherlands and France presents a homogeneous situation of the agricultural holdings number, concretely they had they have the number of farms depending on the physical size at about the same level. In Spain and Italy there were predominant holdings with up to 50 hectares. The explanation of this situation is found in the historical evolution of each analyzed state, the existence/ inexistence of traditions in practicing the agriculture, the reason of practicing the agriculture (hobby, business or need). For instance in the Romania's case the agricultural land exploitation remains for a part of population, from rural areas, the only source of products and/or income where there is a surplus in production which reaches the market.

Regarding the legal status of the agricultural holdings, according to EUROSTAT, there are distinguished: sole holder holdings and holdings that are legal entities.

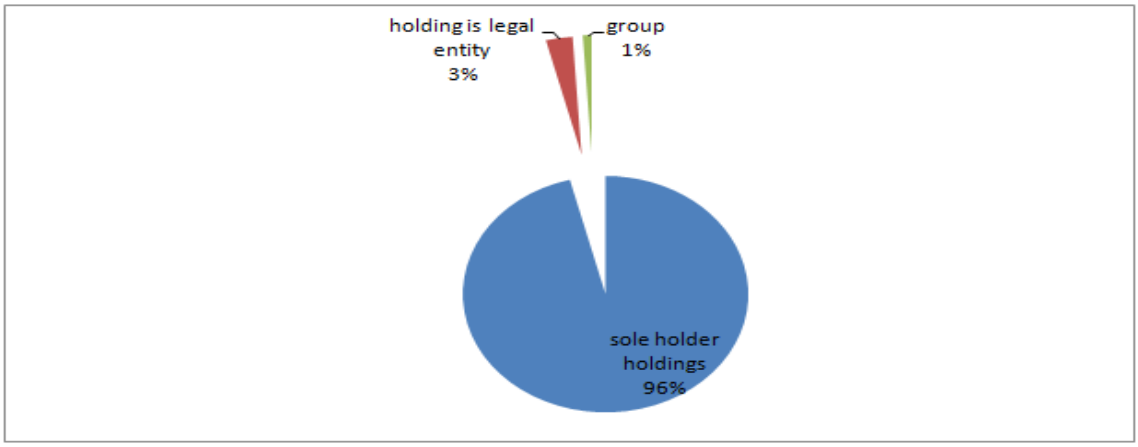

Fig 3: Share of holdings according to legal status, at the eight analyses states level, 2013

Regarding the legal status of the agricultural holdings, it can be observed, that in the year 2013, at the level of the eight states analyzed, the sole holder holdings predominate with 96%, only 3% holdings are legal entity and only 1% is a group holdings. The situation is explained by the nature of the activities itself, which take place within an agricultural holding and by the fact that a high number of the holders are in fact the owners of the lands that they are exploiting. A big contribution to the 96% is brought by Romania, which, as we established by the precedent analyse of chart no.2, has a high number of agricultural holdings with less than 2 hectares; these holdings are, mainly, not legal entities and they do not belong to a group holding. In principle due to reduced physical size, they are semi-subsistence or subsistence holdings, therefore contributes significantly to the 96 percent owned by sole holder holdings.

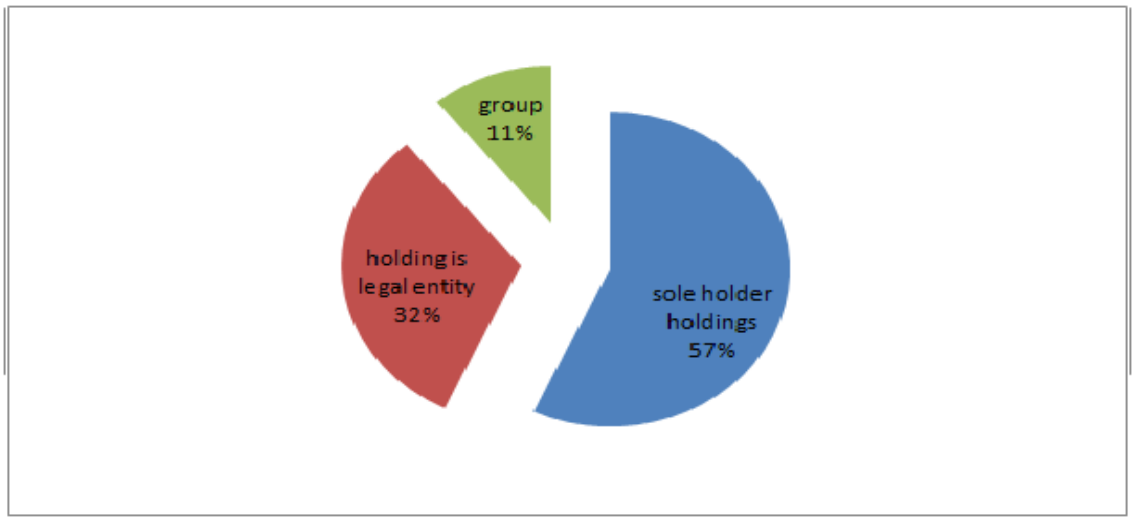

Fig 4: Utilised agricultural area distribution according to legal status, for the eight analyzed states, 2013

In terms of surfaced occupied by the agricultural holdings, from the eight states under analysis, according to their legal status, in the year 2013, it can be observed by analyzing the chart no. 4 that 57% of total utilised agricultural area is occupied by sole holder holdings, 32% is occupied by holdings that are legal entities and 11% is occupied by group holdings. Analyzing in the same time the cart no. 3 regarding the number of holdings according to their legal status it can be concluded that at the level of the eight states under analysis, in the year 2013, 93% of total agricultural holdings used 57% of total utilised agricultural area, 3% of total agricultural holdings used 32% of total utilised agricultural area and 1% of total agricultural holdings used 11% of total utilised agricultural area. Therefore it can be established that the agricultural holdings with small physical size are part of sole holder holdings.

In order to better understand the conclusions formulated following the chart analysis, there will be interpreted data regarding the average physical size of an agricultural holding in terms of its legal status, from the eight states submitted to comparing, and also their evolution during the period 2005-2013.

Table 3: Average physical size of an agricultural holding in terms of its legal status

	Average physical size of a holding that is legal entity				Average physical size of a sole holder holding			
State/year	2005	2007	2010	2013	2005	2007	2010	2013
Belgium	33,06	34,55	38,01	39,22	26,43	28,11	30,99	33,94
Bulgaria	454,85	479,5	503,91	486,02	2,40	2,95	4,83	7,11
Germany	610,88	573,04	584,03	554,28	32,04	33,42	40,60	42,56
Spain	150,02	141,68	118,87	115,05	16,65	17,19	17,86	17,95
France	85,49	88,5	92,59	97,12	32,20	33,25	32,19	33,27
Italy	79,63	106,52	79,14	87,24	6,12	6,64	7,17	10,88
Netherlands	24,95	23,57	24,51	25,08	23,70	24,86	25,97	27,53
Romania	263,13	270,44	190,77	207,49	2,15	2,29	1,95	2,02

Source: own calculation based on EUROSTAT data

It is observed, according to the date in table no. 3 that both average surface of sole holder holding and average surface of holding that is legal entity presents oscillations. States that do not have a tradition in practicing the agriculture, such as Belgium and Netherlands, don't presents significant differences regarding the average surface of agricultural holdings in terms of their legal status. In Belgium, in 2013, the average surface of a holding which was legal entity was 38,01 hectares and the one of sole holder holding was 33,94 hectares; in the Netherlands of the same year 25,08 respectively 27,53. In Spain the average surface of an agricultural entity that was legal entity decreased from 150,02 hectares in 2005 to 115,05 in 2013 and average surface of a sole holder holding increased from16,65 hectares in 2005 to 17,95 hectare in 2013.

In Bulgaria, Germany and Romania is noticed that the differences between averages of the agricultural holdings are very big. If the size of an agricultural holding that is legal entity, in 2013, in Bulgaria was 486,62 hectares(even if during the period 2005-2015 registered oscillations, average size is higher compared to 2005 when it was 454,83 hectares), in Germany was 554,28 hectares(during the entire period 2005-2013 the average size of the holding decreased, in 2005 was 610,88 hectares) and in Romania was 207,49 hectares(even if oscillates between 2005-2013, average size is smaller compared to 2005 when it was 263,13 hectares), the average size of a sole holder holding, in 2013, in Bulgaria was only 7,11 hectares (a remarkable increase compared to 2005 when it was only 2,40 hectares), in Germany it was 42,56 hectares (an increase compared to 2005 with approximately 10 hectares) and in Romania it was only 2,15 ha (worth to be mentioned that there were not registered significant modification during the period 2005-2013, average size being maintained at approximately 2 hectares. Also, in Italy are observed differences of over ten times between the average physical size of a sole holding holder and a holding that is legal entity. The average size of a holding that was legal entity was 87,24 hectares in 2013 and the average size of a sole holder holding was 10,88 hectares. In France the average size of a holding that was legal entity increased during the entire period 2005-2013, from 85,49 hectares to 97,12 hectares, in the same period sole holder holding maintains its average size around 32-33 hectares.

The explanation of the situation presented by analyzing the date in table 4 is found in the property and exploitation structure of each state, and also in the politics concerning the agriculture elaborated and implemented by each state, the motivation in practicing the agriculture, the utilised agricultural area of each state. For instance in Romania, the explanation is found in adopting and applying an incomplete and faulty law, more precise Law 18/1991 regarding the allotment and re-allotment of agricultural land owners. This law leaded to a massive number of small sized agricultural holdings. The failure of remediating this law, through Law 1/2001 is reflected directly on the situation during the period 2005-2013.

Results obtained in agriculture

There will be followed the results obtained in agriculture by analysing the standard output overall, between 2005-2013, and the standard output obtained per holding and per hectare in 2013.

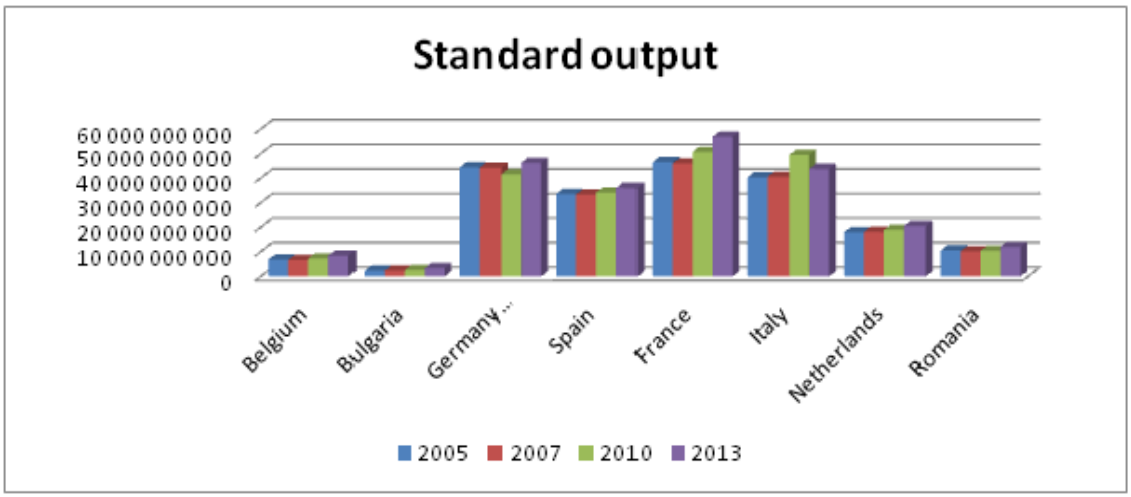

Fig 5: Standard output(euro)

The analysis of standard output, counted in euro, presents oscillation, in all states, during the period 2005-2013. Germany, France, Spain and Italy had the highest values of this indicator during the entire period of analysis. This situation is explained by the high potential that they have in terms of utilised agricultural area but also the manner of the exploitation. It is observed that, although, Belgium and Netherlands, as we previously analyzed, are states with small utilised agricultural areas but with medium average size, both for sole holder holdings and legal entity have standard output values higher (Netherlands) or close (Belgium) compared to Romania that has an utilised agricultural area much larger. Bulgaria has the smallest value compared to the seven other states. Te efficiency in exploiting the agricultural land is the explanation of this situation.

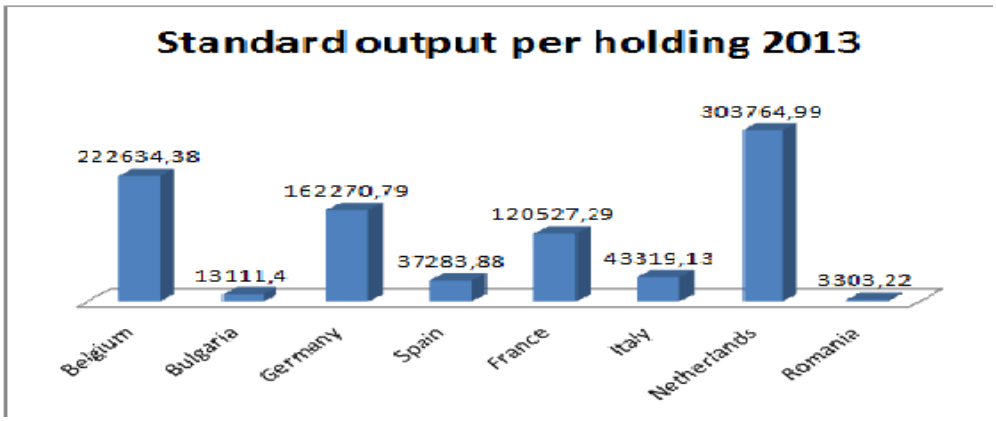

Fig. 6: Standard output per holding 2013

By analyzing the chart no.6 it's noticed that states with small UAA, as Belgium and Netherlands, registered the highest standard output 303764,99 euro per holding respectively 222634,38 euro per holding. States with high potential in terms of UAA have modest results compared to Belgium and Netherlands; Germany registered a standard output of 162270,79 euro per holding, France 120527,29 euro per holding, Italy only 43319,13 euro per holding, Spain 37283,88 euro per holding. The lowest standard output is registered by far in Romania and is only 13111,40 euro per holding, this way being inferior to Bulgaria which registered 13111,40 euro per holding. The explanation that higher results are registered in states with the smaller UAA is found in the holding structure and its manner of exploitation.

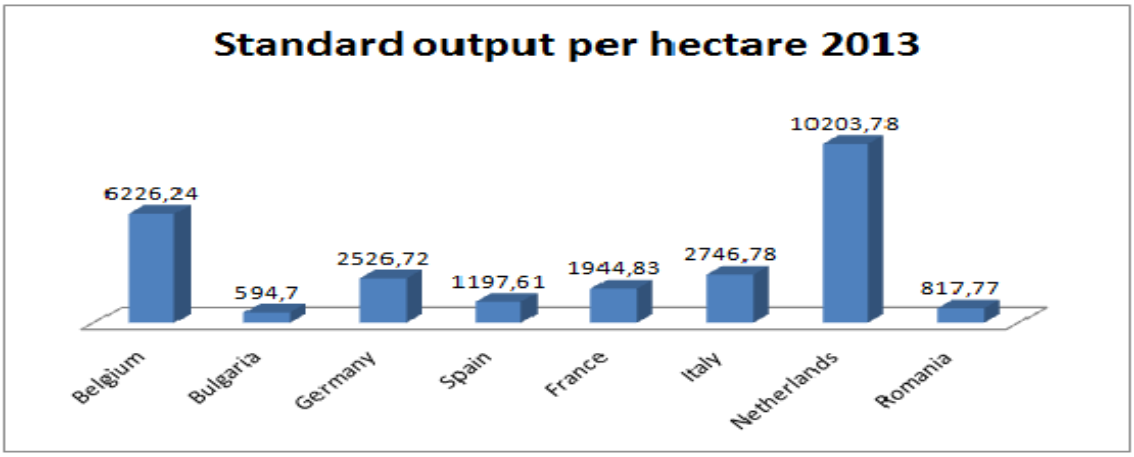

Fig. 7: Standard output per hectare 2013

The analysis of standard output per hectare, for the eight state, in 2013, changes the ranking, Bulgaria takes over the last place with 594,70 euro per hectare, behind Romania which had a standard output of 817,77 euro per hectare. The first places are forwards held by Netherlands and Belgium with 10203,78 euro per hectare respectively 6226,24 euro per hectare. Italy has a better result on hectare than the one on holding an it reaches 2746,78 euro per hectare. Germany had a standard output of 2526,72 euro/hectare and France 1944,83 euro/ha.

The analysis of standard output per agricultural land hectare highlights the fact that despite the total utilised agricultural area better results are obtained through an appropriate holding structure and by efficiently exploitation of the land using modern techniques and technologies. It is obvious, that the state through its politics may contribute to the results by giving financial support in developing the holdings and by educating, encouraging and guiding of holders.

Standard output per hectare in terms of legal status 2013

In order to better understand the results obtained within the holding it is also analyzed the standard output per hectare by legal status in 2013.

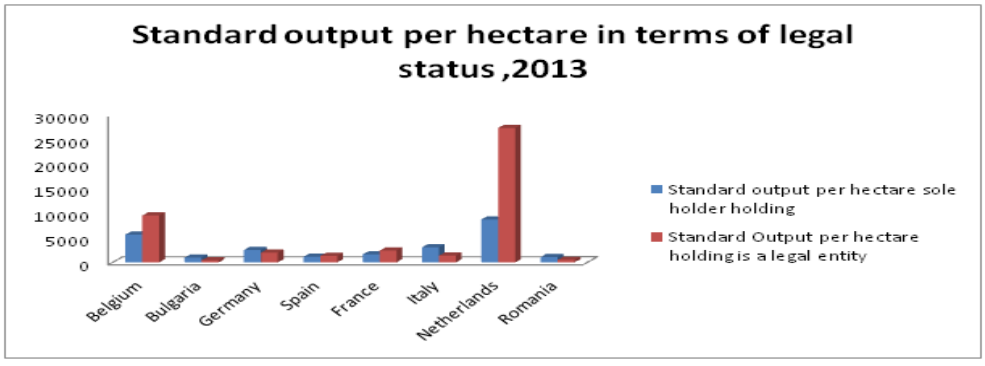

Fig. 8: Standard output per hectare in terms of legal status, 2013(Euro/ha)

The chart indicates the fact that in the states with a high value of the standard output per hectare and holding (as shown in the previous charts) such as Belgium and Netherlands, the standard output per hectare is higher in the holdings that are legal entities. Not at the same level of difference but in the same situation is found France and Spain. Bulgaria, Germany, Italy and Romania have better results per hectare in the sole holding holder. The results are explained by the number of holdings, their

physical size and the manner of exploitation. Correlating the data from this chart with the data from Table no. 3, average physical size of an agricultural holding in terms of legal status, it can be observed the fact that even if the average physical size for sole holder holding is way bigger than the average physical size of sole holder holdings there are obtained better results per hectare in the case of sole holder holdings (Bulgaria, Germany, Italy, Romania; the only exception is Spain). The equilibrium in managing the utilized agricultural area from Belgium and Netherlands reflects the best results, compared to the other analyzed states, both in terms of standard output per hectare in sole holder holding and holdings that are legal entities.

Conclusions

After analyzing the indicators it may be concluded that the potential, in terms of utilised agricultural area of each states, loses its importance if is not properly valued.

It can be noticed that although some states have large utilised agricultural area, as in Romania's case, that the results obtained both on holding and also on hectare are reduced. A high importance in obtaining these results is held by the exploitation structure. The physical size of the agricultural holding, along with their legal status also has an important influence on the results.

The manner in which the utilised agricultural area are exploited has a direct impact on labour force needed and used, both by holding and hectares number that are in the responsibly of a worker. In the holdings with small physical size, which in the most of the cases are sole holder holdings, the labour force employed directly by the holding is basically inexistent, due mainly to the lack of financial resources. Therefore the small sized holding along with insufficient labour force, chemisation, and mechanisation determines poor outcomes.
A rational exploitation, in which a bipolarisation of the agricultural holding regarding the average physical size in terms of legal status, as in Netherlands and Belgium case which proved better results both on holding and per hectare.

It is also noticed the fact that the results of the agricultural land also depends on the development degree of each state. States as Romania and Bulgaria, which are, compared to the other states analyzed, less developed from economical point o view, have lower results, due mainly to the lack of the financial means that are so needed, on one hand in research, which could contribute to the improvement of land exploitation by reorganizing the exploitation structure and on another hand in investments towards agricultural holdings modernization.

Along with the manners of structuring and exploiting of the agricultural holdings, the results are also influenced by other factors such as the quality of the soil, climatic conditions which dictates the mechanization and chemisation necessary.

The indicators analyzed within the present study proved that although the state compared have different areas, different utilised agricultural areas, different pedo-climatic condition, managing to maintain an equilibrium regarding the average physical size of the holding is the key in obtain better results. This conclusion is explained by the fact that states as Belgium and Netherland, although they have inferior condition compared to the other analysed states, due to their positioning, total utilised area, surface, climate and soil, their results in terms of standard output is directly justified by the situation in which there are no big differences between the physical size of sole holder holding and holding that is legal entity.

In order to obtain better results the holdings must, first of all, be resized. At a state level a bipolarisation of the holdings in terms of size will always cause problems, there will always be a huge difference between the small and the large holdings if we follow their results. Each state must formulate policies and laws meant to improve the results for both small sized and large sized holdings, no matter their legal status.

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Effect of Tax Reforms in Mexican Micro Enterprises

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Abstract

Before now, enterprises were concerned to sell at the best price, obtaining the highest profit as offering the best product, due competitors were at the same circumstances or just a few respected their market areas. However, at this time of dynamic changes, the phenomenon of globalization of the economy involves it every day with more force in the global ambits, upsetting all structures that give sustenance the existence of the organizations whether are big or small, with some or a lot of development, drawing a complex, more diverse and fragmented environment; product of several and complementary events in recent years. This phenomenon has allowed to support this research, which addresses the issue of micro, small and medium-sized Mexican companies, since their background, to the effect of implementation of tax reforms that were settled since January 2014; specifically in the financial aspect of Microenterprise Sector. In recent years the Mexican tax system has been changing without stop, and these organizations have been immersed in its economic and social structure, due to tax changes that have frequently experienced.

Keywords: Tax reforms, microenterprises, culture fiscal

Introduction

It is worth to mention that the constant changes in the tax laws establish challenges that cannot be accomplished, specifically talking of the tax regime Incorporation (RIF) just to mention some, this great group of taxes which targets such organizations, which are difficult to meet because of the great number of these, by the lack of economic capacity and ignorance in the use of technology. .

Quoting to Cuevas (2007: 25) says that microenterprises are continually in the national debate because are considered the main sector of the Mexican economy, however, 80% fail within their first four years of work. A possible cause of such ephemeral existence can be due to lack of training and appropriate advice in the field of administration and enforcement of tax obligations or because of requirement of financial support for their growth, permanence and sustainability.

In the same way and quoting Suarez (2007: 27) comments that microenterprises conform most of the economic sector of Mexico, and its strengthening will result in a national well-being.

Effect tax reforms 2014

Observing the described above, and the aspiration to contribute to the study of these kind of companies, the central question guiding this research is: What is the financial and technological impact of Microenterprise commercial sector resulting from tax reforms of 2014 and what are its characteristics and benefits?

In the exploration of knowledge referring to the mentioned problem, this research aims to achieve the following objective: study, know and identify financial and technological impact of Microenterprise commercial sector resulting from the tax reforms of 2014 and identify what are its characteristics and benefits for these companies.

Analysis of Mexican microenterprise

It is really important to mention that microenterprises in México must continue struggling to survive, to the continue impact of repeated changes to tax laws and as a result of this problem, however are immersed in the onslaught of globalization.

Against this background therefore we started from the following hypothesis: The RIF stops the growth of the commercial sector Microenterprise, fostering uncertainty, inequality and injustice which stops their development and presence in the market.

The results formed in this research, express considerable importance of the need to use a mixed methodology to investigate the feeling and acting of micro entrepreneurs in fiscal aspect that contributes to support microenterprises in the commercial sector in solving their problems, looking forward have access to better financial possibilities and business stay.

In this way, Regalado mentions in http://www.eumed.net/libros/2007b/274/31.htm), that microenterprises, are of particular importance to national economies, not only for their contributions to the production and distribution of goods and services, but also for the flexibility to adapt to technological change and great potential for job creation. Represent an excellent way to boost economic development and a better distribution of wealth.

Angeles (2007: 16) and Cereceres (2004: 37), says that in Mexico, microenterprises represent a very important part both in the economic context and in its employment generation, besides these companies establish by the desire for economic improvement of some people (businessmen) who become independent in this way

With the study focused on Microenterprises of the commercial sector in Mexico, we can understand and identify the problems that companies have following the imposition of the new tax regime and how to establish recommendations to be implemented in order to cope with the impact on the Microenterprise finance facing the commercial sector.

Effect of globalization in microenterprises

There is a big gap between rich and poor countries, and if it is wanted to reach a "globalization" there must be equality talking about fair competition where everyone has opportunities of participation and economic growth.

The Mexican tax system is very complex, and the tax reform should contemplate an injection of simplicity. It should also consider the removal of several special treatments to various sectors of the economy, because as we have already seen that there are many Mexicans pay a lot of taxes, while others pay just a little or pay nothing.

Tax evasion is very high. A lot of efforts must be made to reduce it, including actions of administrative simplification, creating incentives to increase the payment culture, and strict accomplishment of laws. In addition, penalties for evasion should be increased. Finally, there is still corruption in the tax collector department of the government, a practice that should be attacked more firmly.

Taxpayers should be able to notice that their taxes serve to improve the standard of living of all Mexicans. It is worth to take up two essential concepts: transparency, which implies clarity in the allocation and use of public resources; and the accountability, suggesting that in order to pay taxes in a conscious way, impunity must disappear.

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Strategic Planning and its Role in the Development of SMEs in the County of Sibiu, Romania

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Abstract

SMEs play an important role in the country's economy, due to their high number. The legislation currently in force and the country's economic instability and the effects of recession have had an impact on SMEs, they being resisting a short time on market or going into decline.
This paper presents the situation of SMEs nationwide and tries, in the county of Sibiu to help these organizations by identifying the problems they face and find solutions in order to turn them into productive and profitable entities.

Keywords: strategy, strategic planning, SMEs, market, management.

Introduction

The term for „strategy" comes from the Greek word „strategya". This term was first used by the Greeks in the army and signify a group of activities related to the preparation and carrying the battle to ensure victory. The French took the term „stratégie" in the army too, with the same meaning. By the mid-twentieth century this term was taken over and used in US companies on the grounds that in business „any market is a war" and the competitive battle to secure the survival and development of the company must be based on a strategy.

According to Punt (2015) strategic planning can be defined as a process/ management tool that allows an organization to focus on efficient resource alignment of its mission and vision.
These two concepts presented above represent the essential points in the present work, which aims to analyze the situation of SMEs in the region of Sibiu county and meet the problems they face.

General information on the current situation of SMEs in Romania

Romanian economy is supported by the activities of SMEs and large companies, especially those with majority foreign capital, but also those with state capital. Although they have a numerical weight of more than 99.7% of the total number of enterprises, a research study by Anghelache (2015) showed that the SMEs influence on economic development of the country is being much lower (approx. 55-56% of GDP).

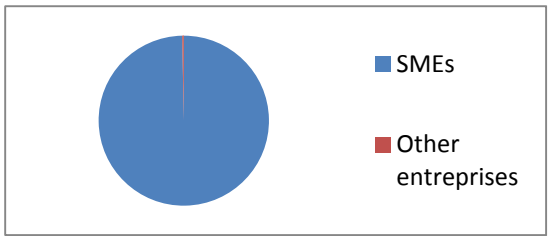

Fig. 1: Share of numerical enterprises in Romania

Autochthonous SMEs are considered by Nicolescu (2012) more "bundled" with large companies when external factors influence (as was proved during the recession of 2009-2011) strongly affects overall economic activity and social stability.

Most companies in Romania started as a family business, based on a minimum knowledge of the people involved in running the business. Many of these people do not have a sufficient amount of knowledge in management or marketing, and the company does not have sufficient financial resources to develop the business by running marketing campaigns or product promotion.

Nicolescu (2012) mentioned that technical and educational level of most SMEs allow their economic survival, but the chances of attracting, hiring and keeping in business of skills, particularly managerial, technical and market are still quite limited. Many enterprises have not set targets for market penetration and growth in market share, never considering the need to attract and hiring specialists, eg in the quality of the product or in promoting them on the market, focusing usually on achieving production and employer's ability to manage / maintain the business "afloat". Relevant statistical data show that about 57% of current microbusinesses are subsistence businesses that would ensure a certain standard of living only to the business owner and his family.

Case study: The main problems of SMEs in the county of Sibiu and their direction of development in the coming years

From the figure below, it can be seen that in the county of Sibiu there is a relatively high share of SMEs compared to the rest of the country, which makes the conclusiveness of this study to have a high veridicity.

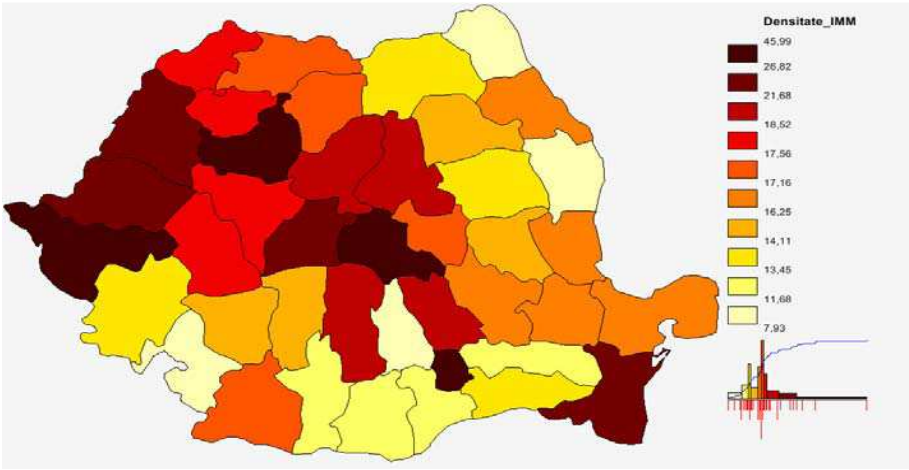

Fig. 2: The radiography SMEs at territorial level
Source: http://www.aippimm.ro/

To obtain the data this study used a quantitative method of research, respectively the investigation based on survey, which has been based as instrument a questionnaire of ten questions, applied on a sample of 384 respondents, managers of SMEs in the Sibiu county . This sampling method is a proportional stratified one according to two variables of characterization: SMEs size and scope of their activities, the research results being guaranteed with a probability of 95% and an error of $\pm$ 5%.

To the question entitled *"What are the problems facing the organization you are part of?"* the answers were as follows:

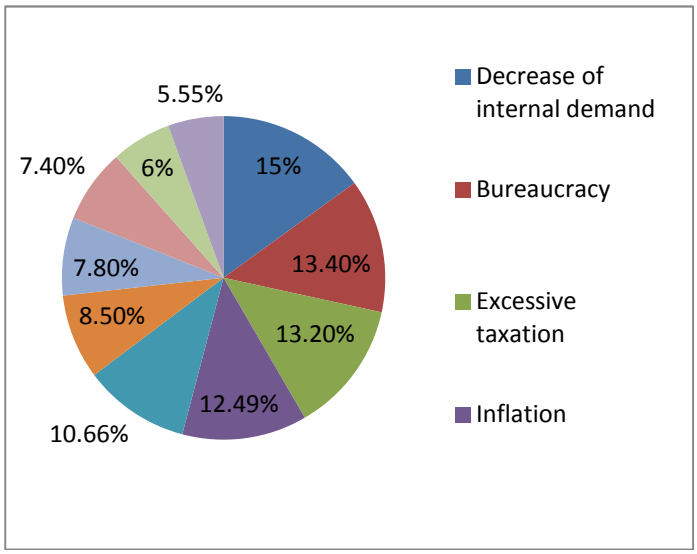

Fig. 3: Main problems of SMEs

Analyzing the answers given to the question: " What are the main critical factors for the economic activity of SMEs?", the most relevant responses were:

a) adequate capitalization of the business according to the evolution stage of the organization and also the foreseeable prospects for its development;
b) enterprise retechnologisation and increasing its capacity to attract and storage within the enterprise the individual creative talents;
c) reducing barriers market entry for new businesses, respectively, barriers to exit from the market of companies proven to be non-viable (with very negative financial results thereof);
d) strengthening networks of entrepreneurs and disseminate relevant market information among them;
e) company business internationalization.

Also, surveyed managers consider several priority directions that can help this segment to grow:

- providing a stable and predictable legal framework for business, with improved aspects of reducing bureaucracy and fiscality;
- increase the amounts allocated to programs for establishment and development of SMEs, which will ensure the creation new jobs and GDP growth in the next period;
- relaunching investment process through: diversification of services offered to re-launch SME financing;
- measures to stimulate SMEs: gradual taxation for SMEs start-ups - tax exemption in the first year, 50% reduction of the corporation tax in the second year with a requirement to ensure the functioning of the company on lasting a minimum of three years after the completion of facilities; improving the legal framework of state aid schemes with the criteria for granting modification to make them fully accessible to SMEs;
- development of SMEs from Romania by supporting the distribution and comercialization of their products, instituting mandatory for large retail chains to provide a minimum retail space (30%) for the presentation and sale of products made by traditional and local SMEs;
- improving SME access to finance through: simplifying procedures, increasing the absorption of structural funds; improved regulation exempting tax on reinvested profit; increase SME access to public procurement; establishment, according to European practice, the mediator of loans to SMEs in the county after the French model;
- the inventory of full fiscal taxes and permits, authorizations and licenses in force, including procedures to achieve them, which is accessible online and which constitutes the support of

reducing by at least 10% of them and simplify administrative procedures on the establishment and operation of businesses and reduction of taxation;
- improving enforcement regulations for budgetary debts, by unblocking of bank accounts of SMEs and creation of a system of rescheduling amounts, by withholding up to 30% of monthly income, without affecting the payment of salaries and current activity.

Conclusions

The importance of SMEs to economic development in the county of Sibiu, arising from the following features of these:

- provide new jobs;
- fosters innovation and flexibility;
- is being constitute practical in places where staff is improving and where can then evoluate to large enterprises;
- stimulates competition, helps in smooth functioning of large enterprises for providing various services or produce different subassemblies;
- manufactures products and provides services in terms of efficiency.

Sibiu county economic recovery is conditioned by SMEs access to finance. Reducing banks' interest to small customers, of the higher costs of credit and the requirements more stringent and creditworthiness of applicants, legislative instability, the sharp drop in demand for goods and services, high taxation, determined SMEs to reduce investment, postpone or abandon certain investment projects, renegotiate contracts with suppliers, to restructure / reduce activity and thus to reduce staff and salaries.

SMEs create jobs in a more efficient manner than state investment, with spending much less than budget and with a greater magnitude from social point of view because it involves family members and others in the locality.

Therefore, the authorities must take the necessary measures to support the sector: to increase allocations to programs for establishment and development for SMEs, simplify the procedures for their access to sources of funding by, to create a system of debt rescheduling (Ghenea, 2011). Development of small and medium enterprises is Romania's chance to restart the engines of economic growth.

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The Role of Key Actors in the Reform of the Higher Education in Romania to Achieve the Objectives of the European Strategy in Education

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Abstract

Education and training are crucial to the economic and social progress of a country, and the alignment of skills to the demands of the labor market plays and essential role in this progress towards a globalized and knowledge-based economy, where a competent labor force is required in order to be competitive from productivity, quality and innovation points of view. The present study aims mainly at achieving an analysis on the systemic reforms and the role the key actors (the students and the professors) play on the development of Higher Education so that it should integrate to the requirements of the European policy.

Keywords: higher education, systemic reform, students, teachers, educational offer, quality.

1. Introduction

Each member state of the European Union has a great responsibility towards its own system of education, training and the content of their educational programs. It supports the measures at national level and helps the member state to address common challenges through the concept known as "the open coordination method", providing a policy framework to discuss current issues and to exchange best practices.

Tertiary education, as stipulated by the EU Agenda for the modernization of Higher Education in member states, "plays a crucial role in the progress of the individual and of the society and in providing the high qualified human capital and of efficient citizens that Europe needs in order to create jobs, economic growth and prosperity." In such a context, the priorities set in *the National Strategy for Tertiary Education in Romania* will determine the main themes and objectives for the analysis, design, implementation and evaluation of relevant politics and initiatives, necessary for the development of Higher Education in Romania. These priorities will include - without limiting to them - new legislative and sector initiatives, identification of performance measures and estimation of program interventions. Consequently, the main areas of action will be: the promotion of a larger participation to tertiary education, especially for the under-represented groups; the improvement of tertiary education quality and relevance; the development of commitments towards economy, especially towards the relationship with labor market and the innovation/entrepreneurship; the consolidation of governing, monitoring and evaluation (the National Strategy for Tertiary Education 2015-2020).

In the past 25 years, the process of internalization of Higher Education has gained a central place on the European public agenda of national governments, of Higher Education institutions, of the actors in the Higher Education system and of the accreditation agencies in the enlargement context of globalization and economic and political integration (Hans de Wit, 2011). Thus, internalization has

acquired a significant role in the formation and consolidation of intercultural, linguistic and international abilities which should facilitate the graduates' interaction in a global environment, increasing their employment opportunities and implicitly, their life quality. Also, the public agenda of the European Union supports the intensification of the internalization process of Higher Education, encouraging quality assurance, mobility growth, promotion of common diplomas and facilitation in the recognition of qualifications and study periods, mainly in the context of universities' modernization for a competitive Europe in a global and knowledge-based economy (Egron-Pollak & Hudson, 2014).

The focus of efforts, so that Romania will have joined, by 2030, the states with advanced economies in Europe, represents the main objective of the vision to develop tertiary education in Romania. According to this vision, in 2020, the competitive tertiary education will be the engine of economic growth, will contribute to an increase of productivity and will promote social cohesion, thereby laying the foundations of a knowledge-based economy (Dragomirescu-Găină & Weber, 2013). Higher Education will train specialists who will be able to develop a competitive society in a global economy. Higher Education institutions will manage to catalyze the creativity and innovation throughout the society in Romania and, especially, to support the economy in developing products and services.

Tertiary education is the level of education offered by the public entities of Higher Education. Low levels of graduation rate in tertiary education can prevent competitiveness and undermine the EU potential to generate "smart growth". It is likely that an increasingly higher number of jobs in the future requires superior studies and, consequently, the EU member states will face the following main challenges: widening the access to Higher Education by increasing participation (especially among the disadvantaged groups); reducing the number of students who leave tertiary education without any qualifications; reducing the period necessary for people to complete their studies; the increase in quality of the Higher Education system by introducing more pertinent university programs for the professional environment.

As noticed, in the 2020 European Strategy, the main objective regarding the graduation rate in tertiary education - that is, the share of the population holding an academic diploma or some similar qualifications - stipulates that at least 40% of the young people between 30 and 40 years old should be graduates of the tertiary education system or of any other equivalent forms of education, by 2020. The graduation rate in tertiary education in the EU increased constantly from 22.6% in 2002 (the start year of the EU-28 series), constant yearly increases being registered. In 2014, almost 37.9% of the population between the ages of 30 and 40 had completed tertiary education, which means a rate with 0.8 percentage points higher than the one in 2013. If the proportion of young people between 30 and 40 years old with academic studies continues to grow apace with the progress made in the past years, then the main objective of 40% of the 2020 European Strategy is likely to be achieved by that date.

The role of education in achieving some social and economic goals is not obvious for the majority of the population. Equity and economic growth represent reacheable objectives with the help of the educational system, especially its university component. In one of his works, (Halász, 2015), he stated that reaching an optimal percentage between a meritocratic education system and one in which social aspects prevail is an extremely difficult process. Higher education, as a whole, represents an overall institutional system which provides high level qualifications as a result of some professional and academic training. This ensemble is made up of providers of education (academic institutions), actors (students, teaching personnel, parents, employers, etc), regulations, rules and social practices. Higher Education is organized as a market, in the very broad meaning of the term, where the suppliers of educational services provide study programs to students and potential beneficiaries at various levels (bachelor, master, doctorate). The system works mostly on the principle of supply and demand. The State is an important social actor that intervenes in the transactions between actors to remedy the disfunctions caused by the market imperfection. The intervention of the State is carried out through educational policies in Higher Education.

The transition from achieving the policies based on intuitive principles in Higher Education to their substantiation on concrete data is imperative for sustainable development of Higher Education (Burja & Burja, 2013). The specifics of the evaluation and accreditation systems in the country and abroad require this transition to ensure performance in Higher Education. Irrespective of context or area, the decisions and actions of individuals are triggered by a series of various factors, from intuition or common sense to diverse personal or group interests, as stated by some in their studies (Cooper, Levin & Campbell, 2009). Although there are numerous studies and researches of high scientific rigor that have a particular practical application in Higher Education, these have to be encouraged, and the decision-making actors must be continuously involved in all the stages of these demarches of research from description, implementation and to the analysis of results.

2. Aspects of the transition from repairing reforms to the systemic reform

The educational reform programs drafted since 1990 in Romania had a strong repairing, remediation character of some serious malfunctions. Meanwhile, in the Romanian society there had been important changes at social, cultural and technological levels. At the same time, the Romanian society has been more integrated into the processes of globalization and European integration, supporting their consequences more intensely. Education has to take into account the domestic and international changes and remodel according to them.

The reforms made so far have been designed independently for each educational subsystem. Considered separately, the sector programs of education reform made impressive progress as compared to the previous period. The analysis of these programs as a whole highlights a series of disarticulations between componentsv (Curaj et al., 2015). This is why, a transition to systemic transformation was necessary, a transition where each component of the education system be reconsidered in relation to the other components.

In this perspective, the systemic reform of education in Romania was to be achieved through the following ***actions:***

- The inclusion of lifelong learning (including its particular forms: adult or recurrent education, continuous training/formation, compensatory or "second chance" education, etc) in all global or sector development programs, both at national and regional and local levels and the focus on the development of a knowledge-based Romanian society;
- The analysis of formation/training needs, the elimination of outdated specializations, the development of professions which are deficient in the number of workers and which are culturally and economic necessary, the development of new qualifications in relation to the current and perspective requirements of the labor force market. The elaboration of a national policy of initial and continuous training, correlated with the other sector strategies and with the dynamics of the labor force market at national and international European levels will be possible by/via:
  - ✓ A better correlation of the State Higher Education with the labor force market;
  - ✓ The re-analysis of State education structure in order to optimize it;
  - ✓ A better correlation between academic specializations and the nomenclature of jobs;
  - ✓ Monitoring the way of graduates insertion into the labor market;
  - ✓ Optimizing the practice activities in the educational process; developing the vocational side in the training of specialists;
  - ✓ Broadening the content of academic qualifications so as to increase the graduates' chances onto the labor market and to lead to the release of funds and resources which contribute to the development of the quality of education for the remaining specializations.
- Clear formulation of educational policy option for mass Higher Education:
  - ✓ Defining the concept of mass Higher Education with its various forms;
  - ✓ Redefining the networking of Higher Education in relation to the mass character;
  - ✓ Redesigning the admission system;
  - ✓ Including the students into an academic route in relation with their motivations, abilities and performances;

- ✓ Modifications in the teaching methodology and in the learning facility contexts;
- ✓ Making flexible the routes of study in relation with the students interests and performances;
- ✓ Introducing the selection system throughout the studies.
  - ➢ Adopting a new *Law of social service* which forces the graduates of specific study programs to achieve a trainee-ship with duration of up to one year, in the rural and deprived areas, before receiving a diploma. The provisions of such law should also contain incentives.
  - ➢ Developing an anticipatory and creative character of Higher Education by promoting new qualifications and jobs on the labor market in relation with technical and scientific innovations. University education should come out of its relative isolation and integrate more in the dynamics of society and communities.
  - ➢ Developing university autonomy.
  - ➢ Promoting the variety of options for implementing some fundamental decisions in solving certain punctual situations. .
  - ➢ Supporting the objective process of universities concentration; the formation of large universities (by unifying the existing ones) in order to ensure the increase of efficiency and competitive capacity.
  - ➢ Integrating accredited universities, state and private, into a single national system of higher education, with two components having distinct specifications, but which cooperate to accomplish the same national targets; regulating the competition between them by offering complementary financing; integrating the two components into a unique national policy, appropriate for both the entities in the public and private law.
  - ➢ Supporting the formation of some great universities by urgently clarifying the situation of their real estate assets, in the spirit of the *Education* Law; by adopting legislation to encourage the donations made to educational institutions, by means of tax incentives, thus granting the universities a genuine independence towards these donations; by unequivocal definition of tax breaks and subsidies.
  - ➢ Supporting academic research by revitalizing master and doctoral programs; PhD programs will be redefined as research teams organized on themes, with compulsory meetings (weekly, monthly), with a file of periodic reports; research centers will focus on a limited numbers of themes where the university is competitive at international level; a significant importance will be given to the scientific councils at university level, with a limited number of members, which shall define an institutional policy and will dispose of means to implement it; scientific councils will make decisions based on the evaluations coming from colleagues and experts. Doctoral schools will be set up and centers of scientific excellence will be selected.

3. The Role of Higher Education in the Modern State

In the last two centuries, one of the fundamental missions of universities was to form elite capable to govern the State. The State accepted to fund universities because universities were in the government service, meeting with the highly qualified personnel needs for its public services. In addition, the cost of Higher Education was relatively low; it was no burden for the public budget (Măcriș & Ciurea, 2013).

The development of Higher Education in European countries during the last three-four decades has modified the main role of universities, changing them into institutions oriented towards meeting the needs of the productive system of the society, in general. The State ceased to be the main beneficiary, unique and direct, of the Higher Education system.

Private entities shall benefit, in turn, from the services and product of Higher Education. Here are some of the arguments in favor of this statement:

- ✓ *General academic training reduces the period of formation or recycling when new technologies are introduced;*

- ✓ *High productivity of educated people (especially of academic diplomats) is transferred to the other employees and has an important effect on the business as a whole;*
- ✓ *A significant part of external benefits produced by Higher Education graduates is absorbed not only by the society, in general (which actually justifies public funding), but by enterprises/businesses, too;*
- ✓ *Businesses are the first beneficiaries that take advantage directly from the scientific and technical progress achieved, at a large extent, by universities.*

There are individual benefits of university graduates, apart from the ones raised from membership to a state or public entity. One of the most important benefits is the high value of an academic diploma on labor market. In the OECD countries, the rate of participation on labor market of university graduates is with approximately 15 percent above average. At the same time, the rate of unemployment is of 4.7% for university graduates as compared to the average of 8.5%, and the salaries of those with an academic diploma are net superior to those with a lower qualification (European Commission, 2013).

The benefits granted by the labor market represent only a part of the benefits obtained by the persons with an academic diploma. Other economic and social benefits are more difficult to quantify, but everyone agrees that diplomats are not only more easily absorbed by the labor market and do earn more money, but they also have a more elevated social status, they show greater efficacy in terms of consumption, they benefit from better health and they adapt more easily to technological changes. They also have a series of cultural advantages.

4. The Radiography of Higher Education in Romania after 1990 and up to Present

In recent decades, the demand for Higher Education has steadily increased up to a point when it started to decrease considerably. In Romania, the number of students from accredited universities increased from 183.000 in 1990 to 281.386 in 2006, the historical peak being reached in 2007, when there were 907.353 students enrolled. This growth is the main factor of the financial crisis increasingly emphasized which has reached the European Higher Education since 1970.

The increase of the number of students was followed by important structural changes. There were numerous antennae of traditional universities dedicated, especially, to vocational education. The development of this type of education was done with higher costs, generally, than in traditional education. And the lack of a clearer difference between the institutions of Higher Education from a point of view of objectives and structure was also added. The Humboldtian model of university was promoted in numerous European countries as a unique system of knowledge transmission and highly competent specialists' training.

A clear trend of the Romanian Higher Education shown immediately after 1989 is that of generating a market of tertiary level educational services which try to answer, via specific and competitive offers, the continuous increasing demand for training manifested among high school graduates. Thus, the emergence of a private Higher Education, and its development in 1990, further completes the educational offer of the system. According to Ordinance No. 54 of the Ministry of National Education, starting with the university year 1998/99, they have created a legal basis regarding the access to public Higher Education with payment of a tuition fee, over the limit of places financed from the budget, thus extending the chance to meet with the continuous demand for education of high school graduates.

Another trend of the Romanian Higher Education is the diversification of the educational offer. ***This is achieved by:***

- ✓ *Structure on fields of study and specializations/majors;*
- ✓ *Diversification of the forms of organization types of units and forms of study;*

✓ *Candidates access to more specializations; in public Higher Education, the candidate admitted to more specializations on places without tax is supported by the state budget to a single institution of Higher Education;*

✓ *Students' mobility between public and private education institutions based on the transferable credits system.*

In the early 90's, the structure on the main fields of study registered important changes, by significantly restricting the option for a technical domain and the extension of the economic and academic education.
A look on the vertical, on the dynamics of the groups of students' distribution on the fields of study in the last decade, indicates (subject to some statistical reports which might not be fully accurate) the following:

- After spectacular reconfigurations occasioned by the "post-revolutionary" changes, a certain structural balance is manifested, which makes the university to react cautiously to the fluctuation on the labor market. The statement also covers private education, even if it seems to be a little more mobile. We may interpret this relative stability either in terms of inflexibility (as an extension of an immutable university tradition) or as a sign of normality of the academic evolution (university cannot and does not have to keep up the pace with the expectations, sometimes anarchic, of a less mature labor market).

- The two systems, the public and the private, seemed to have evolved in the mirror, developing certain fields of study in duality. Thus, one can compare the shares of the legal and technical-agricultural fields of the two types of education.

- In the recent years, there has been a slight increase of the economic and university fields, both in the public and private education, maintaining the percentage distribution from the mid-90s.

The recent diversification processes should have led to a decrease in the costs of Higher Education. However, the non-academic sector of Higher Education, at first oriented towards the short duration programs, has evolved through a kind of an academic switch towards increasingly longer programs, requiring, at the same time, a rise in subsidies. The negative effect of this process is the high cost and the inefficiency, as a whole, of the Higher Education system in many European countries. Thus, one can observe a permanent increase, at a large scale, of the number of students in Romania, but the analysis of the situation would not be complete if we did not report the number of students and the evolution of this number to the dimension of the academic personnel in the system and its dynamics.

It can be noticed that, according to the data in table 1, from a ratio of 14 students to a professor in 1990, a report comparable with the values from *real and prestigious* universities (11at Cambridge, 13 at Oxford in 2005-2006), the ratio rose to 23 students in 2005-2006, to 28 students in 2008 and later the ratio dropped to 15 students in 2014. This situation shows a drastic diminution of quality, which would have been bearable, but the situation is much worse than this if we considered the indicator of "net unit cost per student", which also clearly expresses a decrease in quality.

The indicator thus registers, for the fourth consecutive year, a declining value, reaching at the same time the lowest level in the last decade. The value of the indicator is determined both by the decrease (in absolute values) of the number of registration in Higher Education, as well as the increase of the number of professors, in the context of advertising new vacancies in the system.

From the perspective of ensuring quality in Higher Education, the evolution of the indicator can be considered as positive. Thus, the allocation of human resources in universities according to the needs of direct beneficiaries (the students) can be considered as constantly adequate. The evolution of the indicator value can be interpreted in correlation with the fluctuations registered within the groups of students and groups of professors. We notice that, historically, the number of registrations in universities fluctuated greatly over the last 15 years, at least in absolute values. Simultaneously, the

number of professors employed in the system fluctuated less significantly, the evolution of the number of professors being different, in terms of direction, from the evolution of the number of registered students (Vlăsceanu, et al., 2011).

As such, it cannot be stated that there would be a direct relationship or flexibility of the universities in terms of human resources management in correlation with the number of registrations. In this interpretation, the value of the indicator can signal a short-term problem of the academic system, that is the sub-utilization of the human resources employed. If we analyze the indicators in an integrated manner (including students, master students and doctorate holders), we can consider that reducing the participation to Higher Education at the undergraduate level will have as an effect, among others, a sub-utilization increasingly higher of the teaching personnel with certain teaching positions, existing in universities.

Table 1: Evolution regarding: the number of students, teachers and the students' share to a teacher

Study years	Number of students	Number of professors	Share of students per teacher (Students/1 teacher)
1990	192.810	13.927	14
1991	215.226	17.315	12
1992	235.669	18.123	13
1993	250.087	19.130	13
1994	255.162	20.452	12
1995	336.141	22.611	15
1996	354.488	23.477	15
1997	360.590	24.427	15
1998	407.720	26.013	14
1999	452.621	26.977	17
2000	533.152	27.959	19
2001	582.221	28.674	20
2002	596.297	29.619	20
2003	620.785	30.137	21
2004	650.335	30.857	21
2005	716.434	31.543	23
2006	785.506	30.583	26
2007	907.353	31.964	28
2008	891.098	31.973	28
2009	775.319	31.103	25
2010	673.001	29.746	23
2011	539.852	28.365	19
2012	464.592	27.555	17
2013	433.234	28.211	15
2014	411.229	27.772	15

Source: INSSE data – TEMPO-online processed by the author

The network of Higher Education during 2004-2005 included 117 institutions and 742 faculties where 650.3 thousands students attended the courses. In this context we distinguish:

• public Higher Education - financed from the state budget, supplementing the access of places with fees to be paid: 55 institutions with 510 faculties, where 495.0 thousands students study.

• private Higher Education: structured by 62 institutions with 232 faculties, where 155.3 thousand students study there.

In 2014, in Romania, there operated 56 public universities (state ones) and 47 private universities (private) according to the data published by the National Institute of Statistics, which were accredited or authorized to function temporarily. We take into consideration those organizations which manage programs at academic level, are accredited at institutional level according to the law and which have implicitly obtained the right to use the title of *university or any other similar name*, and where there operated 590 faculties (out of which 450 within universities funded from the state budget), 433,234 students were registered there (out of whom 353,988 were registered in the faculties from state/public universities). It should be mentioned here that the available data do not permit the identification of the exact number of unique persons registered in the universities in Romania, be them public or private. This is because a person registered in more universities can be counted several times and the Unique Registry was not operational at the date of this study. It should be noted the continuing trend of quantitative contracting of the Higher Education system in Romania. Thus, the mass trend prevalent in 1990-200 was reversed starting with the academic year 2009/2010, under the combined impact of numerical decrease of those born after 1990, of the reduction of the number of study years at the undergraduate level due to the implementation of the Bologna system starting with 2005 (with statistics effects visible in 2008 and 2009) and of the decrease of baccalaureate graduates (an effect combined with school dropout in secondary education and with the increase in exigency of the baccalaureate exam starting with 2011). It is obvious that there are more potential sources for the constant and drastic decrease of the number of registrations in the universities in Romania. The extremely low transition rate from undergraduate study programs to those of master visibly affects the rates of enrollment by age of young people at this level of education. Apparently, there is no significant statistical relationship between the absolute values of the population of secondary school graduates of the national education system and the number of registrations in the 1st year in public universities. These descriptive findings should represent the basis of some detailed studies which should correctly identify the sources of the registrations decline in the universities in Romania and which should also propose informed public policies to correct these trends.

Gradually, the negative demographic increase and the unfavorable financial caused that a larger number of potential students not to attend university courses. The decrease is extremely high, reaching only a number of 411.2 thousands students in 2014, with 45.32 % less students than in 2007. This is the largest decrease of any contingent of students within European Area of Higher Education.

The number of high school graduates who didn't manage to pass the Baccalaureate exam was continuously increasing. Thus, if in 2004, 84.54% of the students succeeded in passing the maturity exam; in 2015 only 67.9% gained the same performance. In 2012 only 43.88% managed to get the Baccalaureate diploma, while in 2013 the percentage rose a little over 45% (46.23%). These results were immediately seen, the number of candidates acceding to Higher Education being much lower.

Another element which can affect these values is represented by the number of Romanian citizens registered to universities from other Member States of the European Union. According to the data made available to the public, reported by Eurostat, approximately 37,000 Romanian citizens were registered to programs of study at bachelor or master levels at a university from another member state of the European Union. This aspect is shown in the following table:

Table 2: Romanian students registered at universities from EU member states

Years	2008	2009	2010	2011	2012
Number of Romanian citizens registered at a university in another EU country	21.267	25.077	28.578	29.159	37.228

Source: Eurostat, online database, 2016

After 1989, as the attitude of disregard towards the teachers' guild kept maintaining, an important part of the best professors left the system either by emigration or by migration to more attractive fields of activity, including to the private sector in formation. Consequently, the capacity of the academic

system was drastically reduced. Although, considering this kind of increase in the number of students (as presented in the table above), starting from a major shortage of professors, there should have appeared an increase in the number of teachers, too. Under these circumstances, the university system, logically, should have been reduced (Pricopie, et. al., 2011). Thus, we concluded that the decline of the number of Higher Education institutions should not deceive us because the number of faculties and, especially of students, continued to grow. Nevertheless, the share of population with academic studies in Romania remains one of the lowest in Europe.

Therefore, an explanation for the increase of costs also lies in the universities concern regarding the quantity and quality of the services provided: universities are concerned with the expansion and improvement of the services offered to students and to the community, in general. Finally, the private "production" system in Higher Education contributed, in its turn, to costs growth. This system has been marked to a less extent by the technology changes. In the competitive sectors of the economy, the technological changes are gradually introduced in the production system, thus having as a result a natural increase of productivity (Măcriș & Man, 2014). On the contrary, the production system of Higher Education still uses, to impressive extent, the same core technology used a century ago (courses, seminars, etc). .

Consequently, summarizing, the financial crisis of Higher Education can be described as follows:

- ✓ Higher Education turned, from an elite higher education, into a mass education;
- ✓ The costs of Higher Education have increased;
- ✓ The State ceased to be the unique beneficiary of product and services of Higher Education;
- ✓ The economic entities and their individuals benefit directly or indirectly from these services and the State is no longer interested in supporting the costs of Higher Education solely.

In order to obtain optimal educational results by managing the existing resources and in order for education to meet with the social-economic needs, it is required to take into consideration the following criteria: the increase of competition in selecting the candidates from State Higher Education; meeting with the commitments under the 2020 European Strategy framework, regarding the tertiary education indicator; using the results of the studies on graduates insertion onto the labor market; ensuring a gradual transition which should not endanger the fragile equilibrium of the Higher Education system.

However, after finalizing the project *Politics based on records and the impact on labor market force,* implemented under the Sector Operational Program Human Resources Development, it is necessary that the Single Registry can be operated after the issuance, by the Ministry of National Education and Scientific Research, of a piece of legislation which should request all Higher Education institutions to upload their groups of students to RMUR which, in addition to the facilities granted to universities in receiving the information regarding the previous educational route of the students, will allow the analysis of the correlation between the educational offer and the demands of the labor market, thus turning into an important tool in evaluating and optimizing the activity in Higher Education.

5. Conclusion

The numerous changes that have occurred in education, which has been in a permanent transformation, the latest legal regulations in education, as well as the restructuring process of the National System of Education, have led to a reorganization of the network of Higher Education institutions in Romania. Therefore, after a thorough examination of current realities in tertiary education system in Romania, resulted from consulting the specialized literature, have made us identify the main issues which represent barriers in achieving some strategic objectives and these would be the following:

- ✓ After registering a huge number of students at the beginning of the 90s, this number decreased in 2007-2008, thus forcing the universities to reassess their recruitment methods and their study programs;

✓The funding mechanisms are not sufficiently flexible to offer incentives for modernization, efficiency, innovation or equity;

✓The quality on various levels and forms of tertiary education is uneven, especially in the private tertiary education and the non-university one;

✓The correlation with the demands of the labor market has to be consolidated - especially when in terms of transversal skills;

✓ The participation to Higher Education of the young from the rural environment, of the poor population and of the minorities is inferior to that of the students coming from the city, who generally have higher income;

✓The international mobility and the experience exchanges for students and teaching staff are far beyond the European average.

Given the mentioned aspects, it is necessary to substantiate some courses of action which should be taken into consideration by the national strategy for the development of participation, quality and efficiency in tertiary education, based on the following considerations: Romania is engaged in harnessing the opportunities granted by the European Union and the Member States and it uses the basic documents and the political directives of the EU in developing these actions; Romania uses the best practices to build a relevant, efficient and effective tertiary education on short, medium and long-term; Romania is engaged in developing tertiary education as an important tool in the general strategy of social-economic development, thus supporting all other development plans and initiatives of the State, especially, the National Reform Program, the National Strategy for Competitiveness 2015-2020 and the Innovation-Research-Development Strategy.

Another finding, highlighted both by the developments in the last years and the international comparisons, refers to the aggravation of the chronic sub-funding of the Higher Education system in Romania. Although in 2014 the funding from the state budget of Higher Education improved in nominal terms, the growth was lower than the inflation and totally insufficient in relation to the financial needs/obligations of the universities. However, even worse than that is the fact that the income earned by the universities from extra-budgetary sources were limited by the decrease of the number of fee-paying students, which made the institutions of Higher Education depend, to a large extent, by the allocations from the State budget. The uncertainties and the insufficient volume of the funding, on the whole, affect negatively the quality of Higher Education and the competitiveness of universities in Romania on medium and long-term, undermining the chances of sustainable development of the Romanian society in the 21st century. This is why, it is important to strengthen and improve the mechanisms for a correct and efficient exploitation of existing resources so that it should be accompanied by the existence, at national level, of a coherent strategy and of a set of priorities for the long-term development of the Higher Education system in Romania. Despite the inherent limitations of any study, the issues approached along the study represent only a part of the researched field, but of vital importance for the future of the Romanian Higher Education to achieve the strategic objectives of the European Union.

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The Impact of the Automotive Sector on Sustainable Development

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Abstract

This paper examines the impact of vehicles on sustainable development in Romania. Public data are used to assess the trajectory of vehicle categories and types of fuel. It also contains the evolution of electric vehicles that are perceived as key technology in the automotive industry that contributes to sustainable development by reducing emissions of greenhouse gas emissions, less pollution nationally and internationally and new employment opportunities with positive social impact. The automotive industry is one of the major polluters among national sectors. This pollution is analysed in terms of greenhouse gas emissions and climate change. Sustainable development involves balance in the use of resources so that future generations have the same resources as today. The climate change is a concern now because there have been a number of changes globally. Therefore, the paper analyses the impact of the automotive industry, the evolution of the number of vehicles and CO_2 emissions on sustainable development. In this analysis we used statistical data, public data and experimental data (through visits at the automotive companies). In the end, the analysis conclusions are presented.

Keywords: Sustainable development, automotive, greenhouse gas emissions, environmental pollution.

Introduction

The relationship between business and sustainable development (SD) has become one of the central debates in countries that have already experienced industrialization and those that are currently under development (). It is obvious that in some respects business models may be inadequate and insufficient to meet the challenge of sustainability (Babut et al., 2011). Therefore, the conferences and debates that took place over time have established directions and indicators. When we speak of SD, the three responsibilities that need to be analysed are: environment, social and economic. Developing a balance between these responsibilities contributes to sustainable development (Fuller and Morgan, 2010; Dammenhain and Ulmer, 2012). The present paper, mainly addresses environmental responsibility and the impact vehicles have on the environment. This impact is analysed in terms of the number of vehicles and gas emissions. These emissions contribute to global climate change. Addressing climate change from the SD perspective becomes imminent (Ivascu and Cioca, 2015).

Climate change is a current problem, including the following phenomena: changing seasons, rainfall patterns are changing, glaciers and snow melt, and the average global sea level rise annually. Individually assessing these phenomena it can be said that the climate change represents the increase of the average temperature at Earth's surface. A scientific consensus supports that climate change is primarily due to human use of fossil fuels, which releases carbon dioxide and other greenhouse gases (GHG) in the atmosphere. Greenhouse gases have a number of negative effects on ecosystems, including the sea level rise, severe weather events, droughts and landscapes more susceptible to fires (Skippon et al., 2012). These effects are felt globally.

Climate change

Globally, the annual average temperature of Earth increased by 1.4 ° F over the past century and is expected to rise to 11.5 ° F, if we maintain the current level of consumption and intensity of activities in various fields. These are not high values, but the average temperature during the last ice age must be considered which was about 4 ° F lower than it is today.

The Intergovernmental Panel on Climate Change (IPCC), released in the last decade a number of important reports which highlight the complexities that climate change causes in the world as a whole and in different regions and locations of the world. Under the "Report of Global Assessment of Climate Change (AR5), number 5" developed by the IPCC (Intergovernmental Panel on Climate Change) it is presented in a complex way the last results and scientific discussion about the causes of climate change and its impact on short, medium and long-term. In the report there were analysed also various options for adaptation to climate change and emission reduction, including specific interdependencies specific to the sustainable development of society, given the socio-economic and scientific issues relevant on long-term (IPCC, 2016).

Earth's atmosphere is made up of water vapour (H_2O), carbon dioxide (CO_2), ozone (O_3), methane (CH_4), nitrous oxide (N_2O) and sulphur hexafluoride (SF_6), which are part of gas greenhouse effect category. The most common five greenhouse gases (IPCC, 2016) that occur naturally are:

 Water vapour (H_2O): Amount of water in the atmosphere increases at the same time with the temperature of the surface. People do not directly influence the amount of water vapours in the atmosphere, rising temperatures due to the activities of humans causes increase in the concentration of water vapours.

 Carbon dioxide (CO_2) is increasing in the atmosphere due to fossil fuel burning processes, rotting processes, animal life processes, and the process of plant development.

 Methane (CH_4) retains heat at an intense pace, making it a very powerful greenhouse gas. It occurs where organic matter rots in a space where there is no oxygen.

 Ozone (O_3): This is naturally in the stratosphere and plays an important role in protecting the Earth from ultraviolet rays. It represents around 2% of GHGs.

 The hydrocarbon group are chemicals produced by people who have a significant share in the greenhouse gas category.

Of these GHGs, the automotive sector generates a large amount of CO_2 that contributes to climate change and thus have an effect on the environment.

International steps

COP21 (Conference of the parties) is the 21th United Nations conference on climate change, which took place from 30 November to 11 December 2015 in Paris, is the most current action in this direction. In this summit, 195 countries have adopted the first universal agreement in this process of global warming (Sustainable Innovation Forum, 2016). The conclusions of this meeting are:

 Increasing global temperature to 2 ° C above pre-industrial levels and sustained efforts to limit the increase to 1.5 ° C;

 In terms of reducing "global emissions limit" this must be reached "as soon as possible" of all countries;

 The agreement stresses that developed countries can support those affected by major weather changes. Technology transfer is an effective way to combat the consequences of global warming;

 From a financial perspective, the agreement establishes the collective target of allocating 100 billion dollars since 2020 for loans and donations to allow the support of those worst affected (in terms of drought, floods, rising sea levels, et al.) to adapt to climate change and / or reduce emissions of greenhouse gases. Some developing countries could on a "voluntarily" base provide support to the poorest countries;

 In promoting transparency, this approach introduces a mechanism for monitoring the commitments every five years since 2025 (agreement becomes valid in 2020). A first meeting between the parties has been established in 2018 to assess progress towards achieving the objectives set;

 Carbon price has been another area of interest. The agreement underlines the desirability of a structured framework to encourage stakeholders to reduce their emissions.

So COP21 Paris 2015 kicked off a fundamental change in humanity, based on evolution. This summit is a reference for all countries that contribute to reducing GHG and thus to halt climate change globally. All these actions are undertaken in order to sustainable develop.

Climate change in Romania

The reduction of GHG in Romania has already started. Romania has halved emissions of greenhouse gases (GHG) in recent years, being actively involved in various activities which have contributed to the objective (European Environment, 2015). In our country, sulphur dioxide emissions fell by around 48% and NOx emissions are down almost 30%. Research points to certain signals produced in Romania, supporting this hypothesis of climate change (European Environment, 2015):
 Frequent appearance of non-specific weather events to climate in Romania;
 Climate aridity, registration of extremes temperature and heavy rain;
 Very intense and frequent rain which have a significant impact - 285 mm rain fallen in 30 hours in Bucharest in 2005;
 Increased duration of dry periods, especially during the summer;
Recording a catastrophic flood frequency of 6 / year;
 Increasing the maximum annual flow on the Danube approximately 1,200 m / s;
 Glacier Scărişoara is decreasing by 150 cm in the past 100 years;
 Black Sea level has risen every year;
 There is alternation between dry and rainy periods.

So climate change is felt in Romania, so the reduction of GHG is supported nationally by actions and steps. In Romania, the most polluting sector is energy, followed by transport and construction (NIS, 2016). The transport sector is one of the pollutants factors, thus this paper shows the impact of the automotive sector in terms of number of vehicles registered, the number of electric cars and CO_2 emissions (Cioca et al., 2015).

Automotive sector in Romania

Evolution of automotive sector in Romania is linked to influential factors related to the financial dynamics, the unemployment rate as a factor for weakening demand, reputation and experience of carmakers on the Romanian market, fees paid to register new and used vehicles, the concentration of population, the degree of openness of authorities towards worldwide existing competitors to help the industry, the availability of loans to finance durable goods, including cars and other factors. In late 2014, the situation of registered vehicles based on fuel types is presented in Table 1. Note that buses and minibuses sector recorded a smooth decrease in 2013-2014, due to lower passenger levels. Trucks category also recorded a decrease in the number of vehicles registered, a contribution to this decline is done by the financial institutions that no longer offer loans as easily as in previous years.

An increasing number of vehicles can be found in cars category, which registers more cars annually. The largest share is held by gasoline cars because registration fees and national taxes are lower. Instead, the companies buy diesel cars because of the high number of kilometres (Taticchi et al., 2014). For diesel cars, the highest consumption is recorded and therefore they have the highest rate of pollution (Kim et al., 2014; Seurin, 2013). There is a higher demand for electric cars in 2014 registering 30% more vehicles than in 2013.

Table 1: Number of Romanian registered vehicles (Source: INSSE)

Category	Fuel Type	2010	2011	2012	2013	2014
Buses and minibuses	Petrol	154	146	141	135	132
	Diesel	40647	40650	41778	42607	44052
	Electricity	0	0	0	1	2
	Liquefied Petroleum Gas	76	91	91	93	93
	Natural gas	0	0	0	0	4
Total		40877	40887	42010	42836	44283
Cars	Petrol	2990858	2952375	3005229	3086276	3161031
	Diesel	1327836	1380805	1480137	1606356	1741719
	Electricity	812	1077	1472	2042	2737
	Liquefied Petroleum Gas	28	57	121	595	1557
	Natural gas	166	213	288	384	512
Total		4319701	4334547	4487251	4695660	4907564
Mopeds and motorcycles	Total	85171	90082	95450	101622	107338
Trucks	Petrol	145203	140466	136543	132868	129286
	Diesel	490867	525509	505667	543681	582940
	Electricity	2	3	4	20	23
	Liquefied Petroleum Gas	3	6	11	15	22
	Natural gas	2	6	16	23	45
Total		636077	665990	642241	676607	712317

Evolution of the number of vehicles per category in the period 2010-2014 is presented in Figure 1 (a). It is noticed that cars category recorded the highest share in total registered vehicles and truck lowest number. Figure 1 (b) provides the evolution of the number of vehicles, totalling categories. In 2014 there were registered 14% more vehicles, the highest rate is recorded in the cars category. It can be concluded that the category cars emits a high level of GHG.

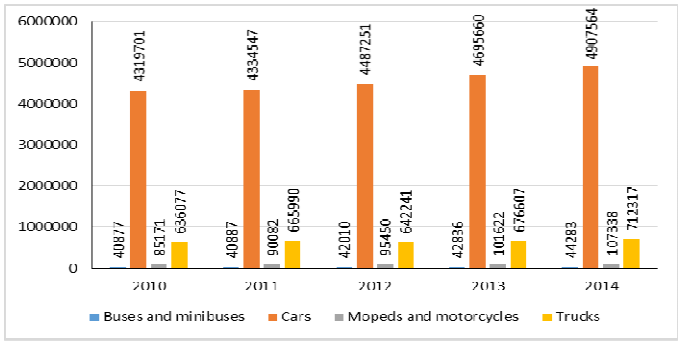

Fig 1(a): Evolution of vehicles by category registered in the period 2010-2014 in Romania (Source : INSSE)

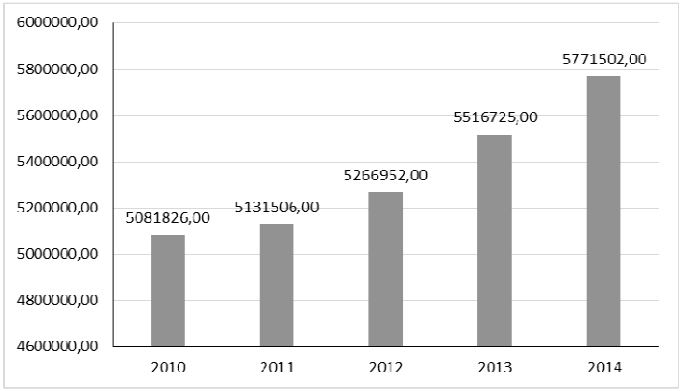

Fig 1(b): Evolution of the total number of vehicles registered in the period 2010-2014 in Romania (Source : INSSE)

According to INSSE, 2016, the automotive sector has consumed in 2013, 5.7 million tons of fuel, and in 2014 the volume increased. To quantify CO_2 emissions there were used mainly standard IPCC conversion factors for final energy consumptions analysed. These factors are shown in Table 2. Using the conversion factors afferent for gasoline and diesel, Figure 2 shows the CO_2 emissions recorded in these two sectors.

Table 2: The Conversion factors (Source: IPPC)

Fuel	Conversion factors used tons CO_2	Source
Petrol	0,249	Standard Factor IPCC
Diesel	0,267	Standard Factor IPCC
Electricity	0,701	Standard Factor IPCC
Liquefied Petroleum Gas	0,231	Standard Factor IPCC
Natural gas	0,202	Standard Factor IPCC

Since most cars use petrol and diesel as fuel, Figure 2 shows the CO_2 emissions in these two categories. Total CO_2 emissions in 2014 are 1.54875 million tons CO_2 / year, representing a high level. By motivating the population, residents could use public transport or to purchase electric cars. The cost of an electric car is high compared to the national level.

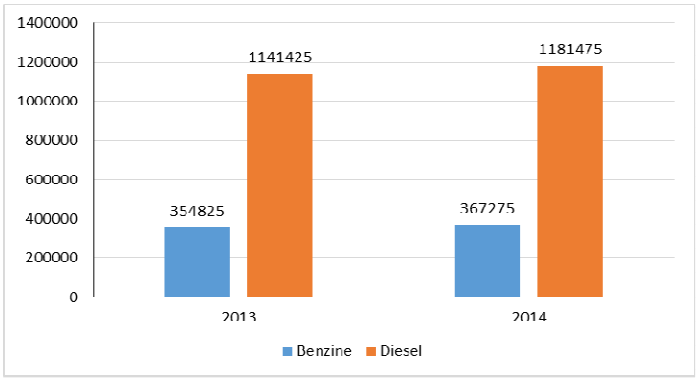

Fig. 2: CO_2 emissions for the petrol and diesel cars (tons / year)

In Figure 3 presents the evolution electric cars that were registered in Romania, as only this recorded a significant number. Category buses and minibuses and truck have a very small number of electric units, zero even in the earlier period. In the cars category, it is observed that their number represents 0.05% of the total number of cars registered, and the trend of the number of vehicles registered is an upward one. In 2014 there were registered 3.5 times more electric cars than in 2008.

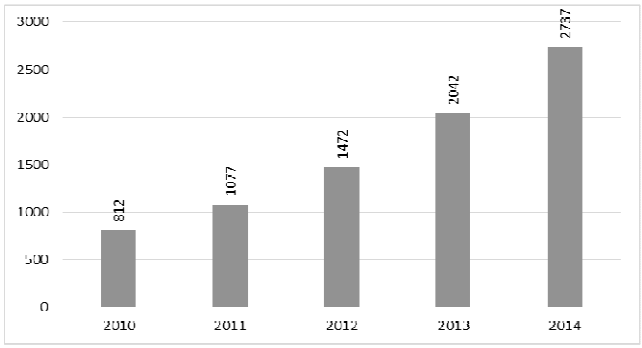

Fig. 3: Evolution of the number of electric cars in Romania (Source : INSSE)

The number of electric charging stations in Romania is about 45 stations, these being found mainly in larger cities. Therefore, users of these electric cars must adjust their traffic route depending on the positioning of the charging station. Map loading station is shown in Figure 4.

Fig. 4: Map of charging stations in Romania (Website, Electric car)

Technological evolution has contributed to the development of these electric vehicles so they lead to a variety of challenges and opportunities for national and international economic development (Gunther et al., 2014). While the electric vehicle market is still at an early stage of development, companies are prepared in addressing the opportunities and communities around the world (Ilgin and Gupta, 2010).

The potential benefits that these electric vehicles have on sustainable development are:

 Creating new jobs: although the oil industry would lose jobs, jobs will be created in industries closely related to auto manufacturing: advanced batteries, technology, research and development. Moreover, electric vehicles are cheaper to use than conventional ones. Drivers who will purchase electric vehicles will have more income available to spend in other sectors of the economy such as housing and services.
 Improving infrastructure leading to increased quality of life: reducing costs with pollution can contribute to improving infrastructure.
 Reducing oil imports: reducing the consumption of conventional fuels contribute to the reduction of their sale.
 Falling prices: reducing the cost of vehicles leads to lower prices on various sectors.
 Reducing GHG emissions: increase quality of life by reducing pollution.

Conclusions

The number of vehicles in Romania is increasing due to improving living conditions. Therefore, the level of GHG will be increasing and therefore new solutions should be provided to decrease GHG emissions, without compromising quality of life. Evolution of electric cars in Romania has an upward

trajectory, registering in recent years more and more such vehicles. Given this sector we can conclude the following:

• The number of vehicles registered is increasing leading to an increased degree of pollution;

• In Romania there are incorporated many used cars as a result of lower prices, so with higher levels of air pollution.

• CO_2 emission level is rising (see Figure 2);

• The number of charging stations is low and is concentrated in major cities in Romania (see Figure 4);

• The routes of the ones owning such electric cars need to be adapted depending on the positioning of the charging station;

• The autonomy of electric cars is not a strong pillar in this technology.

The infrastructure in Romania is at an acceptable level, but can be vastly improved (only 228 kilometres of highways and 21,500 km of national roads and local roads out of about 80 thousand kilometres in 2006). Public roads density is low (33.5 kilometres per 100 square kilometres in 2005 compared to the EU25 average 110.1 km per 100 square km in 2003) lead to increase distance and travel time, the excessive fuel consumption, with adverse environmental effects, and a large number of accidents (753 deaths per 1 million registered cars in circulation), well above the EU average who register 189 cases (INSSE, 2016).

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Strengthening the Social Safety Net for Older People in Malaysia

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Abstract

There are a number of social security schemes and institutions in Malaysia but not all has the ability to address the long term financial commitments and provides the security during the old age. High in inflation rates, global economic growth and changes in employment and social structure have contributed in raising serious concerns on the efficiency of the current social safety net especially when the number of older people has increased due to the increase in life expectancy. An effective social safety net should be able to protect the welfare of a person at their old age and the existing social safety net in Malaysia is not sufficient. Hence, this paper examines the current social safety net in Malaysia for the older people and analyses the efficiency of protection provided. This paper further discusses the social safety net provided in other jurisdictions specifically in Japan and Singapore. In fact, this paper used the qualitative legal research methodology specifically a comparative and analytical research approach on the social safety net for older people in Malaysia by reference to the social safety nets as developed in these jurisdictions. The objective of this paper is whether to recommend an additional measure to be added to strengthen the current social safety net to ensure that welfare of Malaysians is well protected during their old age.

Key words: safety net; old age; social security

Introduction

According to a new World Bank Report, Asia Pacific region is faster in aging than other parts of the world and this could lead to a decline in the size of workforce in the nation and increase in spending on pensions and health care in coming decades. The older population grows by 22 percent in every five years in East Asia and Malaysia is one of the countries.[i] The higher the older population is in a country, the higher in demand of public spending. Though it is normal for rich countries to spend more on public services, the number of older people Malaysia will have in the next five to ten years is alarming and there is an urgent need for the country to review the efficiency of existing social safety nets for older people.

The pace of ageing in Asia Pacific Region varies; some countries have older population comprising as much as 14% of the total population like in Japan, Korea and Singapore whereas there are some other countries with an average of 4% of the total population like in Myanmar, Philippines and Laos. Malaysia is expected to be in the former category of 14% of ageing population by the year 2020 and thus social safety net for older people in Japan being with the highest number of older people and Singapore being the neighbouring country with the similar system of law will be examined in order to suggest the best practice to be introduced in Malaysia. Most of the older people in Malaysia are left in rural areas as their children have moved to urban areas in search of better paid jobs and hence they depend on their own instead of their family and state support. Though it is expected that the state will play a better role in supporting the older people, how the state meets that expectation is a key social and political challenge in the coming year. Hence it is the best for older people to have their own social safety net without depending much on their children and the Government.

However, the existing social safety net in Malaysia is not sufficient to cover the people at their old age and thus it is imperative to identify the best alternative option to be introduced by examining the practice in other countries.

1. Social Security for Older People in Malaysia

Social Security System is a system which protects and supports the people by providing necessary assistance during the time of poverty, unemployment, illness, injury, aging and etc. There are many social security schemes in Malaysia providing the foundation for universal social protection comprising of different social protections. Among them, public pension system for civil servants and Employee Provident Fund (EPF) for those is private sector provide income security during the retirement. In fact, Malaysia Government gives RM300 per month as financial assistance to those above 60 years old and do not have family and fixed income.[ii] However, these measures are not sufficient to shield the rapid growth of older persons in the country.

Nearly half of government's spending has been towards the welfare of elderly people and thus the increase in number of elderly people in the country indeed pose the challenges to the Government in spending public finances. It is vital that every citizen in their old age has access to healthcare, and should not pressure on the public health system of the Government. Hence it is important that those who can afford should rely on private health insurance in order for the Government to be able to provide quality assistance to those who cannot afford it.

There are a number of social security schemes and institutions in Malaysia but not all has the ability to address the long term financial commitments and provides the security during the old age. Among them, the Employees' Provident Fund (EPF) which was formed under Employees Provident Fund Act 1991 is a compulsory savings scheme for those who are in Private Sector and one of the main objectives is to provide retirement benefits for its members. It acts as retirement savings for all those who are in private sector and manages the fund which is based on the income of individual savings and contributed both by employers and employees. In addition to this, EPF also ensures that the fund is growing over the years. The fund has three accounts, namely, Account I, Account II and Account II. Savings from all these accounts can be fully withdrawn when a member is deceased, incapacitated or leaves for permanent residency outside the country. Funds in Account I which constitutes 60% of monthly contribution is meant to be used after the retirement period and members are not allowed to withdraw until the age of 55 years old. Members are also allowed to invest a portion of their savings in this Account I in funds approved by the Ministry of Finance.

For those who are in Public Sector i.e. Government's servants have different type of scheme known as old age pension scheme under the Government Pension Ordinance 1951. This is a non-contributory scheme applicable to the employees of the government, semi-government agencies, local authorities and statutory bodies. It provides security for the retirement age. Civil servants are also entitled to receive the payment of gratuity based on the year of service. In some agencies, they are also eligible to receive certain payment known as a 'golden hand shake'. Hence, a considerable amount of savings is available for civil servants in addition to pensions. There is also another old age benefit scheme under the Armed Forces Fund Act 1973 but it is only for military personnel. Government has also introduced several schemes for those who are self-employed in order to assist the hard-core poor to venture into income generating activities through micro-credit facilities.

Currently these are the only social safety net available to give coverage for the old age. Recently EPF introduced a new type of saving called as PRS (Private Retirement Schemes). However, contribution for this fund is voluntary basis for those aged 18 and above and it is managed by private intermediaries approved by the Securities Commission of Malaysia. Since it is voluntary basis, not everyone has contributed to this scheme.

Since the time of establishment of EPF on the 1st of October 1951, full withdrawal age is maintained at the age of 55 whereas the life expectancy of Malaysians has increased to age 75. This means that the amount of EPF savings is not sufficient and does not last for these 20 years of old age.

2. Measures taken by Malaysian Government

EPF scheme does not cover to those self-employed, house-wives and without a fixed income. This category of people does not have a formal social safety net since they are neither covered by EPF not Pension Scheme for Public Sector Employees. Government has introduced 1 Malaysia Retirement Savings Scheme (SP1M) for this category people in order to get protection during their old age. This Scheme is designed to encourage this category of people to contribute voluntarily based on their affordability for their old age. The contribution can be as little as RM50 with a maximum amount of RM60,000 a year. Members of this scheme are entitled to receive annual dividend that is subject to a minimum dividend rate of 2.5% and eligible to receive Death Benefit (RM2,500) and an Incapacitation Benefit (RM5,000), subject to terms and conditions. To encourage saving, Government gives tax exemption up to RM6,000 per year (with life insurance) and contributes 10% per year subject to a maximum amount of RM120 per year. However, this contribution from the Government is only for the period of four (4) years beginning from 2014-2017 and limited to members below age 55.

In addition to this, Government has extended the minimum retirement age to 60 years old beginning from January 2013.

3. Social Security Net for Older People in Japan

The population in Japan has declined in recent years and the proportion of elder people has reached the highest level in the world as the life expectancy is high. Hence, the social security plays a vital role in maintaining the older people in the society. There are different types of social security system in Japan; pensions, health and long-term care insurance, public assistance, family policy, policy for people with disabilities and etc. and most of it adopt the social insurance system. The table below explains the social security for old age:

Scheme	Finance	Benefit		Type of Function
		In-kind	In-cash	
Public pension	Social insurance		In cash	Old age, survivors
Long-term care insurance	Social Insurance	In -kind		Old age

Table 1[iii]

The main characteristic of Japan's Social Security is that it is compulsory for all citizens to register in the public pension and health insurance programmes. Those above the age of 40 years old have to be covered by the long-term care insurance, and other employment related insurances; employment insurance and work-related accident insurance. These social insurances are to be borne by social insurance premiums and supplemented by the tax revenue in the forms of subsidy. The premium is paid by the insured based on their income. The rest of the schemes are financed from the public fund (Tax).

Public Pension consists of public and private pension schemes based on whether governmental or non-governmental servants. Pension system for those are in private sectors has three tires; Basic Pension, Employees' Pension Insurance and Optional Scheme.

The first tier, Basic Pension is universal since it covers all residents 20 years old and above. It is mandatory and provides a basic income guarantee for old age. The Basic Pension for those who are self-employed, farmers and unemployed is called as the National Pension and operated by the Government. The Premium for National Pension is paid by the insured only and is a flat rate for all. All of administrative costs and 50% of benefits are subsidised by the government.

The second tier, Employees' Pension Insurance is mandatory to all corporations over a certain size and the premium is shared by employers and employees. This is something akin to Employees Provident Fund in Malaysia. This covers most employees and the premium is shared by employers and employees based on the income. Both Basic Pension and Employees' Pension Insurance are operated by the government.

The third tier, Optional Scheme, is operated either by private corporations (employers) for their employees in the form of Employees' Pension Funds or by the National Pension Fund for those who are self-employed in which the government is the insurer. The Employees' Pension Funds unlike in Malaysia are operated employers and a large portion of it comes from the Employees' Pension Insurance. This Employees' Pension Insurance is the core of the income security for the old age and all workplaces with more than five employees are required to participate in this scheme. The premium has to be contributed both by the employers and employees based on income.
Whereas Pension System for civil servants is called as Mutual Aid Pensions which covers both Basic Pension; the first tier and the income-related; the second tier. In summary, the entire adult population of Japan is covered either by the Basic Pension and added by either Employees' Pension Insurance or the National Pension Plan for Public Sector and the Mutual Aid Pensions for Private Sector.

There are other types of personal pensions by private insurance corporations and trust banks, however do not fall under this category of a social security system and thus will not be discussed in this paper. A number of reforms have taken place in line with changing life-styles and continuing recessions of global economy affecting Japan. Currently 83.9% of Japanese corporations offer retirement packages for their employees. This package can be either in the form of one time lump-sum payment or a life-long or limited duration of payment.

The Long Term Care Insurance which is particularly designed to support for old age independence is user-oriented social insurance system. This provides coverage of comprehensive health, medical and welfare services. As stated above it is compulsory for those above the age of 40 years old to get insured. The insurers are those who have been engaged in health and welfare services for the elderly and expected to deliver services in harmony with community's social values. They play the role of collecting the insurance premiums, managing the fund, assessing the care needed and settling the payments to service providers. Hence they work with the government, prefectures, medical and pension insurers. There are two categories of insured; (i) those who are aged 65 and above; Category I and (ii) those who are 40 to 64 years old; Category II. Premium is based on income and there are measures to lessen the burden of low-income persons. Premium is deducted from pensions for Category I and from health insurance for Category II. The cost incurred in this Insurance is borne 50% by premiums and 50% by public expenditure.

There are different layers of social security provided for older people and yet the social security system in Japan has to undergone a number of reforms to meet the evolving needs and challenges faced by the older people in the country.

4. Findings and Recommendations

Retirement is an increasingly active phase of life where people should be taking personal responsibility for their own wellbeing by working, saving and looking after their health. If they have opportunities to continue contributing to society by working longer or volunteering in their communities, they should be doing so.

EPF was set up to provide coverage for people at their old age, it does not seem to fulfil the purpose. Sixty nine percent of EPF members aged 54 in 2013 are found to have savings below RM50,000.[iv] 50% of retirees have exhausted their EPF savings within 5 years. Majority of members have withdrawn their savings at the age of 55.[v]

EPF has introduced a number of initiatives to assist members to increase in their savings and discouraged members from depleting all of their savings in a short period of time. Under these new initiatives, members are encouraged to increase their savings in Account 1 from 60% to 70%. EPF also introduced the Age 55 Years Withdrawal, a flexible withdrawal facility that gives members the option to withdraw their savings lump sum or monthly, partially or a combination of the options and extended the contribution (mandatory) age from 55 to 75 for members who are still in employment. In January 2014, EPF revises the Basic Savings, setting RM196,800 as the minimum amount members should have in their EPF accounts then they reach age 55.

Despite all these efforts by the EPF, the research found that Malaysians do not have enough saving for their old age. Since the fund is compulsory only for those under employment and based on the income contributed by the employers and employees, unemployed and self-employed are not covered by this saving scheme. And hence unemployed and self-employed are left with no social coverage unless they have savings on individual basis. Even those who have EPF savings tend to use up their savings within first few years of withdrawal and resulted with no social safety net for them.

It is evident that EPF savings alone is not sufficient for a person to cover their old age. This insufficient savings for old age is as a result of a number of reasons; longer lifespan, low salary, early retirement, paying children's tertiary education fees and changing of social and economic trends and national development. Even if an individual with high salary having a big EPF savings may be left with a little amount of money at their old age since most of them have used up the savings for the education of their children. Hence children's education is one of the main factors in depleting the EPF savings for the old age. In addition to this, there is no other saving scheme like insurance based savings like in Japan unless it is initiated by an individual himself. Most of the time, people are unaware or do not realise the importance of savings for the old age. This factor is very crucial to those who are in the middle and lower income groups. Hence, accessibility to education is a very important factor.

Hence in addition to the current practice of EPF, there should an additional layer of social security scheme for old age by introducing savings based on insurance principles, something equivalent to what Japan has introduced to strengthen the social safety net for old age. At the same time Government needs to create more awareness on the importance of savings for the old age.

If insurance system is introduced, every individual who can afford will be covered under the insurance and this in turn will reduce the burden on the government and the government can provide a better quality service to those who cannot afford. Thus this will reduce the burden on the government and at the same time, it guarantees a better life for those who cannot afford it. There should be improvement in recruitment and retention of an aging workforce since working longer can benefit individuals, business, society and the economy. Government should set out new actions to heal people have fuller working lives. The role involves challenging outdated perceptions and making the case for older workers within the business community.

Pension age can help support the financial, health and social well-being of individuals into later life. It is important for the economy of the country, for employers and for individuals to make sure that old aged people can continue to afford pensions. Retiring at 55 instead of 65 could reduce an average earner's pension pot by a third- they would also have to spread this over a much longer retirement. By raising the pension age, it will help maintain a sustainable balance between the proportions of workers and retired people. We also have to remove the default retirement age, so in most cases employers can no longer force employees to retire just because they reach the arbitrary age of 65. Another way is helping older people get online to ensure that older people are not left behind and are able to benefit fully from the increased independence that comes with digital competence.

Since EPF is based on income contribution from employees and employers, those who are not working are normally not covered under this scheme. Though Government has introduced 1 Malaysia Retirement Savings Scheme for this group people, it is on voluntary basis and the participation is very low. Hence there should be one basic saving scheme who cover all citizens regardless their employment status.

In summary, it is recommended to introduce the followings to strengthen the current social safety scheme in Malaysia:

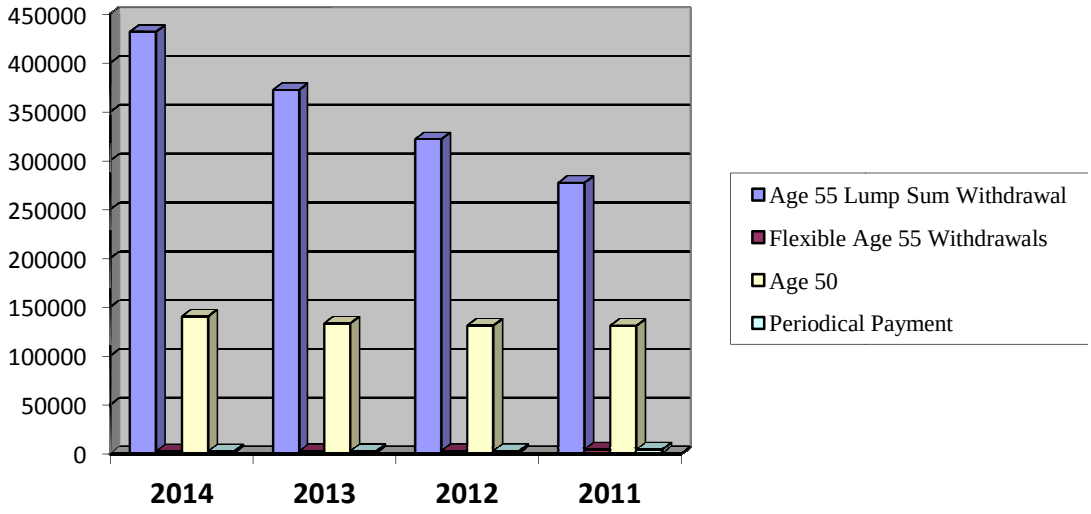
(1) Universal Basic Pension Plan: To make mandatory to all those above the age of 18 to be registered into a Basic Saving Plan like what Japan has introduced for all their citizens. With this plan, nobody will be left out from the social safety net for old age.

(2) Insurance Based Saving: This plan will an additional security measure in case there is no sufficient savings in EPF or the amount in EPF has been exhausted before the old age.

Introducing the above schemes into the existing social safety net will assist to lessen the burden on the Government in providing assistance to old age people and improve the quality of assistance provided to those needy people.

5. Conclusion

Malaysia may be headed for a retirement crisis as tens of thousands of Malaysians depart the workforce for their golden years with less saving than is needed to keep them out of poverty.[vi]



Breakdown of EPF withdrawals for the year 2014[vii]

Based on this statistic, it can be seen clearly that most members opted to withdraw whole sum of savings at the age of 55 and the percentage of withdrawal has been increased in recent years. Only less than 1% has opted for periodic payment over the years. Based on the Annual Report of EPF 2014, majority of members have an average savings of less than RM167,000 which is lower than the minimum saving level set by EPF at RM196,800. It is more alarming to find out that 69% of members have less than RM50,000 in their account and only 31% of members are still at work at the age of 54. Only 54% of members have less than RM20,000 in their account and evidently this amount of savings is not sufficient to support for 20 years after the retirement. In summary, most Malaysians do not have sufficient savings for their old age.

Currently only about 10 to 20 percent of Malaysians are considering non-mandatory retirement savings and investments to be added as a safety net for their old age in addition to their EPF contributions. EPF has implemented measures to enhance members' savings for their old age by increasing the mandatory contribution, introducing the PRS (Private Retirement Scheme) in 2012 as a voluntary long-term investment scheme for old age and encouraging members to opt to for flexible Age 55 withdrawal to choose partial or a monthly payment to lump-sum withdrawal of the savings. Still all these measures are not sufficient to shield the Malaysians during the old age and hence it is strongly recommended to introduce insurance scheme of savings like in Japan as an additional social safety net to strengthen the existing social safety net for old age in Malaysia. In addition to this, minimum wage should be increased and retirement age should be increased to 65 years old in view of increasing life expectancy and living cost.

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SME Family Business Innovation in Romania

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Abstract (10 pt)

Change management and innovation is an important issue for the development of SMEs in Romania. However, only a few scientific papers in Romanian academic world address the subject of how resources and capabilities influence change processes and results small and medium family companies. We develop a series of postulates regarding peculiarities of change and innovation in these type of enterprises.

Keywords: entrepreneurship, change, innovation, family business

Introduction

Interest in small- and medium-sized enterprise family business continues to grow among academics as the dominance of family businesses on the economic landscape of most nations persists (Sharma, 2004), and the prevalence and importance of smaller family businesses is increasingly acknowledged (Le Breton-Miller and Miller, 2008; Richbell et al., 2006). In this paper, we are particularly interested in entrepreneurial SME family businesses and the critical role of innovation in such businesses (Kraus et al., 2012). Prior research has highlighted the necessity of innovation not only to recognize and exploit new opportunities but equally to refine current opportunities for the continued success of family businesses across multiple generations (Kellermanns et al., 2012; Naldi et al., 2007).

There are a number of research streams that have explored innovation within family businesses in various ways (Craig and Dibrell, 2006; Craig and Moores, 2006; Kellermanns and Eddleston, 2006; Kellermanns et al., 2012). Drawing on a developing body of work, we argue that there are some key differences between family and non-family businesses which may impact how such businesses innovate (Kraus et al., 2012) and that these differences may be further heightened within small- and medium-sized businesses compared to their corporate counterparts (Ceptureanu SI et al, 2015a).

The issue posed by Sharma and Salvato (2011) is particularly resonant to this paper: "What factors enable some family firms to display a remarkable agility in innovating in a sustainable way across generations?" This question has been explored by some researchers through the construct of entrepreneurial orientation (Nordqvist et al., 2008; Zellweger et al., 2010, Ceptureanu EG et al, 2012), by others considering specific sets of resources and capabilities within family businesses promote and/or constrain innovative and entrepreneurial activities (Sirmon and Hitt, 2003) and others specially exploring the notion of the family effect or "familiness" (Habbershon, 2006). According to Habbershon (2006), the social capital created by the notion of "familiness" is a key contributor to family businesses behaving entrepreneurially and innovatively.

More recently, Patel and Fiet (2011) have suggested, that family businesses have some particular advantages over their non-family counterparts with respect to discovering new opportunities through a combination of some of the common family business characteristics such as long-term orientation, low staff turnover, long leader tenure, and family ties that may lead to this advantage (Patel and Fiet, 2011).

This line of research inquiry encourages consideration of some of the business dynamics (even if arguably these dynamics might be influenced by something akin to "familiness") rather than the focus being primarily, or exclusively, on the family (Ceptureanu EG, 2015a). We argue that what is needed is an approach that does not privilege the family and/or the business or indeed the external environment when trying to understand innovation within entrepreneurial family SMEs (Nicolescu et al, 2009).

Theoretical Background

Innovation was identified by Schumpter as one of the key aspects of the entrepreneurial process. A Schumpeterian view of innovation focuses on how businesses manage their resources over time and develop capabilities that foster innovation (Schumpeter, 1934). Central to Schumpeter's theorising of innovation is the notion of combinations, whereby the "carrying out of new combinations" through existing elements or resources being combined or recombined characterises a Schumpeterian articulation of entrepreneurship (Schumpeter, 1934). Schumpeter emphasised the entrepreneur's critical role in the emergence of innovation within the economy, portraying the entrepreneur as the driving force of economic development and establishing them as the economy's innovator (Herbert and Link, 2006, Ceptureanu SI, 2015a). Entrepreneurial acts, from this perspective, put existing means "at the service of new ends" thereby introducing new combinations, otherwise referred to as innovations, which intermittently appear and herald economic change (Schumpeter, 1934). He describes five types of innovation as:

- developing a new good;
- building a new method of production;
- developing a new market;
- a new source of supply
- a new organisation of economic sector

Endres and Woods (2010) consider that "all acts with an entrepreneurial dimension must involve a process of conceiving new relationships ('combinations') between resources either given or changing, and ends either given or created a new". Galunic and Rodan (1998) posit that recombination's of firm resources either combine in such a manner that novel competencies are synthesised as a result (what the authors describe as synthesis-based recombination's) or result from existing firm resources reconfiguring in some manner. Family businesses, as mentioned above, can be considered as a unique bundling of two influencing systems - the family and the business (Ceptureanu SI, 2015b). As such combinations and recombination's towards innovation will likely involve both systems in varying degrees over time. Drawing on the conceptualisation of innovation as new combinations, we say that:

1. *Changes emerges in family business as a result of innovation*

Foster (2000) observed that Schumpeter's view of capitalist development as "non-linear and discontinuous" is due to the inability of entrepreneurs to determine long-term configuration stability within complex systems. This understanding of economic development resonates with characteristics of firm dynamics thinking whereby actors operate in open systems accommodating any number of elements that may influence innovation, including the environment and actors external to the immediate business. McCarthy et al (2006) argue that studies drawing on a firm dynamics framework enable the exploration of "how certain systems are able to learn and to create new rules, structures and behaviours [...] Characteristics necessary and important for systems concerned with exploration and innovation". However, it is often difficult to determine the border of a system (Cilliers, 1998). Within family businesses these "borders" are blurred due to the business and family systems interacting and overlapping

in unique and dynamic ways over time and across generations. Within these open systems, actors are unaware of the behaviour of all of the systems in which they are embedded and as such their actions and interactions are based only on the available information regarding their business context and other actors (Endres and Woods, 2010). There is no central controller, nor overall blueprint of the system to guide actors' interactions (Carlisle and McMillan, 2006). If an actor had absolute knowledge of the systems all of the complexity would be present in that actor (Ceptureanu SI, 2014). Arguably, absolute knowledge would in fact detract from an entrepreneur's innovative risk-taking inclinations (Endres and Woods, 2010, Ceptureanu SI, 2015a).

2. ***Innovation in family business is generated by family members***

Schumpeter's theorising suggests that entrepreneurial behaviour is conditioned by personal biography, tacit knowledge, and by the specific historic and social context of the entrepreneur, or entrepreneurial organisation (Schumpeter, 1934). This aligns with rules of firm dynamics thinking where Cilliers (1998) suggests history is co-responsible for present behaviour and evolution through time. Historical context can create conditions that lead complex systems down particular paths and influence interaction and adaption with business environments (Fuller and Moran, 2001). The social, business, family and individual contexts all influence the way in which an organisation and its actors interact, adapt and consequentially innovate. Actors will "experiment, explore, self-organise, learn and adapt" in response to changes in environments and contexts (Carlisle and McMillan, 2006). Furthermore, Schumpeter suggests that the development of case histories, biographical studies and profiles of both successful and failed entrepreneurial ventures in social and historical contexts are a revealing method of explaining the nature, scope and outcomes of entrepreneurial behaviour (Endres and Woods, 2010).

3. Innovation in family business is heavy influenced by the generational and social context

Becker and Knudsen (2002) summarised Schumpeter's view of the economic development as a whole, as "a phenomenon emerging on the basis of interaction among the various parts". Schumpeter explained that the dynamic interactions of entrepreneurs introducing new combinations causes disruption to the economy's equilibrium necessary for its evolution (Herbert and Link, 2006). Therefore to understand the development of the whole one must understand the interactions between the individual parts. Constantly adapting and seeking new sources of energy to force the introduction of new combinations, evolving firm dynamics operate far from equilibrium (Cilliers, 1998). Interactions between the elements of a system adapting to their environments encourage both self-organisation and change in the form of new combinations or innovation (Carlisle and McMillan, 2006). Such new combinations and/or innovation are critical to sustaining successful family businesses across multiple generations. However, Schumpeter's understanding of entrepreneurs' interactions promoting new combinations is presented at the macro level, investigating namely the resulting development of the economy. His theorising tends not to delve further into the how and why of entrepreneurial interaction that generates innovation (Endres and Woods, 2010). Foster (2000) suggests that complexity thinking, particularly the notion of self-organisation, is compatible with Schumpeter's intuitions of economic development and provides one way by which his notions of innovation can be usefully informed: "Combination" implies the deliberate formation and re-formation of cooperating groups engaged in production (Ceptureanu SI, 2015c). The result is expanding variety in products and processes (Foster, 2000). Goldstein et al. (2008) argue, from the perspective of firm dynamics that the entrepreneurial outcomes of an organisation emerge when interactions create a region of requisite complexity. Others have described this as a "zone of emergent complexity" (Carlisle and McMillan, 2006) or a "spiral of innovation" (Tapsell and Woods, 2010). Emergence then is the product of self-organisation whereby "experimentation, rule breaking, and exploratory actions [...]. can generate novel behaviours and [...] innovation" (McCarthy et al. , 2006).

4. Innovation in family business arises within the zone of complexity.

The preceding discussion has illustrated why and how postulates of firm dynamics can be useful for investigating innovation in entrepreneurial family businesses. We now turn our endeavour to exploring the suitability of some of the postulates of firm dynamics within the context of one specific SME family business. Highly relevant to this exploration is Fuller and Moran's (2001) claim that characteristics of firm dynamics resonate with the observed characteristics of SME's. Fuller and Moran (2001) argue that SMEs exhibiting entrepreneurial behaviour can resemble firm dynamics through their rapid adaptation within continually evolving environments. A complexity perspective is able to account for influences to SME family business innovation within its inherent elements including: internal and external actors, their interactions, the context and environment of the organisation and the open systems in which it is situated (Habbershon, 2006). Theoretical and methodological criticisms of firm dynamics research have been articulated elsewhere (McCarthy et al., 2006) and the conclusion drawn by various complexity researchers (McCarthy et al., 2006) that "case studies are well suited to capturing the rich and qualitative features of social firm dynamics" (McCarthy et al., 2006).

Conclusions

In the current turbulent and competitive global markets innovation is a means by which firms may not only stimulate growth and increase their competitive value but in some cases it may indeed be necessary for survival (Craig and Moores, 2006; Sirmon and Hitt, 2003). Yet to date, current family business research has only paid cursory interest to the area of innovation and lacks an organising framework or theory (Carr and Sequeira, 2007; Chrisman et al., 2005; Craig and Moores, 2006). In this paper, we have presented four guiding postulates based on firm dynamics thinking, within which notions of innovation are inherent. The four guiding postulates present a holistic understanding of innovation, a key characteristic of complexity thinking, in both SMEs generally and specifically family business SMEs. In applying the guiding postulates to our case study we demonstrate their ability to account for the unique influence family dynamics or "familiness" has on innovation which has often been overlooked in family business research. We argue that the interconnected nature of our guiding postulates presents a useful understanding of the influences bringing about new combinations and also illustrates how the combining of "family" and "business" can characterise SME family business innovation and provide practical insights for family businesses experiencing intergenerational transition (Ceptureanu EG et al, 2014). Through applying these postulates we believe we have also made steps towards demonstrating the benefits to SME family business of operating according to firm dynamics rules. Understanding the dynamical nature of systems change or what Goldstein et al. (2010) describe as bifurcation, in family business contexts refers to both the family and business systems, allows greater depth of exploration. The systems can be simultaneously understood from both a stability and/or instability lens and the dynamics and change between and within system opportunities and constraints can be explored (Shepherd and Woods, 2011, Ceptureanu EG, 2015b). Such an approach encourages attention to be paid to the parameter changes and the implications this has on innovation. In the case example above, these changes were both family related and business related. We would suggest that this line of inquiry is rich for further research (Ceptureanu EG, 2015c). For an organization to succeed in these turbulent times and achieve incremental and/or radical innovation they must foster a culture and processes that promote flexibility in their responses to internal and external environments (Carlisle and McMillan, 2006; Ceptureanu EG, 2015d). Operating with an understanding of the rules of complexity thinking provides a lens for exploring how SME family business can innovate and prosper across successive generations and live with the limited control and unpredictability of the current business environment (Regine and Lewin, 2000). SME family businesses who understand their organization as operating according to complexity rules may be better placed to work with change and the processes that underlie such a system (Regine and Lewin, 2000, Ceptureanu SI, 2015d). We suggest that a Schumpeterian and complexity perspective on innovation offers a lens which encourages consideration of both positive and negative loops within the dynamic

systems of both the family and the business over time and this would be a fruitful area for further research to pursue. Additionally future research in the area of family business innovation could be well served by exploring networks and both strong and weak ties and their influence on the innovation systems. The so-called six degrees of separation between people is quickly reduced to two or three. What are the implications of this type of influence on getting independent thinking and advice into the systems? How do outside advisors, coaches, directors and/or mentors influence the business and family dynamics? Finally, the question of how family business actors interact and act entrepreneurially and innovatively with only limited knowledge of the systems at any given point in time might also is an interesting avenue for further research (Ceptureanu SI et al, 2015b). We have argued the rules offered here may contribute a broad foundation for developing an organising framework investigating SME family business innovation (Ceptureanu EG, 2015e). Indeed, Fuller and Moran (2001) suggest that a firm dynamics approach may offer an integrating framework providing the potential for convergence between other theories.

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The Recovery of the Banking System as the Guarantee of Revival of The Industrial Sectors of the National Economy

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Abstract

The article deals with the stability of the domestic economy in the context of the main problems of the Russian banking system which developed in a period of transition to a market economy, as well as after the economic crisis of 2008. The authors paid particular attention to the readjustment procedure for the authorized commercial banks in the mode of recovery of economic subjects of the market of banking products and services. This is because of the extraordinary role that the banking system under the control of a mega-regulator plays in the functioning of the institutional economy and, in particular, of the real sector of the economy. The banking system, however, is currently demonstrating its own compression at an alarming rate. The authors are trying to obtain an understanding of the problems that are common to the withdrawal of the Russian industry from the recession. For this purpose, according to the authors, it is necessary, first of all, to develop a proper rehabilitation scheme directly for the Russian banking system largely blocked by financial institutions which are the least concerned about the interests of the national economy. A renovated banking system, according to the authors, is capable of providing investments in the fixed capital of industries of the real economy in the required quantities. The available credit facilities will enable industrial enterprises to get out of the sleeping state and properly solve the problem of actual import substitution.

Keywords: real sector of economy, stability of economic institutions, industrial production, banking system, authorized commercial bank, readjustment, monetary aggregates, credit rate, resistance, withdrawal of license, discount, object of property, sources of economic growth.

In fact, God is on the side of the biggest bank accounts.
Adam Smith

Introduction

According to the findings of the report of the Ministry of economic development of the Russian Federation "The development trends of sectors of the economy, in 2015", in that year production went through an extensive decline in a wide range of sectors of the economy. The greatest reduction occurred in the sectors oriented to domestic demand, especially those of the manufacturing industry that creates a high added value. The only exceptions were agriculture, food production and chemical industry; growth was observed mainly in the export-oriented raw materials industries the main commodity-oriented industries aimed at the production of oil, gas, coal and metals (see Table 1).

Table 1: The structure of industrial production in the Russian Federation, %

№ п/п	Sector of the economy	2013	2014	2015
1	**2**	**3**	**4**	**5**
1	Fuel and energy complex	47.8	48.1	46.0
2	Sector of investment demand	18.1	17.9	17.3
3	Sector of intermediate demand	21.5	21.3	22.9
4	Sector of final demand	11.4	11.5	12.6
5	Miscellaneous manufacturing	1.2	1.2	1.2

However, the decline in raw material prices was so substantial (according to the Central Bank, just the export prices of oil, gas and petroleum products decreased in 2015 by 57.5 per cent) that the value of their share in exports decreased from 69.5% in 2014 to 62.9% in 2015. However, due to a smaller reduction of prices on other goods, their share has grown, even though in monetary terms the supply was less than last year. For example, the share of engineering products in exports increased from 5.3% to 7.4%, and of wood and engineered wood products from 2.3% to 2.9%.

The specifics of this period, which is defined by certain prominent economists as the change of yet another technological paradigm, when a post-industrial economy has to be immediately replaced, allegedly, by an innovative economy, is in the failure of the market mechanisms predicted by none of the theorists. Since the trends of global instability and poorly predictable price and exchange rate volatility also affect the national economy, the market becomes, so to speak, temporarily short-sighted.

Accordingly, since the balancing equation must be satisfied, the role of the state and paternalistic attitudes dramatically increases in this situation that is no longer quite market. It is the state that now carries the main burden in initiating the widely discussed and planned the large-scale restructuring of the national economy, or the new industrialization or re-industrialization, etc. 1, in Russia, and, while the country was recently recognized as a superpower, it is currently classified by the world's three leading rating agencies (Fitch Ratings, Moody's Investors Service, Standard & Poor's) in a group of countries bashfully called developing.

These circumstances determine the urgency of the questions touched upon in this article and widely discussed in the scientific community, including by the professionals listed in the bibliographic list of used literature, and also in the works of other famous authors not included in our review.

Is the State a "Night Watchman" of the National Economy or the Visible "Hand of the Market"?

How to interpret such an involuntary increase of the state's role in market realities? World experience of previous similar financial crises shows that a window of opportunities indeed opens for the developing countries wanting to profit from a new wave of economic growth. However, to 'open' this window, it is necessary to have the rate of accumulation not at 20-23%, as is the situation in Russia, but to strive to attain a 35-40% savings rate to Gross Domestic Product (GDP). Since the market itself cannot generate such a huge momentum, direct state intervention into the mechanics of the inevitable capital grown is necessary.

Taking into account the direct intervention of state institutions in the process of restructuring, the banking sector should play a special role in implementing the future structural changes. Indeed, if we consider the potential sources of financing, those presented by the fiscal mechanisms are not great,

[1] These terms are now widely discussed and commented upon in the scientific community.

but there are enormous opportunities presented by the monetary mechanism. However, there are no workable mechanisms for financing economic growth through a system of the Russian Central Bank (CBR) because they are not clearly described in the founding documents. The mechanisms of the lending schemes of structural changes and the long-term target programs and projects were also not set.

Federal Law on the Central Bank, of course, should be improved further, as the main Russian regulator (megaregulator) is not responsible for the economic performance of the country as opposed to, say, the Federal Reserve System (FRS) of the USA2, whose regulatory documents explicitly describe this dynamics. The provision is especially well detailed as a doctrine in the statutes of the 12 regional offices of the authorized banks of the Federal Reserve as maintaining a balance between the interests of commercial banks (CBs) and key national interests.

But the role of Russian banks as a driving force of the economic development of the country, aside from the above-said, is significantly complicated by the quality of the financial services rendered to the clientele and to consumers in the broadest sense. The discussions at the World Economic Forum in Davos in 2013 ranked this quality around the 60th place in the world, between Colombia and Venezuela, and actually after Ukraine.

These circumstances are directly related to the specifics of the monetary policy which has been carried out in the last 17 years in our country. Money supply is issued primarily for the purchase of foreign currency (in Central Bank of RF currency interventions mode), so all serious bank loans are either state-owned bank products (more precisely, of the banks with state participation), or foreign loans which are digested by the Russian non-state (authorized) commercial banks.

However, since the early 2000s, we observed the opposite process of a multifold growth of Russian direct investment flows abroad credited by the domestic banking system and having exceeded $70 billion in 2012. Already in 2014, as reported in the Deposit Insurance Agency (DIA) report, Russians took 1.3 trillion rubles away from the banks. However, during the same year, household deposits in banks increased by 9.4% to 18.55 trillion rubles, but this increase was achieved entirely due to currency revaluation.

The Interest Rate – The Price of Credit

While Russian banks' profits for the same period grew continuously, as analysts, we cannot precisely congratulate the domestic bankers on their success, as these record results were obtained mainly due to the inflation of credit rates (congruent with a key rate of the Central Bank), driving the rest of the economy into depression. But the development of relatively new (and at the same time relatively old) credit facilities is not a cure-all for the economic development of the country; here the positive experiences of Germany, America, and China should be noted, with banking using project financing, rather than the universal principles of lending, as the driving force practically everywhere.

According to mass media and respectable economic journals, $ 600 billion is needed for modernization, reconstruction or new industrialization of the national economy. However, as $ 500 billion were already taken abroad by Russian borrowers, the question arises whether our money economy and the monetary authorities could generate the same amount of credit supply, which is now actually transferred to foreign sources of credit, as Prof. O.G. Dmitrieva3 constantly writes and speaks convincingly.

[2] The Federal Reserve System, FED – created 23 December 1913 as an independent federal agency to carry out the functions of the Central Bank of the United States, and the implementation of centralized control over the commercial banking system of America.

[3] A trustworthy author proves that the escalation of Russian debt, along with the the replenishment of the Reserve Fund and National Welfare Fund, leads to the imposition of the negative effects of surplus / deficit

An extremely important issue for the entire Russian economy is the assessment of its prospects for sustainable development, including its most important sector, the banking system. The stability of the banking sector and the possibility of improving the banking system as a whole depend on the solution of this problem. Terminologically speaking, compared with stability and reliability, sustainability is a broader concept and involves a complex of conditions and measures through which a financial and credit organization performs its functions and fulfills its obligations to other entities with which it interacts in the marketplace and in the financial markets.

Ways to improve the effectiveness and efficiency of the banking system in the aftermath of the international financial crisis can be found through the detailed study of global trends and patterns of development of the banking business, their sound projection onto the Russian economic reality and skillful adaptation of trend effects to the constantly changing conditions of the banking environment and the inflation that has become very noticeable in 2015. Characteristics of the last components are reflected in Fig. 1, and the combined indicator is rapidly approaching the parameters of the inflationary dynamics of Belarus and Ukraine (see Fig. 2).

The following global trends in the banking sector can be highlighted as an illustration of what is happening: basing all activities on the most modern IT-technologies; non-stop improvement of the traditional and the introduction of new techniques and methods of interaction with customers and providing them with the entire spectrum of banking services (expansion of supermarket chains, banks, installation of multimedia kiosks, machines, the use of the global Internet, and so on); as well as the intensification of banking activities in the markets of securities, precious metals and real estate.

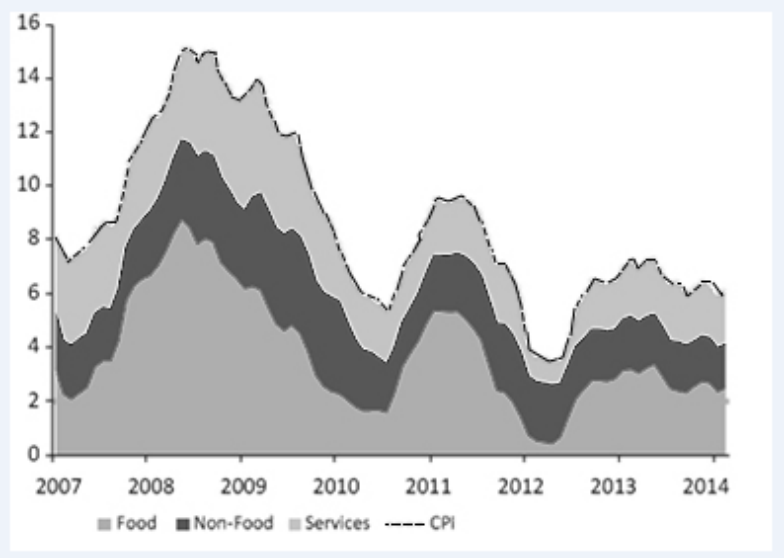

Fig. 1. The dynamics of the inflationary component in RF for the period 2007-2014, %: the dark gray area is the food component; black is the non-food products; light grey is the services; the upper dotted outline of the light-gray area (dark dotted line) is the monitoring of the Laspeyres price index (CPI) for the period. Data source: estimates by Rosstat (http://www.gks.ru/) and experts from World Bank (http://data.worldbank.org/) as of 01.03.2015

budget, i.e. artificial deceleration of economic growth accompanied by a dramatic increase in government debt and its servicing costs.

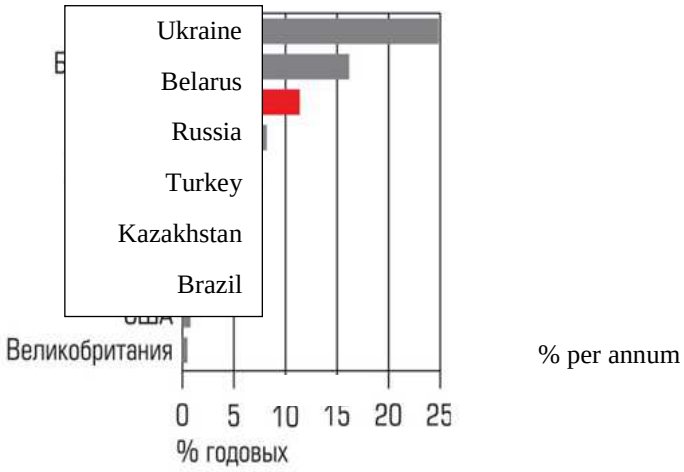

Fig. 2. The distribution of individual countries in the growth of the CPI in December 2014, %. Data Source: Rosstat (http://www.gks.ru/)

One of the key Russian trends for 2014, as claimed by the chief economist and well-known strategist of Deutsche Bank J. Lissovolick, was the consolidation of the banking sector, reorganization and revocation of licences from unscrupulous commercial banks (CBs). Another important trend last year was an attempt to cool the Central Bank of RF rate of retail lending in the country, which took place against the background of the continuing growth in the volume of "bad" (also known as "toxic", also known as "poisonous") debt4. In our opinion, in 2016, the same as in the previous year, the Central Bank will continue to actively and consistently withdraw licenses from banks but will far less regularly send them to reorganize.

Meanwhile, the situation in the credit market continues to worsen. At the beginning of February 2015, the citizens of the Russian Federation owe a total debt of more than 11 trillion rubles, 730 billion of them in overdue payments, while 89% of all debt are consumer loans, the shortest, most unsecured, with the highest percentages. The rest are mortgage and housing loans; debts to banks exceeded the level of the 2009 crisis.

Financial pyramids may continue to grow on the banking market by the REPO scheme (from repurchase agreement, or repurchasing operations); the sizes of these are already at record levels5. It

[4] Currently the idea of creating in Russia a special bank for bad debts on the basis of Vnesheconombank is discussed, using debt repurchasing in South Korea after the crisis of 2008-2009 as an example, as well the situation in post-crisis Ireland. Thus, VEB could turn into a kind of mega-collector.

[5] REPO is the form of the transaction in which securities are sold, and at the same time an agreement to repurchase them is concluded at a pre-stipulated price and time, i.e., repos are an instrument of liquidity of the banking sector, against securities. Reverse repurchase agreements (reverse repo) are the purchase of securities with an obligation to resell. Thus, the repurchase agreement is a transaction of two types: an operation with cash securities today, plus a forward contract for the same assets in the future. At the beginning of the trading day on 01/04/2014, the total debt to credit institutions to the Central Bank repo transactions amounted to 1 trillion 936 billion 301.8 million rubles.

Repos are carried out on an ongoing basis by the Central Bank every working day at fixed interest rates. Repo auctions with a minimum rate are held by the approved schedule.

A year later, the total debt on direct repo transactions to the Central Bank at the beginning of the trading day on 01/04/2015, respectively, increased to 2 017 793 400 000 rubles at the beginning of the previous operating date, which follows from the CB RF information. CB RF requirements for credit organizations on separate agreements to repurchase at a specified date officially are: Operations on an auction basis – 1 910 803 600 000 rubles; operations with fixed rate – 106 989 800 000 rubles.

is estimated that the share of the Central Bank of RF in liabilities of the banking sector exceeded 11% at the beginning of 2015. Fig. 3 shows fragments of how the events developed using the direct REPO financial instrument up to this point.

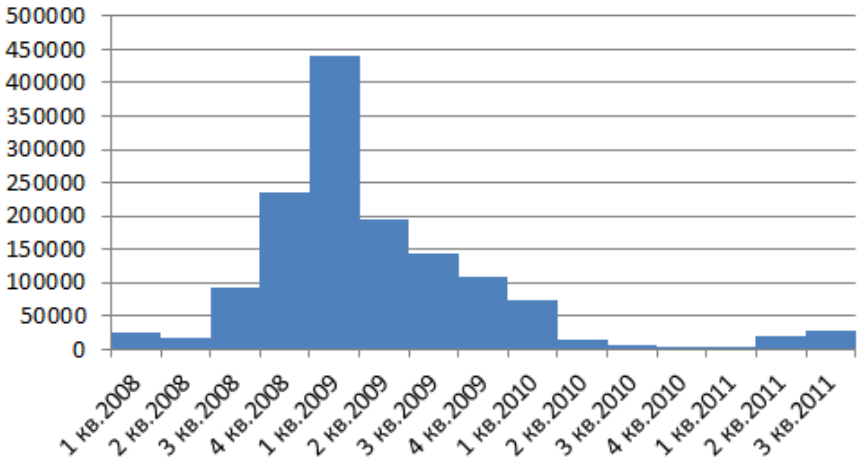

Fig. 3. Debt on repo transactions to the CB RF, on a quarterly basis for the 2008-2011period, mln rub. Data source: Central Bank of RF

By the beginning of May 2015, the share of overdue bank loans rose to a record 7.22%, reaching 780.6 billion rubles, despite the slowdown in lending. Since the beginning of 2015, overdue debts increased by 17.0%; in a year (from the end of April, 2014 to the end of April, 2015) they grew by 1.5 times, as indicated in the review published by the largest collection agency Sequoia credit consolidation: "In 2009, the share of overdue debt did not exceed 7.0%" that generally corresponds to the values in Fig. 4.

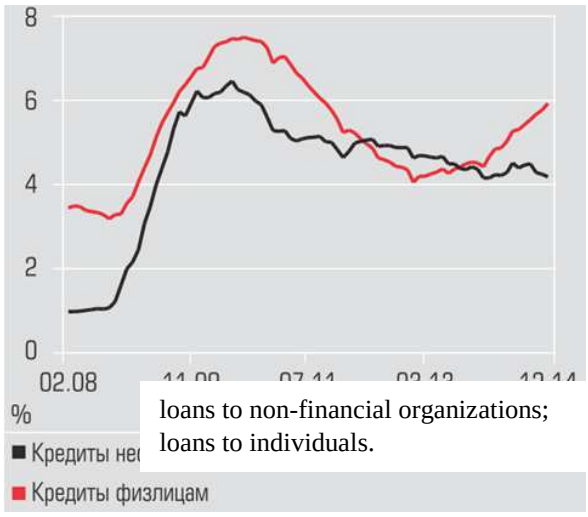

Fig. 4. The share of overdue loans to non-financial organizations and individuals for 2008-2014. *Data Source*: Central Bank of RF.

Reducing the Number of Credit Institutions in the Banking Market is a Customary, Forced Trend that is Nevertheless Gaining Momentum

The banking community expected to lose 33-35 licenses in 2015, as voiced by the corresponding member of the Russian Academy of Sciences, President of the Association of Russian Banks, G.A.

Tosunyan (in his speech on April 4, 2015 in St. Petersburg at the 6th International Scientific and Practical Conference "The architecture of finance: geopolitical imbalances and the potential for development of national financial systems", in which one of the authors of this article participated), although as of 11.18.2015 there were 82 lost.

In 2013, 44 licenses were revoked from credit institutions, and 95 in 2014, which is the highest value since 1999, so it is clear that this process is accelerating, and "harmonization" of the banking system and the new market restructuring inevitably lead to a further transfer of contributions of individuals to the accounts of major banks. These banking institutions are the beneficiaries of all sorts of gains from the difficulties of the current economic situation, while medium and small-sized organizations are forced to consolidate their activities in various ways to stay in the market. There was a total of 11 recorded rehabilitations of commercial banks in 2014, which is very little. The overall dynamics of this process in the banking market is shown in Fig. 5.

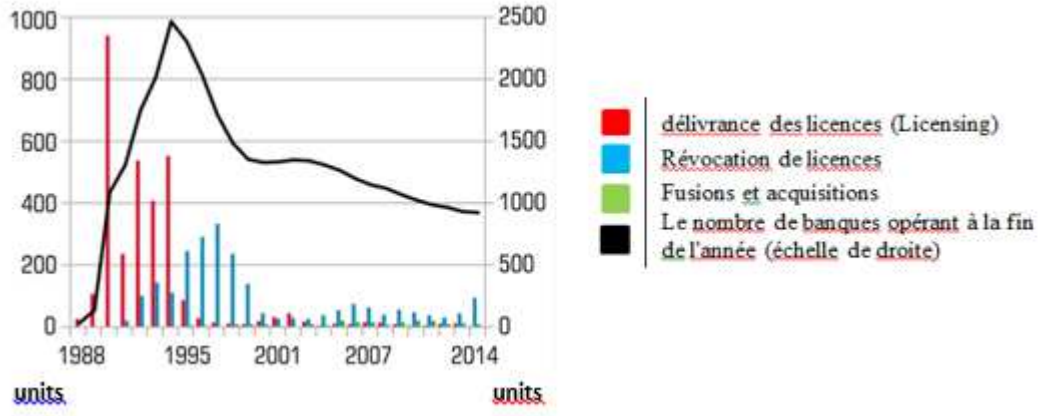

Fig. 5. The movement of credit institutions in the banking market of the Russian Federation for the period 1988-2014. Data Sources: CBR; Calculations AC "Expert Ural» (http://www.expert-ural.com/analytics/), 2015

As for the industry average debt level, in a noticeable number of activities it came close or exceeded the safe level specified as a 5.0-fold magnification.

The main cause of the events is the particular current state of the national economy, which is exhibiting signs of a recession, i.e., a special pattern of the decrease of growth rates of macroeconomic indicators. In connection with the withdrawal of licenses from many KB, the inflow of deposits in "almost" state-owned banks and banks with state participation has increased significantly, as, respectively, has the area of banking credit and financial operations.

The Practice of Appraisal Activities of Banking Institutions in Their Liquidation, Mergers and Acquisitions

Consolidation is an important tool in managing the transformation of the banking sector, and the frequency of use regulator of the instrument is the main indicator of the state of the sector. Such a tool has traditionally turned into an instrument of the monetary authorities at a concentration of banking capital. Most experts, both domestic and foreign, is associated the concept of "consolidation" is a mergers and acquisitions.

As a result, taking into account and coordinating the existing positions of various experts regarding the economic substance of consolidation, it is possible to reach an intermediate conclusion that consolidation is a process in which the merging and consolidation of the banking businesses occurs through acquisitions and the merging schemes of independent banking institutions. However, it

seems to us that these processes require close supervision by the government and content analysis conducted by the scientific community.

The need for market assessment of the banking business, assets and liabilities of financial institutions arises in cases where they become potential or real objects of market processes and transactions, i.e., purchase, sale, liquidation, privatization, corporatization, transfer in trust, etc. Specifically, business assessment of an individual CB is necessary for selecting the options justifying its restructuring, for improving the efficiency of its asset management and for maximizing its total value and the usefulness of a particular banking institution for the financial market.

The peculiarity of the market valuation of the CB is that it is carried out at the junction between the theory and practice of credit and banking and assessment of banking institutions. In this regard, one of the theoretical issues becomes identifying the essence, content and forms of expression of such economic categories as the market value of the economic entity in relation to the traditional banking structure. While there is some accumulated experience of calculating cash flows, forecasting income and expenditure, determining the discount rate to evaluate the CB as an integrated business, assessing its tangible assets and certain types of intangible assets, analog selection, etc., the acceptable methods of assessing the cost of the specific bank assets are still in need of further theoretical and practical development.

Consolidation of economic entities of the banking sector can be seen as the process of unification and enlargement of the credit institution's capital, as a certain stage of development of the latter when the development of bank strategy is caused by diverse factors taken into account in the analysis. These factors can be internal, such as the achievement of synergies and external factors of different risk levels, for example, political. Other external factors may include economy- and industry-scale factors, as well as legislative initiatives.

Thus, to counteract the activities of unscrupulous banks, on November 23, 2014, the President of the Russian Federation signed amendments to the Federal Law “On Mortgage (Pledge of property)” no. 102-FZ of 16.07.1998. These amendments provide for the repayment of a recording made on the basis of the statement of the pledgee, in the case of the sale of collateral through foreclosure in court. That is to say, the 2014 version of the "On Mortgage (Pledge of property)" law emphasizes that if the borrower refused, for any reason, to pay the mortgage, then, upon application of the lending bank, the mortgaged property can be put up for sale. Moreover, if the parties mutually agree, the property mortgaged through the imposition of a penalty may be put up for sale at a price less than the one indicated in the contract of mortgage lending.

According to banking experts, this form of auction contributes to greater economic results in selling mortgaged property in the time of crisis. In addition, it increases the interest of the mortgagee to the use the market mechanism for selling the property, which has a positive impact on the development of mortgage finance. In other words, the amendments to the federal law established and included in the legal framework as a norm for the convenience of both lenders and borrowers. When property prices fall, selling residential premises even by the residual credit value, i.e., subtracting the sum that the borrower has already paid, still exceeds its market value during the crisis.

In addition, changes in national legislation clarify the features of the mortgage of buildings and other non-residential premises. By law, real property is transferred as collateral only if the property right of the person concerned has already been registered. However, the explanatory note to the regulatory document does not ensure the full protection of the legitimate interests of the creditor with simultaneous registration of title with encumbrance in the form of collateral, even though such a procedure is provided in relation to housing mortgage. In particular, the objects of housing stock and land, acquired at the expense of the bank, are pledged from the date of registration of property rights. In this case, the interests of creditors are protected under the Act.

Will the Market Prefer Resolution or Liquidation of Cbs? or is it actually State Business?

One of the most important functions of managing the economic entity is the financial analysis revealing abnormalities in the development of the subject under study that in some cases requires its resolution instead of elimination.

The aim is to cover the financial rehabilitation of the current losses and to eliminate their causes, renewing or maintening the face-liquidity and solvency of the CB, reducing all types of debt, improving working capital structure and forming financial resource funds. Resolution plays an important role in the system of stabilization measures aimed at leading the CB out of the financial crisis. From a legal and a technical standpoint, resolution is a system of measures for the financial rehabilitation of the CB, implemented with the help of individual or legal third parties, and aimed at preventing the CB from being declared bankrupt and from elimination. Today, every sixth CB is a candidate for resolution due to their insurmountable inprofitability and/or chronically low profitability, which is illustrated in Fig. 6.

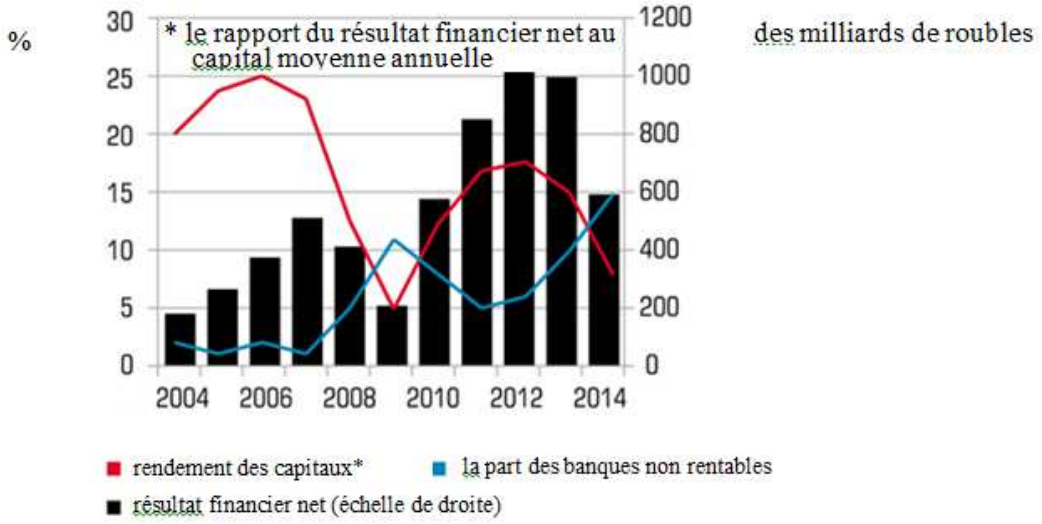

Fig. 6. Mass of the rate of profit in the banking system of the Russian Federation for the period 2004-2014. Data Source: calculations of the Central Bank

At this initial control stage, based on the results of diagnosing bankruptcy and monitoring the implementation of measures to stabilize the internal financial conditions of the CB, a fundamental decision is made to perform resolution. The feasibility of the resolution is caused by the fact that the use of internal mechanisms of the CB's financial stability do not always reach their goals, and the CB's critical financial condition continues to deepen. Indeed, as noted by Sberbank's experts, in the short-term forecast period, the amount of toxic debts in the segment of ruble corporate loans will reach its peak by the middle of 2016, and the projected level of the delay will be even higher than in the previous crisis of 2008, as shown by dashed lines in Fig. 7.

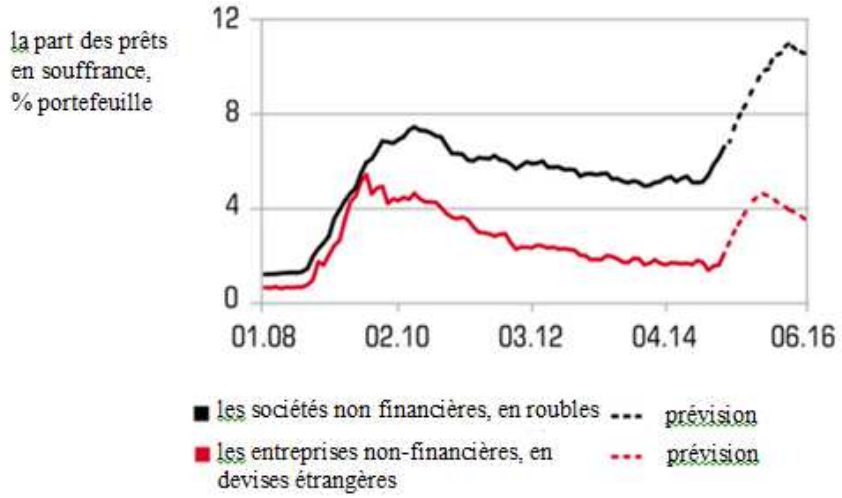

Fig. 7. Analysis and Forecast "bad debts" in the segment of ruble-denominated corporate loans over the period 2008-2016. Source: calculations and forecast of M. Matovnikoff (Savings Bank of Russia), according to the Central Bank of the Russian Federation

Sources of Investment and Other Means Necessary to Ensure the Development of Industrial Production

An increase in the key rate of the Central Bank of the Russian Federation, as well as its energetic measures for shrinking the liquidity in the economy that has made financing economic growth unprofitable and difficult resulted in a slowdown in economic growth and stagnation. Therefore, the transition to stagflation was a natural with such a policy and was caused by internal reasons.

This ugly structure of our economy was the main reason for the significant devaluation of the ruble against the dollar and the Euro. Here the ruble has been devalued by around 1.5 times, which correlates with a corresponding decrease in oil prices. Further factors were the accelerating inflation, sanctions and inept monetary regulation by the Central Bank of RF. The current recession, and stagflation mean a structural crisis, the root cause of which is inadequate economic policy. A structural crisis associated with the stagflation lasts much longer, and the exit from it is much more difficult and painful.

The situation with inflation is particularly bad: it has increased significantly in recent months due to the devaluation of the ruble and the increase in utility prices, so the Central Bank of RF stopped decreasing the key rate, which continues to stay inaccessible for businesses and organizations, as well as the population. Because of this, for the first time there has been a reduction in the volume of lending and the national economy, and in population. Credit debt of companies and organizations to domestic banks rose to 30 trillion rubles, which is several times higher than their annual profit. Debt reached 11 trillion, or almost 30% of their annual income. The final consumption of households in Russia decreased dramatically to 9% in 2015, and the demand turned from the engine of the economy into its brake.

Project financing is an important stimulant of investment in the implementation of large investment projects, offering investments for projects, and not secured by property. This important initiative of the President has acquired such bureaucratic regulations, micromanagement, low guarantees allocated, that in real life it had no impact on investment activity at least in 2015.

The transition to forced investment, supported by encouraging economic growth along the main directions of these investments in institutional reform, is at the heart of the new economic policy. The condition for transition to forced investment is the implementation of the program for the drastic

reduction of inflation and key rates of the Central Bank of RF. The inflation rate and the key rate, according to RAS member A.G. Aganbegyan, could be reduced by three times in 3 years, i.e., up to 4%.

Another important condition for the implementation of the policy of forced investment is the elimination of barriers to economic growth, which involves the implementation of structural institutional reforms gradually, step by step. The country's financial system needs to be restructured with a higher proportion of "long" money, which can serve as investment funds. In this regard, the work of the stock market needs to be radically reconstructed, as it must be turned into a channel for capital formation and flow.

It is more logical and easier to draw these funds from the assets of our banking system, the amount of which as of January 1, 2015 amounted to 77.7 trillion rubles and for the first time in 2014 has exceeded gross domestic product. The amount of bank assets are 2.5 times higher than all the annual funds of our state presented in the consolidated budget, including state budget funds. The assets of the banking system are five times greater than the volume of the Federal Budget. Although the proportion of the consolidated budget in 2015 was approximately 40% of the entire GDP, it contained only 18.5% of all investments, and this percentage is constantly declining.

As a result of the author's analysis of the banking industry, since 2008, i. e, during the so-called turbulence, we can draw some conclusions, directly related to the possibility of econometric modeling for the implementation of predictive calculations macro indicators of the national economy. According to the facts set out in the article, you can select some of the most significant factors, one way or another related to the banking services market, and for which you can perform a statistical analysis of the sensitivity to the selected performance indicators.

In other words, there is a technical possibility of building econometric with the inclusion of the planned features of factors in the dynamic multi-factor model using the correlation parameters, such as the net coefficients of elasticity for such performance indicators as GDP, the volume of investment in the real economy, the level of employment in the labor market, nationwide inflation rate, the size of the backup in the banking system, the volume sold in consumer demand of households and population through retail sales, as well as other important nominal economic activity indicators.

The first factor is directly related to inflation, which determines the cost of capital in structuring transactions. With high inflation seriously evaluate the cost of capital even in the medium-term forecast horizon is not possible. If the inflation rate will reach 4%, which is projected mega-regulator by the end of 2017, the Russian company will be able to confidently make plans for borrowing in the credit markets.

The second factor – the cost of debt financing (loan price). Today on the key rate of the Central Bank 11%, taking into account the cost of risk, the cost of loans to CB services of any investment projects as it is virtually impossible, since such a rate is dissuasive for the overall investment climate6. There are plans for the Central Bank at the end of 2016 to reduce the key rate to 6.5%, but provided a commensurate reduction in inflationary pressures nationwide level to 4-6%, has already stretched for two years.

The third factor relates to the fact that by the end 2015 71% of Russia's GDP (already on a new methodology SNA) formed by consumption, with 51% of the consumption of households and population. And if in 2011-2013 the domestic economy grew at an average annual rate of 5%, this

[6] The high cost of loan capital, however, varies depending on the type of borrower. According to CBR statistics, in 2014 the average interest rate on loans was as follows: for large enterprises – 15.8%, for small and medium-sized enterprises – 17.3%; and in 2013 – 11.4 and 14.2%, respectively.

consumer demand, as the authors believe, has been the main driver of economic growth. In the period 2014-2015, GDP went down, and therefore unsatisfied customer demand accumulated.

The fourth factor – this is quite a strong statistical relationship between the level of the price per barrel of the reference mixture of Brent crude oil (p), by which is designed, in particular, the prices of three of the five Russian export brands Urals, Siberian Light and REBCO and the exchange rate of the ruble (RUB) the dollar (RUB/$). According to the author's estimates, the simple correlation coefficient of these indicators during 2015 had a probability of 0.954 variability in the range of 0.917 $\leq r_{rub|p} \leq$ 0.936.

Conclusions

1) For all the imbalances and shortcomings of Russia's economic development, the country has certain capabilities and impressive potential, the use of which in the transition to a new economic model, more efficient state regulation of investment-innovative processes and sound management of structural changes in the mode of reform will provide the real acceleration of the socio-economic development of the country.

2) A mechanism for achieving the main objectives of the resolution is characterized directly by its form chosen from the recommended broad spectrum. This form can be adjusted in a specific direction of the resolution elected by the CB. For example, resolution aimed at refinancing the debt of the CB can take these forms: state concessional lending; target bank loans; transfer of debt to another entity.

3) If the power structures really have the intention to create a workable funding mechanism of progressive structural changes in the Russian economy, it is necessary, first of all, to pay attention to the improvement of public credit facilities and refinancing of CBs, as well as to introduce a flexible system of money supply with the regulating role of the interest rate, i.e., the loan rate. The most important role should be played by real development institutions that have clear plans and accountability mechanisms for achieving these plans. Therefore, it is necessary to improve the legislative and regulatory practices regarding the economic relations in the Russian marketplace.

4) In this sense, the legislative initiative of the Ministry of Finance of the Russian Federation making a number of amendments to the Federal Law "On Banks and Banking Activity" at the end of June 2014 is noteworthy. The amendments state that the state-owned companies and public corporations, many private institutions and retail chains are allowed to open accounts and deposits7 only in the state bank and in VEB, as well as in Russian private banks (alimited number of CBs) with a net worth of not less than 16.5 billion rubles, which is clearly paternalistic in nature, aimed at protecting the funds of the Russian stragegic companies, preserving business in the real sector of economy, and at protection against possible sanctions.

5) Furthermore, the efforts in increasing the integrity of the state funds in Russian banks, initially started with the intention of clearing the banking sector from unfair participants, will be completed by 2017. As of January 1, 2016, there were 733 credit institutions in Russia; in a year, their number dropped to 101. For comparison, in 2007 the country had more than a thousand CBs.

Mass closure of CBs began in 2013. The Central Bank of RF decided to improve the banking sector by removing credit organizations with suspect activities from the market. Most often, the licenses were revoked for breach of normative acts of the Central Bank of RF, anti-money laundering legislation and for carrying out highly risky credit policy.

[7] In 2013, the state-owned companies placed 720 billion rubles in bank deposits. In late 2013, the megaregulator acted as a driver for tightening the criteria for the selection of credit institutions for placement of state company funds, due to the fact that the Housing and Utility Reform Foundation, a state corporation, lost as much as 1.5 billion rubles in the seemingly stable Investbank.

Summary

In view of searching for ways of improving the Russian banking system as a whole, increasing the stability of individual CBs and leading the national economy out of recession, there are several promising areas for further research, such as the formation of the concept of effective CB with a scalable business model, the development of banking in the digital environment, analysis of the prospects for the interaction of CBs with Asian markets, the study of the investment banking capabilities.

These studies should concern such aspects of functioning of the banking system as the corporate and social responsibility of bankers and analysts of the domestic financial sector. As for the classical banking, then regardless of our preferences, it will wither away, and, accordingly, greater attention should be paid to developing of the electronic sphere with its rapidly evolving innovative filling.

But above all, it is necessary to solve the conceptual and methodological issues of whether to ensure resolution of all questionable financial market players, or to justify the creation of the system with 10-15 largest national banks in Russia with an extensive branch network and regulatory capital adequacy. The potential candidates for this narrow circle are, without a doubt, Sberbank, VTB, Alfa-Bank, Rosselkhozbank, VEB, and the whole range of the Gazprom financial structures, etc.

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A Composite Index for New Socio-economic Cartography of Delegations in Tunisia

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Abstract

This article explores the problem of unequal distribution of wealth between the interior and coastal regions in Tunisia. In this study, we provide the following methodology and tools to analyse regional disparities. We, first, develop a composite index of socio-economic development of delegations; this index is the result of a multidimensional scaling process of delegations according to their socioeconomic development's level; we, then, use two approaches to classify delegations in order to identify relatively homogeneous groups. The first approach is the discretization of the CISEDD index, and the second one is the classification of delegations according to the components of the CISED index. The results show, first, that the 24 governorates of the country are all concerned, although to different degrees, by deterioration of the socioeconomic conditions; second, socioeconomic status of the governorates of the country's interior is penalized relative to the costal governorates.

Keywords: regional disparities, composite index, regional development, Tunisia.

Introduction

Regional imbalances as those between rural and urban areas are, in Tunisia, the fruit of the historical heritage relationship between city and countryside, and even between regions, but they are also the results of the policies and development's choices made since the independence (Elloumi, 2006). The regional development's concept in Tunisia appeared after the independence. However, regional disparities persist or even increase, especially between cities and regions of Tunisia. Regional disparities in terms of amenities of life, sociodemographic and economic environment and employment, have continued to grow. Many rural areas have been the victims of a vicious circle combination, undeveloped infrastructure, low level of attractiveness and poor education. This explains the persistent gap between the regions of the interior and those in the coastal. Many factors have contributed to expand the gap between regions in Tunisia; The delay of the rural world is still high and the pressure on natural resources increase, it reflects the low degree to diversify the local economy and the inability of agriculture to ensure alone the rural development (Elloumi, 2006). The fact that the level of investment is against the agricultural sector explains that the predominantly agricultural areas are marginalized comparing to economically diversify areas. Also, the coastal regions are incurring extra costs such as pollution, congestion, and corruption. These costs affect the public budget and reduce the part of money allocated to the rural, which generates negative repercussions on the government's ability to develop interior regions.

After January 2011, regional development became the major concern of the Tunisian authorities. Tunisia must try to achieve a balance between coastal regions and those of the interior. The objective of regional development is not only to make a transfer from rich regions to poor regions to reduce regional inequalities, but to contribute to a dynamic growth and sustained regional convergence. The Government must allocate the budget development between regions according to a distribution key that aims for inclusive growth.

"The problem of unequal distribution of wealth, opportunities and economic activity continues to be an important and major problem in national and international level. Regional disparities are a feature

of the world, particularly of low and middle-income countries" (Fan and al, 2011). "As a rule, regional disparities take the shape of differences between the levels of incomes per capita and determine, at given moment, a chain reaction of companies, authorities, inhabitants, that attempt to counteract their escalation"(Antonescu, 2012). "The existence of regional disparities within a country remains an important theoretical and practical issue examined in planning and in allocation of resources and funds" (Goletsis and Chletsos□, 2011). The aim for regional policy is to reduce gradually the gap between the regions of the same country. So, the priority for many countries is the measurement of regional disparities and the identification of panelized regions.

The aim of the paper is, by the use of composite index of socio-economic development of delegations, to measure regional disparities, to emphasize the mechanisms governing socioeconomic inequalities and to make a new classification of delegations according to their level of development. In order to further examine the situation of socio-economic development delegations in Tunisia, we chose to design a composite indicator that incorporates a maximum of variables available by delegations.

The remaining of the paper is structured as follow: the first section presents a literature review on studies related to the measure of inequalities. The second section explains the methodological framework. It includes the framework for the selection indicator, structuring variables, the result of data structuring process through the principal component analysis and the last sub-section outlines the construction of our Composite Index of Socio-Economic Development of Delegations (CISEDD). Then, section 3 presents the socioeconomic classification of delegations and cartography of regional development in Tunisia. Finally, section 4 concludes the paper.

1. Studies Related to Measure Inequalities

Influencing factors cause the economic differences between regions. "The most known ones can be (mostly) historically structured creation of GDP in a region, natural conditions, settlement and demographic characteristics, linking with transportation infrastructure of international importance, volume of direct foreign investment and received grants" (Martinčík, 2008). Several studies have been conducted to measure inequalities between regions. The European Regional Policy used unemployment rate and GDP per capita. This statically indicators were much criticized (Grasland, 2004). The European Union authorities evaluate the development level of each region by using GDP per capita. The single indicator approach presents several limits, in order to provide the multidimensionality of human development; the notion of quality of life must be introduced (Goletsis and Chletsos□, 2011). The review of the literature reveals that the major studies by (Siriopoulos and Asteriou, 1998; Michelis and al, 2004) to analyze the Greek regions and their differences, focus on the statistics of GDP. Many research focused on multiple imperfections GDP / capita criterion Faced with the obvious limitations of such an indicator, some researchers have attempted to develop other tools to measure regional inequalities. For a new reading of regional disparities, several researches have proposed convergence as a measure of inter-regional disparities. Over the past decade, empirical studies on convergence have grown significantly and often present conflicting results. Siriopoulos and Asteriou (1998) have examined the regional convergence in Greece using the β-convergence tools and concluded that there was an economic dualism in Greece, in the sense that the northern and southern converge them, without convergence between the two groups. Tsionas (2002) has used data set different to that of Siriopoulos and Asteriou (1998). Furthermore the study confirms the economic dualism and non-convergence in Greece. Mauro-Podreca (1994) rejected convergence and found dualism between northern and southern Italian regions. Fan and al (2011) have used *Gini*, *Theil* and *Generalized Entropy* indices to measure China's regional disparities. An overview of these works concerning the measure of regional disparities can shows that the most of these studies are GDP based, without including other dimensions of development or quality of life. The need to find alternative measures to GDP has promoted the florescence of a whole battery of composite indicators (IC) in the early 90. United Nations Development Program (UNDP) has opened the floodgates of this new exploratory field with its Human Development Index (HDI) in 1990 (Dialga and Giang Le, 2014). The Human Development Index (HDI) represents the most applied and simple composite index to compare and make national measurement. "HDI has been introduced by United Nations as a composite index to aggregate three basic socio- economic dimensions of development and quality of life (longevity, educational attainment and standard of living/access to goods expressed as income)" (Goletsis and Chletsos, 2011). UNDP has developed three other composite indices, the index of

adjusted human development (IAHD), a measure that takes into account inequality in all three dimensions of the HDI by updating the average value of each dimension according to its level of inequality. Then the Gender Inequality Index (GII) that reflects the disadvantages of women in three dimensions: reproductive health, empowerment, and economic activity. The third one is the Multidimensional Poverty Index (MPI) that can identify deprivations in education, health and income; this index uses 10 indicators on three dimensions. By aggregating a set of welfare indicators, Ezzrari (2009) constructed a composite index of Living Standards in Morocco (LSI); this index is a multidimensional measure of living standards. It is precisely to remedy the inadequacies of the analytical dimensional monetary indicators (Ezzrari, 2009). To overcome the shortcoming of the GDP only based approaches, Goletsis and Chletsos (2011) incorporate the multi-dimensional notion of quality of life / well-being to develop a composite index to assess Greek regions and then, they applied multivariate clustering for identifying regions with similar socio-economic profiles. Many other composite index approaches can be found, Bobbitt and al (2005) proposed the Well-Being Index and Annoni and Kozovska (2010) defined the EU Regional Competitiveness Index. These authors had included economy, infrastructure, cohesion, education, labor market, environment, health, etc.…as dimensions to construct their specific index.

To measure regional development in Tunisia, the Ministry of Regional Development & Planning of Tunisia built a regional development index (IDR), which clearly showed regional disparities. This index is composed of 4 different indicators: index of "know", index of "wealth and employment", index of "health and population" and, index of "justice and equity".
Composite indicators are important tools of communication and analysis support systems to decision making because they synthesize the information in individual indicators. They allow comparison of the countries (regions, businesses, etc.) with respect to their performance in various fields.

2. Materials and Methods

2.1 Methodology

“Composite indicators are increasingly recognized as a useful tool for policy making and public communications in conveying information on countries’ performance in fields such as environment, economy, society, or technological development” (Nardo and al 2005). According to (the Center for Demographic Studies and Research of Morroco **[**CDSRE**],** 1999), recent years have been marked by the development of new composite indices of development used as criteria for the classification of countries, regions, communities and local governments based on human development. The importance of these indices inform about combined deficiencies in resources, income, longevity, quality of life and access to factors of sustainable self-protection against the various deprivations. These indicators often synthesize economic criteria and socio-demographic parameters. Given the importance of these indicators, the effectiveness of a development strategy depends on living conditions and educational and professional skills generated by the process of economic growth and investment in human capacity; fundamental guarantees of the perpetuation of wealth creation and maintaining growth rates at sufficient levels.

Valued as it is done so far in Tunisia, the average points of different governorates, socio-economic indicators can certainly appreciate the level of development at the regional level but it remains analytically limited given the strong dispersion of the spatial and social distribution of circulating levels of social and economic prerequisites for development within the same governorate. The items included in the calculation of these indicators are thus subject to strong variations between the delegations of the same governorate so that their averages are subject to high dispersion and therefore statistically limited. A direct appeal to the variables used in calculating such indicators and their differentiation level delegations, are the most appropriate statistical approach to the identification of the most deficient social and economic fields and the most excluded populations from development. As they are identified by the UNDP, the composite indicators of development are limited to literacy, education, average income levels, differentiated participation of women in the creation of national wealth, socio-professional status, nutrition of "less than 5 years", and access to drinking water and

sanitation services. They are therefore inadequate as a representation of all socio-economic conditions in the delegations.

It is in this light that we wanted to complete the list of indicators on consumption, housing conditions, employment, unemployment, underemployment and access to physical and social infrastructure (electricity, paved roads, schools, clinics…), the factors of production, and financial resources. Production patterns and the incidence of poverty also fall among selected indicators.
To clarify the situation of socio-economic development of delegations, we used Principal Component Analysis (PCA) as an intermediate step prior to calculating the emergence of new synthetic variables (latent), which will be retained for the sake of parsimony as variables relay to initial variables. Multidimensional scaling techniques (MDS) are then applied to factors to establish a Composite Index of Socio-Economic Development of Delegations (CISEDD) in Tunisia.

2.2 Indicator selection

The selection of indicators reflecting the degree of socio-economic development is all the more justified it refers to a precise concept of development (CDSRE, 1999). Based on the theory to construct a tool able to capture different development dimensions and to cover both economic and social aspect, we distinguish three main pillars: the first one is related to the amenities of life indicating the existence of acceptable living conditions of citizens of each regions. Social level, potential of human capital, demographic pressure and demographic growth are factors related to the second pillar the sociodemographic environment and the third one is interested to the economic environment and employment which include four factors: the level of labor market's absorption capacity, the tensions on the labor market, the notions of economic activities' diversity and the business' scope. The set of indicators, which populate each pillar, is carefully chosen according to the literature review, and data availability. According to (Bobbit et al 2005) the list of potential indicators, which identified based on the literature should apply on a set of criteria.
- Contribute logically to the index concept.
- Be understandable and interpretable by the general public.
- Not be identified as a poor indicator by theory.
- Have regional data available now and in the future (so as to provide a tool for future comparisons).
- Come from credible sources.
- Have the same measurement methodology across regions and over time/years.
- Show variability and frequency adequate to be reflective of regional change.

At the end of this stage, we were able to recover 31 indicators measuring the level of diffusion of various aspects of socio-economic development in Tunisian delegations[1]. The final index is composed of a total number of eleven indicators, chosen by a starting set of 31 candidate indicators (see annex I). For easier reading of the various selected indicators, we agreed to combine variables into four categories, each referring to one aspect of regional development in the delegations:

1. Amenities of life.
2. Socio-demographic environment.
3. Economic environment and employment.

2.3 Structuring variables

The main goal of our approach is to find an overall underlying logical data, which ensures the validity, the relevance and importance of the selected indicators to account for the situation of socio-economic development delegations. A series of Principal Component Analysis (PCA) was then applied at each field in order to:

- Summarize the information contained in the database established for this purpose.
- Study the redundancy between some indicators.
- Purify the list of indicators by discarding those that provide only marginal information.
- Identify from indicators a smaller number of dimensions or factors that are responsible for the preparation of conceptual framework of the index.

➢ Serve as an intermediate stage prior to calculation of the use of classification methods, multidimensional positioning and calculation of scores.

In the following paragraph, we review the results of structuring original variables in each field using the PCA. The results of each analysis are grouped into a single summary table, which shows the name of the selected initial variables, and the manner in which they are structured around dimensions (principal components) extracted according to the previous approach. The implementation of the PCA was performed using the procedure of SPSS Factor Analysis.

Before applying the method we will focus on the analysis of variables taken into consideration to see if we can apply the method of main component analysis (Pintilescu, 2007). "The Kaiser-Mazer-Olkin (KMO) and Barlett tests also help us to see whether between variables there is a statistical correlation or not. The null hypothesis implies the independence hypothesis while the alternative hypothesis implies the dependence between variables" (Chirila, V and Chirila, C; 2014).

2.4 Results of variables structuring

2.4.1 Results of variables structuring attached to the first category: "amenities of life"

Table 1 shows that the 10 selected indicators at the first category "amenities of life" can be grouped under three dimensions.

1. The first dimension related to "*the levels of infrastructure's development and the diffusion of basic equipment facilities in the delegations*". It includes variables: "*Distance from the poles: Tunis, Sousse and Sfax*", "*Average distance access to airport and port services*", "*Part of classified roads*", " *Connection rate to wastewater system*" and " *Connection rate to drinking water*", with an inertia rate or restored information, on the order of 31.091%.
2. The second dimension includes 3 variables: "*Number of doctors per 1000 inhabitants*", " *Number of beds per 1000 inhabitants*", and "*Number of pharmacies per 1000 inhabitants*" with inertial restored rate on the order of 18,733%. It reflects *the medical density or level of access to care in delegations*.
3. A third dimension, which refers to *levels of availability and distribution of leisure centres in delegations*: it restores 16.115% of the initial information and includes two variables: " *Number of leisure centres per 1000 inhabitants*" and "*Diversity of leisure centres*".

Table 1: factorial structure associated to indicators related to category I: "Amenities of life"

	Infrastructure and basic equipment	Health	Leisure
Restored information:	Eigenvalue 1	Eigenvalue 2	Eigenvalue 3
65,939%	3,109 (31,091%)	1.873 (18,733%)	1,612 (16,115%)
Distance from the poles: Tunis, Sousse and Sfax	-,895 (0,816)		
Average distance access to airport and port services	-,889 (0,809)		
Part of classified roads	,682 (0,676)		
Connection rate to wastewater system	,656 (0,530)		
Connection rate to drinking water	,624 (0,678)		
Number of doctors per 1000 inhabitants		,741 (0,561)	

Number of beds per 1000 inhabitants	,676 (0,514)
Number of pharmacies per 1000 inhabitants	,616 (0,542)
Number of leisure centres per 1000 inhabitants	-,845 (0,769)
Diversity of leisure centres	,709 (0,699)
KMO: 0,738 – Bartlett test: CHI SQUARE: 1127, 145 ; DF : 45; sig :0,000…	

2.4.2 Results of variables structuring attached to the second category: "Socio-demographic Environment "

Table 2 refers to the factorial structure after the PCA's application on 11 variables used to understand the socio-demographic environment in delegations. This table shows that:

1. The variables: "Poverty rate", "Illiteracy rate", "Dependency rate of the population" and "Number of Needy Families", are grouped around the first dimension with an inertial restored rate to about 25.309% to put in evidence *the social level* in delegations.
2. The second dimension, with an inertial restored rate in the order of 23.492%, is reserved for the *potential of human capital* in the delegations resulting grouping variables: "*Part of educated inhabitants*", "*Average number of students per class in basic education*" and "*Average number of pupils per teacher in secondary education*".
3. The variables related to demographic characteristics of the populations of the different delegations have monopolized alone last two dimensions. These are from two different registers: the first referring to two variables: "*Population density per km2*" and "*Polarization of the population's age structure*" is concerned by *demographic pressure* in delegations. The second focuses on *the demographic growth* in delegations as references variables: "*Net migration*" and " *Annual average growth rate of the population*". The inertial restored rates by these two dimensions are respectively in the order of 18.403% and 15.217%.

Table 2: factorial structure associated to indicators related to category II: "Socio-demographic Environment "

	The social level	Potential of human capital	Demographic pressure	Demographic growth
Restored information: 82,421%	Eigenvalue 1 2,437 (25,309%)	Eigenvalue 2 2,262 (23.492%)	Eigenvalue 3 1,772 (18,403%)	Eigenvalue 4 1,465 (15,217%)
Poverty rate	,936 (0,876)			
Illiteracy rate	,802 (0,834)			
Dependency rate of the population	,694 (0,832)			
Number of Needy Families	,672 (0,621)			
Part of educated inhabitants		,834 (0,734)		
Average number of students per class in basic education		,778 (0,612)		
Average number of pupils per teacher in secondary		,634 (0,567)		

education	
Population density per km2	,812 (0,775)
Polarization of the population's age structure	,743 (0,783)
Net migration	,847 (0,720)
Annual average growth rate of the population	,832 (0,758)
	KMO: 0,741 – Bartlett test: CHI SQUARE: 1087, 1402; DF: 28; sig :0,000…

2.4.3 Results of variables structuring attached to the third category: " Economic Environment and Employment "

The factorial structure resulting the PCA's application on 10 indicators related to the economic environment and employment, is summarized in Table 3. It shows four dimensions. The first and fourth seem to be associate to realize the situation of the labour market in delegations. The two others refer to economic environment.

1. The first dimension represents with an inertial restored rate 21,464%, *the level of labor market's absorption capacity* of the delegation which includes: "*Number of job offers per 1000 inhabitants", "Investment's rate" and "Number of firms per 1000 inhabitants*".
2. With the lowest inertia rate (about 12.556%), the fourth dimension associates variables: "*Unemployment rate*" and "*Number of job application per 1000 inhabitants*". It presents *the tensions on the labor market* in delegations.
3. With the same inertia restored rate (18.258% and 18.003%, respectively), the second and third dimension respectively suggest *the notions of economic activities' diversity* and *the business' scope* in the delegations. The first concept refers to the variables "*Polarization sector of the labour force*", "*Specificity of the activity structure of the labour force*" and "*Index of economic concentration*". While the second focuses on the variables "*Average size of the private sector's firms*" and "*Part of employment in the private sector's firms*"

Table 3: factorial structure associated to indicators related to category III: "Economic Environment and Employment"

	The level of labour market's absorption capacity	The notions of economic activities' diversity	The business' scope	The tensions on the labor market
Restored information: 70,281%	Eigenvalue 1 2,146 (22,464%)	Eigenvalue 2 1,862 (18,258%)	Eigenvalue 3 1,800(18,003%)	Eigenvalue 4 1,256 (12,556%)
Number of job offers per 1000 inhabitants	,872 (0,833)			
Investment's rate	,819 (0,741)			
Number of firms per 1000 inhabitants	,725 (0,674)			
Polarization sector of the labor force		,749 (0,725)		

Specificity of the activity structure of the labor force	,689 (0,576)		
Index of economic concentration	,662 (0,493)		
Average size of the private sector's firms		,828 (0,827)	
Part of employment in the private sector's firms		,790 (0,790)	
Unemployment rate		,	,827 (0,763)
Number of job application per 1000 inhabitants			,621 (0,763)
	KMO:– Bartlett test: CHI SQUARE:; DF: sig : …		

Figure 1 summarizes the results of previous Main Component Analysis and shows the structure of the index proposed by domain and subdomain development that follows.

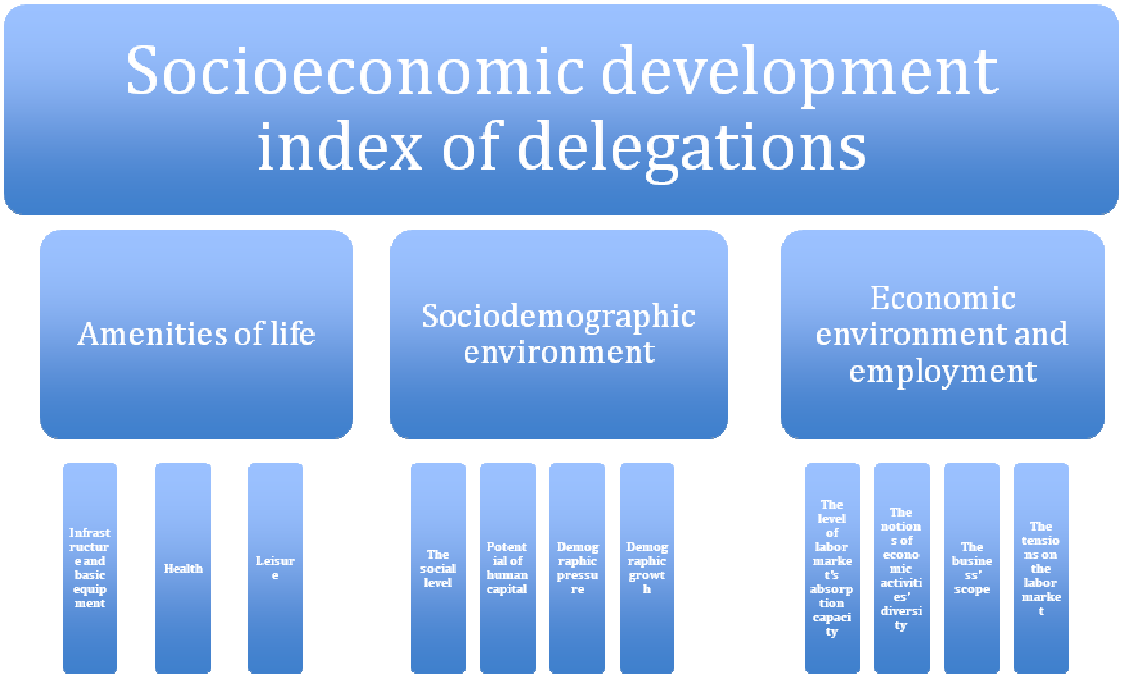

Figure 1: Areas covered by the index

Socioeconomic development's factors of delegations, resulting ACP lead to various uses. For our part, we opted for a multi-level approach seeking to develop a complete statistical and unified portrait of all Tunisian delegations in socio-economic development. Thus, a Composite Index of Socioeconomic Development of Delegations (CISEDD) will be established to account for regional disparities, take note of the socioeconomic mechanisms governing these inequalities and precede at the same time a revision of the regional priorities' map in Tunisia. Then, "Multi-Dimensional Scaling" method (MDS) is applied to factors to establish a Composite Index of Socioeconomic Development of Delegations (CISEDD).

2.5 Composite Index of Socioeconomic Development of Delegations (CISEDD).

The proposed index is the result of a multidimensional scaling (MDS) process of delegations according to their level of socioeconomic development. « Multidimensional scaling, in its most basic formulation, sets out to represents a set of objects in a low-dimensionality space" (Arce and al, 2010). « For given set of proximities, MDS attempts to find a set of points such that distances (d_{ij}) between those points correspond as closely as possible to these proximities" (Ahmed and Miller, 2007). This involves solving the following function.

$$Mm\ \{dij\}\sigma = \sum (dij - f(\delta ij))2$$

Where f( ) is an hypothesized proximity function.
We relied on Multidimensional Scaling to develop spatial maps to visualize the form of positioning points (delegations) in a space metric (Euclidean) having a number of dimensions as small as possible (principle of parsimony) with maximum of fidelity (measured by the existence of a monotonic relationship between the results and the initial data). « The number of dimensions, usually small (two, three, four), is decided by the researcher for substantive reasons, through it can also be set on the Basis of statistical criteria" (Arce and al, 2010).

In the MDS literature, there are different methods allowing us to calculate the index, the applications in this paper use the PROXimity SCALing (PROXSCAL) technique (Commandeur and Heiser, 1993) implemented in SPSS. PROXSCAL is a recent technique that implements the Iterative Majorization (IM) algorithm (Commandeur and Heiser, 1993). Two references points are incorporated into the analysis. The first is an ideal point, which arises from a "perfect" combination of socioeconomic characteristics, responding as close as possible to an ideal development situation. Conversely, the second is considered an anti-ideal point, which represents an extreme situation of socioeconomic deprivation.

Table 4: Ideal and anti-ideal point's characteristics

Sociodemographic factors	Ideal point	Anti-ideal point
Infrastructure and basic equipment	The minimum sample value	The maximum sample value
Health services	The minimum sample value	The maximum sample value
Leisure	The minimum sample value	The maximum sample value
Social level	The minimum sample value	The maximum sample value
Potential of human capital	The minimum sample value	The maximum sample value
Demographic pressure	The minimum sample value	The maximum sample value
Demographic growth	The minimum sample value	The maximum sample value
The level of labour market's absorption capacity	The minimum sample value	The maximum sample value
The notions of economic activities' diversity	The minimum sample value	The maximum sample value
The business' scope	The minimum sample value	The maximum sample value
The tensions on the labor market	The minimum sample value	The maximum sample value

From the point of view of the graphical representation, the concept of ideal point versus anti-ideal leads us to a space where a point indicates each delegation, and where all points are represented by a direction from the anti-ideal points (high socioeconomic deprivation situation) to an ideal point (high socioeconomic promoting situation). In this representation model, called "point-vector model" is the order of the projections (orthogonal) to the direction of the points representing the delegations in space, which should reflect the order of socio-economic development of the Tunisian delegations. (Figure 2) corresponds to the socio-economic development's map of delegations, that it has been recovered from MDS analysis. The purpose of the multidimensional-scaling analyses is to obtain perceptual maps corresponding to the input data, with the smallest possible number of dimensions. The cards are made such that the adequacy is improved when the number of dimensions increases, hence the necessity for compromise. The adequacy of a solution is usually evaluated from the measurement of stress; large stress values indicate low adequacy. "Generally, lower dimensional solutions have higher stress. Increasing dimensionality improves the goodness-of -fit, however, at a certain point raising dimensionality does not decrease stress substantially. This is most appropriate dimensionality and the configuration at this dimensionality is the solution" (Ahmed and Miller, 2007). The number of dimensions is determined by applying the elbow criterion. The rule is that; a value ≤ 0.1 represents the best dimension and it's not tolerable to check a value ≥ 0.15 (Kruskal & Wish, 1978). "There are two types of indicator: those for which zero represents a perfect fit (of this first type would be the indicators Normalized Raw Stress); and those for which the perfect fit is represents by 1(of this second type would be Dispersion Accounted For and Trucker's congruence coefficient)" (Arce and al, 2010).

Thus, a graphic representation of the stress based on the number of dimensions can be instructive. The set of points usually gives a convex shape (see Figure 3). The point where the elbow is formed indicates the appropriate number of dimensions. Beyond that, the adequacy does not improve substantially. In our case, the criterion of the elbow seems to favour a solution in three dimensions with a normalized raw stress value 0.0251 order, value that corresponds to a high quality adjustment according to the Kruskal scale which is most commonly used to test the lack of adequacy. The relevance of a three-dimensional solution is also attested by the value of 0.987 (very close to one) that it has been recorded for the index of congruence of Tucker.

Table 5: Goodness-of-fit indices offered by PROXSCAL

Normalized Raw Stress	0.0251
Trucker's Congruence Coefficient	0.987

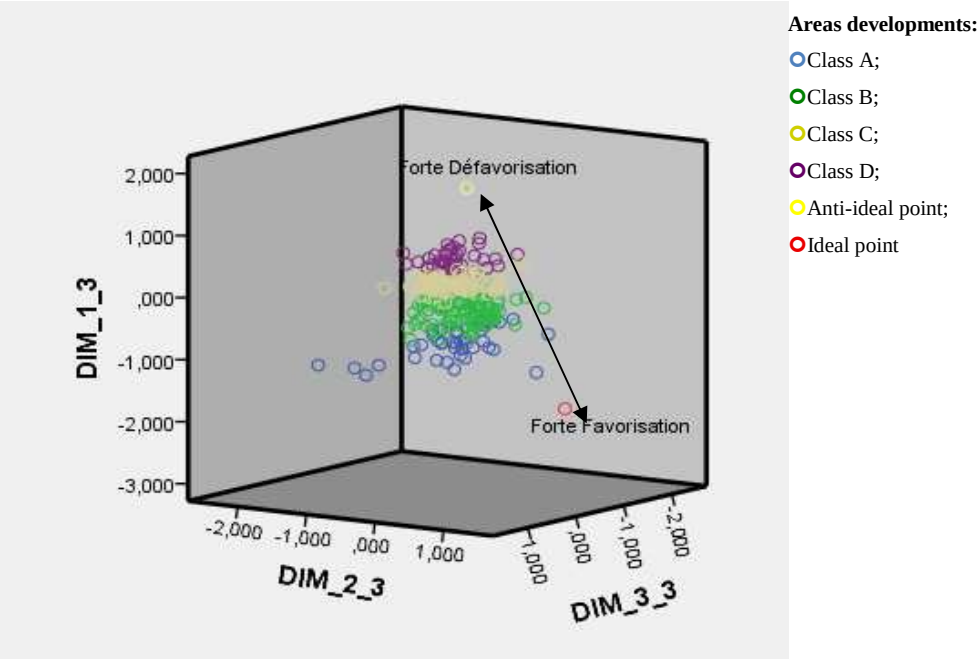

Figure 2: Socio-economic development's map of delegations

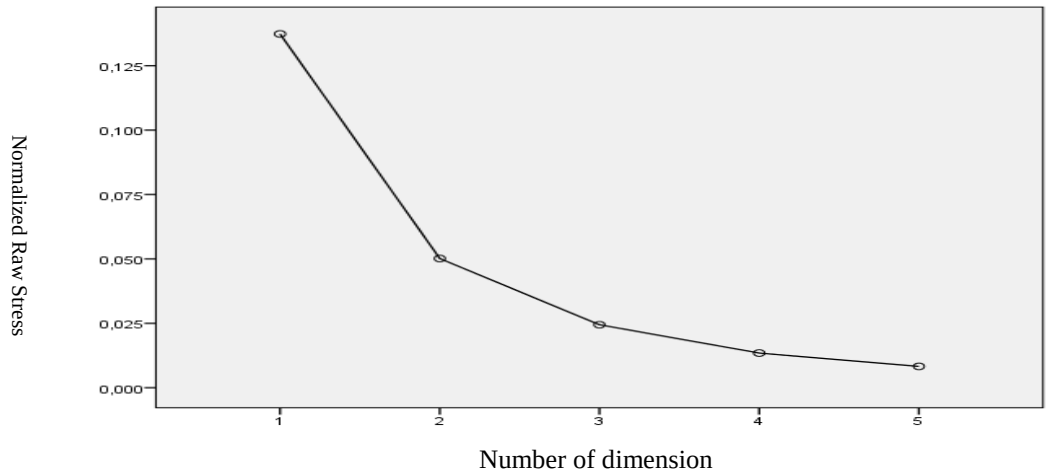

Figure 3: Scree plot's graph

From this card, we have established a multidimensional scaling of delegations in an order that ranges from the most deprivation situations to the most promoting situations on socioeconomic development. For each point, the ratio between the two distances that separate the ideal point on the one hand, and anti-ideal point on the other hand, can be used as an indicative criterion of the level of socio-economic development of the corresponding delegation. The values thus calculated are used to form a new Composite Index of Socioeconomic Development of Delegations (CISEDD):

$$CISEDD = ln\left(\frac{d^2(P_D, P_I)}{d^2(P_D, P_{AI})}\right)$$

Where : P_D, Point-Delegation ; P_I, Idéal point; $P_{A\text{-}I}$, Anti-Idéal point; d, Euclidean Distance ; ln, Natural Logarithm

A positive index value (negative respectively) indicates a promoting socioeconomic situation (respectively, deprivation socioeconomic situation). This index has the advantage of being relatively easy to interpret and it allows characterizing the delegations for their development's level.

2.5.1 Preliminary index results

On the card (Figure 2) we can see that there is a strong presence of points on the side of anti-ideal point. This trend indicating a situation of socioeconomic deprivation widespread among delegations resulted in a very large proportion of negative values in the index. This part around 96%is also materialized by negatives values that were recorded for all central position indices, including the average and the median index (table 6). These results confirm the hypothesis of normality of the distribution of the index. At this level, the Kolmogorov-Smirnov and Shapiro-Wilk tests are unambiguous. From (Table 7), the normality hypothesis is retained in both cases with significance levels in the order of 0.176 and 0.315, respectively.

Table 6*:* Descriptive statistics of CISEDD

		Statistics	Standard Error
Average		-,5384	,01933
Confidence interval 95% for the average	lower bound	-,5765	
	upper bound	-,5003	
Truncated mean on 5%		-,5372	
Median		-,5261	
Variance		,099	
Standard deviation		,31413	
Minimum		-1,35	
Maximum		,21	
Interval		1,56	
Interquartile interval		,46	
Asymmetry		-,088	.150
Flattening		-,392	,299

Table 7: Normality tests

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	Freedom degrees	Signification	Statistic	Freedom degrees	Signification
CISEDD	,052	264	,176	,994	264	,315

The "box plots graph" is prepared essentially to understand the disparities within and between governorates in socio-economic development. It also seems to support this rather disturbing of socioeconomic deprivation of the majority of delegations of countries. This type of graph is used to display the main specifications of a given distribution and facilitates comparison of distributions using quartiles. The upper and lower sides of each rectangle represent the first and third quartile, respectively; inside trait represents the median. A box length represents the central part of the distribution, which is the interquartile range. “Whiskers” corresponding to adjacent values complete the box:

- Upper adjacent: larger value lower than Q3 + 1.5 (Q3-Q1);
- Lower adjacent: smaller value upper than Q1 - 1.5 (Q3-Q1).

The outside points represent extreme values.
Indeed, negatives values recorded at the median of the 24 governorates of the country; show that they are all concerned, although to different degrees, by deterioration of the socioeconomic conditions. In order to further analysis, we established a ranking of governorates according to their level of socioeconomic development. At (Figure 4), they are arranged on the x-axis from left to right in ascending order of the level of socioeconomic development. Again, another trend emerges; socioeconomic status of the governorates of the country's interior is penalized relative to the coastal governorates. Indeed, they are the only ones, except the Governorate of Mahdia, held positions above the median level of socioeconomic development recorded for all delegations in the country. Similarly, we can see also that it is only in the governorates of Tunis, Ben Arous, Ariana, Monastir, Sousse and Sfax, all also located on the coast, where we could identify some delegations with a positive score meaning a very favoured position compared to other delegations.

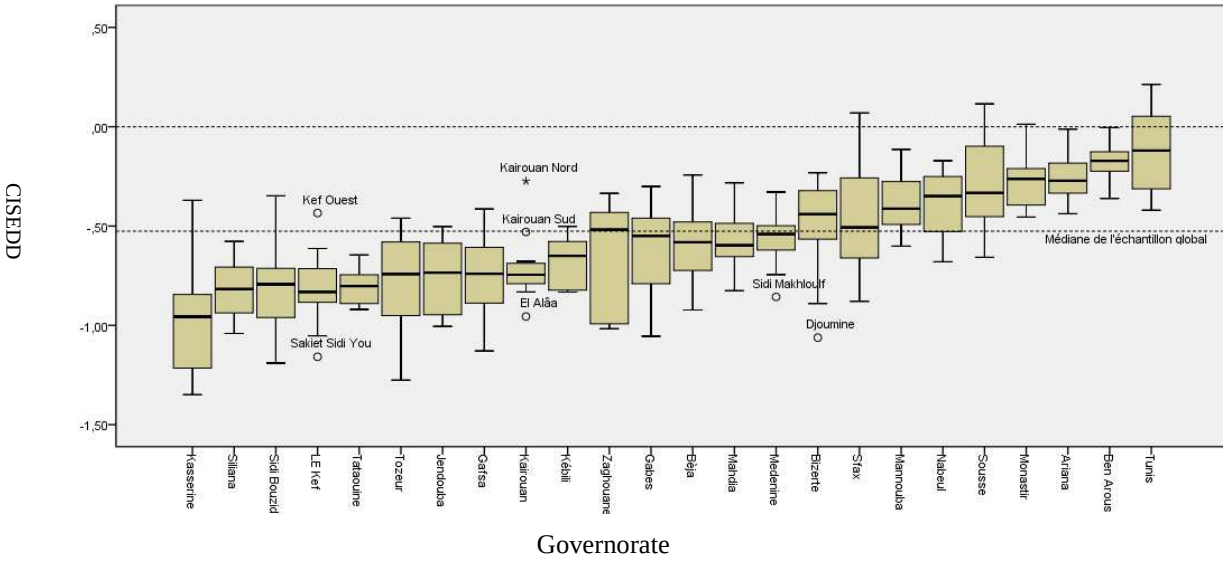

Figure 4: Box plots graph

To illustrate the spatial structure of socioeconomic disparities of development between the coastal governorates and those inside the country, we developed a mapping index CISEDD through thematic maps. In terms of presentation, we selected for each of the two regions a choropleth map of the index’s mean at the governorate level (this is the arithmetic mean of the index recorded for the delegations of the same governorate). The categorization of governorates in relation to their average level of socioeconomic development is expressed by colour ranges given on a scale of six dyed graduated, (from the darkest to the highest in more clear values for the lowest values of the index). For comparison purposes, the limits of the classes are represented in the two regions on the same scale at the bottom of (Figure 5).

The dual character of socio-economic development between the coastal areas and those in the interior of the country is so certified by the difference in dyed colour between the two cards. At this level, the

costal governorates mark their superiority over those of interior by dark colour. For their part, clear dyed meaning their penalization in socio-economic development marked the governorates of the interior

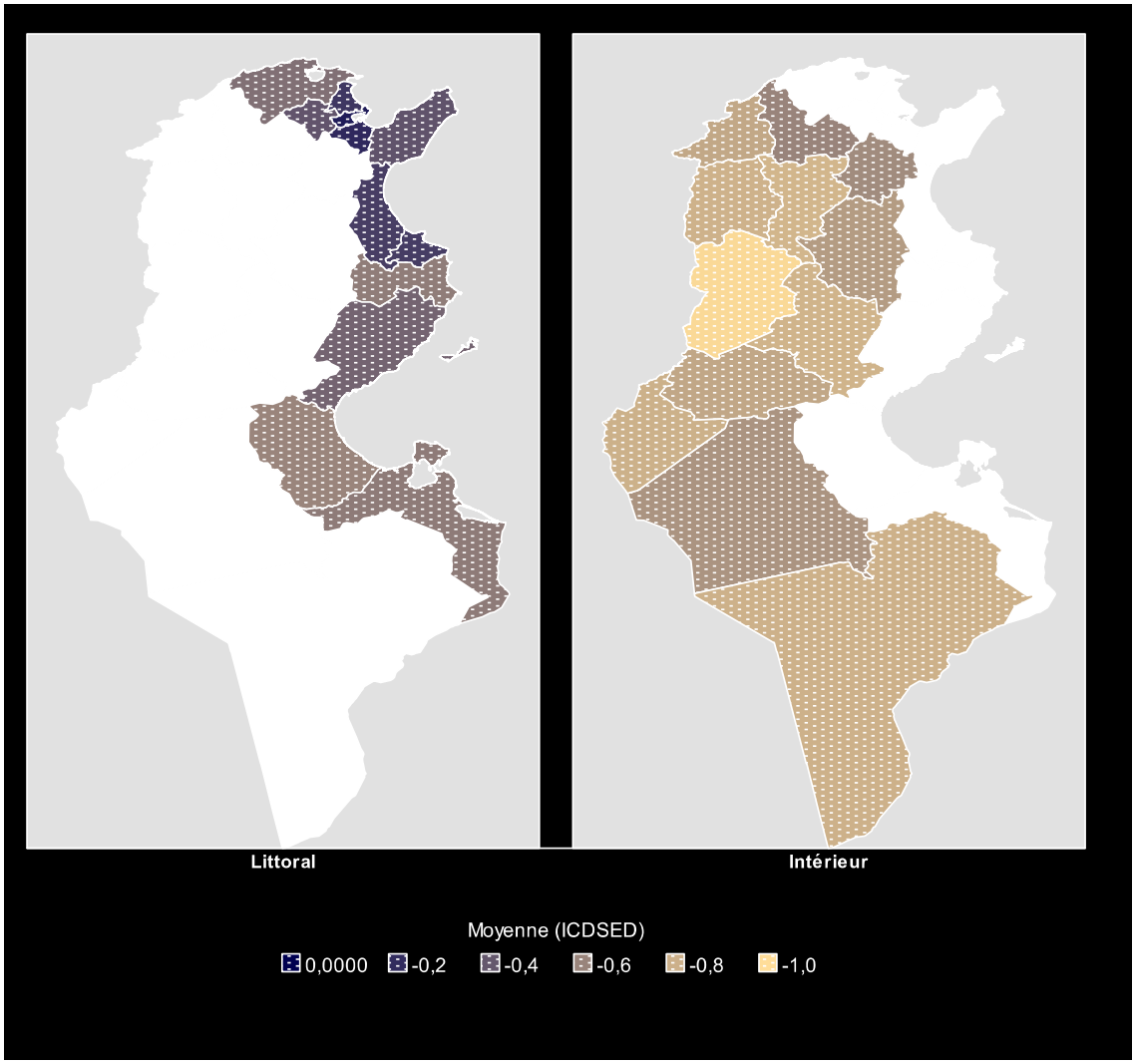

Figure 5: Index's map

The index also suggests disparities related to the degree of urbanization of the delegations. Indeed, according to the "Box Plots graph" (Figure 6), we concluded that in Tunisia rural means underdevelopment, although some sections of the population in urban environment also seem not to be spared the degradation of socioeconomic conditions.

All these results suggest the possibility of a process to reproduce a hierarchical structure of socio-economic development among the delegations and reinforce a certain dualism. Spatial disparities allow opposing an advantage segment (the capital and the coast) and a disadvantage segment (inside), while those on the "middle" point to the favoring (or deprivation) urban areas (rural). Urban concentration was made on the coast (from Bizerte to Gabes), which includes 76% of the urban population. This urbanization was a strategy of deliberate policy, which accentuated regional inequalities.

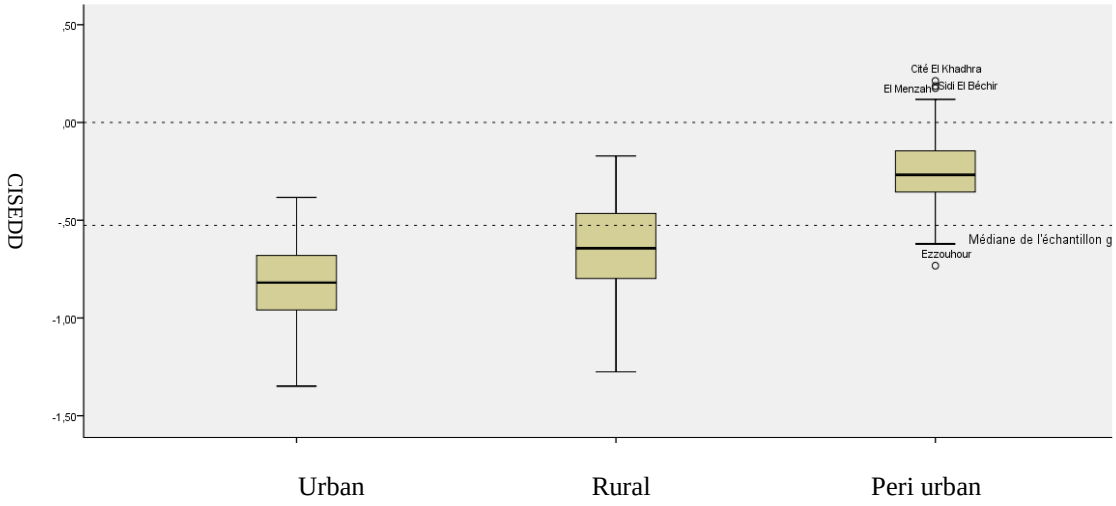

Figure 6: Box plots graph

2.5.2 The importance and reliability of CISEDD Index

The purpose of this section focuses on the quality of CISEDD index. From this point of view, the CISEDD index must establish a correspondence between a theoretical level (conceptual definition of socio-economic development of delegations) and an empirical level (definition of indicators used occasionally and which is based on the calculation of the index). Indeed, as calculated, the CISEDD index is implicitly associated with a multidimensional view of the development' concept, a view that falls within complex and inextricable relationship between various components: demographic, social and economic. In terms of construction, the aggregation of all these components is made to the means of factor analysis and multidimensional scaling techniques.

Reflections initially conducted on the process of determining the index and the fundamental properties of the results are here supplemented by analysis of validity (content) and reliability (internal consistency) of the index. This, has led us to raise two important questions:

1) What aspects of the delegation are taken into account?
2) Factors are they consistent in the index's composition?

In this perspective, we used a multiple regression model expressing the CISEDD Index, based on factors to take note of the importance and the way in which the various development indicators involved in the index's formulation.

The results of the model estimated by **ordinary least squares method** are given in Tables 8.1, 8.2, 8.3 (see annexes). These results relate to the best specification that can be retained to study the index's composition. In terms of approach, this specification is the result of an automatic learning process applying the principle of selection "ascendant step by step" for the explanatory variables in order to a better model performance. This is also evidenced by the very value close to one (0.96) of the adjusted R-squared (see Table 8.2). Fisher's test is concluding and indicates that the model is globally significant (see Table8.1). From Table 8.3, the eleven factors appear to be involved in the expected direction (sign of regression coefficients) and significantly (level lower than 0.05) in the composition of the index. A careful reading of the fourth column of the same table is used to establish a ranking. Regarding the factors, the economic indicator for the size of companies operating in the delegation that holds the upper hand, followed by the indicators of infrastructure, leisure and social level. The indicators related to the diversity of economic activities, the absorption capacity of the labour market and the potential of human capital appear to be the third level and anticipate in the same time the indicators related to health services and tensions of the job market. Occupying the last two positions, both indicators on the demographic situation in the delegations are like most penalized

at the end of this ranking. In total, eleven components were found relevant in the construction of the index and seem mostly be very consistent evidence in order to establish a sufficiently differentiated portrait of delegations in socio-economic development.

3. Socioeconomic Classification of Delegations and Cartography of Regional Development in Tunisia

To extend the analysis, we performed a classification of delegations in order to identify relatively homogeneous groups, thus generating socio-economic profiles on the basis of eleven factors from ACP as the influence that they exert on the CISEDD index. To do this, factor analysis of Correspondences (FAC) has been initiated in order to reconcile between two approaches used to determine the groups: the discretization of the CISEDD index and cluster analysis from eleven factors from ACP.

3.1 The classification of delegations from the class's discretization of the CISEDD index

In order to draw up a map of regional development in Tunisia, a first classification of delegations is established on the basis of a class discretization of CISEDD index. The normality of the distribution of index values gave us the right to apply the standardization technique as an approach to thresholding. The standardization is to define a first class centred on the mean and a magnitude of a value of standard deviation. The other classes are then incremented by one step to the value of one standard deviation on either side of this central class. Under these conditions, each class is determined by a fractional standard deviation relative to the average. This discretization technique named standardized classes method according to average and standard deviation has the major advantage to establish classes that rely on threshold of statistical significance rather than arbitrary arithmetic (quantile method, equal thresholds range). Figure 7 shows the distribution of the delegations at the frequency of belonging to different classes that have been recovered from the discretization of the index. This is a unimodal distribution characterized by a high concentration of the delegations at the two central classes adjacent to the average. The frequency of the delegations in the class's decreases fairly symmetrical and gradually as the distance from either side of the average. Thus, we quantified 5 delegations recorded a score higher than the threshold of 1.1 to form the group of the most socio-economically advantaged delegations in the country. These are the delegations of Tunis Bab Bhar... In contrast, the seven delegations ... having recorded a score less than -1.17 are grouped together to designate the poorest socio-economically class of delegations.

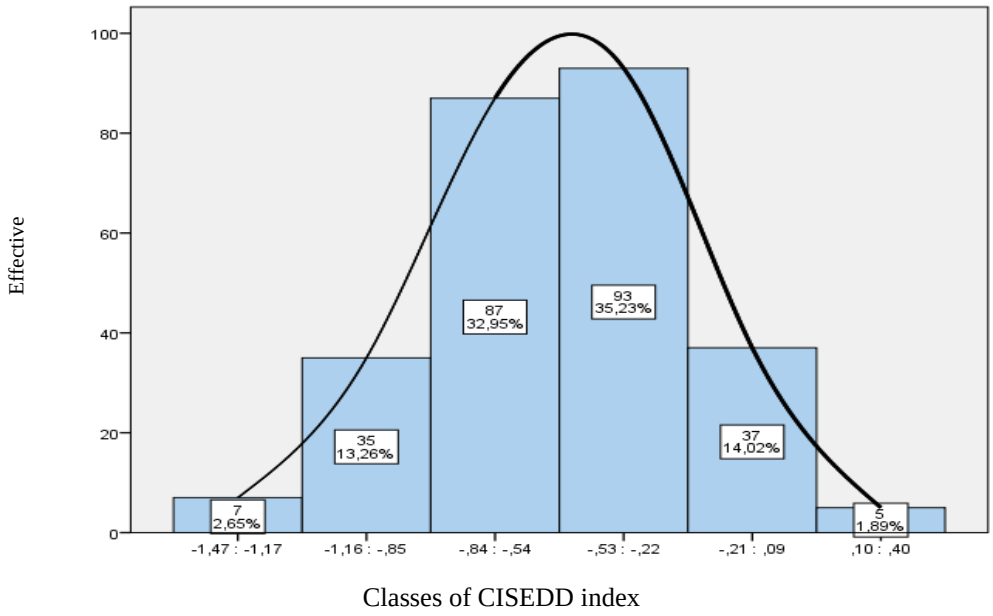

Figure 7. The distribution of the delegations from the discretization of the index

3.2 The classification of delegations according to the components of the CISEDD index

The determination of groups is performed on the basis of a process of hybrid cluster analysis combining hierarchical and non-hierarchical classification methods. More precisely, it is a cluster analysis in two steps. In terms of "stricto sensu method", it is to make an initial classification of delegations by a process of hierarchical ascending classification as a method of partitioning. And a classification is carried out by the mobile centers or k means. Thereby obtaining final classes, which are assigned the initial observations by means of their pre-classes from the first step (the classes centres provenent from hierarchical classification process are retained as the initial solution to start the process of non-hierarchical classification). The hierarchical process is called ascending if it begins with objects (individuals) to form classes, and said descendant if it begins with the set and selected partition that maximizes the ratio between intergroup variance and total variance. After, it comes to choosing the number of classes in arbitrating with the degree of heterogeneity in groups. On the graph, it is indicated by a scale from zero (level of extreme homogeneity) to twenty-five (level of extreme heterogeneity). This tree (figure 8) shows that a partition to four groups seems to be more appropriate to account for socio-economic development disparities between the delegations (see annexes).

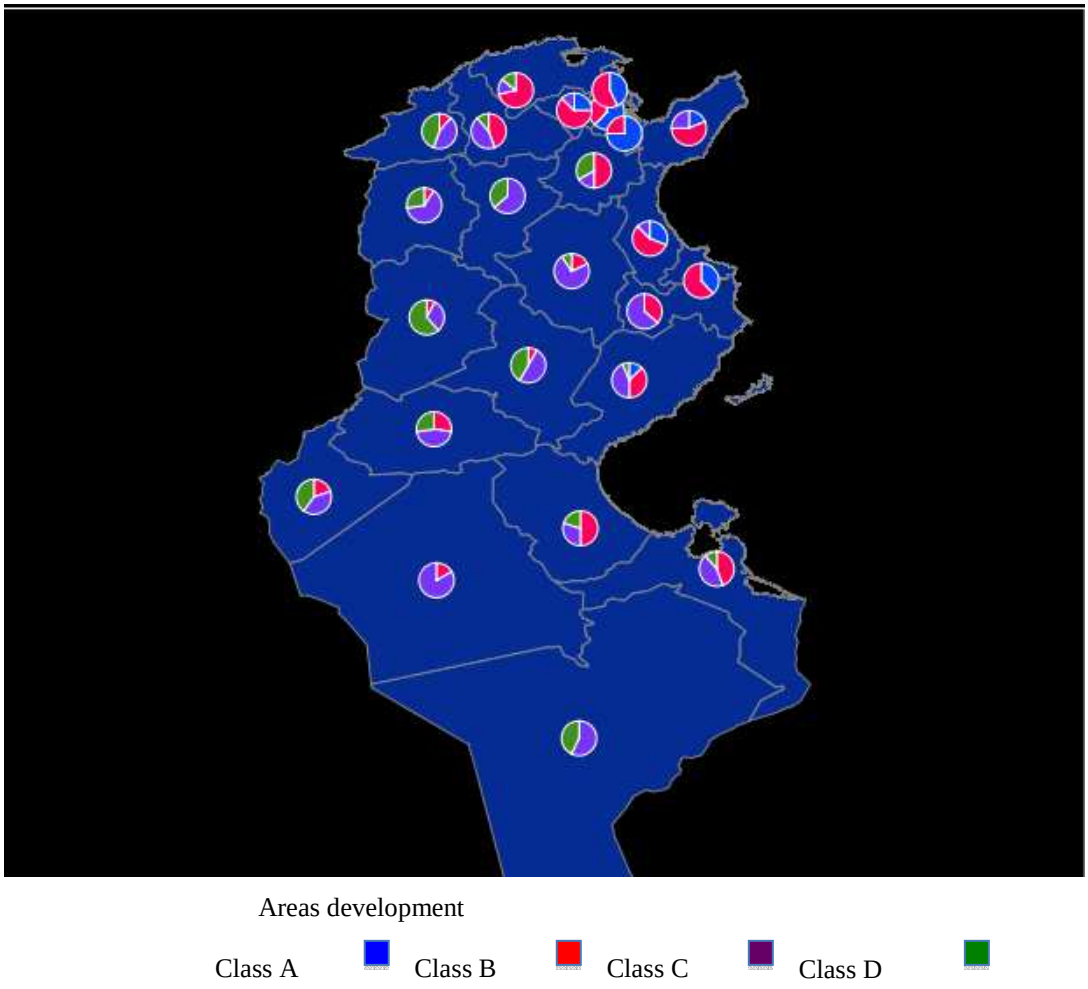

Figure 9: The regional development map by governorate in Tunisia
Distribution of delegations by development's classes

4. Conclusion

This paper supports the hypothesis that the disparities between the regions of coastal and those of the interior are very important in Tunisia. Our research has allowed us to make a classification of the delegations using our composite index (CISEDD), which is the result of a multidimensional scaling process of delegation according to their socioeconomic development's level. Our results show that the 24 governorates are all concerned, although to different degrees, by deterioration of the socioeconomic conditions. Also, the governorates of the interior are penalized compared to costal ones. Except the governorate of Mahdia, the governorates of Tunis, Ben Arous, Ariana, Monastir, Sousse and Sfax benefit a favorite situation compered to other delegations of the interior. And to push our research further, we investigate the consistent of the factors in the index's composition. In this perspective, we used a multiple regression model expressing the CISEDD index based on factors to take note of the importance of indicators in the index's formulation. The eleven factors appear to be involved in the expected direction and significantly in the composition of the index. We conclude that the economic indicator "firm scope" is the most important factor in index's composition. And to extend the analysis, we performed classification of delegations in order to identify relatively homogenous groups, our results show that a partition to four groups seems to be more appropriate to account for socio-economic development disparities between the delegations. This classification has still allowed us to show that coastal regions are ahead of the inland regions.
The results of this paper represent a contribution to the debate of regional development, and the gap of development, which persist between delegations in Tunisia.

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Annexes

Table: Socio economic development's indicators of the delegations	
Category I: Amenities of life	
Distance from the poles: Tunis, Sousse and Sfax	The kilometre distance between the delegations of big cities of Tunisia (Tunis for the North, Sousse for the centre and Sfax for the South). It reflects, in some way, the geographical proximity of each delegation poles of economic activity
Average distance access to airport and port services	Kilometre distance from each delegation from the nearest pole (port, airport). It allows us to appreciate the ease of business transactions including each delegation with the outside
Connection rate to wastewater system	The housing proportion connected to the sewerage system of ONAS in the delegation. It reflects the quality of life.
Part of classified roads	The ratio of classified roads in Kms on total of roads in each delegation. It includes the road network consists of highway, regional road and local road. It reflects the level of accessibility of each delegation.
Connection rate to drinking water	The proportion of housing connected to the drinking water network (SONEDE) in the delegation. It reflects the quality of life.
Number of doctors per 1000 inhabitants	The density of general doctors (medical density) per 1000 inhabitants. It reflects the level of accessibility to medical care in the delegation.
Number of beds per 1000 inhabitants	The availability of beds in hospitals per 1000 inhabitants. It reflects the capacity of public hospitals in the delegation.
Number of pharmacies per 1000 inhabitants	The density of pharmacies per 1000 inhabitants. It reflects the distribution of the medical service level in the delegation
Number of leisure centres per 1000 inhabitants	The density of turf stadiums, sports halls, youth centres, children's clubs, and complex children per 1000 inhabitants. It reflects the level of diffusion of the leisure centres in the delegation.
Diversity of leisure centres	Synthetic index calculated on the basis of the Herfindahl index to assess the level of diversity of leisure in the delegation on the basis of available information regarding the number of turf stadiums, sports halls, youth centres, children's clubs and children's complex. It takes values in the range [0, 1]; a value close to 0 (respectively 1) indicates a high (respectively low) diversity.
Category II: **Socio-demographic Environment**	
Poverty rate	This rate is defined according to the INS, as the sum of food and non-food components on the fringe of the population located in the 20th percentile in household spending.
Illiteracy rate	Part of the inhabitants do not have all tangible skills, cognitive of reading and writing
Dependency rate of the population	The part of individuals taken care of by their families. This rate is calculated as the number of people aged fewer than 15 and over 60 years compared to the total number of inhabitants of the delegation.
Number of Needy Families per 1000 habitants	The number of families taking advantage of direct assistance from the State and the allocation of the National Programme Assistance to Needy Families "PNAFN" for 1000 people in

	the delegation.
Population density per km2	The number of inhabitants per km2.
Polarization of the population's age structure	Synthetic index calculated on the basis of the Herfindahl index from the structure by age group of the population of the inhabitants of the delegation. It takes values in the range [0, 1]; a value close to 0 (respectively 1) indicates a high (respectively low) polarization or a low (respectively, lower) dispersion.
Net migration	Net migration is the difference between the number of people who entered the territory of the delegation and the number of people who came out in 2008.
Annual average growth rate of the population	Annual average increasing of the inhabitants of the delegation between 2008 and 2012
Part of educated inhabitants	The number of individuals assigns a level of secondary and higher education based on the total population of the Delegation
Average number of students per class in basic education	The ratio between the number of students and number of basic education classes.
Average number of pupils per teacher in secondary education	The ratio between the number of students and the number of secondary school teachers
Category III: Economic Environment and Employment	
Number of job offers per 1000 inhabitants	The total number of job offers registered at the employment offices of the Delegation for 1000 people in the year 2012
Number of firms per 1000 inhabitants	The number of private companies operating in the territory of the Delegation for 1000 people.
Investment's rate	The rate of job applications registered at the employment offices of the delegation has given rise to an insertion in the company during the year 2012.
Polarization sector of the labour force	Synthetic index calculated on the basis of the Herfindahl index to assess the level of diversity of the employed population by areas activity. It takes values in the range [0, 1]; a value close to 1 (respectively 0) indicates a high (respectively low) polarization of the employed population around a small number of industry
Specificity of the activity structure of the labour force	Synthetic index calculated on the basis of Krugman index to measure the difference of the structure of activities of the employed population of the delegation with the business structure of the labour force for the entire country. It takes values in the range [0, 1]; a value close to 1 (respectively 0) indicates a high (respectively low) specificity.
Index of economic concentration	Specific measure of the concentration of the structure of economic activities in the delegation. It takes values in the range [0, 1]; a value close to 1 (respectively 0) indicates a high (respectively low) businesses polarization around a limited number of activities' sectors.
Average size of the private sector's firms	The average number of employees and self-employed per company in the delegation.
Part of employment in the private sector's firms	The total number of employees based on the total active population in the Delegation
Number of job application per 1000 inhabitants	The total number of job applications registered at the employment offices of the delegation for 1000 people during 2012.

Unemployment rate	Share of unoccupied labour force in search of employment in the Delegation

Results of the linear automatic regression model for the index's reconstitution and the determination of weight factors

Table8.1: Effects

Target: CISEDD

Source	Sum of squared	Degrees of freedom	Mean square	F	Sig
Corrected model	24,964	11	2,269	578,553	, 000
Residue	0,988	252	0,004		
Corrected total	25,952	263			

Table 8.2: Model's summary

Target	CISEDD
Automatic data preparation	Disable
Method of model choice	Best subset
Information criteria	- 1449,863

Information Criterion is used to compare the models. Models with the smallest information criterion value are better adjusted

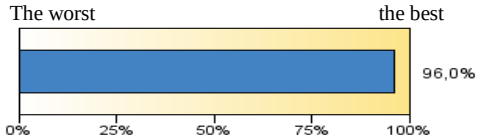
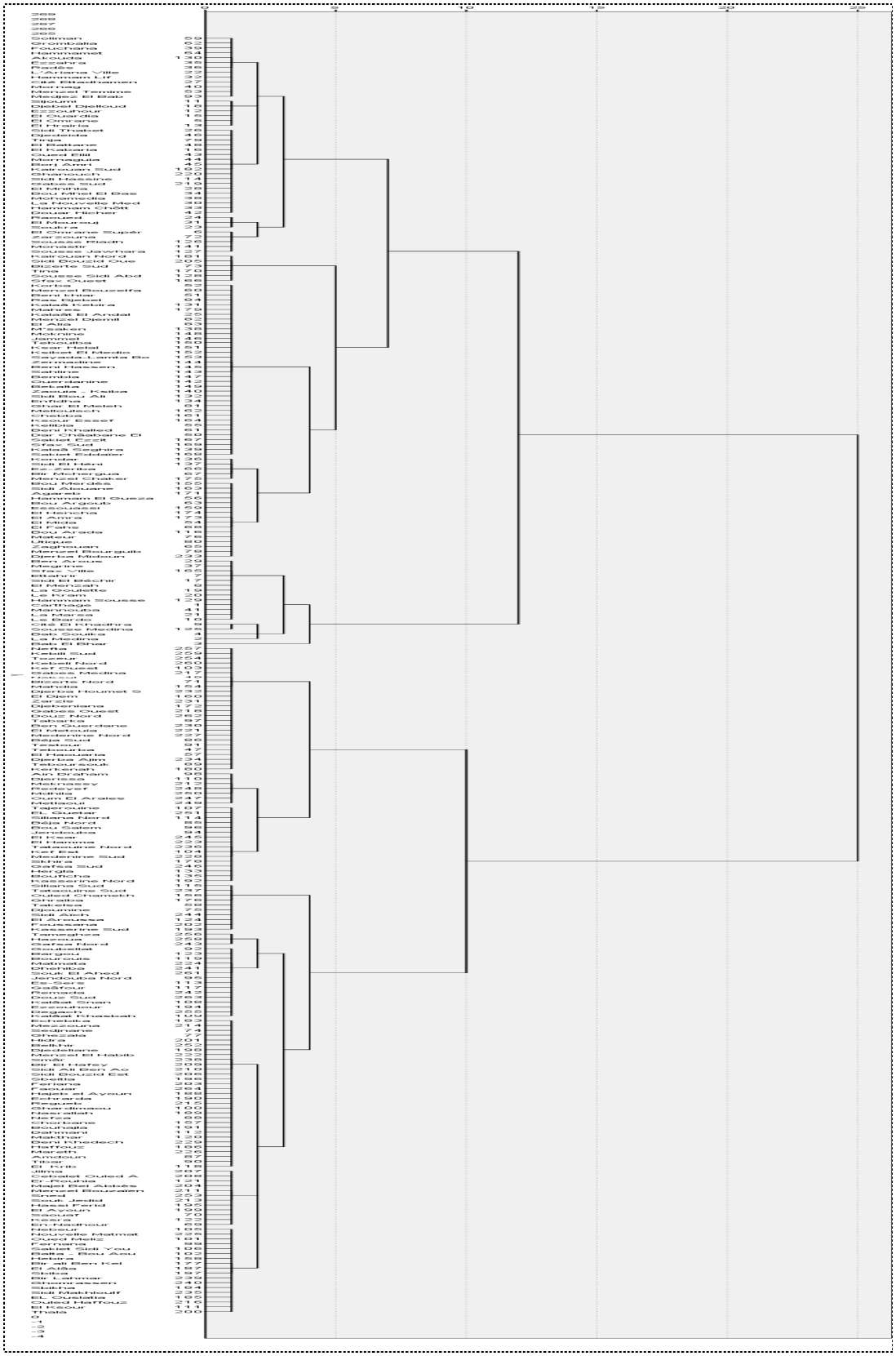


Table8.3: coefficients

Target: CISEDD

Model specification	Coefficients	Sig	Importance
Constant	-0,538	, 000	
Firm scope	0,068	, 000	0,262
Infrastructure	0,099	, 000	0,167
Leisure	0,046	, 000	0,111
Social level	-0,077	, 000	0,110
Diversity of economic activity	-0,037	, 000	0,092
Absorptive capacity of the labour market	0,040	, 000	0,091
Human capital	0,053	, 000	0,063
Health	0,029	, 000	0,038
Tensions of the job market	-0,020	, 000	0,026
Population pressure	-0,029	, 000	0,024
Population growth	0,015	, 001	0,015



The Life-Cycle of Organizations: The Characteristics of the Development Phases of the Tunisian Organizations

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Abstract

This article discusses the life cycle of agri-food sector organizations in Tunisia. Although much research on the organization's life-cycle can be found in the literature, there is a remarkable lack of this type of research in emerging countries such as Tunisia. We begin by examining the life cycle models of organization that have been proposed in the literature. Each of these models identifies characteristics of organizations to certain stages of development. A summary model of the different phases is derived. This model includes five phases: start-up, growth, maturity, decline and revitalization. Then an organizational measurement framework developed by Lester and Parnell (2008) was introduced. This framework organizes the organizational measure criteria of each phase of the organization's life-cycle. The identification of the profiles of Tunisian organizations and the categories of the organization's life-cycle phases are determined following the use of cluster analysis (hierarchical and non-hierarchical) and analysis of variance. Analysis of the Tunisian agribusiness organizations demonstrated that organizations move from one phase to another by preserving the level of the specialized in the organization even with little embodiment of certain differentiation. The process of information and decision making change from one phase to another. These firms are also characterized by an abnormal slow change in the structuring and formalization.

Keywords: life cycle, organization, phases.

Introduction

Ontogenetic theory uses the concept of "life cycle" to better understand the profile of the evolution of the organization (Mathe 2004; Desreumaux 1998). According to the biological concept, organizations are born, try to grow by taking many forms, and eventually die. This deterministic design has long been studied in presenting the organization in the form of scenarios or phases.

The authors multiply the work to define the phases of the organization's life-cycle by enhancing the structure (Dodge and Robbins, 1992; Mintzberg 1989, Quinn and Cameron, 1983); strategy (Miller and Friesen, 1984; Chandler, 1992); performance (Lester, Parnell and Carrahar, 2003); any problems (Churchill and Lewis, 1983; Greiner, 1977). These authors are keen in specifying the life cycle of the organization and describing each phase of the life-cycle.

However, the examination of the literature shows that there are convergences of the different models studied and absence of the specification of the life cycle model of the Tunisian organizations. We will be ambitious and to specify the life-cycle of the Tunisian organization in the Tunisian food industry and to present the main features.

The Theoretical Framework

The organization is defines as an open system composed of interacting elements. Its development involves the transformation of these elements (Mintzberg, 1982).

According to the evolutionists, the organization evolves by learning (Tanguy, 1999; Coriat and Weinstein, 1999). According to the biological concept, organization concerned with sustainability and change tends to find balance between continuity and innovation. It seeks to improve its skills and to adapt to the environment. Indeed, the organization can ensure its survival as through responses to the environment (Pfeffer and Salancik 1978), training routines (Nelson and Winter, 1982), changes in configurations (Chandler , 1992) and inertial factors (Miller, 1992). These elements define the profile of the evolution of an organization.

Often apprehended by the joint influence between environment and organization, the evolution is explained by its profile, its duration and its mechanisms (Mathé 2004). A study of the pace of evolution proves important before treating the organization's life-cycle.

The organization's lifecycle presents stages of life interpreted as incremental changes cycles where organizations are transformed periodically (Hafsi and Demers, 1997).

The Rhythm of the Organization's Development

The evolution aims the managerial adjustments in order to maintain growth. It is determined by the economic environment (Hannen & Freeman, 1977), proactive leadership roles (Desreumaux, 1998), the organisation-environment influence, inertia and routines (Feldman, 2000).

Thus, organizations depend on their environment for the resources they use. The population ecology theory apprehends organizations from the environmental point of view. Thus, organizations evolve following environment adaptation. The theory of resource dependence sides with the organization whose managers can anticipate the sources of the environment.

After determining the evolution of the organization levers, the period seems to be the ground to be explored. Add to that, the evolution obeys periods of evolution and revolution, or periods of stability and change. Regardless of rhythm, a plausible hypothesis tends to describe the life-cycle of the organization through phases.

Table 1: The various rhythms of the organizational development

Types of change	Characteristics
Incremental	The change can bel: ➲ indeterminate: Thus the organization goes through a natural evolution period and a period of revolution (Greiner 1977). According to this mechanical approach, the organization examines the difficulties and tries to solve the crises. ➲ Gradual: it is thus sequential, indefinite therefore progressive. It is provided by: ▪ The paradigms that develop gradually and not abruptly. All of these beliefs and convictions help the organization to renew itself (Johnson and Scholes, 2000). ▪ The chaos in which the organization seeks to find a balance with order. The organization develops following the mobilization of resources at one level, and looking for change at a second one (Laszlo and Laugel, 1998).
Dynamic	The dynamic evolution occurs following the transmission of the myths (March 1999). It is characterized by periods of continuity and those of

	rupture. These myths play a stabilizing role and a dynamic one.
Continuous	The continuous evolution is provided by the research continuity and change. It is based on: ➲ Sustainability: according to the theological approach, the principle of evolution is the will and according to the evolutionary approach, the source of change is the confrontation between continuity and change (Desreumaux, 1998; Mignon, 2002). ➲ The vision: the evolution of the organization is continuous but conditioned by self-discipline, visionary ability and dynamic balance between continuity and change (Collins and Porras, 1993).

Thus, the evolution of the organization through two periods: a period of continuity or balance, and a period of revolution or change. According to the punctuated equilibrium, evolution is understood by long periods of permanence where structures and strategies do not change but evolve incrementally, and periods of changes and fluctuations. Thus the organization inexorably goes through periods of transition schematically by a life-cycle.

The Organization's Life-Cycle

The life-cycle of the organizations (CVO) " is defined by the internal characteristics of the organizations and the external context in which they operate" (Silvola, 2008: 29). By adopting the biological concept, it “is more of a collective interpretation of the organization's environment based on an assessment by top management. Most firms do not pas inexorably from one stage of development to another in the traditional biological sense "(Lester, Parnell and Carraher 2003: 340).

One of the first models of the life cycle is presented by Chandler (1962) who has identified four stages of the evolution of the organizational model. Greiner (1977) followed him by presenting one of the most famous models characterized by evolutionary phases and periods of revolution or organizational change. Then we witness a proliferation of models according to the life cycle theory which mostly remain without empirical efforts. Most CVO models adopt the naming of stages or phases of the life-cycle (Hanks et al, 1993; Adizes, 1988; Smith, Mitchell and Summer, 1985; Miller and Friesen, 1984; Quinn and Cameron, 1983); others make use of those growth stages (Galbraith, 1993; Kazanjian and Drazin, 1990; Scott and Bruce, 1987) or development stages (Dodge, Fullerton and Robbins, 1994; Scott and Bruce, 1987; Churchill Lewis, 1983). We choose the name of the models according to the CVO phases because these models have been verified empirically. These phases are the CVO (Dodge, Fullerton and Robbins 1994: 123): “sequence of events that describe how things changeover time; a hierarchical progression that is not easily reversed and a composite of a board range of organizational activities and structures ".

The evolution of organizational models describe specific periods of development organization while those with lesser number of phases generally combine periods of development. Miller and Friesen (1983) proposed a five-phase model that is applicable to any organization that seems most appropriate for our research.

Birth (the existence, entrepreneurial phase). This phase is characterized by a formal structure (Mintzberg, 2003, Lippitt and Schmidt, 1967) under the direction of "One man show" (Chruchill and Lewis, 1983; Scott, 1971). The most important thing to is achieve results, research gains and customer satisfaction (Adizes, 1988).

Growth (the growth, survival). This phase enhances the response to market needs by seeking financial resources, product diversification and the development of distinctive competencies (Quinn and Cameron, 1983; Lippitt and Schmidt, 1967). The organization seeks to adapt to a complex environment and mutations (Scott, 1971). The search for stability and resolution of internal issues are the primary concerns during this phase.

The maturity (stability). The profession of management is installed and the commitment of the members to stability is strongly felt (Mintzberg, 2003). The decisions and objectives are centralized (Miller and Friesen, 1984; Greiner, 1977). Maintaining the organization makes use of formal structures and institutionalization of procedures (Kimberly and Miles, 1980).

Revitalization (recovery). This is the stage of renewal and search for solutions. The organization values innovation and creativity (Lester, Parnell and Carrahar, 2003; Mintzberg, 2003; Miller and Friesen, 1984). To respond to the heterogeneity of the market, the manger multiplies product lines, and diversifies the market and the directions.

The decline (death). This is the tension and problems phase. The inability to resolve conflicts, internal problems or meet external demands led to the eroding of the organization's life.

We will below study the life-cycle of the Tunisian agribusiness organizations on the basis of five criteria proposed by Lester and Parnell (2008) and Lester, Parnell and Carrahar (2003). These criteria are (Structuring; Specialisation / differentiation; Information processing; decision making; formalization). These authors developed five items each relating to a phase for each criterion. We will, therefore, examine the 25 items.

Results

The data is based on a convenience sample. We provided a questionnaire survey administered in an assisted manner. Our sample includes 256 leaders in all of small and medium enterprises operating in the food sector. The measurements are made by using the Likert scales of 5 points; whose validity and reliability were confirmed in previous studies.

We interviewed leaders on the pace of the evolution of their organizations, the age of their businesses, and the ability to identify their evolutionary phase in a simple categorization. The life-cycle of the organization is measured by the Lester and Parnell measuring scales (2008). A typological analysis allows to diagram the characteristics of the life-cycle of Tunisian organizations.

The Characteristics of the Life-Cycle of Organizations

The questionnaire was administered to four hundred managers operating in the Tunisian food industry in small and medium enterprises. The response rate is 64%. 42% percent of respondents are male. More than half of the companies visited were aged over thirty years. One quarter of the respondents exceeded 11 years'service. Thus, our sample is sufficient enough to develop our scale.

Most companies visited belong to the oil and fats (19.5%), other food industries (14.8%) and sugar and derivatives industries (13.3%). Our sample is industry quite diverse which helps to specify the Tunisian agribusiness.

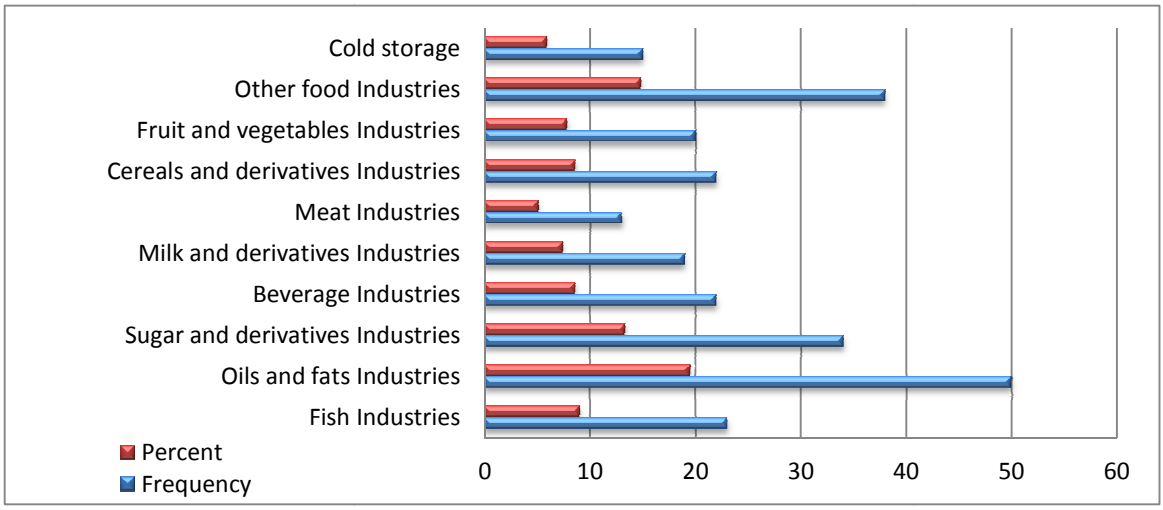

Fig 1 : The Industries of the companies visited

Most of the interviewed organizations are over 20 years old (28.5%). Our sample also shows a significant number of companies having an age of less than 5 years (23.4%) and an age between 5 and 10 years (24.6%). Choosing the companies according to industry promotion agencies and innovation was performed according to this variable. The preliminary assumption was that age has no effect on the identification of the variable.

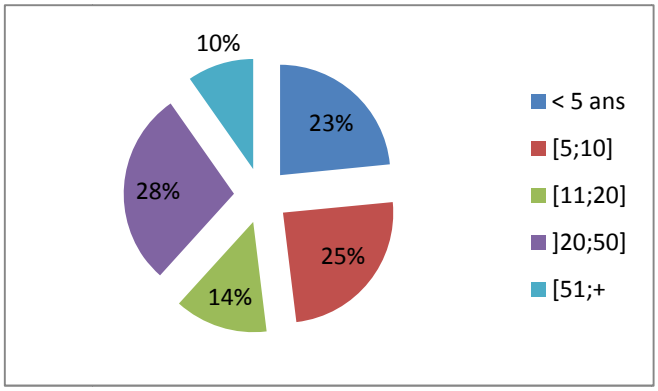

Fig2 : The age of the Tunisian agribusiness companies

Interviewed executives report that their organizations operate primarily at a continuous rate (32%) or fast (27%). Indeed, these organizations seek continuous improvement for the viability of their businesses. This sector is a flourishing one in Tunisia, employing 10 people or more. It also records the changes of activities, structures and technologies.

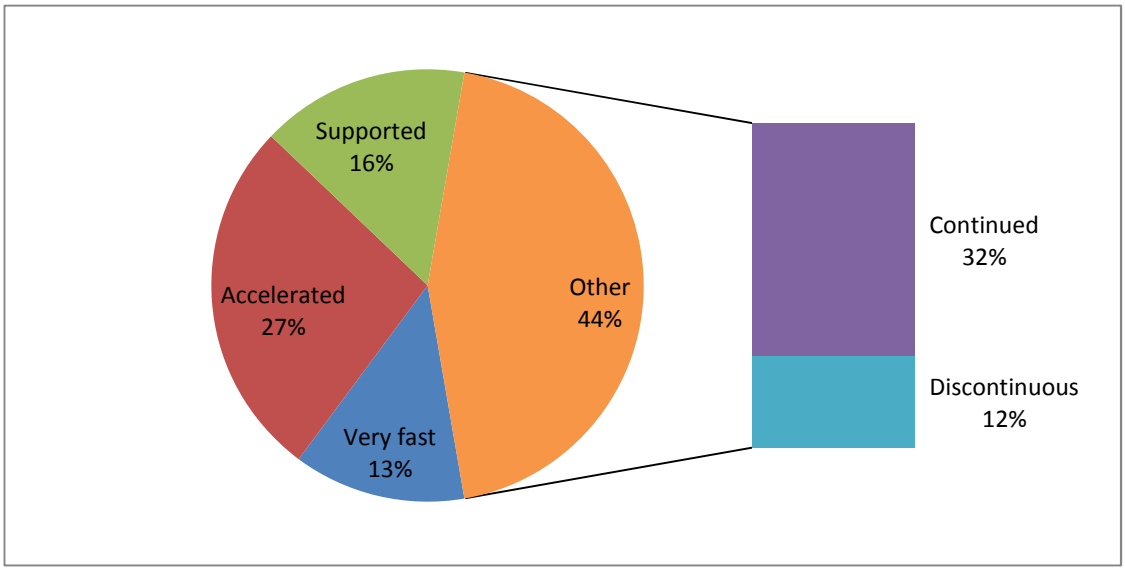

Fig 3: The rate of evolution of Tunisian organizations

Organizations are basically in the mature phase (43%). 32% are in the growth phase and 24.5% in visited the development stage. According to the perception of executives, their organizations go through three main phases. They opt for the continuity, stability and maintaining the market.

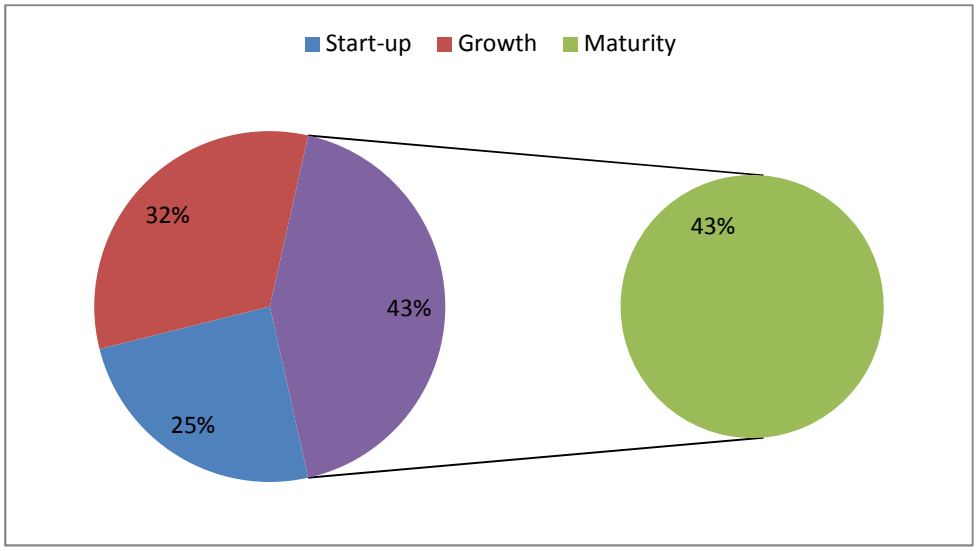

Fig 4 : The organizational life cycle phases of the Tunisian agribusiness

The Phases of the Tunisian Organizations

A factor analysis in main components of the life-cycle variables (depending on the scale of Lester and Parnell (2008)) was used to extract three factors (startup, growth and maturity). This echoes the work of Kazanjian and Drazin (1990). The scale is presented by fifteen items. The correlation of each item with the corresponding factor is satisfactory. Good reliability concerning each factor is very good. The Cronbach alpha coefficient ranges from 0.8 to 0.9. Internal consistency of each dimension is very satisfactory.

Most organizations are in the growth phase. Thus, leaders are struggling to identify their phases. Their perceptions are different from the criteria of evolution of their organizations. This is explained by their desire to develop while targeting maturity. Start-up organizations are described as simple. They are characterized by a fairly high degree of specialization. At the level of decision making, it is centralized. The level of complexity is relatively simple. This joined the work of Miller and Friesen (1984); Lester, Parnell and Carrahar (2003); Smith, Summer and Mitchell (1985); Hanks et al (1993); Saives et al (2005) and Silvola (2008) in the birth stage; Quin and Cameron (1983) in the entrepreneurial phase; Churchill and Lewis (1983) in the phase of the existence; Greiner (1977) in creativity by growth stage; Scott (1971) in its first phase.

Indeed, at birth organizations are characterized by a small formal structure, a unique production and control of personnel motivated by a paternalistic reward. The leadership uses a single person or what is called "One Man Show". Customers' research, product delivery and service delivery are the main concerns of the leaders. This is ensured by the simple structure with direct supervision. Planning is nonexistent. The main resources are the parents and friends. While the staff is destined for execution.

Organizations during the growth phase are characterized by product diversification, specialization with a slight differentiation. The information process ensures the watching out of the performance and facilitates communication between departments. Decision making is slightly decentralized and delegation is limited. The formalization of systems emerges but without management strengthening. At this stage, there is a specialization of functions and work (Greiner, 1977; Scott, 1971). After the development of resources, the leader promotes communication and formal structures at the growth phase (Quinn and Cameron, 1983). He has more confidence in his members (Lipppitt and Schmidt, 1967), which characterizes his delegation and the recourse to group decision-making. Members' commitment is valued and the level of work is intensified (Quinn and Cameron, 1983). However, the control is necessary to affirm the reputation and ensure the execution Greiner, 1977; Lippitt and Schmidt, 1967

Tunisian organizations in maturity are based on a functional structure, a sophisticated information processes, a participatory decision-making, bureaucratic formalization system and enhanced planning. Starting from this stage, the chief executive reports a slow increase compared to the growth phase. He intensifies the planning and control by a bureaucratic formalization and a by department functional structure (Lester, Parnell and Carrahar, 2003, Hans et al, 1993; Smith, Mitchell and Summer, 1985). Centralization is more moderate (Miller and Friesen, 1985; Hanks et al, 1993).

To classify Tunisian companies in the food industry according to their life-cycle phases, we provided a hierarchical typological analysis, and then we developed a non-hierarchical classification, according to the aggregation method of "Ward".
The observation of the homogeneity variance led us to identify three groups. We then checked the variance between group variance and inter group. Fischer's test is significant. To identify the groups, we performed a post hoc test (Duncan test). Each group is thus defined according to each phase. The phase distribution is almost equal.

The life-cycle of the Tunisian agribusiness organizations is tripolar. It is defined by three phases namely: Start, growth, maturity.

Conclusion

This research studies the life-cycle of Tunisian organizations belonging to the Tunisian agribusiness sector according to the twenty five items proposed in the model of Lester and Parnell (2008). Analysis of the results of our empirical research led to a life-cycle of the Tunisian agribusiness organizations defined by three phases.

This present study identifies the existence of a life-cycle of the organization like Kazanjian and Miles (1990) and specifies the phases according to the structure; specialization / differentiation; the information process; decision making and formalization.

Several potential research questions emerge. First, it is essential to refine and validate the new scale in order to defend the validity of the construction and the reliability of the measurement. Indeed, the scale developed in this study is no exception.

Similarly, the sector is not considered as a variable in this study. Thus, the influence of the food industry on .the life-cycle of the organization is not known.

Finally, this study classifies organizations on the basis of a response from a single company manager. A further study with the involvement of other members of the organization brings more clarification on the concept of the life cycle.

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Key Enabling Technologies in Relation to Sustainable Development

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Abstract

The article presents a review about the innovations especially in Key Enabling Technologies (KET), which are nowadays very popular and are closely related to the European Union strategy till year 2020. The KETs are regarded as the promising technologies regarding the sustainable development of Europe. Thus the sustainable innovations in companies particularly in Small and Medium Enterprises (SMEs) are discussed. The aim of the article is to present the KETs defined within the European Union policy for support its sustainable growth and development, and to compare the evaluation and development of KETs in recent years in European states. For this purpose, the qualitative and quantitative approaches were used for the evaluation of the KETs deployment on a European and global level. The implementation of KETs in Member States and others is also depicted.

Keywords: key enabling technologies, sustainable development, innovation, small and medium enterprices

Introduction

The sustainable development is a key modern issue in the 21st century, which is based on a maintaining of the quality life for present generation as well as for future one under the circumstances of the sources, technology and environmental limitation concerning the social issues. The very first time, the term sustainable development was adopted, was in 1969 by the International Union for Conservation of Nature (IUCN) (Adams, 2006), thereafter the term was spread and involved in many world forums, for example the United Nations Conference on Environment and Development held in Rio in 1992. This conference is considered as the milestone for the understanding and perceiving of the topic sustainable development for the whole scientific community. The modern definition of sustainable development, adopted by the conference as it is shown at the beginning of this paragraph, was taken over from the report Our Common Future of the World Commission on Environment and Development (WCED) in 1987 (Adams, 2006; Hirsch et al., 2006).

The governments, organisations and companies, which are highly aware of a necessity of the social and environmental issues solution, have adopted the principles of the sustainable development into their internal documents and strategies. The general public is also familiar with these issues, thus the organisations are forced to accepting and solving these topics in order to maintain the current customers, suppliers and partners and to attract the new ones. However, despite the partial successes the global concept of the sustainable development was still not established (Hirsch et al., 2006; Hedstrom et al., 1998; Holliday, 2001).

Theoretical Approach

Company sustainability

A huge amount of the studies and the scientific publications are dealing with the issue of the corporate sustainable development. All of them are equally based on the same concept of the three dimensions or pillars – economic pillar, which follows the economic activity, economic indicators and the aim of the

stakeholder value maximization; environmental and social pillars, which follow also the other aspects and benefits for the company as well as for the society. These main pillars are shown at the Fig. 1 (Adams, 2006; Hirsch et al., 2006; Hedstrom et al., 1998).

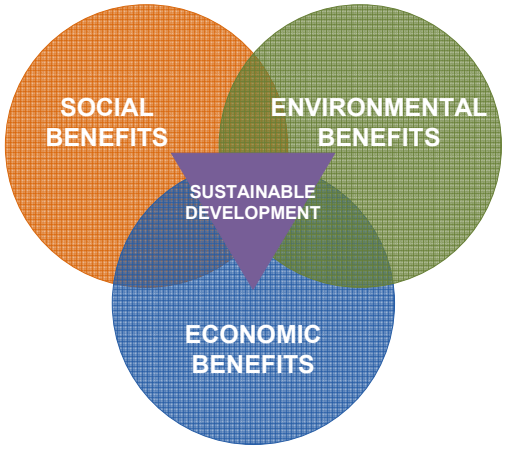

Fig 1. Three pillars of the corporate sustainability (Adams, 2006; Hirsch et al., 2006; Hedstrom et al., 1998).

Nowadays the companies are seeking the short-term goals and the positive economic indicators instead of the long-term vision and the heading of the company as a whole. The actual society focuses on the financial aspects on the business. The reason is that the economic indicators allow to evaluate the corporate management. On the other hand the trends that companies are aware of the environmental and social issues and consider them into their activities, begin to be more and more important.

The author Dyllick et al. (2002) agrees that not only a considering of the economic indicators for the company sustainable development are crucial, which he calls the economic capital, but also the natural capital, in a form of the natural sources, and social capital as a human resources are equally important. On this basis the author develops the corporate sustainability theory and defines the key features of these capitals referring to that each capital has its own importance. In a short-term point of view each capital can be followed separately, but in long-term the strong bonds exist between these capitals and they have to be addressed in relation.

The different perspective on the capitals is shown by the author Senge et al. (2001), who describes the next industrial revolution after that one in the 20th century – Industrial Era , which was typical by the exploitation of natural and human capital in order to gain the financial capital. The development patterns as they were set up in the Industrial Era and the huge consumption of the sources are no longer sustainable in the new era, which the author calls the New Economy. The author Senge et al. (2001) describes the corporate sustainability by the three dimensions: rationalism, naturalism and humanism. Up to now the rationalism, the belief in reason, has the dominant influence of the business and other corporate activities. Nevertheless, it has its limits, which can be solved by the approaches of the naturalism, in which the human is an inseparable part of the nature, and humanism, which involves the emotions, feelings, solidarity and the awareness that human is a part of society. The machine was the symbol of the industrial era, thus the nature should be the symbol of the new post-industrial era. According to it the new term biomimicry (Benyus, 1997) was established. It represents the innovation

motivated by the nature – for example there exist the "natural law" that the products in nature have no waste, which cannot be further processed by the nature itself. The author Senge et al. (2001) puts the questions, why this law should not be accepted as the other physical or chemical laws, why the society does not follow this law? The three possible strategies for companies are suggested (Senge et al., 2001; McDonough and Braungart, 1992; Holmberg and Robert, 2000).

- investments in the regenerative processes;
- renewable energy;
- waste reduction (resource productivity, clean production, remanufacturing, recycling and composting).

The authors discussed above agree on that the sustainable development is the challenge for the whole society, but the companies has the privileged position in this process due to their ability to initiate the significant conceptual and innovative changes.

Innovation and Sustainability

It is the subject of current public and private sector debates that the innovation (product, process, organizational or marketing innovation) are closely related to the sustainable development (Drucker, 2014; Vollenbroek, 2002). The modern companies face the increasing competition and dynamic changes of the markets due to many aspects such as globalization, e-communication, evolving new technologies etc. Thus it is crucial for companies as it has never been before, to include the innovation process into the company strategy and their activities in order to sustain the corporate development and gain the comparative advantage. It has been commonly assumed that innovation is the key driver for the economic growth (Guinet and Pilat, 1999; Bos-Brouwers, 2010; Abernathy and Clark, 1985). Besides the economic benefits, it brings the non-economic benefits as well (Larson, 2000). Those innovations, which provide with not only the positive economic results but also the environmental and social benefits, they are called the sustainable innovations (McElroy, 2003; Schaltegger and Wagner, 2011; Hansen et al., 2009). The integration of all aspects related to the sustainable development distinguishes the sustainable innovation from the standard one (Bos-Brouwers, 2010; Larson, 2000). The word "sustainability" is also often connected with many other specific fields such as production, manufacturing etc., which are all based on the definition of sustainable development and related three pillars system (OECD, 2009).

Other popular term related to the sustainable development and innovation, which is frequently and broadly discussed by many authors, is the eco-innovation (OECD, 2009; OECD, 2015; Fussler, 1996; Bossle et al., 2016). The author Fussler (1996) firstly used the term in relation to the new products and processes which bring the value to the company and its customers and lower the environmental impact at the same time. The OECD with its Innovation Strategy addressing the key societal and environmental challenges in modern world in relation to the eco-innovation, which stands for that the economic wealth goes hand in hand with environmental and social sustainability. This compound word represents the positive impact of innovation processes in companies on the corporate sustainable development. The concept of eco-innovation is broadly supported by many world governments, for example the European union implement the concept through the Europe 2020 strategy as the key to the future competitiveness (European Commission, 2011a) . The eco-innovation can be differentiated from the conventional innovation in two aspects. At first, it is much wider term than the standard innovation, and at second, eco-innovation is not limited to innovation of product, process, marketing or organisation, but also includes innovation in social issues and institutional structure (Rennings, 2000).

In any way it is called, the technological innovation as well as the non-technological are an important driver of the whole economic growth and they contribute to the world prosperity in societal and environmental aspects.

Role of Small and Medium Enterprises in innovation process

The small and medium-sized companies (SMEs) are those companies fulfilling the European requirements according to the Commission Recommendation (European Commission, 2003) presented in Tab. 1.

Table 1: The definition of small, medium-sized and micro companies *(European Commission, 2003)*.

Company category	Number of employees	Annual turnover	Balance sheet total
Medium	< 250	< 50 million EUR	< 43 million EUR
Small	< 50	< 10 million EUR	< 10 million EUR
Micro	< 10	< 2 million EUR	< 2 million EUR

The characteristic features of SMEs, which mean advantages or disadvantages in innovation process, in comparison to the large companies, are especially flexible organization capacities, strong regional focus on customer needs, horizontal management style with the dominant role of the owner, difficulty to attract finance. Due to the low degree of formalization, the decision making at lower management levels is supported and it allows the flexibility of SMEs. Because of the local market focus of SMEs, the entering into the innovation networks allows them to serve the international markets. This ability of SMEs to cooperate closely allow them also to share risks and gain access to other knowledge, services and technology. This all mentioned implicate that the SMEs innovate differently that the larger ones (Bos-Bouwers, 2010; Klewitz and Hansen, 2014).

The SMEs in relation to the innovation capacity and its implementation are studied by many authors, especially in comparison with the large companies (Van Dijk et al., 1997; Tether, 1998; Cohen and Klepper, 1996). Several authors conclude that the small companies can keep up with the large companies in the field of innovation based on the studies of the determinants that influence the innovation of companies in the mean of the research and development (R&D) intensity (Van Dijk et al., 1997). It was found out that the firm size, capital intensity (the barrier for new companies) and skilled labour determine the SME research and development and on the other hand the large companies R&D are affected only by the determinants profitability and market growth (Van Dijk et al., 1997; Tether, 1998).

Moreover, those studies of comparison between the innovation in SMEs and large companies based on innovation accounts examined that the SMEs presented more innovations per thousand employees than the larger companies (Tether, 1998). This is often interpreted like the SMEs are more efficient in innovation process or they are more innovative that large companies (Cohen and Klepper, 1996). However, this interpretation is based on the assumption that the value of innovations do not increase with the size of company on average. The author Tether (1998) explores the sensitivity of this assumption on the declaration about the SMEs innovation capacity in comparison to the large companies. If considering the average value of innovations increases with the size of company, the result is that large companies are more innovative.

Generally speaking, the SMEs are reckoned as an important player in the innovation processes and market competition especially in the field of the sustainable development (Larson, 2000; Schaltegger and Wagner, 2011; Hockerts and Wüstenhagen, 2010).

Key Enabling Technologies (KET)

Modern world is facing the societal challenges related to the sustainable development, such as climate change, poverty or resource and energy efficiency. To address these issues the European Union focuses at enhancing its innovative performance and bases the economy on knowledge and innovations. The EU defined six technologies as the promising crucial technologies to overcome the big challenges. These technologies are called the Key Enabling Technologies (KET) and they are the principal priorities of the European Union Strategy Europe 2020 and its flagship initiative of the Innovation Union aiming at the smart, sustainable and inclusive growth (European Commission, 2010).

KETs are knowledge associated with high R&D intensity, fast and effective innovation cycles, high-quality infrastructure and highly-skilled labour. They enable innovations in processes, goods and services within the whole economy and they are of significant relevance. They are multidisciplinary and cutting-across many technological areas. They are regarded as an important source for innovation. The KETs for European Union were identified on the basis of the global research and market trends and according to the studies of different countries such as China, Japan or the USA and also European countries such as Germany, United Kingdom or France (European Commission, 2009a; European Commission, 2009b). There were determined the several technologies with the strategic importance for the economic sustainable growth, addressing the societal challenges and creating a huge knowledge base that would help the Europe stepping-up and enabling the European companies to compete on a global market (European Commission, 2009a; European Commission, 2009b; European Commission, 2012a):

- **Nanotechnology**
  It is a huge field covering the design, structure, characterization, analysis or products at nano-scale resulting into the products for healthcare, manufacturing etc.
- **Micro and nano-electronics**
  This field is related to the semiconductor components and miniaturised electronic systems in larger final products that are used in many industrial sectors for intelligent control.
- **Photonics**
  Photonics deals with the light generation, propagation and detection. Typically it involves the conversion of sunlight to electricity and also the solar cells, LED technology etc.
- **Advanced materials**
  The advanced materials in the meaning of the low-cost substitute to existing materials and also the new high value added materials in order to decrease the environmental impact of these materials and resource consumption.
- **Industrial biotechnology**
  The application of biotechnology for industrial sectors such as the production of chemicals, materials or fuels. It includes the using of microorganisms or their components (enzymes) to product industrially useful results.
- **Advanced manufacturing systems (technologies)**
  The wide range of high-tech procedures and processes for manufacturing, leading to improvements in terms of new product properties, production processes or cost, energy consumption etc.

Because of the KETs importance for the EU policy, there were determined several programmes which support the KETs implementation on international and national level. There exists the huge programme Horizon 2020, which aims at financial and non-financial support of the R&D activities and innovations in all Member states. Within this programme there are many sub-programmes and initiatives that aims at specific topics, applicants etc. On the national level the European Structural and Investment Funds implements the cohesion policy of EU in order to reduce the differences between the economic levels of Member states. KETs technology are significantly promoted via these tools and they often aim at SMEs

(European Commission, 2012). In 2014 The European Commission launched a new initiative aiming to support innovation in SMEs through the identification of the existing KETs Technology Infrastructures across Europe to enhance their collaboration and to enable an access of SMEs to the services offered by the platforms and to evolve the innovative ideas in KETs (European Commission, 2016a). The KETs infrastructure is shown at Fig. 2.

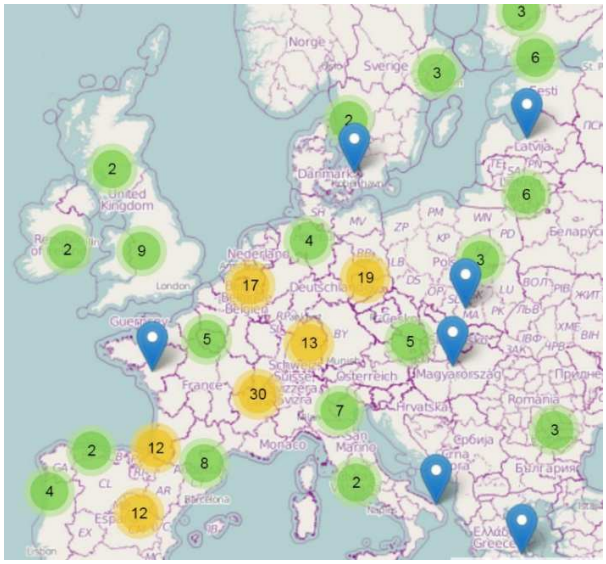

Fig 2. The map of the KETs infrastructure for SMEs (European Commission, 2016).

Methodology

The KETs are technologies, which are multidisciplinary thus their evaluation is complicated by the fact, that there are not specified the fields, which belong to each KET. Nevertheless, several extensive studies based on different quantitative analyses were presented and various types of methodology for the evaluation was set up. The qualitative evaluation of the KETs development is monitored by the groups of experts in each KET.

Qualitative assessment of KETs deployment

To assess and support the progress of implementing the strategy for KETs on the European level there exists the High-Level Group (HLG) comprising the industrial representatives, technology providers for each KET, industrial users, representatives of research community and financial sector and others who are connected with KET on different levels from the European Members states. The aim of HLG is to elaborate and develop the coherent European strategy for KETs (European Commission, 2011b).

The First High-Level Group was established by the European Commission in 2010 and one year after the Final Report was published (European Commission, 2011b). The purpose of the First HLG was to participate in a creation of the EU strategy encompassing KETs.

The Second HLG, which were established in 2013, published the Implementation Report in the same year (European Commission, 2013). This documents presented the discussion about the KETs policy of EU, the implementation plan for KETs and the promotion to the Member states. The HLG studied the KETs

in a global aspects, which were then compared with the European level and, as a result, the recommendations were formulated.

In 2015 there was published the Final Report of the Second HLG with recommendations, how to enhance the KETs within the European Union (European Commission, 2014). One of the recommendation of the HLG is the necessity of investments in KETs based manufacturing to sustain economic growth and boost competitiveness and job creation. The Europe should base its development on the high-quality research capability aware of being catching up with the USA and Asian states. The European Union should focus on the bridging the gap between the research and technology implementation into industry.

Quantitative evaluation of KETs deployment

The quantitative evaluation of the KETs implementation and development in European Union is the subject of several studies especially those, which aims at documenting the EU strategy and policy progress. Thus, many studies for the purpose of European Commission were prepared. Because of the complexity of the KETs, there must be set a system of indicators, which can assess the KETs development in countries. They are based on the analyses of the patent performance, production, market share or export and import.

The European states were evaluated in the study Exchange of good policy practices promoting the industrial uptake and deployment of Key Enabling Technologies from the year 2012 (European Commission, 2012b). The country performance in KETs was measured by a set of performance indicators, which were based on patent (data from PATSTAT European Patent Office EPO Worldwide Patent Statistical Database) and trade activities (United Nations Commodity Trade Statistics) in each country. Each indicator was defined by the several minor indicators (significance, market share, specialization, dynamics). As a result the composite indicators were calculated from the performance indicators. Then based on the Free Disposal Hull analysis (De Borger et al., 1994) the data were plotted, where the so called “production frontiers” can be determined. This analysis enabled to define the lessons learned and some recommendations.

Comparison of the KET deployment of EU and other states presents the study Production and trade in KETs-based products: The EU position in global value chains and specialization patterns within the EU from the year 2013 (Velde, 2013). The analysis is based on the indicators such as market share, comparative advantage, trade surplus and export and import and it displays the EU position in international trade and in value chains (in the meaning of a technology content). The competitiveness was evaluated by the production of new technologies via patents (using the database PATSTAT). To identify the position that Europe holds in global value chains within each KET, the trade indicators (similar to the previous one) were used.

At last but not least, because of the importance of the KETs for the European Union and its sustainable development, the analytical tool KETs Observatory was established by the European Commission (European Commission, 2016b). The KETs Observatory follows two complementary approaches to evaluate the performance of KETs at different stages of the whole value chain. The evaluation consists of several concepts and indicators (European Commission, 2015; European Commission, 2012c):

- technology generation and exploitation approach – the ability to transfer new ideas and knowledge into innovations is measured by:
- technology indicators – patents, which are closely related to the industrial applications (using International Patent Classification IPC/WIPO)
- production indicators – production dynamics of the KETs based components (using Community Production PRODCOM)

- turnover indicators – the ability of companies to compete at KETs relevant markets (using HS codes by World Custom Organization)
- composite indicators - the ability of countries to cover the KETs deployment value chain from technology development to commercialisation (using IPC and NACE)
- technology diffusion approach – to show what EU is using the potential of KETs to improve its competitiveness and application on KETs, which is measured by:
- employment indicators – value creation of KETs in various industries (using PRODCOM)
- production and demand indicators – the potential of KETs to improve its competitiveness by manufacturing KETs based products and their application (using PRODCOM and NACE)

The KETs Observatory is the online tool, where there are presented actual information about the EU performance in KETs for each Member State which are based on the calculation of the indicators named above (European Commission, 2016b).

Results and Discussion

The result of the study by European Commission (2012b) from the year 2012 are presented in Tab. 2. The study calculate the trade and patent performance. The patent performance was determined for the period 2005-2008 and the trade performance for 2000-2010. According to these criteria the countries that show a quite excellent combination of patent and trade performance were identified. Then the high performance level of those countries in KETs was defined as follows:

- Frontier – "production frontier" in patent and also trade performance
- High – below the production frontier level, but strong patent performance
- Medium - close the production frontier level, but medium or low patent performance
- Low – production frontier or close to it, but no or almost no patent performance.

Table 2: Overview of performance profile per country and KET (European Commission, 2012b).

		Photonics	Nanotechnology	Biotechnology	Advanced materials	Electronics	Manufacturing
AT	**Austria**	-	-	-	-	Medium	Medium
BE	**Belgium**	-	Frontier	Frontier	Frontier	-	-
BG	**Bulgaria**	-	Frontier	-	-	-	-
CY	**Cyprus**	Medium	-	Low	-	Frontier	-
CZ	**Czech Republic**	Frontier	-	-	Medium	Medium	Frontier
DE	**Germany**	High	Frontier	High	Frontier	High	Frontier
DK	**Denmark**	-	Medium	Medium	-	-	-
EE	**Estonia**	-	Low	-	-	-	Low
ES	**Spain**	-	Frontier	-	Medium	-	-
FI	**Finland**	Medium	Frontier	Frontier	Frontier	-	-
FR	**France**	Medium	High	Medium	High	High	High
GR	**Greece**	-	-	-	-	-	Low
HU	**Hungary**	Frontier	-	Medium	Frontier	Low	-
CH	**Switzerland**	Medium	Medium	Frontier	-	Medium	-
IE	**Ireland**	-	Frontier	-	-	-	-
IT	**Italy**	Medium	Medium	-	-	-	Frontier
LT	**Lithuania**	Medium	-	-	Frontier	-	-
LU	**Luxembourg**	Medium	-	-	-	Medium	-

LV	**Latvia**	Low	Frontier	-	-	-	Low
NL	**Netherlands**	High	High	High	Frontier	High	Medium
PL	**Poland**	-	-	-	-	Frontier	Frontier
PT	**Portugal**	Frontier	-	-	-	Low	-
SE	**Sweden**	Medium	Frontier	-	Frontier	Low	Frontier
SI	**Slovenia**	-	Frontier	-	Low	Low	-
SK	**Slovakia**	-	-	Medium	Medium	Medium	-
UK	**United Kingdom**	Frontier	High	Medium	-	Medium	-
CN	**China**	Frontier	High	Medium	High	High	High
IL	**Israel**	Medium	Medium	Medium	-	Frontier	-
IN	**India**	-	High	Frontier	High	-	-
JP	**Japan**	High	High	High	High	Frontier	High
KR	**South Korea**	Frontier	High	Medium	Frontier	High	High
US	**USA**	Frontier	Frontier	High	High	Frontier	High

From the Tab. 2 it is obvious, that for some countries the data for all KETs were not at disposal. Many European countries shows a great results (frontier) in at least one KET. Germany, Poland, Belgium and Bulgaria are the frontiers or at high level performance in several KETs. From the global point of view India, Japan and USA are also the frontiers or high level performance countries. One of the suggestion according to these results is that countries on the level “Frontier” or “High” should be supported within next years by huge investments in further development of the KET (European Commission, 2012b).

The comprehensive study by Velde et al. (2013) from the year 2013 is focused at the quantitative and also qualitative analysis of each KETs and their key sub-topics and relevant industrial fields. It consists of the extensive description of modern trends in KETs. Also the technology market shares based on the data from PATSTAT were calculated. When calculating market shares based on international patents number, it should be bear in mind that some limitations of patent count data can occurred. Not all new knowledge is represented by patents and on the other hand some patents have never been used for innovations. Also the economic added value, which is represented by one patent, is variable. At last, other purpose of some patents is to block the competitors in developing new technologies. There is a general agreement in technology research, however, that patent data accurately represents the main structures and development of technology markets. Moreover, using of international patent applications are expected to have a higher commercial value in comparison to the national patents, which are usually cheaper and with a lower expected commercial value (Velde et al., 2013).

The results presented in the study by Velde et al. (2013) are comparing the market share for all patents and KETs patents in total and for each KETs for the period 2000-2010. From the global point of view the declining trend is obvious for Europe, North America and the rest of World excluding Asia. Only East Asia increased its market share during this period of time in all technologies and KETs as well. In four of the KETs (photonics, advanced materials, micro-/nanoelectronics, advanced manufacturing) the East Asia plays the most significant role. In the rest two ones, the key player is North America. Other results from the study by Velde et al. (2013) are reported in Tab. 3.

Table 3: Market shares in international patents in the KET fields in 2000-2010 for European States in % (Velde et al., 2013)

		Photonics	Nanotechnology	Biotechnology	Adv. materials	Electronics	Manufacturing
AT	**Austria**	increase 2% -> 5%	-	-	-	-	-
BE	**Belgium**	-	-	-	vary about 4%	-	-
DE	**Germany**	increase 39% -> 42%	decrease 41% -> 24%	decrease 45% -> 30%	decrease 47% -> 41%	decrease 50% -> 45%	decrease 46% -> 38%
DK	**Denmark**	-	-	vary about 5%	-	-	-
FR	**France**	vary about 12%	increase 14% -> 24%	increase 10% -> 14%	increase 14% -> 15%	increase 10% -> 15%	increase 13% -> 15%
CH	**Switzerland**	-	decrease 7% -> 4%	vary about 7%	increase 3% -> 5%	vary about 5%	vary about 6%
IT	**Italy**	vary about 5%	vary about 5%	-	vary about 6%	vary about 4%	-
NL	**Netherlands**	vary about 13%	vary about 10%	vary about 10%	-	decrease 15% -> 7%	decrease 9% -> 7%
SE	**Sweden**	-	decrease 7% -> 4%	-	-	-	vary about 4%
UK	**United Kingdom**	decrease 14% -> 8%	-	decrease 15% -> 10%	vary about 6%	vary about 6%	decrease 9% -> 7%

In Europe, Germany is the main producer of KET patents in the period 2000-2010 in each of the six KETs, but during the time its importance is decreasing. France increased its market share in five KETs or at least maintain the value in photonics. In general, the other states are maintaining their market shares during the time period, some of them strengthened their position (Austria and Germany in photonics and Switzerland in advanced materials). The decrease in range 2-8% (excluding Germany, where the decrease is much higher) can be seen in United Kingdom in photonics, advanced materials and manufacturing, Switzerland and Sweden in nanotechnology, Netherlands in micro and nano electronics and advanced manufacturing.

The stagnation or decreasing trends illustrate quite disappointing situation in Europe. Moreover some particular fields within the KETs are more ambitious and perspective and they are expecting to increase their market share (the detailed description of the sub-fields is in the study by Velde et al. (2013)).

Table 4: Country ranking in composite analysis for all KETs (PHOT – photonics, NT – nanotechnology, IB – industrial biotechnology, AM – advanced materials, MNE – micro and nano electronics, AMT – advanced manufacturing technologies) (European Commission, 2015; European Commission, 2012c).

		PRODUCTION						TRADE						TECHNOLOGY					
		PHOT	NT	IB	AM	MNE	AMT	PHOT	NT	IB	AM	MNE	AMT	PHOT	NT	IB	AM	MNE	AMT
AT	**Austria**	6	6	7	6	4	5	2	10	6	16	4	4	2	19	15	3	5	3
BE	**Belgium**	14	-	9	1	-	15	13	8	2	1	12	13	5	6	3	1	3	20
BG	**Bulgaria**	13	-	15	19	15	21	17	27	7	20	10	28	28	22	28	26	20	15
CY	**Cyprus**	23	22	22	23	24	24	26	28	22	28	28	22	23	24	24	24	22	28
CZ	**Czech Republic**	3	12	18	10	14	8	5	2	17	2	11	10	9	4	23	19	19	13
DE	**Germany**	1	8	5	2	3	2	1	5	8	4	3	2	3	12	17	4	2	1
DK	**Denmark**	12	17	1	-	9	-	14	16	1	23	18	6	13	18	1	18	12	16
EE	**Estonia**	11	21	20	11	21	13	21	21	27	6	25	19	24	21	20	22	15	8
ES	**Spain**	15	1	3	12	16	10	22	1	11	15	19	8	15	1	2	12	11	7
FI	**Finland**	8	16	-	15	19	6	20	19	4	9	17	5	19	8	16	8	10	10
FR	**France**	5	3	2	8	2	7	10	12	3	14	1	9	7	3	8	2	1	2
GR	**Greece**	-	-	-	-	-	-	25	20	23	24	26	24	22	28	18	21	8	25
HR	**Croatia**	21	15	19	21	12	20	11	26	24	27	8	25	18	23	10	25	23	26
HU	**Hungary**	16	14	11	3	5	16	19	15	14	8	15	14	6	17	6	20	17	23
IE	**Ireland**	17	-	4	5	-	19	3	4	15	3	5	23	12	16	12	14	7	22
IT	**Italy**	4	7	8	4	1	3	18	13	9	11	9	3	11	13	19	7	9	4
LT	**Lithuania**	-	18	12	18	18	18	9	17	12	19	23	17	8	27	14	28	24	27
LU	**Luxembourg**	25	20	23	24	22	23	16	25	25	12	14	18	21	20	21	6	16	24
LV	**Latvia**	10	-	-	-	20	22	8	22	19	26	21	26	25	26	25	27	25	21
MT	**Malta**	24	19	21	22	23	25	28	18	28	17	2	27	26	10	26	23	26	17
NL	**Netherlands**	7	4	6	13	6	1	7	3	5	7	6	1	1	11	4	5	4	14
PL	**Poland**	18	2	17	9	11	12	15	9	16	5	24	20	20	15	7	13	18	18
PT	**Portugal**	19	10	16	14	17	17	23	23	20	21	16	21	17	9	9	16	14	19
RO	**Romania**	22	13	-	20	8	14	27	24	26	25	27	16	27	2	27	15	28	11
SE	**Sweden**	9	5	14	16	13	9	4	7	18	13	13	11	16	14	22	17	13	5
SI	**Slovenia**	-	-	-	-	-	-	12	14	13	18	22	15	10	7	11	11	21	12
SK	**Slovakia**	20	11	13	17	10	11	24	11	21	22	20	12	14	25	13	9	27	9
UK	**United Kingdom**	2	9	10	7	7	4	6	6	10	10	7	7	4	5	5	10	6	6

The Tab. 4 summarizes the newest results of technology generation and exploitation evaluation approach based on the production, trade and technology indicators of the study from 2015 (European Commission, 2015) and the results from the KETs observatory tool (European Commission, 2016b; European Commission, 2012c). The numbers in table represent the ranking of the country in each KET (the lowest number the better). For clear interpretation, the colour differentiation were used: green for results in range

1-10, grey for 11-20 and red for 21-28. The data used for the indicator calculation are from the time period 2003-2013.

In comparison to previous studies, the data reveals the very strong position of the United Kingdom in all KETs and within all indicators. Also Germany, Austria, Netherlands, France, Italy and Belgium confirmed their strong position in compliance with the other studies. Moreover, some other countries present satisfactory results in this study, for example Czech Republic, Denmark, Hungary, Ireland, Poland and Nordic countries Sweden and Finland. The explanation for it could be that the newest data (for period 2011-2013) were included and newly mentioned countries increased their activities during that period.

Conclusion

The article dealt with the Key Enabling Technologies regarding to their importance for the sustainable development of mainly the European countries. Also the KETs in relevance to the sustainable innovations especially for the SMEs were discussed. The concise literature review about KETs and its evaluation were presented. Finally the different approaches for KETs evaluation were briefly described and the results of these approaches were presented and compared.

The KETs are a crucial issue of the European strategy for sustainable development since 2009 (European Commission, 2010; European Commission, 2009b). They define several research fields, which are considered as a promising and highly potential fields for production of applicable results into industry and society. These modern fields are crossing the disciplines in order to come up with novel approaches how to deal with the sustainability of economies as well as the companies. They will also solve the environmental issues and social problems. European and national financial resources for supporting the projects of research and development aim at boosting KETs within Europe.

Despite the importance of KETs for European Union, only a few studies, which were focused only at the KETs deployment, development and their evaluation were published. These results were summarized and concisely presented.

During the time period 2000-2013, for which the data were calculated, the results show up the key players in KETs in general, such as Germany, France, United Kingdom, Netherlands or Austria. Also some KETs, especially nanotechnology and advanced materials, have a higher importance within the European Union, because several states achieve good results in these fields in global comparison.

The indicators and the calculation process of KETs development as well as the quantitative implementation of KETs in accordance with SMEs were not the subject of the article, but it will be the subject of further research. Moreover the multidisciplinary character of KETs should be considered within the calculation process of indicators.

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Using Value Added in Sustainability Measurement

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Abstract

Purpose of the article: Managers use EVA (economic value added) technique for measuring of value creation. This article provides explanation of EVA, how to measure EVA, value added and how it is used by companies. And finally, it provides an explanation of EVAS (Expanded value added statement). EVAS applies social and environmental aspects. These aspects are important over time. It helps companies to account for sustainabilty. This article also provides explanation three pillars of sustainability. Methodology/methods: Compare EVA and value added in industry sectors in the Czech Republic. Numbers are obtained in statements. Findings: Companies in the Czech Republic use EVA equity. Compare value added and disposal value among the stakeholders. Conclusions: Value added is mostly lower than disposal value among the stakeholders.

Keywords: EVA, economic value added, value added, EVA equity

Introduction

The Economic Value Added is used for measuring of value creation. Eva is a trademark of Stern Stewart & Company. Popularity of EVA is increasing. Managers realize the importance of added value and sustainability. There were two historic reasons to start using EVA as a measure of value. Both happened around 1980s. Traditional accounting methods generated unsuitable measurements of company performance and Japanese companies started to compete with American companies. Sustainability became more important. A lot of authors since tried to express value added and sustainability. The core ideas are EVAS or Sustainable value added. Sustainability is a concept from Brundtland Report from 1987.

Theoretical Approach

Alfred Marshall, the noted Cambridge economist, developed the related concept of economic income more than 100 years ago. Young, (1997) acording this concept a company earns genuine profits only when revenues are sufficient to cover the firm's operating costs and its cost of capital.
Stern, (1995) and Stewart (1991), EVA is a trademark of Stern Stewart and Company consultant group Bahri, St-Pierre, & Sakka (2011) it is a technique for the measurement of value creation and measurement the wealth a firm creats in a given period. Young (1997) zi tells to investors and managers where value has been created in the business and where value has been destroyed. It measures a company's success in creating shareholder value. EVA measures the difference between the return on a company's capital and the cost of that capital.

Rappaport (1999) said that EVA can be defined as the firm operating profit after taxes (NOPAT), less the cost of capital

Reasons to use EVA

Kaplan (1983) EVA started to use because of two important trends.

- During the 1980s it became clear that traditional accounting methods often generated very unsuitable measures of firm performance. This is e.g. FIFO vs. LIFO, depreciation methodology etc., and this is important in the analysis of profitability.
- Tortella (2003) During the 1980s Japanese firms started to compete american firms and, at the same time, financial markets internationalized and experienced a huge expansion.

Young (1997) EVA is innovative in three important ways.

- EVA isn´t bound by GAAP. EVA counts the cost of all capital, and it is not limited by generally accepted accounting principles. The net income numbers, which are in statements of income consider only the most visible type of capital cost, interest, and ignoring the cost of equity finance. It s possible to understad of EVA that it represents a company's profits net of the cost of both debt and equity capital.
- EVA proponents have been pushing firms to use EVA in successively lower levels of the organization, on the assumption that all employees, not only senior managers, must undertake their tasks with the overriding goal of creating shareholder value.
- EVA offers measuring and communicating performance that can be used in the capital markets, for capital investment appraisal, and in the evaluation and compensation of managerial performance.

EVA measurement

Abate (2004):

$$EVA = NOPAT - WACC * C$$

Where:

NOPAT: Net Operating Profits After Taxes.
WACC: Weighted Average Cost of Capital.
C: value of total capital invested

Acording Prober (2000) and Rappaport (1999). The information required to calculate EVA is obtained mainly from accounting data. But the information from accounting has to go through some adjustments, for example: some of these adjustments are to add back deferred tax reserves and bad debt reserves, goodwill amortization, and LIFO reserve increase. Acording Wallace (1997) the EVA methodology uses modifications of GAAP earnings in addition to a capital charge Tortella (2003).

In narrow sense EVA can be calculated by this formula:

$$EVA = (ROE - r_e) * E$$

Where:
ROE: return on equity
r_e: market cost of equity
E: equity

Dluhošová (2004) this EVA is used in the Czech Republic. The authors are Inka and Ivan Neumaier. It is important for the owners the (ROE- re) spread to be as large as possible or at least positive. Only in this case investment to the firm brings more than an alternative investment.

Sustainability

The principal inspiration of sustainability came from the Brundtland Report of 1987.
The term gained widespread usage after 1987, when the Brundtland Report from the United Nations' World Commission on Environment and Development defined sustainable development as development that *"meets the needs of the present generation without compromising the ability of future generations to meet their own needs."*

The essence of the term sustainable is "*that which can be maintained over time."* In the 1980s, Swedish oncologist Dr. Karl-Henrik Robèrt brought together leading scientists to develop a consensus on requirements for a sustainable society. In 1989 Dr. Karl_Henrik Robèrt formulated this consensus in four

system conditions for sustainability. These conditions became the basis for an organization, the Natural Step. The four conditions are:

In a sustainable society, nature is not subject to systematically increasing:
1. concentrations of substances extracted from the earth's crust.
2. concentrations of substances produced by society.
3. degradation by physical means.

And, in that society:
4. people are not subject to conditions that systematically undermine their capacity to meet their needs. Heinberg (2010) there have been two major developments in the concept of sustainability:

- there are three dimensions, which must be in harmony: social, economic and environmental
- 'strong' and 'weak' sustainability

Three pillars of sustainability

Three pillars of sustainability consist economic aspects, environmental aspects and sociological aspects.

- Economic - is the ability of an economy to support a defined level of economic production indefinitely.
- Envrionmental- is the ability of the environment to support a defined level of environmental quality and natural resource extraction rates indefinitely.
- Social - is the ability of a social system, such as a country, family, or organization, to function at a defined level of social well being and harmony indefinitely.

Agyekum (2012) the basic necessities of human existence are food, clothing and shelter. For example, shelter associated with the built environment. Sustainability buildings are independent, save energy, produce little waste.

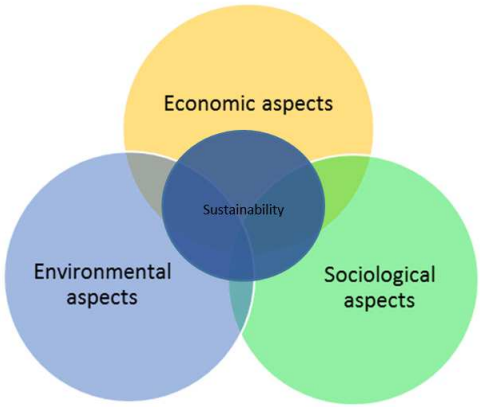

Fig. 1: Three pillars of sustainability

Weak and strong sustainability

Daly (1997) sustainability is what resources we bequeath to coming generations: natural resources, quality of the environment, and capital. Some loss of natural resources is inevitable, but this may be compensated for by increased capital (Robert Solow) Others say, that sustainability is a matter of preserving natural resources essential for our survival. Pearce (1992) defined this two views as „weak" and „strong" sustainability: et al:

- *„That the next generation should inherit a stock of wealth, comprising man-made assets and environmental assets, no less than the stock inherited by the previous generation;"*
- *„That the next generation should inherit a stock of environmental assets no less than the stock inherited by the previous generation."*

Kuhlman (2010) some resources must fall under the requirement of strong sustainability, others under the weak variety. It depend on the degree to which they can be substituted by capital.

Pearce et al., (1989) the question of different kinds of capital can be represente by one another is directed by the concepts of weak and strong sustainability. Pearce and Atkinson (1993). Weak sustainability implies that all forms of capital are substitutable by each other so that any loss in one kind of capital can in theory be substituted by a surplus in other forms of capital.

Figge (2004) one way of assessing corporate contributions to sustainability is to subtract the costs from the benefits created by a company. For this purpose both internal and external costs need to be considered. They can be derived from full cost. Following this approach, a company contributes to sustainability, if the benefits exceed the sum of internal and external costs. The result can be called 'net value added'

Heinberg (2010) formulated five axioms (self-evident truths) of sustainability.

- Any society that continues to use critical resources unsustainably will collapse.
- Population growth and/or growth in the rates of consumption of resources cannot be sustained.10
- To be sustainable, the use of renewable resources must proceed at a rate that is less than or equal to the rate of natural replenishment.
- To be sustainable, the use of nonrenewable resources must proceed at a rate that is declining, and the rate of decline must be greater than or equal to the rate of depletion.
- Sustainability requires that substances introduced into the environment from human activities be minimized and rendered harmless to biosphere functions.

Metodology

EVAS

Acording Mook (2007) the Expanded Value added Statement (EVAS) deal with some of the difficulties in applying accounting models developed for business enterprises to non-profit organizations. Non-profit organizations are different from business enterprises. Non-profit organizations don t operate to earn a profit only. Non-profit organizations accept the contribution of multiple stakeholders (funders, clients, and community) and involve volunteers.

The EVAS doesn´t concentrate only on financial surpluses or deficits. It concentrates on economic and social impacts too. The EVAS also emphasizes the collective effort needed for an organization to achieve its goals, viewing each stakeholder as important to its viability as a socially and economically responsible organization. For example, including volunteers and society as stakeholders presents an alternative perspective of an organization to focusing solely on its ability to spend its financial resources. Thus, the EVAS includes non-monetized social contributions of volunteers who become one of the stakeholders; a portion of the value added is distributed to them. By combining financial and social value added, the EVAS also emphasizes the interconnectedness and interdependence of the economy, community and environment. Overall, every EVAS contain two parts: the calculation of value added by an organization and its distribution to the stakeholders.

Ruggles & Ruggles (1965) EVAS is based on a traditional accounting statement but modified to include social and environmental items. The question is what is value added? Value added is measured by the difference between the market value of the goods or services produced, and the cost of goods and services

purchased from other producers. Riahi-Belkaoui (1992) the left side shows the value added and the other side shows the disposal value among the stakeholders. In equation is:

S-B=W+I+DP+D+T+R

Where S=Sales revenue
B=Bought-in materials and services
W=Wages and benefits
I=Interest
DP=Depreciation
D=Dividends
T=Taxes
R=Retained earnings

Mook (2007) the EVAS is not intended to replace existing financial statements, but to supplement them. By synthesizing traditional financial data with social and environmental data, the EVAS provides additional valuable information for understanding the dynamics of an organization and one that shows great potential by focusing attention on value creation and use.

Table. 1: EVAS – Sustainable Building Co. (USD)

EVAS		F1	F2	FTTL	SOCENV1 (Benefits for customers)	SOCENV2 (Benefits for society)	CTTL
Direct outputs	sales	5,250,000	106,050	5,356,050			5,356,050
Indirect outputs	Energy value				101,325		101,325
	Water value				8,925		8,925
	Other operating costs				148,225		148,225
	Productivity and health value				645,575		645,575
	Waste value					525	525
	Emissions value					20,650	20,650
Total outputs				5,356,050	904,050	21,175	6,281,275
Production consumption		3,600,000	100,000	3,700,000			3,700,000
Value added created by the company		1,650,000	6,050	1,656,050	904,050	21,175	2,581,275
Ratio of value added to production consumption		0.46		0.45	0.24	0.01	0.70
Employees	Wages/benefits	1,250,000		1,250,000			1,250,000
Customers					904,050		904,050
Society	Reduction in wastes and emissions					21,175	21,175
	Taxes	50,000	1,000	51,000			51,000
Company	Depreciation	100,000		100,000			100,000
	Profit	250, 000	5,050	255,050			255,050
Distribution of value added		1,650,000	6,050	1,656,050	904,050	21,175	2,581,275

Source: Mook, L.: Integrating and Reporting an Organisation's Economic, Social and Environmental Performance, The Expanded Value Added Statement, in: Schaltegger, S., Bennett, M. and Burritt, R. (Eds.): Sustainability Accounting and Reporting. Dordrecht: Springer, 281-298, 2006.

Mook (2007) the first thing you need to do is to calculate value added. Determination of total business output and comparison with other products on the market. In the above example the direct outputs include proceeds from the sale of buildings that were built using traditional construction methods. These direct outputs are listed in the column F1. In column F2 are then additional revenues, which are derived from so-called. "Sustainable" buildings, and should cover the direct output value of the company for the period. Column headed SOCENV1 and SOCENV2 are indirect outputs, which in this example represents a savings of "sustainable" buildings for customers and society. We can mention for example: saving water, energy, building repairs etc.). Also in the column F1 and F2 is recognized the cost of the consumed material, services, energy, etc. It is apparent that "sustainable" buildings increase the value of material purchased, services and energy. EVAS provides information about the added value not only for employees or enterprise, etc., but also for customers and the society.

While compiling the EVAS report it necessary to take into account the limitations of this statement. It is necessary to choose what items will become part of the statement and to choose the method of valuation for each item. It is also associated with identifying and quantifying the value of key environmental and social factors, which reflect the degree of sustainable performance. The statement is linking economic performance, environmental performance and social performance and shows the relationships between them.

This is example of EVAS in building industry. Of course it can be aplicated on different kinds of industry too. It s possible to do another statement.

Result and Discusion

This part is about EVA index development in Czech Republic within the industry area. In Czech Republic, EVA is being measured based on economic profit:

$$EVA = (ROE - r_e) * E$$

The following table and graph shows EVA development in selected sectors of manufacturing industry in Czech Republic during years 2012-2014.

Table. 2: EVA development in selected sectors of processing industry (mil. CZK)

Industry	2012	2013	2014
Manufacture of basic pharmaceutical products and pharmaceutical preparations	108 826	-472 999	807 900
Manufacture of machinery and equipment	-1 366 644	2 155 997	3 183 402
Manufacture of wood and of products of wood and cork, straw and plaiting materials, except furniture	-686 852	-522 363	-125 026

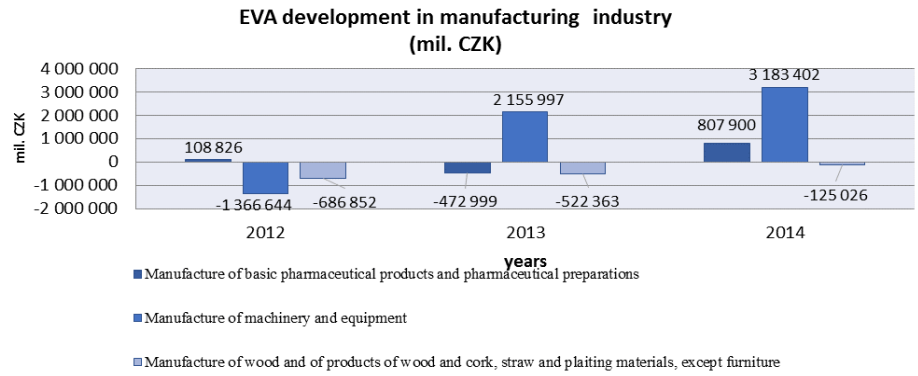

Fig. 2: EVA development in selected sectors of processing industry (mil. CZK)

In some sectors of manufacturing industry EVA is positive and growing. In particular, the manufacture of machinery and equipment. Conversely, in the wood processing EVA is negative, even though the value is getting closer to positive numbers. It has a growing trend. Pharmaceutical production has an fluctuating EVA indicator. EVA is positive during 2012, negative for the following year 2013 and then again rising and positive in the year 2014. These data are available at the Ministry of Industry and Trade of the Czech Republic.

The largest increase of the indicator can observed within manufacturing of machinery and equipment, where from the initial value of -1,366,644 million CZK the value jumps high into positive numbers, specifically to the amount of 2,155,997 million CZK. The smallest fluctuations of the indicator are present within woodworking.

Table 3: Selected kind of construction industry (mil. CZK)

Industry	2012	2013	2014
Building	-1 175 253	-886 343	-2 151 717
Civil engineering	8 599	-1 670 437	-164 985

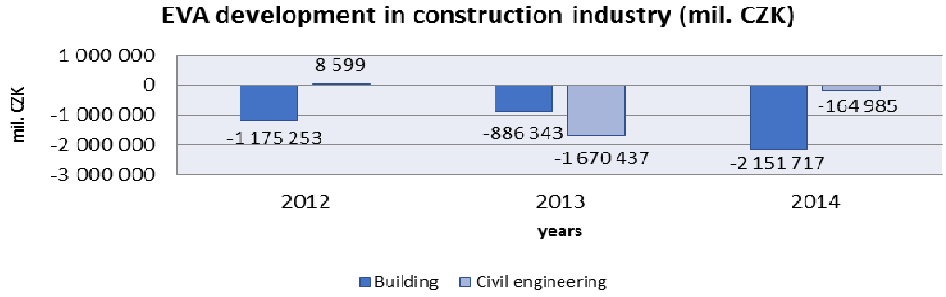

Figure 3: EVA development in construction industry (mil. CZK)

Two areas are being compared within the construction industry. It is the construction of buildings and civil engineering. The latter had a positive EVA value in 2012, but it turns negative during the following

years. The area of building construction is negative long-term. It even reaches the value of -2,151,717 million CZK.

The table lists these values for company Žďas, Inc. which is working within the engineering industry and for the company PSJ, Inc., working within the construction industry. The data are in millions of Czech crowns and available as a part of the annual accounting reports.

Table 4: Accounting data (thousand CZK)

Benchmark	Year	Žďas, Inc. (engineering)	PSJ, Inc. (construction)	Benchmark	Year	Žďas, Inc. (engineering)	PSJ, Inc.. (construction)
S	2012	3 321 810	6 442 675	DP	2012	176 318	18 921
	2013	2 973 444	3 987 138		2013	188 700	19 385
	2014	3 057 283	5 498 362		2014	197 111	20 571
B	2012	2 039 715	6 034 953	D	2012	70 000	78 311
	2013	1 760 881	3 670 406		2013	250 000	61 850
	2014	1 836 910	4 941 201		2014	138 000	65 674
W	2012	949 962	253 914	T	2012	21 514	3 259
	2013	956 755	224 369		2013	18 690	29 335
	2014	948 792	230 351		2014	20 012	32 576
I	2012	4 286	25 740	R	2012	88 722	116 629
	2013	5 028	50 311		2013	72 228	101 934
	2014	5 487	43 769		2014	65 197	131 349

The following table contains Gross Value Added and disposal value generated by the enterprises. In both companies, the Gross Value Added and disposal value among the stakeholders is positive across all measured years.

Table 5: Gross value added and disposal value (thousand CZK)

Company	S-B			W+I+DP+D+T+R		
	2012	2013	2014	2012	2013	2014
Žďas, Inc.	1 282 095	1 212 563	1 220 373	1 310 802	1 491 401	1 374 599
PSJ, Inc.	407 722	316 732	557 161	496 774	487 184	524 290

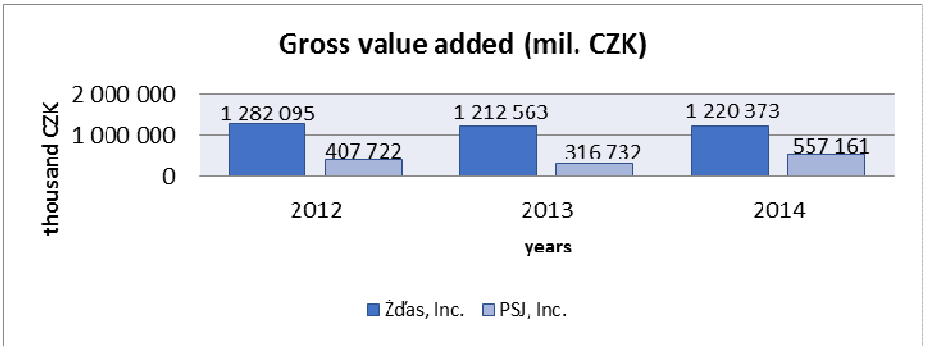

Figure 4: Gross Value Added (thousand CZK)

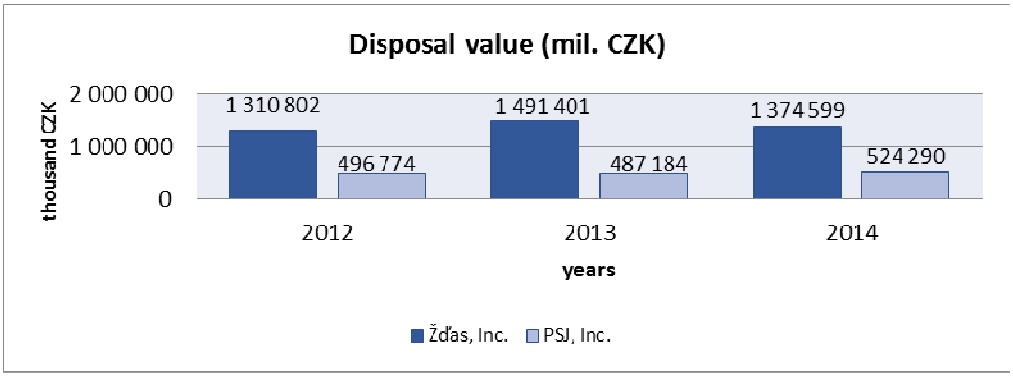

Figure 5: Disposal value (thousand CZK)

The highest positive GVA can be observed for the company Žďas, Inc. during year 2012. In subsequent years, an decrease is apparent for this value. For the construction company PSJ, Inc.,the value decreases in 2013 and next year the value is the highest. The highest disposal value among the stakeholders can be observed for the company Žďas, Inc. during year 2013. For the construction company PSJ, Inc. is disposal value among the stakeholders has the same trend as GVA. The highest sales of Žďas, Inc. were around 3 321 810 thousand CZK in 2012. The highest sales of PSJ, Inc. were around 6 442 675 thousand CZK in 2012. The highest bought materials and services were in 2012 for both companies. Žďas, Inc. Had the highest dividends 250 000 thousand CZK in 2013. But another company had dividends 78 311 thousand CZK in 2012. The highest retained earnings had PSJ, Inc. in 2014.

Conclusion

This paper has focused on using EVA and especially in the Czech Republic during years 2012-2014. In other countries reported to be use EVA, which is determined Net Operating Profits After Taxes, Weighted Average Cost of Capital and value of total capital invested. In the Czech Republic reported to be use EVA equity.

In the manufacturing industry in some sectors, where EVA is positive or increases. In the construction industry it is always negative. EVA is growing in the manufacture of machinery and equipment. Wood processing industry is negative during these years. In the Pharmaceutical industry is EVA positive during 2012 but next year is negative. And finally is positive in the year 2014.

The largest increase of EVA is in manufacturing of machinery and equipment, tha value is -1,366,644 million CZK. EVA jumps to the amount of 2,155,997 million CZK in 2013.

The next type of industry is the construction industry. Civil engineering had an positive EVA in 2012, but next years it s negative. Building construction is negative long-term.

Next part of this paper compared two companies – Žďas, Inc. and PSJ, Inc. The first of them is working whithin the engineering industry and the second one is working in the construction industry. The highest retained earnings had PSJ, Inc. In 2014. The highest positive GVA can be observed for the company Žďas, Inc. during year 2012. Value added does not cover disposal value among the stakeholders of both companies, because profit is consisted of sales of fixed assets and material. There is one exception for PSJ, Inc. in 2014. Value added is higher in this year and other indicators are almost the same

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Possibilities and Trends for Impact Investors

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Abstract

The aim of this paper is to describe and analyze what possibilities investors who are interested in additional impact of their investments have. As we already know, impact investments should affect the product portfolio of each included participant in every important sector. For this reason it is more than important to focus our view on description of trends in the alternative investing possibilities. Individuals, institutions, investment companies, money managers and financial institutions that practice sustainable, responsible and impact investing seek to achieve long-term competitive financial returns together with positive societal impact. These strategies should be applied across assets classes to promote stronger corporate social responsibility, foster businesses or introduce products that will yield community and environmental benefits or build long-term value for companies and their stakeholders. Impact investments are intended to create positive social or environmental impact beyond the financial return and they create a new asset class. Impact investing, or we should say, social investing has gained traction among a wide range of investors, including foundations, private managers, individuals, commercial banks and development finance institutions. We are assuming that investors have a wider range of expectations for impact investment financial returns what estimates significant market opportunity for impact investment in various parts of financial markets.

Keywords: impact, trend, possibilities, product portfolio

Introduction

Impact investing is a type of investing that aims to generate specific beneficial social or environmental effect in addition to financial gain. Impact investing is a subset of socially responsible investing (SRI) but while the definition of socially responsible investing encompasses avoidance of harm, impact investing actively seeks to make a positive impact by investing. On the other hand, we should state that impact investing is to help reducing the negative effects of business activity on the social environment, and it can be considered as an extension of philanthropy. According to the Global Research by the J. P. Morgan "Impact Investments: An emerging assets class" we should agree with the definition of impact investments as a new alternative for channeling large-scale private capital for social benefit. With increasing numbers of investors rejecting the notion that they face a binary choice between investing for maximum risk-adjusted returns or donating for social purpose, the impact investment market is at a significant turning point as it enters the mainstream. From this perspective of theory in the practice, investors involved have very few places to go to learn how to invest for impact. Possibilities for investors are not very wide, for example accredited investors should join ImpactBase, ImpactAssets 50, European Venture Philanthropy Association, GIIN membership group or foundation Mission Investors Exchange. For the early stage investors, there is a possibility to participate in impact investing angel networks like Investors´Circle and Toniic as well as in regional groups. Impact investing includes many different forms of capital and investment vehicles. The majority of impact investing is done by institutional investors but a range of socially conscious financial service companies, web-based investment platforms, and investor networks currently offer individuals an opportunity to participate in it. One major possibility is microfinance loans, which can provide small-business owners in emerging nations with startup capital. As environmentally and socially responsible practices tend to attract impact investors, companies can benefit financially from committing to socially responsible practice that investors also tend to profit from. Impact investing practice is mostly important for younger generations, who want to get back to society, so this trend is likely to expand as these investors gain more influence in the market.

Impact Investing

Impact investing is no longer the new kid on the block. Leaders like the Ford Foundation, MacArthur Foundation, the Rockefeller Foundation and others have helped to pave the way; building the impact of investing in ecosystem by sharing lessons they have learned over the years – even the hard ones - and by finding ways to invest alongside other investors. (Cynthia Muller)

Impact investing refers to investments "made into companies, organizations and funds with the intention to generate a measurable, beneficial social or environmental impact alongside a financial return (Global Impact Investing Network. "About Us" 2013, retrieved 15 December 2015). It is form of socially responsible investing that serves as a guide for various investment strategies (Lemke and Lins, Regulation of Investment Adviser, §2:158, Thomson West 2013). Among the best-known mechanism is private equity or venture capital. Social venture capital or patient capital and impact investments are structured similarly to those in the rest of the venture capital community.

By analyzing the inherent logics and rationalities, this framework strives to acknowledge financial returns alongside social impact while simultaneously considering implied risks. At the same time it is flexible enough to deal with various approaches to measure social, environmental and corporate governance risk and return factors, an important necessity to serve the broad range of actors and different logics in the field. Over the last couple of years, the field of impact investments has advanced in terms of market structures, and has involved participants and investment vehicles. Among the diverse set of streams within the social investment market, the progress achieved in impact investing has received exceptional attention in practice and media. (Brandstetter, L. & Lehner, O.2014).

Impact investing challenges, the long-held views social and environmental issues should be addressed only to philanthropic donations, and that market investments should focus exclusively on achieving financial returns. The growing impact investment market provides capital to the world's most pressing challenges in sectors such as sustainable agriculture, clean technology, green real estate, supply chain services, technical assistance services, energy, microfinance, and affordable and accessible basic services including housing, healthcare, and education. From the perspective of this markets investors like individuals, private financial and for-profit institutions, philanthropic institutions and last but not least governments are seeking for outcomes like jobs, educations, environmental sustainability, improved social program outcomes, economic opportunity, new social enterprise business models or new investment opportunities. Impact investment has attracted a wide variety of investors; concretely (1) diversified financial institutions; (2) pension funds; (3) insurance companies; (4) large-scale family offices; (5) fund managers; (6) private foundations making program and mission-related investments; (7) development or specialized financial institutions; (8) private financial institutions; (9) individual investors. Private financial institutions have the increasing interest in investing into social businesses and bring the expectations of social and economic return. On the other hand, public authorities are becoming reluctant to invest in the projects of innovation; they do not perform their own duties in supporting the social business if the existing projects are financed by the philanthropic organizations or private investors. Some organizations therefore fight with the possibilities of finding the investor or gaining the necessary capital for their innovation projects and ideas. Private investors expect demonstrable social and economic return on investment, and this is the factor that forces public authorities to expect the same effect from their own investment.

As we can see, the common matter of facts from the perspective of impact investment markets and investor's intent to create a positive impact; should create core characteristics of impact investing. This practice is defined by the following core characteristic: investment with return expectations, intentionality, range of return expectations and assets classes and impact measurement. All of this core characteristic should be defined, combined and bringing together the positive impact for each investees, investors and outcomes. The main themes, which they pursue are financial inclusion, employment, economic development, sustainable living, agriculture and education. From the

perspective of J. P. Morgan's survey report "Global Social Finance. Eyes on the Horizon" we learnt that progress was made in 2014 across several indicators of market growth, including investor collaboration, impact measurement practices and pipeline quality. Relative to the last year, significant progress was indicated in collaboration, availability of investment opportunities, and availability of capital across the risk/return spectrum.

While certain types of impact investments can be categorized within traditional investment classes (such as debt, equity, venture capital), some features dramatically differentiate impact investments. Together with Global Research "impact investments an emerging asset class", we argue that an assets class is no longer defined simply by the nature of its underlying assets, but rather by how investment institutions organize themselves around it. Specifically, we propose that an emerging assets class has the following characteristic: (1) requires a unique set of investment/risk management skills, (2) demands organizational structures to accommodate this skill set; (3) they are serviced by industry organizations, associations and education; (4) encourages the development and adoption of standardized metrics, benchmarks, and/or ratings. These characteristics are present for such asset classes as hedge funds or private equity, which channel significant capital flows, as a result. With each of these indicators having materialized, we argue that impact investments should be defined as a separate asset class.

The risks for impact investments are similar to those for venture capital or high yield debt investments, with heightened reputational and legal risks, particularly in emerging markets where regulatory infrastructure can be onerous and the rule of law is less well defined. When we evaluate impact funds, the more unique risks to consider include political, currency and liquidity risk. (Linton, J. 2015: Impact Investing Funds: What are the Risks) Political risk refers to the risk related to instability in countries. On the other hand, diversification approach of many funds may also possibly reduce the political risk by investing only in one region or even a single country. Also a regional or country focus may allow investment managers to understand better, monitor and mitigate the political risk exposure of their investments. Most important in any international investment and also particular importance in impact investing has currency risk. Many impact investments are in countries with volatile currencies and currencies that may lack hedging mechanisms. To reduce significantly currency risk, it is better to search for countries that have less volatile local currencies or countries that have adopted the dollar or euro as their commerce currency. Hedging currency risk depends on whether there is liquidity available in the currency. The most common hedging instrument is the non-deliverable forward, which allows investors to lock in a forward exchange rate at a given time in the future. Liquidity risk may be difficult or impossible to exit an investment. This brings up the important question of whether the impact fund invests in debt, equity, or in another instruments. Debt investments generally carry minimal exit risk as the investee makes payments directly to the fund. Equity investments can carry large exit risks as developing markets may not have an accessible way to exit an equity investment, such as a liquid secondary market. With risks properly mitigated, the impact investing funds can offer attractive yields to investors and generate positive social or environmental impacts.

An impact investment must constantly balance the dual imperative of generating positive social impact and profit. Some impact investment business models, especially those employing high-volume, low-cost approaches are able to drive financial return and social impact together with impact and profit correlation as the business expands. However, it would be naïve to believe that these two imperatives have never been in tension. Indeed, within the microfinance sector, some concerns about mission drift are already beginning to appear.

In addition to having different reasons for measuring impact, participants in the impact investing industry will use the measured data in different ways. Companies want to understand, track and report of their social performance, and compare their performance with that of their peers. Fund managers also need a system for managing the variety of social performance information they receive from their portfolio companies. In defining measures of social impact, these standards must find the line between the level of detail that is too onerous to collect and one that is too superficial to be useful. A common language for social performance metrics will encourage transparency, credibility

and comparability, just as the International Financial Reporting Standards provide transparency and comparability across financial performance reports. The standards included metrics related to the social aspects of business operational practices as well as of its products and services. The standards are overseen by an independent governance body that provides guidance towards the ongoing advancement of the framework and ensure its alignment with existing best practices.

Trends for Impact Investing

In the context of social investing in this time of economic and political changes and transformations of business challenges we expect to see four main trends to take hold (Cynthia Muller):

(1) Increasing investment by smaller foundations and family offices, and increasing engagement from wealth advisors. By some estimates, more than trillion USD will transfer from baby boomers to millennials over next 30 years, the largest wealth transfer in history. Family offices and wealth advisors are reporting more interest in impact investing from clients.
(2) Increasing clustering of investments in particular sectors. We expect that momentum for climate-related investments to increase as more products and offers become available. We also expect to see similar movement in education and health-care investing, as potential impact investments challenges.
(3) Multi-stakeholder collaborations. It is particularly exciting to see that impact investing has begun to expand beyond a core group of foundations and other socially - oriented investors and to attract a wider array of actors. Banks, corporations, and even pension funds are seeking ways to invest with different partners so that their investments yield social as well as financial returns. The tremendous growth in interest in activities related to pay-for-performance contracts – such as social impact bonds and development impact bonds – are a key example. Investors see these as the potential tools to engage multiple stakeholders from different sectors to leverage government and private resources to generate social impact along with financial returns
(4) More data. Performance data – actual returns – represent perhaps the field's most importance piece of missing information. For more funders and investors to routinely engage in impact investing, they will need to see a more complete track record, generated through better systems for tracking and broader reporting of both financial and social returns. Moreover, it is expected to see more foundations and individuals sharing the characteristics and performance of their portfolios. As a shared base of knowledge and best practices continues to grow, we can streamline the investment process, reduce transaction costs and continue to make impact investing accessible more widely.

As interest and allocations to impact investments continue to rise, we are able to highlight these sectors are trends in impact investing: housing, microfinance, financial services, energy, healthcare, food and agriculture. In the past it was microfinance, which was leading the impact investing strategies. This divergence is most likely an attempt made by impact investors to diversify their strategy given the historical prominence and domination of microfinance in their portfolios.

Conclusion

"As investors add the third dimension of impact to risk and financial return in their decision making, we expect there to be a considerable pool of capital looking for opportunities to invest in achieving measurable social impact." (Impact investment: The invisible heart of markets, 2014)

The biggest opportunity for social investing seeks to strengthen peoples' current and future capacities and improve their opportunities to participate in society and labor market, and, of course, calls for investing into children and youths to increase their opportunities in their life. Each of this opportunity for social investing firstly needs the changes in society in the meaning of social innovations and providing social services. They may actively seek out investments – such as community development loan funds – that are likely to provide important societal or environmental benefits.

Despite rising allocations and interest in impact investing, there are several constraints that investors are facing. First opportunity echoed by investors is the lack of appropriate capital across the risk/return spectrum. Even within impact investing, there is a spectrum of capital that adheres to various impact and return appetites. The second investment opportunity deals with the flow of track records. Due to the nascent market, investors tend to rely on word of mouth and informal networks. The third biggest opportunity is challenge in the difficulty in exit strategies. Impact investing is still in its infancy for the most of its part, and likely many alternative investments and patient capital is needed until capital gains are to be realized. As a young sector, impact investing may be challenging, but once track records of success and proof points are realized, there will be a greater opportunity for impact investing to garner interest and capital from investors.

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Towards A Reference Model for Knowledge Management Performance Measurement

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Abstract

Knowledge Management (KM) projects are socio-technical systems that enable knowledge activities and ensure that the right knowledge gets to the right person at the right time. The growing number of KM applications confirms the need for a performance measurement model able to assess the diversity of KM initiatives in order to rationalize their usage. To the best of our knowledge, a generic KM model for performance measurement fitting any kind of KM projects is missing in the literature. Instead, existing approaches are specific to a particular KM project or assess the overall KM of the organization. In this paper, we propose a KM model for performance measurement that is built on existing KM models literature and enhanced with theoretical findings. It also follows the reference modelling design process in view of producing a high quality model.

Keywords: knowledge management model; performance measurement; reference model;

1 Introduction

Knowledge is recognized as a key resource for organizational success. Making the best use of this resource is an important concern for both researcher and practitioner (Barthelme-trapp and Vincent 2001). To obtain all Knowledge Management (KM) benefits, it is necessary to measure the KM performance (Ragab and Arisha 2013). Since there are no standards in measuring KM performance, many approaches and models are proposed in the literature. They argue that KM performance measurement follows three phases: defining the KM objective for which the performance will be measured, modeling the components of the KM to be measured, and identifying a set of relevant measures for each component of the model (Wong et al. 2013; Oufkir et al. 2016). However, literature on the KM performance measurement still raises some critical constraints to be considered when creating a KM performance model:

- **Diversity of KM applications**. Along with the growing number of KM applications, performance measurement design becomes more constraining. Dealing with the diversity of KM projects requires either multiple performance measurement models or a generic one that can be applied to all settings (Del-Rey-Chamorro et al. 2003). However, no generic KM project performance measurement model has yet been proposed in the literature while a significant number of approaches deal with specific project assessment or assessment of the overall KM organization (Wong et al. 2013).
- **Variety of KM models**. Due to the broadness of KM field and the lack of KM standards, existing KM models vary in scope and focus. A widely adopted taxonomy identifies three trends in designing KM models (Dudezert and Agnes 2006; Wong et al. 2013; Handzic 2011): the first one is based on the understanding of knowledge concept, the second approach focus on the knowledge flows in the organization, and the third approach considers the social-technical aspect of KM and related impact factors. Indeed, each approach is valuable in itself, but constitute only a partial view of KM. (Handzic 2011) raises the need of a unified model that incorporates the three previous views. Also he tackles the need to develop a deep understanding of each KM core terms.

- **Lack of scientifically proven KM model.** The analysis of the KM models literature leads to the conclusion that little academic work exists on designing a KM model in a scientific manner. Indeed, recent studies criticize the often missing model validity check and the lack of quality concern in designing models (Matook and Indulska 2009). This is particularly true for KM model design. To the best of our knowledge, KM model design is based on both KM requirements and qualitative review of existing KM models. It is usually subject to empirical application to check model effectiveness (Handzic 2011) but is rarely subject to quality validation. Therefore, there is a need to integrate KM model quantitative valuation in designing KM models.

Thus our work focuses on the following research questions (RQ):

- RQ1: is it possible to design a generic KM model able to assess diverse KM projects?
- RQ2: what are the key elements that a generic performance measurement KM model should cover?
- RQ3: how to design our generic KM model in accordance with the scientific design method to ensure its validity?

To address these issues, we propose a design of reference model (RM) for KM performance measurement (KMPM) that draws from both the literature review of existing KM models as well as the performance measurement requirements. The model design follows the quality driven design approach: a five step design methodology that provides a model quality assessment based on predefined RM quality criteria. Our reference model is able to assess both the overall organizational KM and any specific KM project thanks to its generic process and KPI sub models. Such reference model provides a common formalization for researchers with a global view, theoretical background and precise terminology. Practitioners also need this conceptual model to help them to better assess KM initiatives both jointly and separately and to identify those that are adequate to their context.

The remainder of the paper is organized as follows. Section 2 provides an overview of related work about knowledge management modeling. Section 3 includes an introduction of the reference modeling design and presents the adopted design steps of our model. Section 4 summarizes our contribution and points on some future work.

2 Related Work

According to (Davenport and Prusak 1998; Alavi and Leidner 2001), KM refers to methods, mechanisms and tools designed towards preserving, valuing, creating and sharing knowledge with a view to furthering the organization's objectives . Implementing a KM project in an organization consists of implementing a socio-technical system that is able to ensure KM processes.

Reviewing literature on KM models shows that researchers suggest three major components for KM (Dudezert and Agnes 2006; Wong et al. 2013; Handzic 2011):

- Knowledge resources: refer to the whole organization knowledge (Wong et al. 2013). According to Davenport (Davenport et al. 1998), the knowledge resources include: human capital (e.g. employee staff, customer and suppliers), knowledge capital (quantity and quality of knowledge possessed by the firm) and intellectual property (the product of knowledge creation that generates value).
- KM processes: it involves activities related to knowledge flow in the organization considering knowledge dynamic nature (Alavi and Leidner 2001).
- KM factors: other than KM resources and processes, researchers consider the importance of some influencing factors for the support and the success of KM initiatives (Ragab and Arisha 2013), (Ale et al. 2014; Wong et al. 2013).These factors include cultural, structural and technological aspects such as trust culture, centralization structure and IT support.

Nevertheless, the literature presents evidence of the relationship between knowledge resources and knowledge processes. (Handzic 2011) argues that knowledge resource perspective is deeply anchored in the process perspective as knowledge resources are transiting through the KM processes; they represent their outputs. Besides, the performance measurement is more of dynamic knowledge matter than static knowledge (Lerro et al. 2012; Nonaka et al. 2000). Accordingly, we do not consider

knowledge resources as a stand-alone perspective whereas we assume that understanding knowledge is very important in order to achieve proper knowledge process model design. Therefore, the knowledge view yields some important observations:

- Knowledge exists in many forms in the organization. At least two forms of knowledge are particularly valued: the tacit knowledge that is rooted in action, experience and involvement in a specific context; it is composed of beliefs, know-how and skills. And the explicit knowledge that is articulated, codified and communicated in symbolic form and/or natural language (Alavi and Leidner 2001). Both forms interact permanently in the enterprise through many conversion mechanisms (Nonaka et al. 2000).
- Knowledge exists in the organization in different levels (Nonaka and Takeuchi 1995; Grundstein 2012).We distinguish first the organizational level that is shared among distributed actors belonging to the same organization (e.g. knowledge incorporated within routines, models and regular and predictable behaviours). The second one is the collective knowledge which is owned by a group of persons that share a mutual identification, actions and projects (e.g. communities). The last one is the individual knowledge which is the personal and intangible knowledge. It encompasses people abilities, know-how and know-what…

The KM factors perspective emphasizes that knowledge mobilization within organization is strongly context-sensitive. It is made up of two separate attributes related to the socio-technical aspect of KM: the technical factors that consist of the project infrastructure and supporting technologies, and the social factors that depend on the dominating culture, the KM structure and the human aspect. Several authors study KM factors theoretically and empirically and come to a firm agreement on their identification (Ale et al. 2014; Wong et al. 2013), (Ragab and Arisha 2013).

Regarding the KM process perspective, literature shows a broad range of models. (Nonaka et al. 2000) propose the SECI model that presents four ways for knowledge types conversions: socialization (tacit knowledge to tacit), externalization (tacit to explicit), internalization (explicit converted into tacit) and combination (explicit to explicit). SECI model introduces the BA context as a KM factor, a Japanese term meaning “place”, that refers to the specific context (place, energy and quality) needed for the effective knowledge flow. On the other hand, the knowledge circulation process (KCP) proposed by Chang (Chang Lee et al. 2005) consists of knowledge creation, knowledge accumulation, knowledge sharing, knowledge utilization and knowledge internalization processes. The basic assumption behind the KCP is the work of Alavi and Ledner (Alavi and Leidner 2001) that considers knowledge having multifaceted characteristics: object, state of mind, access to information, process and potential for influencing future action. The KCP and the SECI models are the most used models for KM performance measurement purpose. (Grundstein 2012), in turn builds a model composed of four generic processes: identification, preservation, recovery and valuation of knowledge. These processes respond to the recurrent knowledge problems recognized in the organization and provide a detailed description of knowledge flows by breaking down each generic process into more specific sub-processes. Other models presented in the literature are more empirical and depict the author point of view about KM activities. Knowledge management process cycle proposed by (King 2009) is an example of such models.

On the basis of the previous analysis, studied KM perspectives stress on the following points:

- Most of reviewed models were developed under a special KM perspective or as a solution to a particular organization problem.
- Reviewed models globally share the same central idea that KM processes depict the knowledge flow in the organization. However, the delimitation of process scope is controversial with the exception of core functions (creating, preserving and transferring knowledge).
- KM processes involve interactions and conversions between knowledge in all its forms: the tacit and the explicit type besides the individual, the collective and the organizational aforementioned levels.
- Two models seem particularly interesting for the performance measurement purpose among all reviewed KM process models: the SECI model (Nonaka et al. 2000) that considers KM processes as knowledge forms conversions, and the Grundstein process model (Grundstein 2012) that defines generic processes and sub processes in accordance with organization knowledge problems. Combining both approaches while designing a KM model can contribute to our requirement in

twofold: it structures KM project according to Knowledge problems and knowledge forms and it facilitates the performance measurement through the KM process decomposition to the desired granularity.
- A context that brings together cultural, structural and technological factors is conducive to the deployment success of the KM. This aspect was largely discussed in the literature that shows a broad agreement on these factors identification.

On the other hand, performance measurement relies basically on performance measures which provide a benchmark of progress towards the performance achievement. Existing work on performance measurement applied to KM stresses on the importance of KPI and categorize them in different ways (Wong et al. 2013). Indeed, (Kuah et al. 2012) states that KM can be viewed as a system based on KM processes that consumes inputs and produce outputs, and that these variables can be used as a proxy to measure KM performance. Del-Rey-Chamorro (Del-Rey-Chamorro et al. 2003) addresses two kinds of KM measures : core outcomes in the strategic level and performance drivers in the operational level. Goldoni and Oliveira (Goldoni and Oliveira 2010) suggest that KM metrics can be divided into process and result metrics. This suggestion aims to measure KM performance at different levels of the organization. Globally, all previous studies agree that KPI is an important element for performance measurement and that it monitors significant KM components.

3 Design of the KMPM

In this section, we present an overview of the reference model design. Then, we focus on a special reference model design approach that we apply to the case of knowledge management reference model design.

3.1 Reference modelling

Generally, a Reference Model (RM) serves as a starting point for developing solutions according to a concrete problem in a scientific manner (Scheer and Nüttgens 2000). RMs refer to aggregated, generic or theoretical models that needs adaptation for a specific concern (e.g. a project development, an enterprise) (Andreas and Frank 2016).

Since a low quality RM can be damaging for the organization, a considerable number of works focus on guiding the development process to achieve a better RM quality (Winter and Schelp 2006),(Andreas and Frank 2016; Matook and Indulska 2009; Thomas 2006). Reviewing research on the subject shows a list of shared RM requirements. (Andreas and Frank 2016) presents these requirements as a five step design methodology (cf. Fig 1).

Phase 1 is **the scope definition** which involves the identification of the scope and the target model. In the second phase, **the literature review** on the subject is gathered and analyzed. Phase three consists of **the reference model construction** and design in an iterative way, based on the obtained results from the prior phases. The established model needs a **quantitative evaluation** which is the subject of the fourth phase. Lastly, an **empirical assessment** is performed within a real-world environment.

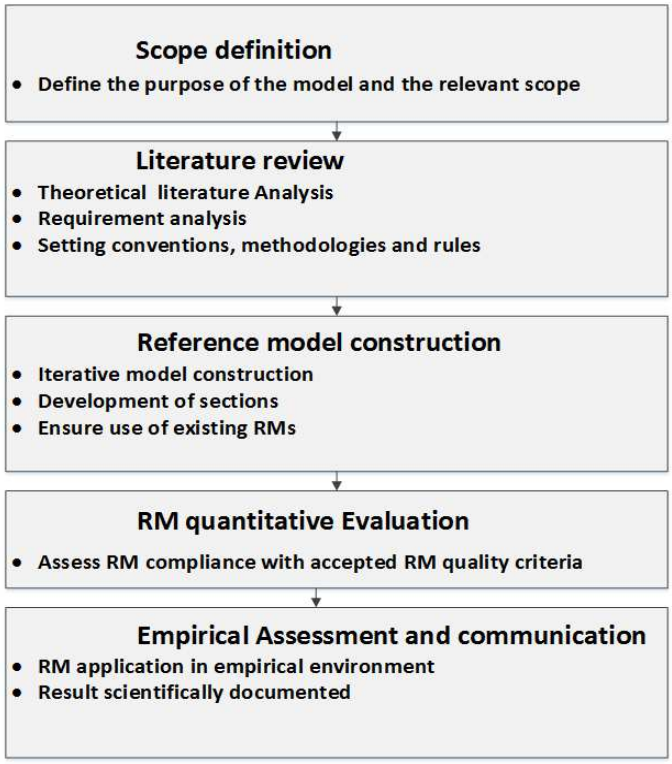

Fig 1. Reference model design steps

3.2 Design Phase 1: Scope of the model

Performance measurement is an ultimate purpose that should be taking into account while building the KMPM model. It should meet the three requirements (RQ 1-3) mentioned in the introduction.

3.3 Design Phase 2 : Literature review

Based on the literature analysis, we depict the most important KM key concepts within the research field as sub models. Therefore, we build a model that entails three perspectives: process sub-model, factors sub-model and KPI sub-model. We state that agreement is reached concerning KM factors. However, KM processes delimitation should be considered carefully as they represent interactions between knowledge forms. Thus, it was decided to consider the processes according to the organization knowledge problems and to proceed to their decomposition in view of knowledge forms conversion. The knowledge forms and related knowledge conversions are presented in Fig 2.

We select the Unified Modelling Language (UML) and especially the class diagram for the presentation of the reference model. For the process sub-model, the flow chart notation is used.

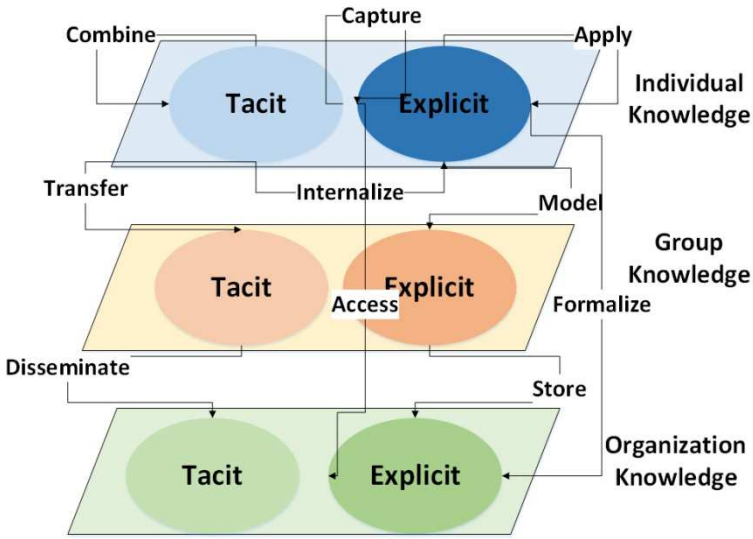

Fig 2. KM sub-processes and knowledge conversions

3.4 Design Phase 3: Reference model construction

The proposed RM summarizes the most important research results and provides a common KM enterprise model in its different aspects. It embodies three perspectives (cf. Fig. 3):

- KM process model: is derived from the qualitative literature analysis and based on inductive results,
- KM context model: encompasses the well known KM factors
- KPI model: this component plays an important role as it provides measures for each perspective. The final project performance indicators are the aggregation of all perspectives.

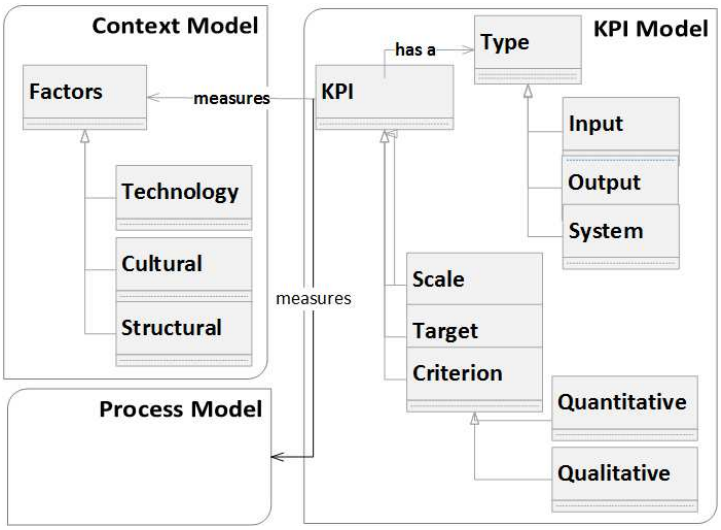

Fig 3. The KM reference model

Every KM project is an instantiation of one or more KM processes; it is influenced by the organization factors and is monitored with a set of KPIs. Fig. 5 provides an excerpt of the reference model for a sample KM process.

The process model perspective

The process model is built mainly on literature models (Grundstein 2012), (Ale et al. 2014), (Nonaka et al. 2000), (King 2009), (Heisig 2003). It is composed of four generic processes that are decomposed to several sub-processes. Hence, **identification** process encompasses identification and location, **preservation** process comprises the acquisition of knowledge, its modeling and its formalization in addition to the store sub process, the **recovery** process contains the access, the application, the combination and the creation of knowledge, and lastly the **knowledge update** process (cf. Fig. 4). These sub processes represent knowledge problems and conversions between knowledge in all its forms.

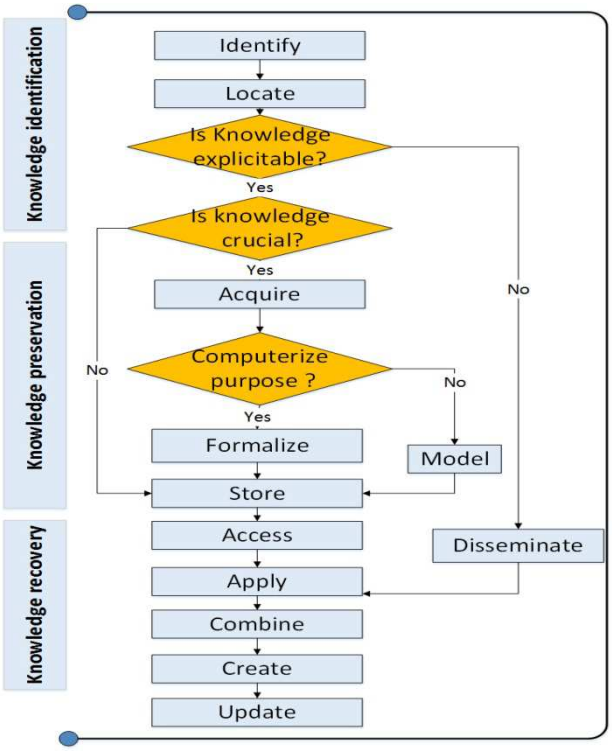

Fig 4. The KM process model

The KPI model perspective

The KPI perspective operationalizes the other KM perspectives. KPIs monitor the performance of a KM project according to both KM processes and KM context aspects. All measures in this study are based on existing KM performance measurement instruments and KM literature (Wolf and Tendron 2014; Robertson 2003; Hoss and Schlussel 2009; Wong et al. 2013; Don 2001; Heisig 2003; Ley et al. 2010).

For KM processes, KPIs are grouped into two categories (Hoss and Schlussel 2009; Lee and Choi 2003): input and output. Each KPI has its own set of measurement criteria: scale, range, current and target value. It can be either quantitative or qualitative.

The context model perspective

KM context corresponds to the factors that impact the success of KM project. According to (Gold et al. 2001), technology, culture, strategy and KM structure are the most influential factors on KM project success.

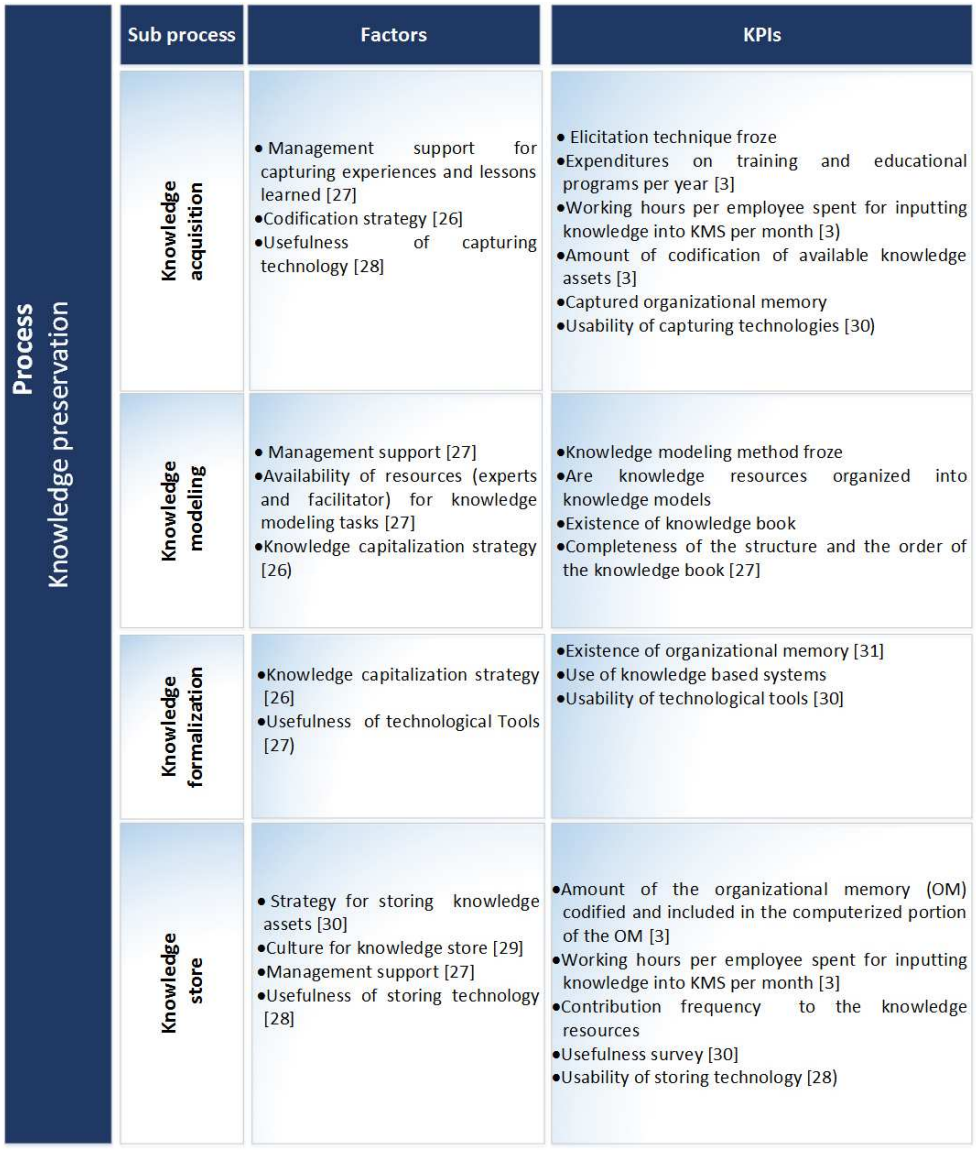

Fig 5. The KM model excerpt

3.5 Design phase 4: Quantitative evaluation

Within this step, we aim to assess the overall model and test its compliance with the accepted RM quality criteria. We adopt the quality function deployment (QFD) based approach proposed by Matook (Matook and Indulska 2009), which is an adaptation of the initial QFD to the RM design context. The QFD method is used originally for products and services to transform the qualitative user demand into quantitative parameters in order to deploy methods for achieving the design quality. Matook (Matook and Indulska 2009) reports that among all proposed RM assessment quantitative methods in the literature, it is the only one that provides both the RM quality attributes, an assessment method and a proposal of application.

Defined reference modeling quality attributes are:

- Generality: the degree to which a RM is usable in different cases.
- Flexibility: the ease with which the RM accomodates change from initial requirement.
- Completeness: the degree to which designed RM covers all predefined scope.
- Usability: the ease of use, adaptation and application of the reference model.

- Understandability: the clarity of concepts, purpose and structure of the RM

The QFD based approach involves developing a matrice referred as "The House of Quality" (HoQ) that incorporates RM quality attributes (horizontal dimension), RM development phases (vertical dimension), the center of the house which assess the impact of the RM development phases on the RM quality attributes and the user perceptions (cf. Table I).

Table 1. the QFD based approach from (Matook and Indulska 2009)

			RM development Phases				
		User importance ratings	Scope definition	Literature ***review***	***RM*** construction	***Quantitative*** valuation	User ***Fulfillment Ratings***
RM characteristics	**Generality**						
	Completeness						
	Flexibility						
	Understandability						
	Usability						

The quality measure is calculated based on the product of user assessment of the requirements importance and the completeness of the development phases (as reported by the RM designer). Therefore, as we follow the RM design steps for our model construction, we assume that designer rating have a high value. Instead, full rating is not obtained unless we test the model with empirical applications and thus obtain the user importance ratings and fulfilment ratings.

4 Conclusion

This paper presents a KM reference model for knowledge management that responds to the performance measurement requirement. This study provides three main contributions: first, our research reviews the literature on RM design in order to determine the best development approach that results in a high quality RM. Our proposed model follows the identified development process. Secondly, our model is built on KM theoretical foundations. It entails three sub-models :i) a process sub model derived from the KM model literature review and enhanced with literature analysis and logical findings, ii) a KPI model that provides KM project measures according to the performance measurement need, and iii) a context sub model that represents the KM influencing factors. Thirdly, the KMPM is able to assess both the overall organizational KM and the diversity of KM projects unlike existing models that are designed either for assessing the KM of organization or a specific KM project.

Our work is relevant in twofold: firstly through designing a KM reference model with the quality concern, this can be a significant step toward field standardization. Secondly, by filling the literature gap on KM performance measurement and proposing a KM model that assesses all kinds of KM projects.

The limitation of the study is related to the full design process application. In fact, we propose a five step design approach for the RM design. Meanwhile, the latest step which concerns empirical application is not addressed in this paper. This is due to the fact that most of existing KM models claim to be empirical, so we focus on the theoretical aspect in order to broaden the model scope.

Future work may consist on empirical validation of the proposed model which is a part of an overall KM performance measurement framework. A multiple case study will be performed to obtain insights about reference model validity and the global framework reliability.

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Business Model Concept as a Guiding Tool for Self-Development of Entrepreneurial Skills

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Abstract

In this paper we propose that generation of business model concepts could be a long-term integration tool to learn and develop entrepreneurial skills during long-term self-study. A concept of business model is regarded as a right set of open-ended questions. We propose formulation of these open-ended questions by using former knowledge in pedagogical science of how to use open-ended questions in education. The developed sufficient set of open-ended questions in the frames of "e3-Value" business model ontology and specific to entrepreneurship can be guiding tool for self-study of entrepreneurial skills. The self-study guiding-tool was tested on students by arranging short-term introductory course with follow-on meetings to track students' self-study of entrepreneurial skills. The proposed approach can be applied to solve problem how in a cost effective manner to increase number of potential self-made entrepreneurs around innovation clusters in development countries. Cost effectiveness mean that short-term courses are just navigation points in the long-term self-study of potential self-made entrepreneurs.

Keywords: business model concept, entrepreneurial skills self-development

Introduction

In the previous research by Laptev et al. (2014), we formulate the sufficient number of competencies and skills that are critically important for innovative entrepreneurs. They form two groups: cogitative (creativity, intuition, analyticity, flexibility of thinking, risk tolerance and decision-making) and personal (pro-activity, ambition, motivation of achievements, competitiveness, perseverance, self-confidence, focus on the result, optimism, perfectionism). To develop that mix within a reasonable space of time available in a classroom is an extreme trial, though. It appears to be a great challenge to find efficient approach and set of training instruments when ones come to a point how to develop those set of personal competencies as well as specific professional ones in a frame of a course. Instructors are traditionally great of delivering management science content and analytical instruments for individuals in class, but entrepreneurial "know-how" is the other side of education story that require constant innovation in approaches. Paradigm of learning by doing and a team work/homework extends and enhances the effect of in-class development of entrepreneurial skills. However, there is a risk that after courses people get back to their behavioral habits even having new knowledge and training experience. Entrepreneurship is a way of how individuals behave by identifying and seizing opportunities. To develop such behavior an individual should accept the approach as a life-long learning course through self-study with some navigation points in class sessions.

Tool to Develop Entrepreneurial Behavior and Skills

We examine the general goal of increase of the number of community members around innovation clusters in developing countries that are interested in entrepreneurial profession. We frame the study by trying to answer how a potential self-made entrepreneur could develop general professional skills having constraints of short-term courses and limited time spent in class.

Interviews with representatives of management companies of innovation clusters in Russia showed that they couldn't afford to support or to deliver long courses for potential self-made entrepreneurs.

The management companies of innovation clusters use the form of education sessions or short-term courses in partnerships with education content providers. This led to a mismatch between a short-term type of courses for entrepreneurship teaching and "lifelong learning" approach required to gain entrepreneurial behavior and skills. There are multiple discussions and papers addressing the issue of "whether entrepreneurs born or made". The conclusion is that both types of entrepreneurs exist and entrepreneurship is a profession.

Ability to formulate and solve problems is a core professional skill. This ability forms a strong foundation for successful professional operation together with ability to design and evaluate systems to meet economic and social constraints, and in some systems also to meet environmental and political constraints. Profession of entrepreneurship is not an exemption from those must to have abilities to be successful in other professions. However, as any profession, entrepreneurship has its own specific tasks that are solved by means of a number of professional methods well known among innovative entrepreneurs. Those basic professional methods form a platform for entrepreneurial management practices; however, set of professional skills required for each venture behind those methods can be different.

Blank (2013) introduced widely accepted now paradigm of the innovation based scalable startup as a laboratory that went through several predetermined stages and general methods of entrepreneurship to solve to achieve verified innovation based business model. The ultimate goal of the S.Blank paradigm is to create a scalable business model with verified business process and concepts of clients/users/consumers profiles, their needs/problems/pains, a minimal product feature set, and value propositions. Those S.Blank's stages of startup development, the ultimate goal, and experimental nature of the startup creation and its business development have determined corresponding needed professional methods and skills.

Design of business model concepts and following them in verifications may be regarded as this long-term integrating tool for entrepreneurial skills self-study. Generation of a business model concept is a process, each stage of which can be described as an open-ended question and should be finalized by answering it. According to Badger et al (1992), open-ended questions develop complex intellection and generate a number of solutions while class participants search their own way of problem solving. From education point of view, open-ended questions stimulate deeper learning even in unknown context outside a course or classroom, ownership of solutions and their evaluation since there are no predetermined correct answers.

Generation and verification of the business model concepts based on open-ended questions provides a valuable combination of benefits for education purposes:

- Benefits arise from open-ended questions that are interdependent to form a balanced business model concept;
- The business model concepts are benefits themselves, since scalable verified ones are defined as the ultimate goal of innovation startup development
- Benefits arise from obligatoriness of experimenting over and over in a long term to verify business model's scalability.

To generate business model concepts potential self-made entrepreneurs have to get profound understanding in business model operating and design principals. To verify scalable business model concepts potential self-made entrepreneurs must develop sufficient set of skills that will vary among business model concept, thus, could be specific for each one to learn.

We followed the set of features in open-ended questions formulation introduced by Cooney et al (2004) to formulate set of open-ended questions that can sufficiently represent a business model concept and would encourage self-studying of entrepreneurship professional skills.

According to Cooney et al (2004), open-ended questions must have the following properties: (1) involve a significant concept in a professional field that in our case is entrepreneurial management, (2) encourage a variety of responses or reactions, (3) communicate the reasoning process of a solution finding, (4) clearly stated, (5) provide possibility of evaluation.

Our objective was to develop some universal, sufficient but not redundant self-study guide-tool for potential self-made entrepreneurs based on these open-ended question criteria.

According to Mettler (2014) business model designers have to choose a specialized ontology for modeling that are not compatible with each other and some are to certain extend redundant. Looking over different business models ontologies in this paper we pay our attention to "e^3-Value" ontology. In a research study by Mettler (2014) characteristics of this type of business model ontology is a lightweight structure based on very useful and widespread vocabulary. The basic constructs in the "e^3-value" are actors, value objects, value ports, value offerings, value interfaces, value exchanges, value activities and market segments.

Having insight from our experience and guide lines from Cooney's et al (2014) and Mettler's (2014) research study we formulated set of eight open-ended questions that in our assumption is sufficient to represent necessary elements for design of a business model concept:

- what are the profiles of qualified leads as clients, consumers, and users;
- what are their needs, problems, and pains;
- what are the value propositions and a minimal feature set of product;
- what is the component base to deliver the minimal feature set of the product;
- what are mix of promotion channels and instruments to work in them;
- what is the sales structure (process) from first contact to money transfer or the sale funnel concept;
- what are the market trends;
- what is the core competitive advantage of sustainable growth?

However, the work to propose set of open-ended questions in the frames of "e^3-Value" ontology was not sufficient to arrange trial tests or to push potential self-made entrepreneurs to use the self-study guide-tool. For the purpose to arrange test trials and to introduce the self-study guide-tool we designed a frame of the short-term course in the following way.

During first classes a teacher/instructor introduced:

- a significant concept in entrepreneurial management field that is behind each open-ended question;
- reasonable process, showing how to answer those questions;
- principles of how a solution of each question effects solutions of the other ones.

The following classes during the course were devoted to team work and encouraging of students' responses to the open-ended questions to determine their reasoning of designed business model concepts.

Based on students' responses on reasoning and evaluation of solutions, the teacher determined knowledge gaps and facilitated further discussions of concepts behind the open-ended questions and their interrelation. At the end of the course teacher got road maps and commitments from students to verify provided solutions through "out of the lab" experiments. This type of commitment was made publically in front of the classmates and gave additional motivation for consecutive self-study. Also the teacher set a "meet-to-gather" in several months with sort-tem course participants in order to keep community feel of the self-study and supervision of the progress.

The proposed set of open-ended questions that are specific for entrepreneurial management in the frames of "e^3-Value" ontology and the approach to structure the introductory course may be an efficient way to develop entrepreneurial skills in communities. We have already tested efficiency of this method by the short-term introductory course of the self-study guide-tool with following meetings to track students' self-study of entrepreneurial skills.

Our future research includes testing of the proposed method within community around one of the innovation clusters to assess its effect on the rise of the number of people capable of creation and management of innovation based entrepreneurial ventures.

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A Micro Analysis by Adoption of Steps to Continuous Audit Missions for Financial Implementation of EU Funded Projects in Romania

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Abstract

The classical audit mission is being replaced by continuous audit systems according to IIA (2015). In this study we examine theoretical differences between continuous audit and continuous control and monitoring and the first steps in automation of some previous manually processes in audit missions in Romania.
This work is realized in a period when was registered an increase in the utilization of audit and accounting software. Our work is applied on the case of European (EU) funded projects' audit where is a present interest to assure quick, correct and viable results within audit missions presenting opinion according to ISA.
The article is one of the first that studied the missions of continuous audit in order to use it in future missions involving European funded projects. The methodological approach is based on a qualitative method, a questionnaire and interview addressed to ten members of the Chamber of Financial Auditors in Romania regarding the use of this kind of missions for the audit of European funded projects.

Keywords: Continuous audit missions, continuous control and monitoring, European funded projects

Introduction

According to Verver (2008), the difference between the continuous audit missions and the monitoring and control missions is related to the responsibility of the team involved in the process respectively auditors or management.
Essentially continuous audit missions refer to currently missions of audit, which are charged as more effective missions.
The automation of the processes and the accounting that must be the base for the continuous audit mission must be reflected in the accounting and audit standards according to Titera, (2013), Zhang, Pawlicki, McQuilken, & Titera (2012)
Rikhardsson & Dull (2016), in their article mentioned there are studies regarding the impact of technologies in continuous audit for small businesses that can be documented in order to develop continuous audit strategies for project.
The audit legislation in Romania is in process of changing, as a state member of European Union, the Directive 2014/56/EU and EU Regulation no. 537/2014 of European Council and Parliament issued in 2014 is in force from June 2016. These new requirements are related with the economic crisis and the transparency of information of an audit mission in order to give access to the information stocked in current "audit black box", according to Clemente (2016).
In a KPMG study (2012) with 700 firms, the higher transparency of error correction and of the process was mentioned to be reason on investing in continuous audit software.
In this article the objective is to provide a feedback from specialists in EU funded projects from Romania regarding the possibilities of using continuous audit missions in audit of financial documents for EU funded projects. The analysis is using the feedback received after a first period of the process of structural funds absorption (2007-2013).
In the next part of our study are shown the two types of assurances i.e. continuous controls monitoring and continuous auditing with specific empirical observation in Romanian EU funded projects case. In the third part of our study we present the methodology used for finding the opinions of specialists and the determining factors of using continuous audit missions in audit of financial

documents for EU funded projects. In the fourth part of the study we analyze the results of the experiment and in the final part we present the conclusions and limitations of the study.

Literature Review

Gonzalez and Hoffman (2015), mentioned Kuhn and Sutton (2006, 2010) that present studies are supporting the empirical methodology regarding the implementation of the controls and monitoring through systems and continuous audit.

The last two decades interests in research were related to continuous audit Gonzalez and Hoffman (2015), mentioned Groomer and Murthy (1989), Vasarhelyi and Halper (1991), Vasarhelyi, Alles, Kuenkaikaew and Littley (2012) as a solution for auditing a database in increasingly higher data for granting the possibility to assure an opinion through reports available in short term after the transaction were made. (CICA/AICPA, 1999)

The importance of using a continuing monitoring was brought by Sarbanes Oxley that was engaged in order to assure extra controls which provides quality, effectiveness and efficiency.

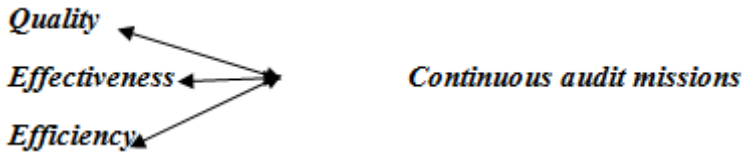

Fig 1: Benefits of continuous audit missions

Verver (2008) mentioned that continuous monitoring controls are assuring complementary controls and helping the continuous audit missions. In our study this is applicable if the verification made by the institutions that are assuring the controls and monitoring of this kind of projects insert controls different than the ones executed by the auditors in their missions.

ACFE (2014) specified that one of the responses to the fraudulent activities is the continuous audit. Moreover, Gonzalez and Hoffman (2015), mentioned Vasarhelyi, Kogan and Alles (2002), Chan and Vasarhelyi (2011), Davidson, Desai and Gerard (2013), Farkas and Murthy (2014) are placing continuous audit above classical audit in the detection of fraudulent events.

Kearns, Barker and Danese (2011) presented a model of forensic continuous auditing where continuous auditing is determining actions of analyzing exceptions, juridical analyze and refine the rules in order to increase control functions and to decrease risk of fraudulent and governance risks.

If Cukier and Mayer-Schoenberger (2013) underlined in one of their studies that in 2000 approximately 25% of information was archived in electronic way but 15 years latter approximately 98% is stored electronically and in our case the documentation for a EU funded project must be stored 100% in electronic so continuous audit missions in this case can be applicable. Another distinct element of our experiment is that according to current legislation in this type of projects audit missions the report can be provided by internal auditors or external auditors. Taking this hypothesis into consideration future research must concentrate upon the improvement of efficiency and efficacy in this particular missions applied on EU funded projects.

In the late 1980's and early 1990's some studies presented the first elements of continuous auditing according to Groomer & Murthy (1989), Vasarhelyi & Halper (1991) and in the 2000's the methodology was established mentioned Brown et al. (2007) and in this period different researchers were presenting possibilities of framework and principles that later were developed. Some of the studies were related with the costs of a continuous audit mission mentioned Alles, Kogan, & Vasarhelyi (2002), Alles, Kogan, & Vasarhelyi (2008) Rezaee et al. (2002) or utility according to Alles, Kogan, & Vasarhelyi (2011). At this phase of the process is considered important to be used in internal and external missions, considered Byrnes, Ames, Vasarhelyi, Pawlicki, & McQuilken (2012).

As studies of Vasarhelyi et al. mentioned (2004) it is the time of empirical analysis, as our study is using.

According to Chiu, Miklos, Vasarhelyi (2014) the process of continuing assurance is suppose to bring changes in:

- Scope of the process;
- The moments of the process;
- The process and the technical approach;
- The outcome of the process.

The adopting of continuing assurance processes is build on the capacity of the auditors in using auditing software as one of the studies presented (Robert and Harold, 2003).

One of the principles of continuous auditing is to build some „rules" to help software to compare the transactions with that rules and to present possible frauds or/and errors. (Vasarhelyi, 2002)

The importance of online connection of the both sides of the process in the continuous auditing (auditor and client) was mentioned in the studies concluded Kogan et al. (1999). In order to function online it is necessary to have real time information and it is important to mention that reason why the continuous missions are characteristic to internal audit more than external audit mission is related with some factors:

- importance of frequency of reporting for the internal audit department mentioned Vasarhelyi, Alles, & Williams (2010), Vasarhelyi, Krahel, & Teeter (2010)
- importance in monitor the risks and control performances was mentioned by De Aquino, Da Silva, & Vasarhelyi (2008).

Practical studies suggested the use of some SAP's (Systems Applications Products) for the analysis of the abnormal transactions according to Kuhn and Sutton (2006), Koskivaara and Back (2007), Santos, Sousa, Ferreira, and Tribolet (2008), Gal (2008).

Practical audit area is considered to be more and more addressed because of the necessity of answering important questions regarding the quantitative and formal part of the matter of using continuous audit. This is because classical audit missions, in relatively short time in which requirements are attributed to these missions, are registering mostly qualitative requests.

Research Methodology

We used the analysis of the content of resources regarding the continuous audit as a main method of research.

Experimental studies were conducted using self-designed survey and interview on this topic with external auditors, members in Chamber of Financial Auditors in Romania.

Following the structure presented in the research of Chiu, Liu, Vasarhelyi (2014), Conceptual map of the Continuous Audit system based on Continuous Monitoring System we presented the appliance of it on the case of EU funded projects. According to the study after 2008-2011 the focus of research for the topics of continuing monitoring was moved from strict technical to usage phase. Our study is following the steps presented by Krahel, (2012) and Vasarhelyi & Krahel, (2011) regarding the importance of formalizing the process in order to reach continuous auditing so the first empirical step is considered to be the projects area and a well-regulated field of EU funded projects.

A very good argument of the study is that the practice is going to present ways in assuring formalization of the processes.

Summary of sample characteristics of interviewees (Fig.3) are presented according to answers received in interview guide with auditors (Fig.4).

Overview of accounting cycle and the related audit process for the first reimbursement claim of an EU funded project - application in Romania (Fig.2) is representing also a result of the study.

Results

In the second period of structural fund absorption (2014-2020), Romania is in the point where it is possible to analyze the means of improving the processes of structural funds absorption in order to ensure higher absorption capacity than that of the previous stage (2007-2013).

In the process of absorbing the population participated through the various roles like: investors, decision factors, employees, specialists, end-beneficiaries and not least as accountants, controllers and auditors.

Our analysis is based on an exercise based on projects auditing experience from 2007-2013 process that can improve along with the other changes in the allocation and uptake of these types of funds for 2014-2020.

Following the adoption of fairly recent computer systems to business accounting and audit of project management, our analysis is based on the possibility of combining these systems so that there is a real-time feedback that determines the minimization of risks in accessing and managing EU funds and increase accessibility for various data controls and audit assignments.

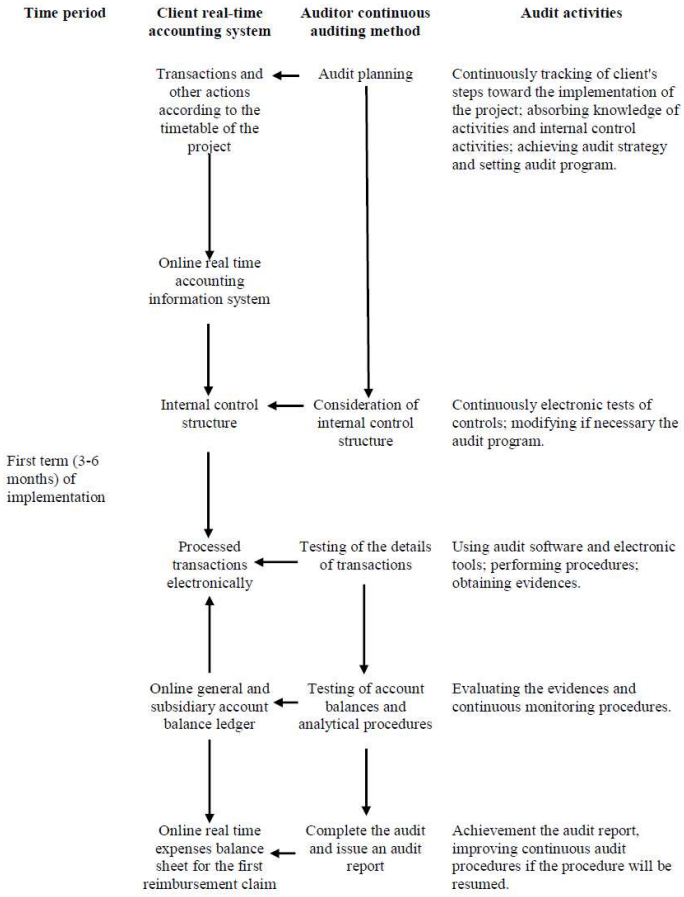

Fig.2: Overview of accounting cycle and the related audit process for the first reimbursement claim of an EU funded project a structured application in Romania

It should be emphasized that the efficiency of a system of continuous audit of financial information relating to an EU project must be even greater as the project is contracted for a large sum.

To ensure project efficiency as ensuring the trust and exact amounts of information can make the difference between a success and a costly failure. For this reason we consider that a continuous audit mission and continuously monitoring of the financial aspects of a project becomes a necessity in this context.

Given that at the moment most of the information is produced and submitted in electronic format and online bind people who are working in accounting and audit engagements for projects financed from EU funds operate with this information and having dexterity in the use of such electronic sources. We must underline here the importance of **well-prepared personnel** in using the latest software in the accounting and audit because persons who do not own such skills can put resistance to change.

Presently Romanian **regulations** obligate beneficiaries and partners in EU projects to file in PDF format information for verification and assure electronically archiving.

The **new application** administrated by Managing Authorities and Intermediate Bodies in Romania, MySMIS 2014 version 1.0 is available from March 2016 and is used for submission of grant applications based on electronically signed documents. Other system used in parallel for reimbursement claims is Action Web: a system were the implementation documents are uploaded by the beneficiaries and partners, in PDF format, in order to be verified and archived for reimbursements of the sums to the beneficiaries.

According to *Helpdesk MySMIS (2014)* "by implementing application MySMIS 2014 European Funds Ministry responds to the regulations applicable for European programming period 2014-2020" is presented in one of the press releases of the European Funds Ministry.

The auditors and those who ensure the verification often are using a large quantity of financial information and are in position to manage with difficulty these data volumes available in electronic format in the information system in which they were originally inputted and respectively introduced into Action Web the final system (in PDF file assumed).

During the implementation of projects financed with structural funds 2007-2013 **legislation on financial auditing of projects has changed**. If initial financial audit of EU funded projects were performed without additional training for auditors in the financial funds and ended with a report of findings of fact as ISRS 4400, currently auditing activity ends with an audit report expressing an audit opinion based upon ISA 805. Furthermore since January 2014 members of the Chamber of Financial Auditors Romania must follow a training course to be enrolled in the Official Monitor of Romania as part of auditors who can perform audits of projects financed with EU funds and other grants.

The opinion based upon ISA 100-805 is necessary in order to provide to the Managing Authorities and Intermediate Bodies if the expenses are eligible.

According to *Serban* (2014), important differences between the two type of regulation used before and after the moment 2014 is related to the:

- *Independency of the auditor, according to application of ISA 200 is mandatory but according to ISRS 4400 is not;*
- *Testing of the internal control system and evaluate the fraud risks by the auditor, according to application of ISA 240 auditor must treat the fraud risks but the beneficiary is responsible for the functioning of accounting and internal control and for the ISRS the testing was optional;*

- *The use of materiality in mission done according ISA 805 and 100% sample according ISRS 4400 and this difference is very important in the way of how the mission is done respectively how can be used a software for automatic verification and issuing of reports with results according to the ISA requirements;*
- *The assurance is not absolute but is high if it is used the ISA and is not assured in the case of using ISRS 4400.*

According to Conceptual map of the Continuous Audit system based on Continuous Monitoring System Shin, Lee, Park (2013) there are three types of actions interconnected respectively: one referring to collection of data for ERP, the second regarding continuous monitoring system and third focusing in increasing effectiveness of audit process through assessing high-risk audit items.

Continuous monitoring system is represented by dash boarding exceptions of each process, monitoring exceptional data and notification management.

Conceptual map of the Continuous Audit system based on Continuous Monitoring System is applicable to European funded projects where internal audit function is not always present in the team of the project (and is not performing the audit mission for the project EU funded), so the internal control function is the interface and connection with the external audit function. According to this map first step is to determine the direction of the audit mission, in this case of audit report for the reimbursement claim.
In this case the procedures of audit will take into consideration specific legislation for European Union and will be led by the partner of the company or head of internal audit from the institutions using information from the management of the project and previous experiences of the previous years (2007-2015) in auditing EU funded projects and accounting projects of the company.

For the quality of the mission is important to have a strategy so our study is using interviews about the process of audit of EU funded projects in order to stress the practical factors that are favorable in applying continuous audit in this case.

Below we are presenting the Summary of answers received from the interviewees at some of the questions establishing the sample characteristics of interviewees.

Organisation	Position in the firm	Years of experience in audit	Prioritary clients in	Your customers average net turnover in Euro	Usage of audit software in firm	Usage of audit software for continous auditing missions	Research questions
Company organized at the county level	Partner auditor	11-15	Private sector	>700.000	Yes	Time Audit and Working Papers by Caseware	12
Company organized at the country level	Auditor	5-10	Other (except private, public and NGO's)	50.000-500.000	No	-	12
Company organized in the capital	Senior auditor	11-15	Private sector	50.000-500.000	No	-	12
Company organized in the capital	Audit manager	11-15	Public and private sectors	>700.000	Yes	Excel	12
Company organized at the country level	Audit manager	<1	Private sector	<50.000	No	-	12
Company organized at the country level	Internal Auditor	5-10	Private sector	-	Yes	Excel	12
Independent	Auditor	2-5	GO's and NGO's	50.000-500.000	Yes	Excel	12
Public institution	Internal Auditor	5-10	Public and private sectors	-	Yes	Excel	12
Company organized in the capital	Partner auditor	2-5	GO's and NGO's	50.000-500.000	Yes	Excel	12
Company organized in the capital	Audit manager	11-16	Private sector	50.000-500.000	Yes	Ciel Audit and Revision	12

Fig. 3: Summary of sample characteristics of interviewees

As a partner of an audit firm stated in our study, they are in a process of accessing electronic information from their customers in order to facilitate continuous audit missions. The same partner mentioned that the assurance of an opinion according to specific legislation for 6 to 12 months (because the project is implemented for a short period) or at every 3-6 months (for projects implemented on a period bigger than 1 year), are reasons in using software tools for continuous auditing.

Another independent auditor mentioned that the new requirement regarding the use of ISA standards is also a reason in using audit software in audit missions for EU funded projects.

Other interviewees mentioned that even until now do not have a software to receive electronic files signed electronically and input them for testing in their audit software they are interested in doing so. Another factor in using this type of missions is the fact that the majority of the EU funded projects are using the same accounting transactions during the implementation: transactions related to Staff Costs, Staff Travel, Office Costs, Transportation Costs, Allowances and Information Campaign Costs.

Other specialist underlined that the error rate issued after continuous auditing can be used without furthermore calculate it.

Questions to ask:

1 How many years of experience in audit do you have?
2 What is your position in the company / your office of audit?
3 What is the administrative representation of your audit company?
4 What kind of ownership are your clients from?
5 Do you perform audits of EU funds projects?
6 In which interval your customer's average net turnover in Euro, is situated?
7 Within your audit company (audit activities) do you use audit software?
8 What kind of audit software do you use in order to achieve a continuous audit?
9 How the continuous audit can be implemented in audits of EU funded projects?
10 Have you formalize at your company the audit process in order to have an automatic one?
11 What can motivate you to adopt continuous auditing technologies?
12 What was the impact in applying continuous auditing technologies in EU funded projects?

Fig. 4: Questions in the interview

One of the main concerns for auditors seems to be the importance of testing the application controls because of supplementary effort and expertise involved in the process.

Another auditor presented what brought to his firm the use of specialized software: more data examined, release the time pressure for auditors, better information, an automatic archived electronically history for the next audit mission.

A respondent mentioned that a young colleague is very interested in using software because of his skills in the domain and is testing one audit application available in Romanian software market.
The underline benefits of using software in audit of EU funded projects mentioned in our study:

- Secure data;
- Controlled data;
- Managed data not at the disposability of a person;
- Logged data;
- Easley reported data;
- Assurance of user and password access;
- Avert and investigation of exceptions according to Rikhardsson and Dull (2016).

Some of the limits presented in the investigation are:

- To ensure the management of exceptions;
- To deal with false positives;
- The process of follow up of the results;
- The persons involved in the process must have the correct training;
- IT personnel must be involved added by Verver (2008);
- Privacy and security threats according to Chiu, Liu, Miklos, Vasarehelyi (2014);
- Deficit of critical consideration mentioned to Rikhardsson and Dull (2016)

Conclusions and limits to the study

The study is revealing the incursion in practical processes of continuous auditing in the context of auditing EU funded projects.
Technological evolution is affecting the process and profession such as accounting and auditors according to AICPA (1998).

Our study is part of a second and third method of analysis used in general by researchers in this domain (the empirical survey and case study) as the study demonstrated by Chiu, Liu, Miklos, Vasarehelyi (2014).

As Maia Farkas, Uday S. Murthy (2013) argued, the costs of implementing continuing monitoring or auditing is in some practical cases considered to exceed the advantages.

In the Romanian case for the EU funded projects it is now a new application used in continuing monitoring of this specifically regulated field and is important to find a way of using efficiently this electronically stored data.

The Public Company Accounting Oversight Board considered that the changing of standards often can lead of using unnecessary technique sampling and that in some cases new standards must be accompanied with some changes in the techniques. As EU funded projects are specifically regulated in Romania, some practitioners tend to reveal need of techniques in order not to register over time in missions and not to perform irrelevant tasks for presenting quickly a correct audit report with a viable opinion.

According to this matter AICPA studied the steps that can be used for solving the concern of testing the application control: 1.defining the file using the technical specification; 2. defining the fields of the files; 3.usage of data validation and supplementary understanding of the completeness of data. A standardization of the file format is the next step in the process in order for it to become more efficient.

John Verver, vice-president of ACL presented (2014) an interview that all Big 4 are having projects regarding the use of technology in their activities.

Our study is limited by the relatively small number of interviewed and the type of investigation and to a relatively small number of studies related to the methodology used in continuous audit mission.
Further practical experience can bring more results related with a case where this type of missions could increase the efficiency, effectiveness and quality.

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Food quality perception in the Czech Republic: trial study results

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Abstract

The article presents outputs of trial study which discovered consumers´ opinions about food quality labels in the Czech Republic and the influence of food quality labels to shopping behaviour of foodstuff. Questionnaire research is a basis for further research, which is realized in 2016. In the paper are described theoretical foundations of food quality labels and an overview of quality labels used in the Czech foodstuff market. Within research outputs are presented sample structure, order of factors, which influence customers´ shopping behaviour the most and customers´ opinions of foodstuffs labelled by quality labels.

Keywords: food quality labels, shopping behaviour, consumers´ opinion

Introduction

After lifting food quality standards in 1993, quality of numerous products has decreased without attention on the side of the consumers. Gradually, information began appearing that it is necessary to monitor composition of products as they actually might not contain the ingredients they should. The problem was and still remains that in the process of shopping consumers do not want to spend time reading unclear and often confusing information on composition of the products which is usually even missing at over-the-counter sale. Therefore, it is common that consumers purchase spurious products where name and packaging play the key role, not the actual composition or nutritional value.

Over time, price has become guidance for quality of food products. But nowadays even that is no guarantee for quality or content of the ingredients expected by the consumers. On the one hand, some product quality indicators are improving, on the other hand, use of substitutes in foodstuffs is growing. Quality labels the number of which is growing rapidly on the market are supposed to resolve the issue. These labels should guarantee quality of products in terms of composition, place, or method of production, and should help consumers choose fine quality, unadulterated food.

Due to the fact that quality is gradually becoming a significant factor in the choice of food by more and more consumers, quality labels are gaining importance as well. They are substantial not only for consumers but also manufacturers who are able to attract attention or differentiate from the competition thanks to products which meet the parameters for obtaining such label of quality.

Theoretical Background

Quality labels, or the so called utility signs, are graphic symbols that appear on a product, its packaging, or enclosed information materials. They inform about particular parameters of a product (packaging), or its use (Velčovská, 2005).
They are a tool to reassure consumers about the quality through certification. Specific labels only cover certain aspects of quality. It means that the market offers product or service quality labels.
According to Tulder (2006) there is great diversity within quality labels. Symbols are divided into several categories which may overlap with one another. Those are related to:
- Industry (sector) - e.g. HORECA Select,
- Working conditions - e.g. Fairtrade, Oké bananas,
- Production conditions - e.g. FSC certification, Rainforest Alliance,
- Recycling and organic products - e.g. Eco-O.K.,
- HR policies - e.g. Investor in People,
- Product - e.g. Klasa.

All utility signs are segmented in higher detail by Velčovská (2005) according to the following criteria: in terms of severity, content, extent, and geographic perspective.

There is no doubt that quality labels have undeniable importance for producers as well as consumers. To consumers they provide certain assurance as products marked by such labels must meet the established standards and requirements. They also contribute to simpler orientation on the market and help choose a quality product or service with minimal risk. Currently, one of the assumptions about todays´ consumer behaviour is the fact that people are increasingly buying products not because of their parameters but for the personal value they represent. Products are often evaluated according to their specific qualities (not the main benefit it should deliver), but the so called enhanced product (a set of intangible elements which bring the perceived advantage to the consumer, e.g. image, service, consulting, etc.). Quality labels are part of the enhanced product which influences consumer behaviour. (Turčínková, 2007; Klánová, 2013)

Contribution of brands for manufacturers is often far greater than benefits for consumers. Quality labels can serve as an effective marketing tool which leads to an increase in sales (after being marked with a brand logo) and raise in awareness among consumers. Brands are therefore considered an important tool for manufacturer´s sales support. The survey conducted by Focus Agency for an expert periodical Marketing Journal shows that 81% of companies see the main benefits of using quality labels in the expected increase in consumer confidence. Another benefit is the aforementioned increase in revenues and a way to differentiate from competition. Also, 39% of companies perceive quality labels as a guarantee of production stability and high quality of its products. (Focus Agency, 2013; Horacek, 2014)

Czech food market is flooded by a large number of quality labels which should function as a guide for consumers and at the same time guarantee quality and origin of products. Consumers may encounter labels used exclusively for food products (eg. Klasa or Regionální potravina), or labels given in other product categories (eg. CZECH MADE or Český výrobek).

Table 1: Quality labels used in the Czech Republic

Logo	Name	Characteristics
	KLASA	Label awarded by the Ministry of Agriculture to food and agricultural products of finest quality.
	Český výrobek – guaranteed by Federation of the Food & Drink Industries of the Czech Republic	Products must be manufactured in the Czech Republic and must contain a certain share of Czech ingredients. The label is awarded by Federation of the Food & Drink Industries of the Czech Republic.
	Český výrobek (belongs to the Český výrobek fund)	Label for both food and non-food products whose production company is owned by Czech citizens and revenue is not transferred outside the country. Label is awarded by Český výrobek fund.

	Český výrobek (belongs to Český výrobek Ltd.)	Designation of safe products manufactured in the Czech Republic (where employees are Czech). The label is granted by Český výrobek Ltd.
	Czech made	The label which is part of the state program Česká kvalita reflects that the quality of designated goods and services has been objectively verified by a third party. This label is awarded by Sdružení pro Cenu České republiky za jakost.
	BIO – a product of eco agriculture	Nationwide trademark for organic food given awarded by organizations entrusted by the Ministry of Agriculture.
	BIO in EU	EU logo for organic packaged foods, which was introduced by the European Commission.
	Ekologicky šetrný výrobek (Eco-friendly product)	Goods and services that are proven environmentally and consumer health friendly, label is granted by the Ministry of the Environment.
	Regionální potravina (Reginal food)	Label awarded by the Ministry of Agriculture to finest-quality agricultural products that win in regional competitions.
	Vím, co jím (I know what I eat)	Designation of nutritionally balanced food granted by the non-profit organization Vím, co jím a piju.

	Zdravá potravina (Healthy food)	Labelled food must not contain controversial additives, artificial flavourings and E-additives, is awarded by Zdravá potravina.
	Certified e-friedly food (CEFF)	Food products without preservatives, artificial colourings and flavours, the label is awarded by an independent institution.
	Chráněné zeměpisné označení (Protected geographic trademark)	Designation of an exceptional agricultural product or foodstuff from a given region / location. At least one phase of production - production, processing, or preparation must take place in the designated area. Awarded by the European Commission.
	Chráněné označení původu (Protected origin trademark)	Designation of an exceptional agricultural product or foodstuff from a given region / location. All stages of production must take place in the designated area, it also applies to ingredients. Awarded by the European Commission.
	Zaručená tradiční specialita (Guaranteed traditional specialty)	Agricultural product or foodstuff produced or manufactured for at least 30 years specific nature of which is recognized by the EU. Awarded by the European Commission.
	Fair Trade	A certification system for products from the countries of the Third World where consumer buying this product helps disadvantaged producers (mainly from the Third World countries). Managed by Fairtrade Labelling Organisation International.

Source: Babička (2012), Eagri (2015)

Methodology

This paper aims to (1) identify the main factors in decision-making while purchasing food and their order stated by the respondents, (2) discover knowledge and recognition of quality labels that appear on the Czech food market, and (3) gain respondents´ opinions on food products marked by quality labels.

The presented study is a trial for the research on quality labels. In the trial during the period from December 2015 to January 2016, 36 respondents were interviewed distribution whom roughly corresponds the distribution of the monitored categories of the population sample. The survey sample consisted of residents of the Czech Republic over 18 years of age addressed in front of grocery stores. The interviews were recorded for qualitative evaluation. Based on the information obtained from the trial study, the questionnaire will be adjusted for final interviews.

The research technique used were individual semi-structured interviews, the respondents answered a set of 13 questions with closed and open-ended answers and scales. Representative technique was used for the selection of respondents, namely simple random selection where respondents were interviewed in front of grocery stores. The questions were focused on the attitude of respondents towards purchasing food labelled by quality labels and their knowledge of quality labels placed on food sold in the Czech Republic. Further segmentation questionnaire contained questions on household size, total net income of the respondent´s household, the highest educational attainment of the respondent, and zip code for region identification. The aim of the survey was to get the majority of responses from women who have higher influence on shopping behaviour of food and stronger decision-making power than men. The respondents were willing to answer questions, and no significant number of respondents who would be reluctant to participate in the questioning was registered. The obtained data were then processed and classification of the first and second degree was conducted, followed by correlation analysis and hypotheses testing.

Research Results

Responses were distributed evenly within the sample according to the number of members in the households, as well as in the category of total monthly net income of the households. In the category of gender, a higher proportion of women was reached, which is advantageous as in most families women take decisions on food purchase. Unequal representation was achieved in the category of age where almost over 41% of respondents fall into the age group of 20-29 years. The territorial distribution of the respondents is that nearly 64% of respondents come from the Central Bohemian Region, the rest of the respondents from the regions of Olomouc and Plzen. Thus it is possible to say that the inquirers managed to ensure representation of respondents living in large cities and near such cities who usually have different lifestyle and therefore distinct shopping behaviour from people living in rural areas.

Table 2: Sample characteristics

Number of household members	1	8,3 %	**Total monthly net income of households**	up to 10 000 CZK	16,7 %
	2	22,3 %		10 000 – 20 000 CZK	19,4 %
	3	22,2 %		20 000 – 30 000 CZK	27,8 %
	4	22,2 %		30 000 – 40 000 CZK	13,9 %
	5	25 %		40 000 – 60 000	11,1 %

				CZK	
				over 60 000 CZK	11,1 %
Education	Primary	11,1 %	**Age**	20 -29 years	41,7 %
	Secondary	16,7 %		30 – 39 years	19,5%
	Secondary (higher)	44,4 %		40 – 49 years	19,4 %
	College	2,8 %		50 – 59 years	11,1 %
	University	25,0 %		60 years and more	8,3 %
Gender	Female	63,9 %	**Region**	Central Bohemian	63,8 %
	Male	36,1 %		Plzen	2,8 %
				Olomouc	33,4 %

In the ranking of the factors that most affect food purchase, an earlier assumption was confirmed that price is the main criterion. Each respondent was asked to state three factors that most influence their purchase of food and, in addition to price, respondents placed great emphasis on the origin of products (whether it is a Czech or foreign products and whether it is a regional product, or a product imported from a greater distance). Among other qualities, appearance of the product was considered important. Other factors that placed on the first to fifth position were quality, composition of the product, taste (which is the most subjective criterion), and recommendation. Quality label placed 7th in case of the first factor, 10th as the second factor, and 3rd in stating the third factor. This means that quality label is not one of the main selection criteria for the respondents.

Table 3: Order of factors with most influence on food purchase

	First factor	**Second factor**	**Third factor**
1	Price	Price	Price
2	Origin	Origin	Appearance
3	Quality	Composition	**Quality label**
4	Composition	Appearance	Composition
5	Taste	Other	Recommendation
6	Appearance	Recommendation	Quality
7	**Quality label**	Habit	Freshness
8	Habit	Freshness	Taste
9	Freshness	Taste	Shelf-life
10	Other	**Quality label**	Appearance

The tests made on rank correlation (Kendall's tau) did not confirm dependency between the order of the factors cited meaning that it is impossible to say unequivocally which factor respondents generally consider as the most important as there is no trend of a single factor appearing on the first place. Values of Kendall's tau varied from -0.433 to 0.06 and are statistically significant at a significance level of $\alpha = 0.05$.

Like in the previous question on factors influencing food purchases, respondents were asked to name three quality labels they know. This confirmed the earlier assumption that Klasa holds the leading position on the Czech food market as the majority of respondents named it as the first option. Many respondents were not able to name a second label, however, Český produkt, Bio, and the response "Other" appeared among the answers. The respondents also named brands that do not belong among quality labels – e.g. private labels of retail chains. Therefore it is possible to conclude that the concept of quality labels is unclear for many respondents and, despite repeated campaigns to promote recognition and knowledge of quality labels, consumers are still unsure about what such labels represent in detail. More precisely, shoppers understand that a quality label represents higher quality standard compared to other unmarked goods, but they lack certain knowledge on what particular production standards, ingredients, or other norms a label stands for or should inform about. As the second option, respondents named Český produkt, Regionální potravina, and Zdravá potravina. It is also interesting that some reported Chráněné zeměpisné označení a Chráněné označení původu as the second and third answer since those labels are not often known among Czech consumers.

Table 4: Order of labels by awareness

	First label	**Second label**	**Third label**
1	Klasa	Other	Regionální potravina
2	Český produkt	Český výrobek	Other
3	Other	Chráněné zeměpisné označení	Chráněné označení původu
4	Bio	Regionální potravina	Český produkt
5		Český produkt	
6		Zdravá potravina	

Even in this case the conducted rank correlation tests (Kendall's tau) did not confirm any dependency between awareness rankings of quality labels, which means that it is not possible to say unequivocally which labels are more significant than others, except for the Klasa label whose position is exceptional. Values of Kendall's tau vary from -0.501 to 0.229 and are statistically significant at a significance level of $\alpha = 0.05$, at the same time there is no visible trend.

Another aim of this paper was to find out opinions of the respondents on food products marked with quality labels. It is noteworthy that 94.4% of respondents rather agree that labelled foodstuffs meet their expectations, but only 58.3% of respondents consider these products actually better (13.9% absolutely agree and 44.4% rather agree) while 30.6% of respondents were neither concurring nor dissenting. Similarly, the respondents answered questions on whether the labelled products are trustworthy where 61.1% of respondents agree with such statement (19.4% absolutely agree and 41.7% rather agree), which may seem interesting for food producers who endeavour to obtain some of the quality labels. Willingness to pay extra money for the labelled food products was confirmed by 72.2% of the respondents which shows a positive trend that consumers are willing to pay more for products which are marked with quality labels and which are expected to have higher quality than unlabelled products. These findings may also be confirmed by one-sample t-test the value of which reached $t = 0$ at a significance level of $\alpha = 0.05$. Such fact may look slightly paradox as from the aforementioned test of stating three most influential factors and naming three quality labels it seems

that most consumers do not have detailed knowledge on particular standards represented by each quality label.

Table 5: Respondents' opinion on labelled food products

	1	2	3	4	5	T-test value
Do food products marked with quality labels meet your expectations?	0	94,4	5,6	0	0	Sig = 0, T = 53,09
In your opinion, are labelled food products of better quality?	13,9	44,4	30,6	2,8	2,8	Sig = 0, T = 15,43
In your opinion, are quality labels trustworthy?	19,4	41,7	22,2	8,3	2,8	Sig = 0, T = 13,36
Are you willing to pay more for labelled than unlabelled products?	27,8	44,4	13,9	5,6	2,8	Sig = 0, T= 12,21

Note: 1 – absolutely agree, 2 – rather agree, 3 – neither agree nor disagree, 4 – rather disagree, 5 – absolutely disagree

Conclusion

Based on the trial of quality labels where 36 respondents were interviewed several conclusions can be drawn. In identifying three factors that most affect consumers while shopping food, an aforementioned assumption was confirmed that the most important factor is price. However, the assumption cannot be unequivocally confirmed at this stage of the research. More accurate results will appear with a higher number of respondents and statistically significant correlation. In the opinion of consumers, the second most important factor after price is origin of the food, where in addition respondents care what country a product comes from and, in case it is a domestic product, from which region. The third most influential factor according to the gathered information is appearance of products. Visual characteristics therefore play an important role in food selection. It is also necessary to mention other factors which occurred on various positions from first to fifth, those are: quality, composition of the product, taste, and word of mouth or recommendation. Based on all the previously mentioned information it is possible to conclude that quality labels are not one of the key factors in food selection and thus do not have significant influence on consumer behaviour.

Respondents were also asked to name three labels of quality, most frequently they named Klasa as the first option. Based on the results of this study, Klasa seems to have the highest awareness on the Czech market. Other labels featured on the first place are Český výrobek and Bio. In addition, respondents also named brands which are not considered quality labels but private labels of retail chains. Several respondents were unable to name any brand of quality. These facts reveal that brand awareness of quality labels in the Czech Republic is generally not high. Such labelling thus has low significance and consumers do not have an entirely clear and accurate idea of what quality labels mean. They have a general idea that labelled products should have higher quality, but mostly do not have particular knowledge on what exactly each label represents in terms of production standards, norms, origin or ingredient requirements. One of the reasons for this could be that there are too many quality labels on the Czech food market, which can cause confusion in consumers´ perception of food quality labels. Another reason can be the influence of price on consumers´ decision making as for many shoppers in the Czech Republic, price is the most important criterion in the process of purchasing food.

The final part of the study examined consumers´ views on food products marked with quality labels. Nearly 95% of the respondents rather agree that labelled foodstuffs meet their expectations, while only 58% of consumers actually consider labelled products to have higher quality in comparison with

conventional products. As for the question whether quality labels are trustworthy, 61% of those surveyed responded approvingly, while 19% absolutely agree and 42% rather agree with this statement. At the same time, 72% of the respondents are willing to pay more for the labelled food products than for those unlabelled, simply because they view labelled foodstuffs as products with higher quality or some exceptional value, or in case of Bio label they can expect products to be healthier. In conclusion, approximately two thirds of consumers trust quality labels and almost three quarters are willing to pay extra money for such labelled products. However, as a matter of fact but somewhat paradoxically, the awareness of these labels and knowledge about their particular meaning is not high. Therefore, the question remains whether and what actual value labels of quality have on the food market in the Czech Republic.

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Does Government Ownership Limit Financial Misreporting Through Real Activities Manipulation: Malaysian Evidence

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Abstract

This study examines the degree of financial misreporting through real earnings management practices of Government Linked Companies (GLCs) listed on Bursa Malaysia. In addition, this study investigates the impact of total government shareholdings on real earnings management. Consistent with prior research, this study uses three proxies to measure real earnings management; abnormal cash flow from operations, abnormal production costs and abnormal discretionary expenses. Using a sample of 329 firm-year observations from 2001 to 2014, this study finds that government ownership has significantly negative association with all proxies of real earnings management. Overall, the results suggest that government ownership as an effective monitoring mechanism in limiting real earnings management practices. The findings support the incentive alignment hypothesis which argues that companies with government intervention are normally better governed.

Keywords— *government ownership, government linked companies, real earnings management*

1.0 Introduction

Prior studies highlight that government ownership affect earnings management activities (Ding, Zhang & Zhang, 2007; Har, Majdi & Mohammed, 2012; Jamaludin, Mohd-Sanusi & Kamaluddin, 2015; Jow, Loo, Zainal-Abidin, Noordin & Ariffin, 2007). In general, there are two competing views on the effects of government intervention on companies' earnings management practices. According to the incentive alignment argument, companies with government intervention are normally are better governed (Ang & Ding, 2006; Lau & Tong, 2008) and more politically sensitive (Mohd Ghazali, 2007). More specifically, the activities of these firms are not only under the watchful eyes of the public, i.e., the investors and shareholders, but also the government. As a result, management of these firms is more conscious of the importance of maximising shareholders' value over self-interest, which might limit managerial opportunism (Lau & Tong, 2008).

On the other hand, Wang (2002) contends that government intervention is the main factor for the inefficiency of state shareholdings, resulting from poor governance practices and greater agency problems. Ding et al. (2007) argue that the agency problems in state-owned firms are more complex than in privately-owned firms because there is an extra agency relationship in such firms as the controlling owners are themselves agents of the true owners i.e., the state. In particular, there is one more type of agency cost in state-owned firms—the agency cost between the state and the controlling owner—in addition to the agency cost between the controlling owner and minority shareholders. Further, Jow et al. (2007) argue that unlike owner-managers who have to risk their own resources, GLCs managers are using public funds as their major resources. The nature of their compensation, which is directly tied to accounting number, creates more incentive for the top management to

manage the reported earnings in order to maximise their compensation. Consistent with these conflicting theories, previous research on the relationship between government ownership and earnings management provided mixed results (see for example Jow et al, 2007; Hoang et al., 2014; Chen et al., 2003; Wang & Yung, 2011; Har et al, 2012).

In addition, in spite of growing research on earnings management of GLCs, most of the research uses accrual-based measures as key proxies of earnings management. According to Graham, Harvey and Rajgopal (2005) managers prefer real activities manipulation to accrual earnings management. Given that, this paper attempts to extend prior studies by examining the degree of REM practices and the specific factors that affect managerial decisions to manage earnings in GLC of Malaysian capital market.

This study uses Malaysia as a research setting due to several reasons. First, government ownership is strong feature of the Malaysian corporate sector. According to Jow et al. (2007), GLCs represent approximately 40 per cent of the market capitalisation of the Malaysian stock market. Second, in Malaysia, GLCs play an important role in the development of the economy as their main objectives are not purely profit driven but are to achieve social objectives. GLCs have special advantages to access to government's funds, tenders and opportunities. Given such important roles play by GLCs and its special advantages, Hawani et al. (2011) argue that GLCs have responsibility to share the government responsibility in discharging their public accountability by leading other companies by having good corporate practices and producing high quality of reported earnings.

Using 329 firm-year observations from 2001 to 2014, we find that GLC have significantly negative abnormal cash flow from operations, abnormal production costs and abnormal discretionary expenses. The findings suggest that when the Malaysian listed firms have government ownership more than 10 percent of total shareholding, the level of real earnings management activities will be reduced.

This paper has multifaceted contributions. First, the study expands on the existing body of knowledge on the relation between government ownership and the level of earnings management. This is an extension of prior studies on government ownership influence on accrual earnings management (Har et al., 2012; Jamaludin et al., 2015; Jow et al., 2007) by examining the impact of government ownership on another perspective of earnings management activities; real earnings management. Second, from a regulatory perspective, the paper shows that government ownership can help to promote confidence in the quality and reliability of audited financial statements in Malaysia setting.

The remainder of the paper is organized as follows. Section two provide a brief description of Malaysian GLC. Section three draws a connection between earnings management and government ownership and develops the research hypothesis. Section four elaborates the research design. Section five presents and discusses the findings. The final section provides the summary and conclusions.

2.0 Institutional Background

2.1 Malaysian Government Linked Companies

In Malaysia, GLCs play an important role in the development of the economy as their main objectives are not purely profit driven but are to achieve social objectives. In particular, GLCs have been set up to restructure and ensure a more equitable society by enhancing Bumiputera participation in the corporate sector and the Malaysian capital market. GLCs are controlled by the Malaysian government through Government-linked Investment Companies (GLICs). GLICs are the investment arms of the government allocating some or all their funds to GLC investments. Currently, there are seven GLICs including: the Employee Provident Fund, Khazanah Nasional Berhad, Kumpulan Wang Amanah Pencen, Lembaga Tabung Angkatan Tentera, Lembaga Tabung Haji, Menteri Kewangan Diperbadankan and Permodalan Nasional Berhad. Apart from having controlling ownership in the GLCs, the government also has the ability to appoint board members, senior management and make

major decisions in such areas as contract awards, strategy, restructuring and financing, acquisitions and divestment for GLCs.

Nonetheless, Malaysian GLCs have been subject to criticism as poor performance firms. In response, Malaysian government in 2004 has embarked transformation initiative in restructuring GLCs to become more commercial in nature, despite their social and national obligations. The transformation has been monitored by government agency known as Putrajaya Committee on GLC (PCG). The transformation policy highlights ten initiatives; (1) enhance board effectiveness; (2) strengthen directors' capabilities; (3) enhance GLICs monitoring and managerial functions; (4) improve regulatory improvement; (5) clarify social obligations; (6) review and revamp procurement; (7) optimize capital management practices; (8) manage and develop leaders and other human capital; (9) intensify performance and management practices; and (10) enhance operational improvement.

In a nutshell, as the transformation program emphasize on the effectiveness of corporate governance of the GLCs through certain board characteristics such as board size, board meetings, multiple directorships, it is expected that the GLCs are less likely to be involved in earnings management including real manipulation activities.

3.0 Literature Review

3.1 Earnings Management and Government Ownership

Healy and Wahlen (1999) defined earnings management as an opportunistic behaviour. It occurs when managers use judgment in financial reporting to alter accounting number to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes. According to Fields, Lys and Vincent (2001), managers can influence reported accounting numbers by managing accounting choices either via accrual (hereafter referred to as accrual earnings management (AAC)) or real-based transactions (hereafter referred to as real earnings management (REM)). The former refers to the earnings management activities that have no direct cash flow implications. For example decision to write down assets, to recognize or defer revenues, to capitalize or expense certain costs such as repair expenditures, and timing of adoption of new standards. REM occurs when manager use real economic actions that affect cash flows to produce a desired earnings (Dechow and Schrand, 2004, Fields, Lys and Vincent, 2001). Examples of REM include reductions in discretionary spending such as research and development (R&D), advertising and maintenance expenditures, aggressive price discounts to increase sales volumes, overproduction to report lower cost of goods sold (COGS) and repurchase common share.

A review of literature on the impact of government ownership on opportunistic earnings management documented mixed empirical results. For example, consistent with the management entrenchment effect hypothesis, Chen et al. (2003) find that local government has a significant positive relationship with earnings management practices of listed firms located in their jurisdiction in order to meet the regulation stipulated by the central government. Further, Ding et al. (2007) examine earnings management practices in Chinese state-owned listed firms. This study revealed that such firms are more likely to manage earnings via operating-related accrual mechanisms and non-operating transactions with related parties.

Ben-Nasr et al. (2015) examine whether state ownership affect earnings quality. They hypothesize that government has more incentives to tunnel corporate resources and expropriate other shareholders for political benefits. To hide this expropriation, the government may lead managers to manipulate earnings, which results in a lower quality of accounting earnings. Using 350 firms from 45 countries, they find that state ownership is associated with greater abnormal accruals, lower earnings informativeness and more transitory earnings. The results indicate that state ownership is associated with lower earnings quality than their counterparts.

Nevertheless, some scholars cast doubt on entrenchment effect of government ownership on opportunistic earnings management (Hoang et al., 2014; Wang & Yung, 2011; Jow et al., 2007). For

example, Wang and Yung (2011) examine the impact of state ownership on earnings management in China. The results show that state owned firms have lower levels of earnings management than privately owned firms. This indicates that government play an important role in mitigating the management's pressure to manipulate earnings numbers.

In a related study but using Vietnamese data, the work carried out by Hoang et al. (2014) who investigates the impact of state ownership on earnings management of listed firms on Ho Chi Minh Stock Exchange and Hanoi Stock Exchange. The findings suggest that state ownership limit opportunistic earnings management by accrual accounting choices.

In the Malaysian context, Jow et al. (2007) investigate the prevalence of earnings management between GLCs and Chinese family-linked companies. They argue that the motive of GLCs to manage reported earnings is related to managerial compensation plans as their managers' compensation is tied directly to accounting results. On the other hand, the motive of Chinese family-linked firms to engage in income-decreasing earnings management might be attributed to tax related issues as management attempt to minimise taxable income, and improve cash flows. However, the results show that there is a negative relationship between concentration of shareholdings and earnings management in GLCs. This indicates that GLCs are less likely to manage earnings numbers via abnormal accruals. Recently, Har et al. (2012) investigate the impact of the transformation policy on the degree of earnings management of GLC. In particular, this study attempted to examine the association between the board characteristics and the earnings management of the listed GLCs in Malaysia. The findings reveal that there is an increase of earnings management activities in the post-transformation policy. In addition the results also show that none of the board characteristics limit opportunistic earnings management except for board meeting and CEO duality.

Despite mixed results on the relationship between government ownership and earnings management, GLCs transformation program which emphasis on the effectiveness of corporate governance mechanisms are expected to deter earnings management practices. Based on this notion, this study hypothesises that:

H_1: Government Linked Companies have lower level of real-based earnings management.

4.0 Research Design and Methodology

4.1 Sample Selection and Data Collection

The sample for this study covers GLCs listed on Bursa Malaysia from 2001 to 2014. Data required for computing earnings management and control variables measures are collected from Thompson Reuters Datastream. Other non-financial data were collected from the companies' annual reports. We exclude GLCs in the banking and finance sector because they have different guidelines and governance systems (Abdul Rahman and Mohamed Ali, 2006). We also exclude firm-year observations with missing earnings management measures data. This procedure yields 329 firm-year observations.

4.2 Operationalisation of the Dependent, Independent and Control Variables

4.2.1 Dependent Variables:

4.2.1.1 Real Earnings Management

Following to Roychowdhury (2006) and Cohen and Zarowin (2010), this study refers real earnings management as actions managers take that deviate from normal business practices. Consistent with prior research (Roychowdhury, 2006; Cohen & Zarowin, 2010), this study employed three metrics to examine real earnings management, namely the abnormal levels of cash flow from operations (RCFO), abnormal production costs (RPC) and abnormal discretionary expenses (RDE).

Consistent to Roychowdhury (2006), the study estimates RCFO, RPC and RDE as the residual from the following model respectively.

$$CFO_{it}/A_{it-1} = \beta_1 [1/A_{it-1}] + \beta_2[Sales_{it} / A_{it-1}] + \beta_3[\Lambda Sales_{it} / A_{it-1}] + \varepsilon_{it}$$

Where,

CFO_{it}	Cash flow from operation in period t
A_{it-1}	Total assets of firm i in year t-1;
$Sales_{it}$	Sales of firm i in year t
$\Lambda Sales_{it}$	Sales of firm i in year t less revenues of firm i in year t-1;
ε_{it}	A residual term that captures the level of abnormal cash flow of firm i in year t.

$$PROD_{it}/A_{it-1} = \beta_1 [1/A_{it-1}] + \beta_2[Sales_{it} / A_{it-1}] + \beta_3[\Lambda Sales_{it} / A_{it-1}] + \beta_4[\Lambda Sales_{it-1} / A_{it-1}] + \varepsilon_{it}$$

Where,

$PROD_{it}$	The sum of cost of goods sold and change in inventory of firm i in year t;
ε_{it}	A residual term that captures the level of abnormal production cost of firm i in year t.

$$DISCEXP_{it}/A_{it-1} = \beta_1 [1/A_{it-1}] + \beta_2 [Sales_{it-1} / A_{it-1}] + \varepsilon_{it}$$

Where,

$DISCEXP_{it}$	The sum of R&D expenses and SG&A of firm i in year t;
ε_{it}	A residual term that captures the level of abnormal discretionary expenses of firm i in year t.

4.2.2 Independent Variable: Government Ownership

The key independent variable of the study is government ownership. The measure of government ownership is a total percentage shareholding belong to government or via its government linked investment companies such as the Employee Provident Fund, Khazanah Nasional Berhad, Kumpulan Wang Amanah Pencen, Lembaga Tabung Angkatan Tentera, Lembaga Tabung Haji, Menteri Kewangan Diperbadankan and Permodalan Nasional Berhad. The study uses the list of GLCs issued by the Putrajaya Committee to identify the GLCs status.

4.2.3 Control Variables

To test the hypothesis, this study controls for variables that could influence earnings management. These control variables are classified into two categories: firm characteristics and board characteristics.

With regards to the firm characteristics, first, the study controls for firm size. Large firms often receive more media attention, have higher analyst following and face regular political scrutiny (Ahmed & Duellman, 2007; Watt & Zimmerman, 1978). Therefore, they would tend not to manage their earnings upwards. Second, the study controls for debt. Firms with higher levels of debt would have their earnings scrutinized by debt providers or their agents, e.g., trustees, such that they do not inflate earnings to benefit the shareholders or mangers at the expense of the debt providers through dividends and earnings-based compensations (Ahmed et al., 2002). Third, the study controls for growth. Growth firms are likely to have higher accruals because of increased revenue-generating activities, such as credit sales. Fourth, the study controls for profit. Abdul Rahman and Ali (2006) note that firms with low performance (ROA) have more incentive to engage in earnings management. Fourth, the study control for audit quality. According to Wahab et al. (2007) higher quality auditors are more likely to ensure greater transparency and eliminate mistakes in financial statements since

they are more likely to protect their reputation. Therefore, we predict a negative association between audit quality and earnings management.

Following prior research, the study control for board characteristics. First, the study control for board independent. Fama and Jensen (1983) theorised that the board of directors is the highest internal control mechanism responsible for monitoring the actions of top management. However, they argue that the ability of the board to act as an effective monitoring mechanism depends on its independence from management. Independent directors are believed to be able to monitor managers as they have incentives to develop their reputations as experts in decision control (Agrawal & Chadha, 2005). Thus, the presence of independent directors on the board is seen as the check and balance mechanism in enhancing a board's effectiveness and constraining opportunistic behaviour among managers. This study predicts a negative association between board independence and earnings management practices as the theory suggests.

Secondly, the study controls for board size. Jensen (1993) and Gracia-Meca and Ballesta (2009) suggest that the number of directors is one of the important factors in the effectiveness of the board. There are two views regarding this issue. Proponents of agency theory believe that a larger board has more opportunity to control and monitor the actions of management as it has a greater number of people with more expertise (Dalton et al., 1999), and valuable experience (Xie et al., 2003) to prevent or limit managerial opportunistic behaviour. Further, Finkelstein and D'Aveni (1994) noted that a larger board has more problem-solving capabilities as the burden of the directors is equally shared among them.

Thirdly, the study controls for audit-committee independence. Prior studies suggest that the effectiveness of an audit committee is due, in part, to the extent to which the committee is independent. Indeed, a study by Peasnell et al. (2005) failed to find evidence that the existence of an audit committee reduces the level of earnings management. This result suggests that the presence of an audit committee alone, without independent members, is less likely to be an effective monitor for managerial opportunism. Independence is considered an essential quality for an audit committee in fulfilling its oversight role as it allows both the internal and external auditors to remain free of undue influences and interference from management (Vicknair, Hickman & Carnes, 1993).

Fourthly, the study controls for CEO duality. CEO duality or the 'dominant personality' phenomenon occurs when the same person holds the two most dominant posts in the firm, namely those of CEO and chairman. Advocates of agency theory argue that CEO duality—which implies CEO dominance over the board—promotes CEO entrenchment and hence, can lead to opportunistic and inefficient behaviour that reduces shareholder wealth (Jensen & Meckling, 1976).

Finally, the study controls for the Muslim chairman and Muslim board members. Bardai (2002) studied the influence of the Islamic ethical code on Muslim board members. He contends that as followers of Islam, Muslim directors believe that they are servants of Allah, who are required to serve Allah through good behaviour in all aspects of their daily life, even in their work and business dealings. They are expected to be honest, sincere, and truthful in their business dealings and transactions, and manage their business within the ethical framework devised by Allah. Year dummy and industry dummy is also included in the study to controls for the year and industry effect.

Table 4.1: Operationalisation of the Research Variables

Variables	Acronym	Operationalisation
Dependent variables:		
Abnormal Cash Flows	RCFO	Natural log of the residual of a regression (RCFO Model, Rochowdhury, 2006)
Abnormal Production Costs	RPC	Natural log of the residual of a regression (RPC Model, Rochowdhury, 2006)
Abnormal Discretionary Expenses	RDE	Natural log of the residual of a regression (RDE Model, Rochowdhury, 2006)
Independent variable:		
Government ownership	GOVOWN	Total percentage of government shareholding (10 percent and above)
Control variables:		
Board independent	BODIND	The percentage of board members who are independent non-executives directors.
Board size	BODSIZE	The number of a firm's board members.
CEO duality	DUALITY	1 if CEO and chairman of the board are same persons, 0 otherwise.
Audit committee independent	ACIND	The percentage of audit committee members who are independent non-executives directors.
Audit committee size	ACSIZE	The number of a firm's audit committee.
Muslim Chairman	MUSCH	1 if a firm's Chairman is Muslim, 0 otherwise.
Muslim CEO	MUSCEO	1 if a firm's CEO is Muslim, 0 otherwise.
Size	SIZE	Natural log of total assets.
Debt	LEVERAGE	The ratio of total liabilities to total assets.
Growth	GROWTH	The ratio of market value to book value.
Profit	PROFIT	Earnings (EBIT) to total assets.
Audit quality	BIG4	1 if a firm is audited by Big-4 audit firms, 0 otherwise.

4.4.3 Multivariate Regression Models

A multiple regression analysis was employed to test the research hypothesis. The following four multiple regressions were estimated to investigate the impact of government ownership on each proxy of real earnings management. The regression equations are as follows:

$$RCFO_{ft} = \alpha + \alpha_1 GOVOWN_{ft} + + f(control\ variables) + \xi \quad (1)$$

$$RPC_{ft} = \alpha + \alpha_1 GOVOWN_{ft} + f(control\ variables) + \xi \quad (2)$$

$$RDE_{ft} = \alpha + \alpha_1 GOVOWN_{ft} + f(control\ variables) + \xi \quad (3)$$

Where,

Dependent variable:

$RCFO_{ft}$ Natural log of absolute value of abnormal cash flows of firm *f* in year *t*,

RPC_{ft} Natural log of absolute value of abnormal production costs of firm *f* in year *t*,

RDE_{ft} Natural log of absolute value of abnormal discretionary expenses of firm *f* in year *t* computed on the basis of RDE Model (Roychowdhury, 2006),

Independent variable:

$GOVOWN_{ft}$ Total percentage of government shareholding,

Control variables:

$BODIND_{ft}$ The proportion of independent directors on the board,

$BODSIZE_{ft}$ The number of directors on the board,

$ACIND_{ft}$	The proportion of independent directors on the audit committee,
$ACSIZE_{ft}$	The number of directors on the audit committee,
$DUALITY_{ft}$	1 if CEO is board chair and 0 otherwise,
$MUSCH_{ft}$	1 if a firm's Chairman is Muslim, 0 otherwise
$MUSCEO_{ft}$	The proportion of board members who are Muslim.
$SIZE_{ft}$	Natural log of total assets of firm *f* in year *y*,
$LEVERAGE_{ft}$	Natural log of total liabilities to total assets of firm *f* in year,
$GROWTH_{ft}$	Natural log of market to book ratio of firm *f* in year *y*,
$PROFIT_{ft}$	Earnings (EBIT) to total assets
$BIG4_{ft}$	1 if a firm is audited by Big-4 audit firms and 0 otherwise,
$YEAR_{ft}$	Year,
IND_{ft}	Industry.

The next section reports and discusses the findings of the study.

5.0 Results and Findings

5.1 Descriptive Analysis

5.1.1 Sample characteristics

With regards to the classification of firms into respective industry groups, the largest portion of the sample is from the trading and services sector, which accounts for 44 per cent of the sample. This is followed by the industrial product sector (11 per cent), infrastructure sector (11 per cent), and plantation sector (11 per cent). Meanwhile, 5 per cent are from the technology sector, property sector and costruction. The consumer product industry makes up approximately 8 per cent of sample firms.

5.2 Descriptive Analysis

The descriptive statistics of the REM proxies use in the study are shown in Table 5.1. As shown in Table 5.1, the mean value of RCFO, RPC, and RDE are 0.60, 0.54, and .030 respectively for GLC.

Table 5.1: Descriptive Statistics of REM Measures

	Min	Max	Mean	Std Dev	Skewness	Kurtosis
RCFO	.00	0.22	.060	.07943	1.83	3.89
RPC	.00	3.19	.540	.20535	1.90	3.85
RDE	.00	0.22	.030	.21776	3.00	4.69

5.3 Correlation Analysis

Table 5.2 shows the Pearson correlations between REM measures and GOVOWN of GLC. In general, GOVOWN is negatively correlated to RCFO, RPC and RDE.

Table 5.2: Correlation analysis of REM Proxies and GOVOWN

	GOVOWN	RCFO	RPC	RDE
GOVOWN	1.00	-.086**	-.069*	-.071**
RCFO		1	.786**	.816*
RPC			1	.478**
RDE				1

5.4 Multivariate Analysis

Ordinary least squares procedures (OLS) are used to estimate the models stated in Section 4.4.3. The results of the above models are reported in the following subsections.

5.4.1 Abnormal cash flows from operation (RCFO) and GOVOWN and control variables

Table 5.3 reports the results of the regression of GOVOWN on the RCFO and control variables. The results show that GOVOWN has significant negative association with dependant variable (RCFO). The results indicate that government ownership had an impact on the real earnings management practices involving cash flow from operations.

The significant negative association found between RCFO with SIZE, BIG4 and BODIND. The significant negative relationship between RCFO and SIZE is in line with the findings of previous studies that argue information asymmetry is often smaller for large firms because they produce more public information. This in turn limit aggressive financial practices. Besides, according to Wahab (2007) higher-quality auditors are more likely to ensure greater transparency and to eliminate mistakes in financial statements since they are more likely to protect their reputation. Thus, clients of higher-quality auditors are more likely to have conservative financial reporting practices as they have better corporate governance. With regards to board independence, the results consistent prior studies found evidence that supports the effective monitoring role played by independent directors in deterring accounting fraud (Beasley, 1996) and earnings management via discretionary accrual (Xie et al., 2003; Klein, 2002; Peasnell et al., 2000; Su, 2001).

In addition, there are positive associations found between RCFO with LEVERAGE and MUSCEO, consistent with the findings of Sweeney (1992) documented that managers of firms approaching debt covenant default are more likely to make income-increasing changes in periods before the violation. She also found that managers continue to make income-increasing changes in years following the first year of default.

Table 5.3: Results of the Relation between Abnormal cash flows from operation (RCFO) and GOVOWN and control variables

$$RCFO_{ft} = \alpha + \alpha_1 GOVOWN_{ft} + + f(control\ variables) + \xi \qquad (1)$$

Variables	Predicted Sign	Coefficient	t-stat	P value
GOVOWN	-	-.007	-.523	.000
Control Variables: Firm's specific characteristics				
SIZE	-	-.003	-2.410	.008
LEVERAGE	+/-	.027	4.185	.000
GROWTH	+/-	.002	1.017	.155
PROFIT	+	.029	1.290	.099
BIG4	-	-.049	-6.355	.000
Control Variables: Firms' board characteristics				
BODSIZE	-	-.002	-1.056	.146
BODIND	-	-.003	-1.573	.058
DUALITY	+	.021	.723	.235
AUDSIZE	-	.002	.449	.327
AUDIND	-	.001	.292	.385
MUSDIR	-	.002	1.091	.138

MUSCh	-	-.015	-1.091	.138
MUSCEO	-	.046	4.296	.000
Intercept		.125	2.031	.003
Observations		329		
Durbin-Watson		1.628		
R-Square		45.4		
Adjusted R-Square		39.9		

5.4.2 Abnormal production costs (RPC) and GOVOWN and control variables

The results of estimating the effects GOVOWN on RPC and control variables are presented in Table 5.4. GOVOWN has significant negative association with dependant variable (RPC). The significant association infers that the government ownership deter real earnings management practices involving production costs in Malaysian listed firms.

For the control variables, RPC has significant negative association with SIZE. In line with the findings of previous studies (Gu et. al., 2005 and Saleh et al., 2005). The large firms enjoy more of the benefits of economy of scale and economy of scope, thus making them satisfied with their position and restraining them from exercising earnings management.

Of the firms' board characteristics variables, BODIND and MUSCh have a significant negative association with RPC. These results suggest that firms that have Muslim chairman and more independent non-executive directors on the board and are less likely to practice earnings management.

In addition, there are significant positive association between RPC with GROWTH, PROFIT and LEVERAGE.

Table 5.4: Results of the Relation between Abnormal production costs (RPC) and GOVOWN and control variables

$$RPC_{ft} = \alpha + \alpha_1 GOVOWN_{ft} + f(control\ variables) + \xi \qquad (2)$$

Variables	Predicted Sign	Coefficient	t-stat	P value
GOVOWN	-	-.168	-7.162	.000
Control Variables: Firm's specific characteristics				
SIZE	-	-.067	-2.380	.003
LEVERAGE	+/-	.296	2.567	.005
GROWTH	+/-	.156	4.278	.000
PROFIT	+	.921	2.320	.005
AUDSIZE	-	.008	.116	.454
AUDIND	-	.063	.686	.247
BIG4	-	-.118	-.835	.203
Control Variables: Firms' board characteristics				
BODSIZE	-	.035	1.095	.137
BODIND	+	-.088	-2.441	.008
DUALITY	+	.084	.167	.434
MUSDIR	-	.000	.017	.493
MUSCh	-	-.369	-1.472	.071

MUSCEO	-	.644	3.144	.001
Intercept		-.328	-.762	.000
Observations		629		
Durbin-Watson		1.485		
R-Square		42.2		
Adjusted R-Square		36.3		

5.4.3 Abnormal discretionary expenses (RDE) and GOVOWN and control variables

GOVOWN has a significant negative association with abnormal discretionary expenses which in turn supports the current study that government ownership is able to mitigate effectively the real earnings management practices involving discretionary expenses.

For the control variables, RDE has only significant negative association with SIZE, BIG4 and BODSIZE. The results suggest that larger firms with a higher composition of directors on the board and hired Big 4 Auditors are less likely to practice real earnings management via discretionary expenses.

Table 5.5: Results of the Relation between Abnormal discretionary expenses (RDE) and GOVOWN and control variables

$$RDE_{ft} = \alpha + \alpha_1 GOVOWN_{ft} + f(\text{control variables}) + \xi \quad (3)$$

Variables	Predicted Sign	Coefficient	t-stat	P value
GOVOWN	-	-.005	-4.292	.000
Control Variables: Firm's specific characteristics				
SIZE	-	-.002	-1.540	.062
LEVERAGE	+/-	.020	3.648	.000
GROWTH	+/-	.001	.318	.751
PROFIT	+	-.025	-1.367	.086
AUDSIZE	-	.003	1.060	.290
AUDIND	-	-.003	-.755	.451
BIG4	-	-.077	-1.979	.000
Control Variables: Firms' board characteristics				
BODSIZE	-	-.005	-3.173	.002
BODIND	+	.000	-.085	.932
DUALITY	+	.022	.921	.358
MUSDIR	-	.002	1.641	.102
MUSCh	-	-.005	-.408	.684
MUSCEO	-	.051	5.751	.000
Intercept		.072	3.606	.000
Observations		329		
Durbin-Watson		1.493		
R-Square		59.3		
Adjusted R-Square		55.2		

6.0 Summary and Conclusion

The purpose of this paper is to examine the association between government ownership and real earnings management. To capture real earnings management, the study uses three different measures: the abnormal cash flows, the abnormal production costs, and the abnormal discretionary expenses developed by Rochowdhury (2006). The study employs a sample of 329 Malaysian GLCs firm-year observation from 2001 to 2014.

Overall, the results of the study support the view that government ownership limit real earnings management. In particular, the findings indicate that there is a significant negative relation between government ownership and all measure of real earnings management: RCFO, RPC and RDE. The results show that Malaysian GLCs are less likely to manage accounting number by using abnormal discretionary cash flow from operation, abnormal discretionary production cost and abnormal discretionary expenses.

In general, the findings are consistent with the findings of Hoang et al. (2014), Wang and Yung (2011) and Jow et al. (2007), who find that government owned firms are less likely involved in earnings management. These results support previous argument on alignment hypothesis that government ownership is a monitoring mechanism in limiting managerial opportunism in business organizations which in turn increase the quality of accounting numbers.

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Effects of Realized Absorptive Capacity on Export Performance

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Abstract

Knowledge plays an important role in firms' internationalization process. Building on well established theories, our research studies explores the effects of Realized Absorptive Capacity (knowledge transformation and knowledge exploitation) on export performance of Portuguese small and medium enterprises (SMEs) of Portuguese footwear industry.Based on survey data from 42 firms, our empirical results indicate that knowledge exploitation and knowledge transformation have a positive and significant influence on export performance.Finally, the main limitation of this study is related to the sample size, since it was difficult to find companies willing to collaborate with this kind of research.

Keywords: absorptive capacity, knowledge transformation, knowledge exploitation, export performance, SMEs, Portuguese footwear industry.

Introduction

In a dynamic and turbulent environment, knowledge represents a critical resource to create value and to develop and sustain competitive advantages (Teece, Pisano, & Shuen, 1997). However, fast changing environments, technologies and competitiveness intensify the challenges firms face in attaining self-sufficiency in knowledge creation (Camisón & Forés, 2010).

Several strategic management scholars argue that Resource-Based View (RBV) has basically "inward" orientation. Although RBV recognizes that "the value of the firm's resources and capabilities is determined by the market context within which the firm is operating" (Barney, 2001, p. 645), it does not address the processes of converting resources and capabilities into customer value (Möller, 2006).

A second body of literature in the field of strategic management has focused on dynamic capabilities (for a review see Barreto, 2010). The firms' success depends not only on its' resources and capabilities, but also the ability to adapt itself to the industry contingencies and the markets in which operates. Firms may possess resources but must display dynamic capabilities otherwise shareholder value will be destroyed (Bowman & Ambrosini, 2003). It is in this context that emerges the Dynamic Capabilities View (DCV) (Amit & Schoemaker, 1993; Teece et al., 1997) to support the adjustment to environmental change.

DCV is not divergent but rather an important stream of RBV to gain competitive advantage in increasingly demanding environments (Ambrosini & Bowman, 2009; Barreto, 2010; Eisenhardt & Martin, 2000; Wang & Ahmed, 2007). Monteiro, Soares & Rua (in press) defend that in versatile markets the firms' capabilities should be dynamic and managers must display the ability to ensure consistency between the business environment and strategy in order to continuously renew skills.

Absorptive capacity (ACAP) has become one of the most significant constructs in the last twenty years. Absorptive capacity is the dynamic capability that allows firms to gain and sustain a competitive advantage through the management of the external knowledge (Camisón & Forés, 2010).

Cohen and Levinthal (1990) conceptualize ACAP as the firms' ability to identify, assimilate, and exploit knowledge aquired from external sources. As such, ACAP facilitates knowledge accumulation and its subsequent use. Zahra and George (2002) broaden the concept of ACAP from the original three dimensions (identify, assimilate, and exploit) to four dimensions (acquire, assimilate, transform, and exploit).

Studies within the strategic management literature have highlighted the important role of ACAP in achieving higher firm performance. Indeed, absorptive capacity is a mean of attaining superior financial performance, and transforming external knowledge inflows into performance gains (Kostopoulos, Papalexandris, Papachroni, & Ioannou, 2011).

As the importance of internationalization grows for many firms around the globe, there is an increasing interest in the strategic determinants that predict export performance. Therefore, research on export performance has developed exponentially. This increase interest of the academia was originated from the various macro and micro-level benefits associated with export development. At the macro-level, superior export performance is a cost-effective vehicle for economic growth, employment creation and a general improvement in the standards of living. There are countless benefits at the firm-level including opportunities for growth, larger market shares, better margins and diversification of risk (Kahiya & Dean, 2014).

Building on well established theories, our research aims at exploring the influence of absorptive capacity in export performance of Portuguese SMEs exporting footwear, by analyzing the contributions of this capability in such performance.

The findings of this study will have important implications for both academics and practitioners. By building on the literature of absorptive capacity and export performance, this study aims to support the strategic development of business management policies designed to increase firms' performance in foreign markets and add value to the current context of change. In addition, the results will provide guidance to business practitioners; because they will indicate which absorptive capacities are the best predictors for export success. The study also adds to the absorptive capacity literature by empirically validating it as a latent construct that captures the dimensions of acquiring, assimilating, transforming and exploiting knowledge.

In the next section, we present the theoretical background of the research and develop our hypotheses. We then describe our methodology and present our results. Finally, we discuss our results and conclude with managerial implications, limitations and future research opportunities.

1. Theoretical Framework

1.1. Dynamic Capabilities View

Dynamic capabilities as a mind-set constantly integrate, reconfigure, renew and recreate its core capabilities in response to the ever changing environment in order to achieve and sustain competitive advantage (Wang & Ahmed, 2007). Moreover, these capabilities sense and shape opportunities and threats, seize opportunities, and maintain competitiveness by enhancing, combining, protecting, and reconfiguring the businesses' intangible and tangible resources (Teece, 2007).

Barreto (2010, p. 271) argued that a "dynamic capability is the firm's potential to systematically solve problems, formed by its propensity to sense opportunities and threats, to make timely and market-oriented decisions, and to change its resource base".

It is important to distinguish between dynamic capabilities and RBV's capabilities since they are considered to be distinct constructs (Ambrosini & Bowman, 2009). On one hand, an operational capability is a high level routine (or collection of routines) which, together with the inputs, provides the management a set of decision options for the production of outputs (Winter, 2000). We highlight the term routine, which is understood as a learned behaviour, extremely structured, repetitive and based on technical knowledge. Thus, these operational capabilities allows the company to sustain itself in the present (Winter, 2003), usually involving the execution and the coordination of a variety of tasks to perform an activity, such as production of a particular product (Helfat & Peteraf, 2003).

On the other hand, dynamic capabilities enable companies to create, develop and protect resources allowing them to attain superior performance in the long run, are constructed (not acquired in the market), dependent on experience and are embedded in the company's organizational processes (Ambrosini & Bowman, 2009), not directly affecting the outputs, but contributing through the impact they have on operational capabilities (Teece et al., 1997). These capabilities refer to a firm's capacity to deploy resources, usually in combination, using both explicit and tacit elements (such as know-how and leadership). For this reason, capabilities are often firm-specific and are developed over time through complex interactions between the firm's resources (Amit & Schoemaker, 1993).

After a literature review, Wang & Ahmed (2007) identify three main component factors of dynamic capabilities, namely adaptive capability (ambidexterity), absorptive capability and innovative capability. Adaptive capability is the firm's ability to timely adapt itself by aligning resources and capabilities with environmental changes. Absorptive capability takes external knowledge combines it with internal knowledge and absorb it for internal usage. Innovative capability turns firm's innovativeness in marketplace-based advantage. In this paper the focus is on the absorptive capability.

1.2. Absorptive Capability

In order to survive certain pressures, companies need to recognize, assimilate and apply new external knowledge for commercial purposes (Jansen, Van Den Bosch, & Volberda, 2005). This ability, known as absorptive capacity (ACAP) (Cohen & Levinthal, 1990), emerges as an underlying theme in the organizational strategy research (Jansen et al., 2005).

ACAP is a good example of a dynamic capability since it is embedded in a firm's routines. It combines the firm's resources and capabilities in such a way that together they influence "the firm's ability to create and deploy the knowledge necessary to build other organizational capabilities" (Zahra & George, 2002; p. 188).

Firms, therefore, need to continually analyze and interpret changing market trends and quickly recognize new opportunities in order to create competitive products (Tzokas, Kim, Akbar & Al-Dajani, 2015).

Cohen & Levinthal (1990) presented a definition of ACAP most widely quoted by academic research, as the companie's ability to identify, assimilate and exploit new knowledge. Thus, this ability access and use new external knowledge, regarded as an intangible asset, is critical to success and depends mainly on prior knowledge level, since it is this knowledge that will facilitate the identification and processing of new one. This prior knowledge not only includes the basic capabilities, such as shared language, but also recent technological and scientific data or learning skills. By analyzing this definition is found that absorptive capacity of knowledge only three dimensions: the ability to acquire external knowledge; the ability to assimilate it inside; and the ability to apply it.

The ACAP construct encompasses an outward-looking perspective that deals with the identification and generation of useful external knowledge and information and an inward-looking component that is related with how this knowledge is analyzed, combined with existing knowledge, and implemented in new products, new technological approaches, or new organizational capabilities (Cohen & Levinthal, 1990).

According to Zahra & George (2002) ACAP is divided in Potential Absorptive Capacity (PACAP), including knowledge acquisition and assimilation, and Realized Absorptive Capacity (RACAP) that focuses on transformation and exploitation of that knowledge. PACAP reflects the companies' ability to acquire and assimilate knowledge that is vital for their activities. Knowledge acquisition the identification and acquisition and assimilation is related to routines and processes that permit to analyze, process, interpret and understand the external information. RACAP includes knowledge transformation and exploitation, where transformation is the ability to develop and perfect routines that facilitate the integration of newly acquired knowledge in existing one, exploitation are routines which enhance existing skills or create new ones by incorporating acquired and transformed knowledge internally.

Jansen et al. (2005) defend that, although company's exposure to new knowledge, is not sufficient condition to successfully incorporate it, as it needs to develop organizational mechanisms which enable to synthesize and apply newly acquired knowledge in order to cope and enhance each ACAP dimension. Thus, there are coordination mechanisms that increase the exchange of knowledge between sectors and hierarchies, like multitasking teams, participation in decision-making and job rotation. These mechanisms bring together different sources of expertise and increase lateral interaction between functional areas. The system mechanisms are behaviour programs that reduce established deviations, such as routines and formalization. Socialization mechanisms create a broad and tacit understanding of appropriate rules of action, contributing to a common code of communication.

Studying absorptive capacity offers fascinating insights for the strategic management literature and provide new information regarding how firms may develop important sources of sustainable competitive advantages (Jansen et al., 2005), reason why the focus of our study lies on the RACAP.

1.3. Export Performance

The development of exports is of great importance, both at macro and micro levels, contributing to economic and social development of nations, helping the industry to improve and increase productivity and create jobs. At company level, through market diversification, exports provide an opportunity for them to become less dependent on the domestic market, gaining new customers, exploiting economies of scale and achieving lower production costs while producing more efficiently (Okpara, 2009).

In this sense, exports is a more attractive way to enter international markets, especially for SMEs, in comparison with other alternatives, either joint ventures or setting up subsidiaries, which involve spending a large number of resources (e.g. Dhanaraj & Beamish, 2003; Piercy, Kaleka & Katsikeas, 1998), does not create high risk and commitment and allows greater flexibility in adjusting the volume of goods to different export markets (Lu & Beamish, 2002).

On one hand, a company's export activity starts to fulfil certain goals, which may be economic (such as increasing profits and sales) and / or strategic (such as diversification of markets, gaining market share and increasing brand reputation) (Cavusgil & Zou, 1994).

On the other hand, the export motivation may result from proactive or reactive actions. The proactive actions are advantage of profit, introduction of a single product, technological advantage, and exclusive information, commitment of management, tax benefits and economies of scale. The reactive motivations are identifying competitive pressures, excess production capacity, sales decrease in domestic market, saturation of domestic market and proximity of customers and landing ports (Wood & Robertson, 1997).

1.4. Hypotheses Derivation

Dynamic capabilities refer to "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece et al., 1997, p. 516). By "environment" the RBV literature usually refers to the competitive business environment. Markets

had become hypercompetitive, making it increasingly difficult to maintain competitive advantage over time (Barreto, 2010).

Dynamic capabilities enable companies to create, develop and protect resources to achieve superior performance in the long run, are built (not acquired), experience dependent and are embedded in organizational processes (Ambrosini & Bowman, 2009), not directly affecting outputs, but contributing through the impact they have on operational capabilities (Teece et al., 1997). Maintaining these capabilities requires a management that is able to recognize adversity and trends configure and reconfigure resources, adapt processes and organizational structures in order to create and seize opportunities, while remaining aligned with customer preferences. Indeed, dynamic capabilities allow businesses to achieve superior long-term performance (Teece, 2007). Ultimately, the following hypotheses are tested:

H2: *Knowledge transformation has a positive effect on export performance.*

H1: *Knowledge exploitation has a positive effect on export performance*.

2. Methods

2.1. Setting and Data Collection

To test the hypothesis a sample of Portuguese footwear companies was used, that meet the following criteria: companies in which at least 50% of income comes from exports of goods, or companies in which at least 10% of income comes from exports of goods and the export value is higher than 150.000 Euros (INE, 2011).

Data collection was implemented through electronic questionnaire, associating a link to the survey that was online. To reduce misunderstandings, the questionnaire was validated by the research department of APICCAPS.

For information regarding companies the *Associação Portuguesa dos Industriais de Calçado, Componentes, Artigos em Pele e seus Sucedâneos* (APICCAPS) was contacted. We were provided with a database of 231 companies (company name, telephone contact, email, CAE, export markets, export intensity and capital origin). Only 167 companies fulfilled the parameters, and were contacted by email by APICCAPS to respond to the questionnaire. Subsequently, all companies were contacted by the authors via e-mail and telephone, to ensure a higher rate of valid responses. The questionnaires began on April 22, 2014 and ended on July 22, 2014. After finishing the data collection period, 42 valid questionnaires were received, representing a 25% response rate (Table 1). This response rate is considered quite satisfactory, given that the average of top management survey response rates are in the range of 15%-20% (Menon, Bharadwaj, Adidam & Edison, 1999).

Table 1 : Data Summary

Universe of analysis - Portuguese SMEs of footwear
Sample - a non-probabilistic and convenient
Population – 367 firms
Sample – 167 firms
Response rate – 25%
Valid responses - 42
Time period – April 22 to July 22 of 2014

In this investigation we chose a non-probabilistic and convenient sample since it respondent were chosen for being members of APICCAPS.

2.2. Measures

To measure RACAP constructs, understanding knowledge transformation and knowledge exploitation, and based in Jansen et al. (2005), it was operationalized the company's ability to transform it through six questions and the ability to explore new external knowledge into their current operations through six questions (e.g. Jansen et al., 2005; Zahra & George, 2002). A five point Likert scale was used to measure each item, where 1 means "strongly disagree" and 5 "strongly agree".

Okpara's scale (2009) was used to assess export performance, comprising profitability indicators of sales growth, profit, activities, operations and performance in general. A five point Likert scale was used to measure each item, where 1 means "strongly disagree" and 5 "strongly agree". It is important to note that companies evaluated absorptive capacity and export performance relative to their major competitors in the export market(s).

3. Results and Analysis

3.1 Reliability Analysis

In order to verify the reliability of overall variables we estimated the stability and internal consistency through Cronbach's alpha (α). Generally, an instrument or test is classified with appropriate reliability when α is higher or equal to 0.70 (Nunnally, 1978). However, in some research scenarios in social sciences an α of 0.60 is considered acceptable, as long as the results are interpreted with caution and the context is taken into account (DeVellis, 2012). For the present study we used the scale proposed by Pestana & Gageiro (2008).

The result of 0.938 achieved for all of variables is considered excellent, confirming the sample's internal consistency. It was also conducted an internal consistency test for all variables in each construct to assess their reliability (Table 2).

Table 2: Internal consistency test by construct (Cronbach's Alpha)

Construct	*Cronbach's α*	Items Nr.	N	Analysis
Knowledge transformation	.873	6	42	very good
Knowledge exploitation	.897	6	42	very good
Export performance	.927	5	42	excellent

We found that knowledge exploitation and knowledge transformation have a very good consistency and that export performance have excellent consistency.

3.2. Exploratory Factor Analysis

Factor analysis is a technique whose primary purpose is to organize the structure of a large number of variables by defining sets of variables that are highly interrelated, known as factors. These groups of factors are assumed to represent dimensions within the data. The general purpose of factor analytic techniques is to find a way to summarize the information contained in a number of original variables into a smaller set of new dimensions with a minimum loss of information (Hair, Black, Babin, & Anderson, 2014; Pestana & Gageiro, 2008). After factor extraction, we submit each factor to varimax rotation to achieve a simplified factor structure (Marôco, 2011).

Knowledge transformation

The factor analysis, with Varimax rotation, of *Knowledge Transformation* presents a scale with 6 items, distributed by one factor that explained 62.0% of total variance, whose saturations range between 0.893 and 0.662. The internal consistency of the factor is α=0.873, indicating a very good

internal consistency. KMO test confirm a medium correlation between the variables (0.796). Bartlett's sphericity test registered a value of $\chi^2(15, N=42)=130.981$, $p<0.05$, therefore is confirmed that $\chi^2>\chi_{0.95}^2$, so the null hypothesis is rejected and the variables are correlated.

Knowledge exploitation

Concerning *Knowledge Exploitation*, in the factor analysis, with Varimax rotation, we got a scale with 6 items, distributed by one factor that explained 66.6% of total variance, whose saturations range between 0,906 and 0.730. The internal consistency of the factor is $\alpha=0.807$. These values indicate that these dimensions presented a reasonable and excellent internal consistency. KMO test confirm a medium correlation between the variables (0.866). Bartlett's sphericity test registered a value of $\chi^2(15, N=42)=140.879$, $p<0.05$, therefore is confirmed that $\chi^2>\chi_{0.95}^2$, so the null hypothesis is rejected and the variables are correlated.

Export performance

In the factor analysis, with Varimax rotation, of these construct we got a scale with one factor and there was no need to delete items. A scale with 5 items was obtained, which explained 77.9% of total variance, whose saturations range between 0.918 and 0.850. The internal consistency is excellent ($\alpha=0.927$). KMO test point to a good correlation between the variables (0.814). Bartlett's sphericity test registered a value of $\chi^2(10, N=42)=171.982$, $p<0.05$, therefore is confirmed that $\chi^2>\chi_{0.95}^2$, so the null hypothesis is rejected and the variables are correlated.

3.3. Multiple Regression Analysis

Multiple regression analysis is a statistical technique that is used to analyze the relationship between a single dependent (criterion) variable and several independent (predictor) variables. The objective of multiple regression analysis is to use the independent variables whose values are known to predict the single dependent value selected by the researcher. Each independent variable is weighted by the regression analysis procedure to ensure maximal prediction from the set of independent variables.

The most commonly used measure of predictive accuracy for the regression model is the coefficient of determination (R^2). This coefficient measures the proportion of total variability that can be explained by regression ($0\leq R\leq 1$), measuring the effect of independent variables on the dependent variable. When $R^2=0$ the model clearly does not adjust to data and when $R^2=1$ the adjustment is perfect. In social sciences when $R^2>0.500$ the adjustment is considered acceptable (Marôco, 2011). In the table 3 we present the results of the multiple regression analysis of our model. Univariate analysis of variance (ANOVA) is used to determine, on the basis of one dependent measure, whether samples are from populations with equal means(hair) and allows to test the hypotheses: H0: $\rho^2=0$ *vs.* H1: $\rho^2\neq 0$.

Table 3 : Summary and ANOVA regression[c]

Model	R	R^2	Adj. R^2	Standard error	F	Sig.
1[a]	.313	.098	.075	.96156221	4.343	.044
2[b]	.442	.196	.176	.90801912	9.727	.003

a. Predictors: (Constant) Knowledge transformation.
b. Predictors: (Constant) Knowledge exploitation.
c. Dependent variable: Export performance.

The previous table present for model 1 a ρ-*value*=0.044 ($p<0.05$) and for model 2 a ρ-*value*=0.003 ($p<0.05$), so H0 is rejected in favour of H1 and H2, supporting the hypotheses of our study.

4. Discussion and Conclusion

The Portuguese footwear industry faces considerable challenges, not only concerning the international markets crisis, but also regarding consumption patterns. The reduction of shoe design

lifecycles has consequences on the offer. On one hand, the products have to be adapted to different segments specific needs and tastes (custom design, new models in small series, etc.), on the other hand, manufacture processes must be increasingly flexible, adopt just-in-time production, invest in the brand, qualified personnel, technology and innovation (APICCAPS, 2013).

The main purpose of this study is to analyze the effects of RACAP (knowledge transformation and knowledge exploitation) on export performance of SMEs. We conducted an empirical research based on a sample of 42 companies, which were applied a questionnaire in order to exploit data to test hypotheses, using proceedings and statistical techniques. It is important to note that companies evaluated absorptive capacity and export performance relative to their major competitors in the export market(s), so the results should be interpreted based on these two aspects.

This study also demonstrated that the company's absorptive capacity of knowledge transformation and knowledge exploitation have a positive and significant effect on their performance. The analyzed companies are able to transform and exploit knowledge through informal knowledge gather, clear definition of tasks, analysis and discussion of market trends and new product development, among others.

Dynamic capabilities can take a variety of forms and be involved in different functions, but the most important common characteristics are that they are higher level capabilities which provide opportunities for knowledge gathering and sharing, constant updating the operational processes, interaction with the environment, and decision-making evaluations (Easterby-Smith, Lyles, & Peteraf, 2009). However, the existence of common features does not imply that any particular dynamic capability is exactly alike across firms, rather they could be developed from different starting points and take unique paths (Eisenhardt & Martin, 2000).

In fact, according to the industrial organization, a company should find a favourable position in its industry from which it can better defend against competitive forces, or to influence them in his favour through strategic actions such as raising barriers to entry, etc. (Porter, 1980). This perspective is consistent with Eisenhardt and Martin (2000) regarding the uniqueness of paths. The results of this study confirm that dynamic capabilities enable firms to achieve superior long-term performance (Teece, 2007).

4.1. Theoretical and Practical Implications

The findings of this research will have important implications for both academics and practitioners. The study adds to the absorptive capacity literature by empirically validating it as a latent construct that captures the dimensions of transforming and exploiting knowledge.

It is known that strategy includes deliberate and emergent initiatives adopted by management, comprising resource and capabilities use to improve business performance (Nag, Hambrick & Chen, 2007). The findings are a contribution to clarify the influence of absorptive capacity on the company's exports performance. This study also enabled a thorough analysis of a highly important industry for national exports, such as footwear industry, allowing understanding that absorptive capacity, as an industry strategic determinant, enhancing exports performance.

To stay competitive, companies must make an internal assessment in order to find what resources and capabilities give them advantage over competitors. Thus, the challenge of strategy consists in selecting or creating an environmental context where capabilities and resources can provide competitive advantages (Porter & Montgomery, 1998).

Jansen et al. (2005) defend that companies need to develop organizational mechanisms to combine and apply newly acquired knowledge in order to deal and enhance each absorptive capacity dimension. In this study is notorious the importance of knowledge absorptive capacity to business performance. It is essential that business owners are able to interpret, integrate and apply external knowledge in order to systematically analyze change in the target market and to incorporate this knowledge in their processes to enhance performance.

In addition, the results provide guidance to business practitioners; because they indicate which absorptive capacities are the best predictors for export success. Companies are a bundle of resources and capabilities (Peteraf, 1993), it is essential to understand and identify which resources are relevant to gain competitive advantage and superior performance. In this study it is obvious the importance of absorptive capacity to the firms' performance. Business owners must be able to interpret, integrate and apply external knowledge in order to systematically analyze the changes that arise in their target market(s) and to incorporate this knowledge into their processes, to identify the present and future needs and market trends, anticipate changes in demand and seek new business opportunities.

By building on the literature of absorptive capacity and export performance, this study aims to support the strategic development of business management policies designed to increase firms' performance in foreign markets and add value to the current context of change.

4.2. Research Limitations

The main limitation of this study is related to the sample size, since it was difficult to find companies with the willingness to collaborate in this type of research. The sample is non-probabilistic and convenience and cannot be used to infer to the general population. The study findings should therefore be analyzed with caution.

Most responses were based on subjective judgment of respondents. Although the literature identifies the advantages of subjective measures to evaluate the exports performance, it is recognized that some answers may not represent the reality of business performance in foreign markets.

The fact that the research does not consider the effect of control variables such as size, age, location and target market of the respondents can be seen as a limitation.

Finally, the fact that this study considered only export as internationalization can also be appointed as a limitation.

4.3. Future Lines of Research

In future work, we suggest that the model is used in a sample with a higher number of observations to confirm these results.

We further suggest pursuing with the investigation of strategic management in Portugal, focusing in other sectors of national economy, so that in the future one can make a comparison with similar studies, allowing realizing and finding new factors that enhance exports performance.

Finally, the moderating effect of strategic variables (e.g. competitive advantage) in the relationship between absorptive capacity and export performance should be studied.

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Risk Reporting Practices and Organisational Survivability

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Abstract

Risk reporting is important for business survival as it is being used to disseminate information pertaining to risk and its impacts to potential investors and shareholders. In a challenging economic environment, it is undeniable that the mandatory risk information is a central focus as compared to voluntary risk information. However, business practitioners have raised their concern on insufficient information on risky business events being reported publicly as it is evidenced to have impacts toward business valuation and its survival. Thus, this study is carried out to examine the relation between survivability decisions of the business that influence their risk reporting practices. The sample was drawn from 652 non-financial companies listed on the main Board of Bursa Malaysia for the financial year end 2006 to 2009. The research approach applied the content analysis of listed companies' published annual reports. The findings revealed that there were significant influences of survivability decisions as proxied by revenue growth, industry concentration and leverage; on the voluntary risk disclosure.

Keywords: Business survival, risk reporting, revenue growth

Introduction

The susceptibility of economic challenges around the world occur due to several circumstances such as advances in technology, declining in commodity prices and the strengthening of US currency. This phenomenon had really influenced the national economic climate. Indeed, apart from that, the Malaysian economy landscape was severely affected by the instability of domestic politics and 'unappealing' government policies which appear that majority of the people are struggling with the rising cost of living that influences consumers spending behaviours. Not to mention, all these challenges are expected to put businesses in deep trouble in the long run, thus, the risk is now becoming a continuous focus. This raises concern about whether risk has been managed and communicated effectively among business practitioners. With regards to those issues, the only reliable medium could be used by the shareholders and potential investors to retrieve information pertaining risk and its impacts are from the companies' annual reports. The information is paramount as it indicates how management disseminates such information for business survival.

Sufficient reports focusing on risk and its impacts has been reported as increasing in demand, in line with the hope that the management of risk being practically improved as well. The specific narrative disclosure on risk management has not imposed as a mandatory statement for many countries. Therefore, the way the risk information being reported is likely depending on the management discretion. The management might indicate their judgements based on what the impacts of risky events that they may foresee toward business survival. Apparently, studies have shown that companies often disclose vague and limited amount of risk information; as they have a basis not to disclose more since such disclosure was

considered as the voluntary effort of the individual company. On the other hand, lacking sufficient risk information publicly may result in false impressions of actual threats or impacts on business activities (e.g. product development, marketing, technological innovations, and daily administrative activities). Unfortunately, a business might lose their competitive advantage as it will affect investment evaluation when it is based on inaccurate information and unclear explanation about the impact of potential risks. In a severe situation, the capability of the management on overall business operations would be affected due to misinterpretation of the company's current decisions.

A number of researchers had conducted studies on the narrative report, both on the mandatory and voluntary risk reporting practices. Some prior researches have indicated that managers have the tendency to voluntarily disclose risk information when there are valid reasons to signal something important to market participants (Cannizzaro & Weiner, 2015; Guidry & Patten, 2010; Mukherjee, Sen, & Pattanayak, 2010). For instance, possible signalling underlying reasons would be to observe market reaction towards disclosure strategy, to avoid uncertainty resulting the conflict of investors-management and whether the strategy for meeting financial obligations is met as expected. Those reasoning would be a basis for this study to investigate other factors from another angle based on the debates emerged on the role of strategic decisions in providing a signal on business survival in a long-run. Thus, this study is carried out to examine the relationship between signalling mechanisms from the business strategy point of view and the decision to voluntarily disclose risk information.

The remaining of this paper encompasses the literature review and hypotheses generation, methodology, data analysis and discussion, and conclusion.

Literature Review and Hypotheses Generation

Signalling Theory and Voluntary Risk Disclosure

Prior empirical literatures observed the association of applied information signal to potential investors and the good governance process (Subramaniam, McManus, & Zhang, 2009), quality of reporting (Elzahar & Hussainey, 2012), corporate management (Ndofor & Levitas, 2004), and the corporate financial structure and strategic decisions (Hussainey & Aal-Eisa, 2009). These studies considered that the availability of an informative signal for business survival would help to reduce the information asymmetry between the manager and investors.

The signalling theory contends that when the firms believe they are above average performance as compared to other firms, they would prefer to signal their outstanding achievements to attract potential investment in order to create high firm value (Campbell et al., 2001). This in turn, would avoid misinterpretation of company performance or adverse selection of product quality through the absence of information held by the external users. Large-sized firms tend to send a signal to indicate that they have achieved acceptable satisfactory performance since these firms are usually considered to be highly profitable firms and possess high value of assets. Therefore, when firms choose to use the voluntary disclosure mechanism to reduce the information asymmetry, it indicates a good sign that the firms are willing to portray themselves as being at a better level than others, probably either in managing the governance of the firms or attaining exceptional performance (Barako, Hancock, & Izan, 2006). As a result, when the information is shared through the public medium, the investors exert increased monitoring ability that may alter their risk perception concerning the companies' prospective business (Khlifi & Bouri, 2010).

Companies may signal a good information to obtain some economic benefit, thus, managers tend to reveal the superior information as not disclosing such information may indicate a sign of hidden substantial information that leads to another issue of adverse selection. The adverse selection is a form of

an agency problem that might exist because the manager possesses more information than the shareholders do (Darrough & Stoughton, 1986). Thus, disclosure may be used regularly as it indicates a direct signal of the quality of the company that can be used to reduce the possibility of adverse selection (Patelli & Prencipe, 2007). However, even with the voluntary disclosure of information, Pae (2002) contends that the information receiver or investor still does not know whether the firm is providing actual facts or not, and at what level firms are willing to disclose such information, especially when it involves substantial and competitive information in an effort to get as much information to aid in their investment decisions.

Kirmani and Rao (2000) explore the different approaches of high quality firms and low quality firms, in as much as the former firms will signal the true indication to distinguish themselves from the latter firms. This is because each firm possesses both positive and negative information, which they need to decide whether or not to convey to the investors. Most of the time, the companies will probably communicate positive information rather than negative to reduce the information asymmetry (Connelly, Certo, Ireland, & Reutzel, 2011). In a particular situation when firms face intense business competition, they intend to communicate about severe uncertainty and risks that might arise from the changes in industry policy, economic structure or market regulations. However, companies' financial performance are able to reduce information asymmetry as it links to reduce cost of capital and increase firm valuation, thus these information are relevant to potential investors (Elzahar, Hussainey, Mazzi, & Tsalavoutas, 2015).

Capital Intensity

Capital intensity may reflect the barrier to entry a competitive market and could capture firms' financing initiatives related to capital market benefits and proprietary costs. In particular less competitive industry, a higher entry barrier is observed as the nature of information would be less complex due to improving ability in earnings prediction (Haw, Hu, & Lee, 2015). Clarkson, Fang, Li and Richardson (2010) established a notion that a high entry barrier is much influenced by high capital intensity, thus lowering the potential threat to entrants. In other words, firms with high proprietary costs in relation to capital intensity are expected to provide greater disclosure of voluntary information compared to firms with low capital intensity. This could be inferred as protecting potential competitors from entering a highly concentrated industry by revealing a firm's competitive advantage through public announcements. Verrecchia (1983) concludes that the level of voluntary disclosure (e.g. high or low) might also influence a firm's presence in a highly competitive market, as such disclosure might contain proprietary information. Thus, it is predicted that firms with high capital intensity would be likely to voluntarily disclose more risk information than firms with low capital intensity to avoid potential entrants to the existing market as well as to sustain its presence in the market. From the above reasoning, the following hypothesis is developed from the perspective of capital intensity:

H1: There is a significant positive relationship between capital intensity and risk reporting practices.

Profitability

Profitability may be regarded as proprietary information to the firms as this particular information could lead to the lessening of a manager's disclosure incentive. To attract investors' attention, companies are likely to disclose favourable information rather than unfavourable information as it could increase share prices (Das, Dixon, & Michael, 2015; Verrecchia, 1983). Related literature notes significant initiatives that can signal superior performance, increase investors' confidence and reduce information asymmetry (Odera, Scott, & Gow, 2016). Although prior studies have found a positive significant relationship between profitability and disclosure level, Odera et al. (2016) find an inverse significant relationship between profitability and voluntary disclosure levels. This is consistent with Leuz (2003) who anticipates that proprietary costs influence a manager's voluntary disclosure decision. She presumes that firms that perform well are unlikely to disclose more information to minimise potential detriment when the

information is being used by competitors, thus lessening the opportunity of potential entrants to enter the market (Depoers, 2000). Therefore, high profitability firms, which represent stable firms, are expected to increase information disclosure for the public as it would be a signal to the potential competitors as well as others that they are willing to share substantial risk information to gain more trust and confidence from the investors. Based on the arguments, the following hypothesis is formulated based on firm profitability:

H2: There is a significant negative relationship between firm profitability and risk reporting practices.

Revenue Growth

Information on growth is always a cause for concern for large firms that operate in a highly competitive industry (Brauninger & Vopel, 2010). In relation to the sign of financial performance indicating the growth opportunity of firms, the revenue growth and industry concentration measures are used as a valid proxy based on prior empirical studies (Darus, Arshad, Taylor, & Othman, 2008; Das et al., 2015; Elzahar et al., 2015). Moreover, Darus et al. (2008) and Hassanein and Hussainey (2015) show that the proxy of potential competition measured by investment growth opportunities has the potential to affect managers' voluntary disclosure decisions. Information concerning the intensity of industrial competition between active firms in the industry tends to influence the level of competitive information being disclosed by the well-performing firms (Hassanein & Hussainey, 2015). For instance, Elzahar et al. (2015) found the usefulness of revenue generated figures in determining companies' performance that would indicate differences in disclosure level. Gelb and Greenstein (2004) contend that most firms treat financial performance as a factor that restrains them from disclosing more information rather than the influence are exerted through government regulations. Also, the existence of competition has been evidenced to induce lower information, since intense competition would induce a greater response from competitors through the offering of a better quality product or service (Li, 2010). Thus, this study expects prospective firms to create a more competitive environment; however, the competitive environment has a tendency to discourage voluntary risk disclosure in order to avoid competitors' exploitation, which, in turn, would have a severe risk impact on the firm. Therefore, due to the above reasoning, the following hypothesis is formulated:

H3: There is a significant negative relationship between firm revenue growth and risk reporting practices.

Industry Concentration

The industry concentration measure has been viewed as another approach to assessing the increase in firm growth. Furthermore, Alvarez et al. (2008) clearly define that a concentrated industry applies when the industry is being represented by a limited number of firms that have the same proportion of shares of sales. Since a small number of firms hold the same market share, the industry can be considered a competitive industry. Firms may exhibit themselves as more competitive than their competitors by disclosing greater voluntary information when they have a large portion of market concentration (Villalonga & Amit, 2010). In similar vein, Demsetz and Villalonga (2001) observe the need for greater monitoring by the managers when firms are engaged in a highly competitive industry to safeguard the shareholders' interests. Information asymmetry can be reduced through disclosure decisions as it becomes a medium to monitor the actions of managers (Jensen & Meckling, 1976). Consequently, this disclosure would maximise the firm market value, and, thus, this may influence the variation of potential risks and uncertain information, where it also depends on the content of information and whether it carries good or bad news, the level of political costs and the opportunity for rivals to enter the market (Darrough & Stoughton, 1990). Following the above arguments, Alvarez et al. (2008) document the underlying reason for the positive impact of the industry concentration on voluntary disclosure that it is politically visible and that receives governmental support. In other words, the monopolistic position of firms due to their high concentration in a certain industry indicates greater incentive to provide more voluntary disclosure (Deegan & Carroll, 1993), and, thus, is reflected in the formulation of the following hypothesis:

H4: There is a significant positive relationship between industry concentration and risk reporting practices.

Leverage

Leveraged or high debt firms have been identified as preferring to disclose more information to satisfy the needs of various creditors (Alsaeed, 2006). Most likely, firms with higher debts in their capital structure are prone to higher monitoring costs (Jensen & Meckling, 1976) and are argued to be more willing to share their private information with the creditors (Robb et al., 2001). With the availability of such information for creditors in the public reports, there will be less hesitation in response to creditors' requests and claims (Wallace et al., 1994). It should be noted that the effects of leverage presented mixed findings. Belkaoui and Karpik (1987) prove the positive effect of leverage, while Meek, Roberts, and Gray (1995) found a negative impact of leverage on the level of voluntary disclosure.
However, most of the empirical studies have found an insignificant relationship between the high debts structured firms, which is likely to influence the variation in voluntary disclosure (Adamu, 2013). This might be due to the financing necessity of growing firms in emerging countries to provide adequate funding to finance their strategic projects for business expansion (Al-Shammari, 2014; Razek, 2014). The formulation of the following hypothesis:

H5: There is a significant negative relationship between leverage and risk reporting practices.

Methodology

Sample and data collection

The sample was drawn from 652 non-financial companies listed on the main Board of Bursa Malaysia for the financial year end 2006 to 2009. These four years are selected as it represents several years after the execution of the Malaysian Code of Corporate Governance (MCCG) in 2001. The research approach involves the content analysis of listed companies' published annual reports. Content analysis has been adopted in most of the prior research as it could capture the extent and volume of disclosure information, which is mainly reported in narrative statements with a quantitative nature (Deumes, 2008) and it also applies to corporate risk disclosure studies (Amran, Rosli, & Haat, 2009; Linsley & Shrives, 2006). In addition to the identified independent variables, this study includes the size of an organisation and industry affiliation as control variables (Elzahar & Hussainey, 2012). The definitions and measurements of variables used in this study are listed in Table 1.

Table 1: Definition and Measurement of Variables

Variable Acronym	Definition	Measurement
VRD	Quality of voluntary risk disclosure	Thematic analysis based on ICAEW risk categories
CAPINT	Capital Intensity	Ratio of the beginning-of-year net PPE to the fiscal year's average total assets
PROFIT	Profitability	Ratio of net profit to sales or revenue
REVGRW	Revenue Growth	Market to book ratio
INDCON	Industry Concentration	Herfindahl-Hirschman index – sum of the squared market shares of all firms in the industry
LEV	Leverage	Ratio of total liabilities to total assets
SIZE	Size of the company	Total assets

IND	Industry Affiliation	Environmental sensitive industry such as industrial, construction, plantation and properties. Score 1 if a firm belongs to environmental sensitive industry; 0 if otherwise

Risk reporting practices

Risk reporting practices is measured by the quality disclosure of voluntary risk information. An in-depth theme/topic-based analysis is used when reviewing such information reported in the annual reports. There are five themes/topics/items of non-financial risks based on Linsley and Shrives (2006). Then, the voluntary risk information will be grouped into three categories of quality measures based on studies by Beattie, McInnes and Fearnley (2004) and Abad, Bravo and Trombetta (2008). Each quality category has been identified with three or four levels of quality measurements. These categories are time orientation (forward looking/historical/not item specific), type of measurement (Quantitative measure; Extensive Descriptive/Quantitative measure; Brief Descriptive/Brief Descriptive/Obscure) and economic signs (positive/negative/ neutral).

Voluntary information regarding risk is reviewed using thematic analysis based on the risk categories recommended by AICPA (1998), the ICAEW (2002), and Linsley and Shrives (2006). Five themes are identified – operations risk, empowerment risk, information processing and technology risk, integrity risk and strategic risk. Narrative sections in annual reports such as Chairman's Statement, Review of Operations, Corporate Governance Statement, Risk Management Statement, Internal Control Statement, Corporate Social Responsibility and Sustainability Statement have been thoroughly reviewed. In order to capture the comprehensive or quality content of risk information, sentences are used as a unit of analysis and each of the sentences is classified according to the theme/topic, where the next phase is to assign a score according to its importance (Milne & Adler, 1999).

Analysis and Results

Descriptive statistics

Table 2 presents the descriptive statistics for the dependent variable, VRD and continuous independent and control variables. Results in Table 2 reported that the mean value for VRD is 211.30 sentences that contain pre-identified keywords as explained earlier. The minimum value is 18 sentences while the maximum value is 1133 sentences. This indicates that companies in the sample are disclosing more extensive voluntary risk information in their annual reports. Table 2 also reported that the mean values for CAPINT is 35.99%, PROFIT is 3.47%, REVGRW is 4.61%, INDCON is 45.26% and LEV is 76.38%. In relation to the control variables, the mean value for SIZE is RM2.12 million, while the mean value of IND is 0.55 percent.

Table 2: Descriptive Statistics of Dependent and Independent Variables

Variable	N	Min	Max	Mean	SD
VRD	652	18.00	1133.00	211.2929	182.40716
CAPINT	652	.17	91.95	35.9959	19.60932
PROFIT	652	-873.56	575.61	3.4683	58.17504
REVGRW	652	.12	214.53	4.6122	9.80648
INDCON	652	.00	2112.86	45.2586	191.87449
LEV	652	-3441.55	3068.70	76.3804	255.78199
SIZE	652	47196.00	103155492.00	2121362.9663	6223344.41059
IND	652	.00	1.00	.5460	.49826

Multivariate analysis

In this study, linear multiple regression is used as the basis of analysis for testing H1 to H3. The hypothesized relationships are modelled as follows.

$$VRD = \beta_0 + \beta_1 CAPINT + \beta_2 PROFIT + \beta_3 REVGRW + \beta_4 INDCON + \beta_5 LEV + \beta_6 SIZE + \beta_5 IND + \varepsilon$$

where variable definitions are given in Table 1.

In the above regression model, multicollinearity was tested using the variance inflation factor and tolerance levels and found to be well within the satisfactory range. The results of the regression analysis are presented in Table 3 and are now discussed in terms of tests of each of the hypotheses established in this study.

The selection of five business survivability mechanisms, namely: Capital Intensity (CAPINT), Profitability (PROFIT), Revenue Growth (REVGRW), Industry Concentration (INDCON) and Leverage (LEV). The use of these mechanisms is to justify possible signal elements contained in the information to examine the strength of such factors influencing the voluntary risk disclosure decisions by the managers.

The results from Table 3 indicates survivability variables are significant in the model, whereby it is useful to predict possible effects on voluntary risk disclosure from 2006 to 2009. The explanatory power (R2=0.431) of the model indicates the independent variables have an impact on overall model (p <.000).

Table 3: Multiple Regression Results

DV : Voluntary Risk Disclosure			
R^2	0.431		
Adjusted R^2	0.423		
Sig. F change	0.000		
F	53.329		
Model Sig.	0.000		
	β	t	Sig.
Constant	-558.669	-4.566	.000
CAPINT	9.586	1.340	.181
PROFIT	-6.791	-.934	.351
REVGRW	-47.067	-5.241	.000***
INDCON	10.909	2.537	.011**
LEV	7.858	1.863	.063*
SIZE	59.599	6.332	.000***
IND	-55.077	-4.003	.000***

* significant at 10% (2-tailed)
** significant at 5% (2-tailed)
*** significant at 1% (2-tailed)

Results attained for Hypotheses H1 and H2 reveal that the relationships between the effects of capital intensity and profitability toward voluntary risk disclosure are found to be insignificantly influenced to each other from 2006 to 2009. This implies that companies that possess better firm performance in order to prevent the entrance of competitors to the existing market did not have any influence on the management variation decisions of voluntary risk disclosure. Moreover, the notion of unfavourable

information would be hidden from the public may justify the decision made by the management (Das et al., 2015).

Conversely, hypotheses H3 to H5 have observed with significant influence on voluntary risk disclosure. The finding for revenue growth signal indicates a significant result which suggests that a high percentage of revenue growth will lower the voluntary risk disclosure. This is inconsistent with Darus at al. (2008) who found insignificant results between these two variables. It was argued that the growth information of companies did provide a potential signal to create a competitive disadvantage for the firm. In addition, growing firms may give greater attention to providing more voluntary risk information to avoid misinterpretation or false rumours of such information that probably relates to other internal development (i.e. human resource, products, etc.), which would consequently affect their visibility and reputation among other market participants (Iatridis, 2008).

In similar vein, the result for industry concentration shows a positive significant relationship with voluntary risk disclosure indicating larger industry concentration will lead to greater voluntary risk disclosure. Consistent with Iatridis (2008), it was emphasised that firms were willing to provide comprehensive disclosure when they had experienced higher performance to impress investors and other market participants in approving their actions. Since this measurement is the indicator for industry competitiveness, hence firms assessed as having a large industry market share tend to have more incentive to disclose extensive voluntary risk information to reduce information asymmetry between the shareholders and firms' management (Harris, 1998; Haw et al., 2015) and to deter competitors from entering the existing market (Darrough and Stoughton, 1990).

In addition, with regards to leverage, the result suggests that high leverage firms would be having more interest in providing more voluntary risk disclosure indicating that more voluntary disclosure would be reported for high leverage companies. This is due to close monitoring by debt providers who have an expectation of ongoing reports to be submitted pertaining to the financial status as well as the risk and unanticipated events that could affect the financial commitment, especially in the period of crisis (Mukherjee et al., 2010; Purushothaman, Tower, Hancock, & Taplin, 2000).

Conclusion

This study provides insights into the impacts of business survivability mechanisms on risk reporting practices. The findings revealed that there were significant influence of survivability mechanisms such as revenue growth, industry concentration and leverage; on risk reporting practices. This confirmed that larger firms, signified by the larger capital intensity, have a substantial influence on the variation of risk reporting practices (Das et al., 2015; Elzahar et al., 2015; Iatridis, 2008), which would eventually be a discouragement to the competitors to enter the existing market (Darrough & Stoughton, 1990). In particular, the Malaysian PLCs have shown greater willingness in providing more information regarding risk and uncertainty to minimise the potential detrimental effects as well as to differentiate themselves from poor performing companies. Although the information is believed to be manipulated by the competitors, companies are evidenced to perform better than the competitors. Several reasons underlie the decisions made by the management as to ensure business survival: to signal companies' performance for the decisions' betterment purposes. Secondly, is to raise share prices resulting from the disclosure of favourable information. Nevertheless, the ground reason might relate to business strategy to create competitive advantage; whereby they could distinguish themselves from other ordinary companies. Apparently, the competitive contents in those information provide incentives for management in deciding on which is the best approach to disseminate information voluntarily to relevant parties.

This study also recommends further insights on the ability of forward-looking information to signal the management decisions in years after the introduction of the MCCG. This study is limited with regard to the measurement of risk reporting practices, which was based on recommendations made by several

practitioners through interview sessions conducted in the initial stage of the study. However, the opinions of other parties, such as the analysts and the community were not acquired due to limited scope and time. Thus, the generalisation of these new items is subject to these limited sources. Future research may take this into consideration.

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Fighting Counterfeiting: Understanding the Determinants of Trademark Counterfeiting and Its Economic and Social Impacts

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Abstract

This study examines the determinants of the global growth in trademark counterfeiting and relates how this activity could result in significant negative effects on legitimate businesses, governments and consumers. The aim is to assist the businesses and relevant authorities in determining appropriate action to effectively deal with the problem. The study adopts qualitative approach as a tool for data collection in identifying the scale of counterfeiting and employs legal approach to analyse the provision of relevant laws. The study identifies few interconnected leading factors triggering the widespread of counterfeiting to include: huge profit with low risk of criminal sanction, weaknesses of legal system, globalization of businesses and technological advances. Counterfeiting harms relevant stakeholders in many ways: diminishing legitimate businesses' reputation, depriving governments' revenue and endangering consumers' health and safety. The study finds that the extent, scope and negative impacts of counterfeiting cry for effective enforcement. The study also identifies some important learning points for policy makers and recommends that the enforcement mechanisms used should have a deterrent effect against counterfeiters. This may include the availability of criminal enforcement and sanctions to deter further violation plus effective remedies to the injured parties in ensuring sustainability of legitimate businesses in developing national economies as well as protecting consumers from any anticipated further harm. It is also recommended that further analysis can be conducted on how joint efforts by government agencies and industry may yield better result to enhance the effectiveness of enforcement efforts in fighting counterfeiting.

Keywords: counterfeiting, determinants, economic and social impacts

Introduction

In recent years, intellectual property (IP) intensive activity has grown as a leading contributor to the economic success of many nations, both in terms of jobs and value added to Gross Domestic Product (GDP) (Oswald and Pagnattaro, 2015). A research shows that about 70% to 80% of a company's market capitalization comes in the form of intangible assets, which include IP rights (IPRs) assets such as patents, trademarks, copyrights, and other business knowledge and know-how (Hadzima, 2013).

In the European Union (EU) for instance, IPRs-intensive industries contribute almost 26% of employment and 39% of GDP during the period 2008-2010, with almost 21% in trade mark-intensive industries compared to other types of IPRs such as patent, design and copyright (EPO and OHIM, 2013). Similarly, in the United States (US), IPRs-intensive industries directly accounted for 18.8% of all employment and 34.8% of US GDP in 2010 with a substantial share of trademark-intensive industries with 22.6 million jobs followed by patent (3.9 million jobs) and copyright-intensive industries (5.1 million jobs) (US Patent and Trademark Office, 2012).

Obviously, trademarks become the most widely used form of registered IP throughout the world (WIPO, 2013) to protect and support businesses' branding activities for the goods and services they market. In fact, trademarks have been used in commerce since hundreds of years to identify and distinguish the source of goods or services of one party from those of others. This prominent function of trademarks allows not only the consumers to know and detect who supplied or manufactured goods, but also helps the businesses to establish and protect their goodwill and reputation. In *Arsenal*

Football Club Plc v Matthew Reed [2003] Ch.454 for instance, Advocate General Ruiz-Jarabo Colomer re-emphasised this function and observed that:

> "The trademark acquires a life of its own, making a statement, as I have suggested, about quality, reputation and even, in certain cases, a way of seeing life".

Trademarks therefore play an important role in conveying reliable information to consumers about the quality of goods and the manufacturer's reputation. However, these important benefits may be destroyed by counterfeiting activity.

The term counterfeiting in the context of IP is generally used where illicitly produced goods infringe existing protected trademark rights. Article 51 Footnote 14 (a) of the Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement provides that "counterfeit trademark goods" shall mean any goods, including packaging, bearing without authorization a trademark which is identical to the trademark validly registered in respect of such goods, or which cannot be distinguished in its essential aspects from such a trademark, and which thereby infringes the rights of the owner of the trademark in question, under the law of the country of importation. In fact, various studies have identified trademarks as the most frequent violated rights among other types of IPRs (OECD, 2008; ICC-BASCAP, 2011; Mohamed, 2012; JPO, 2015; EC, 2015; USCBP, 2015 WCO, 2015).

Counterfeiting activity can be traced back to be as ancient as the practice of marking goods among traders. Soon after products acquire a reputation in the marketplace, others will try to imitate and gain profit without much effort. In recent years, counterfeiting even becoming one of the fastest growing economic crimes despite the fact that most countries, particularly the World Trade Organization (WTO) members, have adopted necessary legislation into their domestic laws which among others, intended to address the problem (Wadlow, 2007, p.353; Mohamed, 2012, p.5).

What is the main reason for this problem? Why counterfeiting remains rife while all necessary legislations are already in place? In responding to these questions, this paper argues that there is significant need to study the underlying problems of counterfeiting and how its global prevalence and impacts may be used for the attention of relevant authorities. This paper attempts to examine the determinants of the global growth in trademark counterfeiting and relates how it could result in significant negative impacts on legitimate businesses, governments and consumers. Since IPRs had an important effect on economic value of a nation especially in terms of jobs and value added to GDP (Idris, 2003, p.3; Hadzima, 2013; Oswald and Pagnattaro, 2015), their creation, exploitation, and protection are therefore increasing importance. Thus, identifying the determinants and impacts of counterfeiting is crucial for the businesses and relevant authorities in determining the appropriate action to effectively deal with it.

Research Methodology

This study employs socio-legal method; the study of law which relates to social phenomena and adopts methods from the social sciences, either qualitative or quantitative research approaches to obtain some kind of empirical data in collecting the relevant data. Wheeler and Thomas (2002, p.271) indicate that the "socio" in this context does not refer to sociology or social sciences, but represents "an interface with a context within which law exists".

The aim of collecting empirical data is to provide vital insights from an external perspective into how the law works in society because the aim of this study is to examine the scale of trademark counterfeiting and how legal measures may be used to effectively deal with it. The scale of counterfeiting is derived from the seizure data issued by the World Customs Organization (WCO) emphasizing on the worldwide scenario which is discussed in greater detail below.

Thus, the use of social theory for the purpose of analysis in legal research most often tends to address the concerns of law and legal studies as stressed by Yaqin (2007, p.13) that "where the true factors for the emergence or existence of a problem or issue are identified by empirical inquiry, law, where it is applied and enforced with the necessary will, commitment and appropriate strategies, can serve as an effective mechanism of control, regulation, change and reform".

Examination on the scale of trademark counterfeiting

The illicit nature of counterfeiting makes it difficult to quantify precise data either on the extent of the phenomenon or the impacts it caused to the parties involved. Hence, several limitations of this study need to be acknowledged. There are many studies investigating the problem from different views and the relevant range of data sources in this regard may be classified into three main categories: enforcement and judicial agencies, companies and industry bodies and economic impact studies by research consultancies, each with their strengths and weaknesses (Mohamed, 2012, p.50).

While data from industry and research consultancy provide significant insights, criticism for being biased particularly for the purpose of lobbying authorities cannot be avoided (Correa, 2009, p.31). Meanwhile, data from the customs (enforcement) authorities may be understated as the estimated figures are only based on reported cases. However, when the customs data is corroborated against background information from industry and research consultancy, this may catch trends missed by customs data.

In this study, the data used is mainly based on seizures by customs or enforcement agencies which supported by reports from other sources to be used as a rough measure in comparing and identifying trends in the development of counterfeiting phenomena. The data is also supplemented and corroborated by interviews with key figures among the official, judicial and practitioner sectors in IP field. Although the data used is selective, it serves the purpose of this study to reveal the scope and extent of counterfeiting.

Based on the reported seizures provided by the WCO, counterfeiting activities can be summarized as in Table 1 below, which provides significant insights on the growing trend of its worldwide phenomena.

Table 1: WCO Regional Data on IPRs Detentions by Number of Cases

Number of IPRs Seizures Cases								
Year	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Cases	8,416	14,981	21,940	27,606	20,932	22,543	25,032	21,930

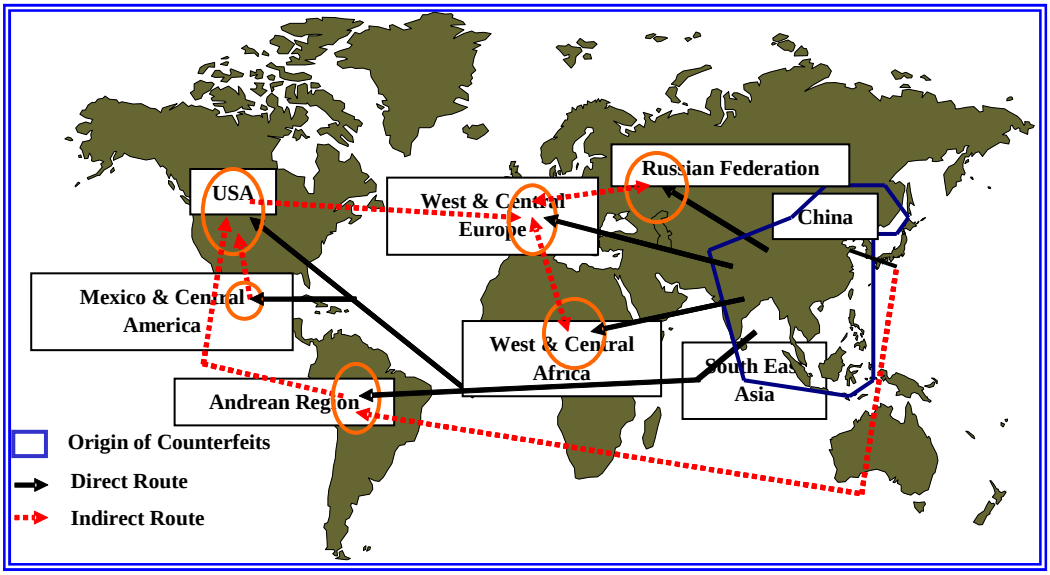
Note: The seizure cases for 2007-2011 were based on 10 WCO RILO regions consisting of Western Europe, North America, Asia/Pacific, CIS Region, Eastern & Central Europe, South America, Eastern & Southern Africa, Middle East, North Africa and West Africa. For 2012-2014, the cases were based on WCO CEN inputs of 58, 69 and 63 member countries in 2012, 2013 and 2014 respectively.

This data is based on the results submitted by members to the Customs Enforcement Network (CEN), a reporting framework developed by customs agencies through the WCO. Seizures data contained in CEN had been entered and validated by the WCO Members and the eleven Regional Intelligence Liaison Offices (RILOs) (WCO, 2015).

It is worth to note that while the data might be affected by level of notification thus possibly rendering them incomplete and should be taken with caution, they however underscore a remarkable increase. In fact, the trend showed in WCO data matching with seizures statistics from other authorities in the IP-developed nations such as the EU, Japan and the US (JPO, 2015; EC, 2015; US CBP, 2015) and also other previous reports (OECD, 2008; Chaudhry and Zimmerman, 2009, p.11; Treverton *et.al*, 2009, p.3; ICC-BASCAP, 2011) indicating the rampant of counterfeiting in virtually all economies.

Notably, almost all reports indicated China to be by far the main country of provenance from where goods suspected of infringing IPRs were sent to other parts of the world. While Asia is identified as the main source of counterfeit goods, other regions also play a role either as destination markets or as transit hubs in distributing such goods as shown in Table 2 below.

Table 2: Distribution Route of Global Counterfeiting



Some other countries are also appearing as the main country of provenance for specific product categories. For example, Malaysia is identified by the EU Customs in 2014 as one of the provenance countries for packaging materials from where infringing IPRs goods were sent to the EU (EC, 2015) while in 2015, the United States Trade Representative (USTR) reported that media box-based piracy, whereby storage devices are loaded with large quantities of pirated works is growing in popularity in Malaysia together with a few other countries (USTR, 2015).

The finding, while tentative, suggests that counterfeiting will continue to increase for a relatively long period. This development indirectly confirms the value of IP in driving the economic growth of a country (Bird, 2009; Mengistie, 2010; Oswald and Pagnattaro, 2015; OHIM, 2015).

Determinants of counterfeiting activity

While there are many motivating factors behind counterfeiting activity, commentators however classified the following as the most interconnected prominent ones (UNICRI, 2007; OECD, 2008; Treverton *et.al*., 2009; Chaudhry and Zimmerman, 2009; ICC-BASCAP, 2011):

(a) high profit with low risk of criminal sanction;
(b) weaknesses in the legal system;
(c) globalization of businesses; and
(d) development in technological advances.

High Profit with Low Risk of Criminal Sanction

People involve in any illicit activities normally aim for quick and huge profits. Likewise, several studies found that high profits and ineffective legal enforcement have become the prime reasons for the growth of counterfeiting (Anderson, 1999, p.56; Phillips, 2005, p.3-4; Treverton *et.al*, 2009, p.4). This is not surprising given the fact that production cost of counterfeit goods is rationally low

because counterfeiters do not bear costs as those incurred by trademark owners in developing, marketing and establishing their products and reputation plus providing after-sale customer services. This means, counterfeiters operate at a very low cost with great margin as they can avoid many risks and overheads that legitimate businesses must take (Defer, 1999, p.54).

Numerous studies also revealed that enormous profit margins from counterfeiting are so convincing, and sometimes might even match or exceed those from drug trafficking (Hetzer, 2002, p.303; Treverton *et.al*, 2009, p.4; UNIFAB, 2016). In Europe for instance, a kilo of cannabis could be sold for up to €2000, while a kilo of counterfeit CDs could reach €3,000 euros (UNIFAB, 2016, p.22). In contrast, the nature of counterfeiting offences compared to other type of crimes including drug-related offences is considered as having a low risk of penalties (Kuala Lumpur IP Sessions Court Judge, 2009) with only few years of imprisonment contrasting with life imprisonment for drug-related offences in many countries. Such a gap between huge profits with relatively low risks of penalty would certainly attract those involved in illegal activities to engage in this kind of business. Thus, if no effective measures to be taken by the authorities, it is argued that the trade in counterfeiting will remain rampant.

Weaknesses in the Legal System

Several studies recognized that weaknesses in IP legal system do not necessarily stem from a lack of existing substantive law or the complete absence of law, but might relate to how the law is enforced (Breitkreuz, 2007; Treverton *et.al*, 2009, p.129; UNIFAB, 2016, p.20). In some cases, IPRs enforcement has been given a relatively low priority with less resources from governments that leads to situations where enforcement officers have lack of power to arrest or they do not be equipped with appropriate weapons for self-protection when conducting raids (Vagg and Harris, 2000, p.109; Phillips, 2005, p.132; Yar, 2005, p.19; OECD, 2008, p.26; Officers of MDTCC, 2009). Further constraints include the difficulty of prosecution and legal proceedings and also the non-deterrent penalties, as mentioned earlier. All these factors encourage counterfeiters to exploit the shortcomings of IP enforcement and legal loopholes across jurisdictions to escape authorities.

Globalization of Business

With openness in trade, finance, travel and communication, globalization creates massive opportunities for businesses to prosper through collaboration among multiple organizations, people and teams working in different parts of the world (Mohamed, 2012, p.192). The same benefit is shared by counterfeiters whose activities flourish across borders. Particularly, the advantages of free trade zones and free ports provide them with safe venues for the "transshipment" of counterfeit goods. Although transshipment is normally legitimate as part of the world's trade (Chaudhry and Zimmerman, 2009, p.21; Murphy and Wood, 2008, p.144; Kim and Gunther, 2007, p.3), the technique is unfortunately being widely used by professional infringers as a tactic to outwit customs authorities (Bonadio, 2008, p.81; Godart, 2010, p.382; Engels, 2010, p.2).

Technological Advances

The rise of digital technologies has irrevocably transformed the global economy by revolutionising modes of production, distribution and innovation (Gibert, 2015). Devices such as laser printers, copiers, or reprographics could help almost anyone who has access to these types of technologies to possibly produce high quality forgeries at a very low cost (Suthersanen, 2006, p.231). The Internet in particular, is becoming an increasingly important vehicle for selling goods and significantly has aided counterfeiters with an instantaneous worldwide market. In some cases, counterfeiters even establish legitimate looking websites to sell counterfeit goods (Markovic, 2008, p.183; Bain, 2011), leaving enforcement authorities with permanent challenge to acquire and maintain the necessary technological expertise.

The Impacts of Counterfeiting

In assessing and justifying the appropriate action(s) for fighting counterfeiting, it is essential to consider the impact of counterfeiting on the parties, directly or indirectly involved in this problem. Based on the extent of the problem discussed earlier, counterfeiting is believed becoming a global challenge that affects businesses, consumers and governments. Its impacts therefore are both; economic and social.

Economic

The economic impact can be classified as either direct or indirect. Business proprietors will experience a direct impact where counterfeiting could undermine their business competitiveness through the loss of profit and deterioration of the quality and value of their trademark. This leads to a significant indirect impact when counterfeiting could also possibly destroy honest jobs, thus affecting the revenues of governments, foreign investment, trade and innovation and threatening the health and safety of consumers (Nia and Zaichkowsky, 2000, p.485; OECD, 2008; ICC-BASCAP, 2011).

Measuring the number of losses from counterfeiting is as much difficult as quantifying its scale. However, based on WCO seizure data suggesting the scale of counterfeiting is expanding, the same could be anticipated on the losses. For example, in 2011, the International Chamber of Commerce indicates that the global economic and social impacts of counterfeiting and piracy will reach USD1.7 trillion by 2015 (ICC-BASCAP, 2011). This showed a significant increase from an OECD report in 2008 estimated the upward trend of counterfeit goods in international trade could have amounted to a value of up to USD250 billion (OECD, 2008; ICC-BASCAP, 2011).

Social

The negative consequences of counterfeiting also affect consumers and governments. Few reports indicated that counterfeiting causes job losses from IP industry sectors that employ millions of people around the world. For instance, it was estimated in 2007 that more than 100,000 jobs are lost every year in the EU countries and about 750,000 in the US on account of counterfeiting (UNICRI, 2007, p.6) while ICC-BASCAP (2011) predicts that approximately 2.5 million jobs have been destroyed by counterfeiting and piracy every year in the legitimate economies of the G20 countries. The Japan Patent Office (2015) also reported that in 2013 alone, about 22% of Japanese companies are suffering from damage caused by counterfeiting, up by 0.2% from 21.8% in the previous year.

Consumer Health and Safety Issues

The expansion of counterfeiting into new product categories has also put greater risk to consumers. Recent focus of counterfeit goods which has shifted from luxury goods to all kinds of consumer goods, including foodstuff and pharmaceuticals, exposing consumers to significant health and safety risks (Mohamed, 2012, p.69) as they are unlikely to have been subjected to the rigorous quality control that is required with genuine products (Prendergast *et.al*, 2002, p.406). For instance, in 2006, a £9 counterfeit charger had electrocuted and caused death of a 7-year-old boy of Walworth, South East London during a family holiday in Phuket, Thailand (Mohamed, 2012, p.1) while in 2003, the investigators of the Norwegian plane crash in 1989 which killed 55 people revealed that substandard counterfeit bolts and sleeves of an unknown origin had partly caused the incident (IACC, 2005).

While this kind of incidents would certainly harm consumers, in the long run it will actually undermine consumer confidence in established brands and trademarks. This is because, the poor quality of counterfeit products and their confusion with genuine products will lead to a deterioration of the rights-holders' or manufacturers' image (Prendergast *et.al*, 2002, p.406). Thus, counterfeiting in this context could both risk the consumers' health and safety as well as harm the rights-holders' economic gain.

Organized Crime

Another serious impact of counterfeiting is the involvement of other aspects of organized crime, where counterfeiters may use the profits from counterfeiting for other unlawful activities such as terrorism and money laundering (IACC, 2005; UNICRI, 2007; OECD, 2008; Pollinger, 2008; ICTSD, 2009; UNIFAB, 2016, p.6). This may encourage counterfeiting business becoming more pervasive, thus affecting health and safety issues as well as creating social problems. In view of this, effective enforcement is critical to deal with trademark counterfeiting.

Discussion, Limitation and Recommendation

The data presented in this study confirms that there is an increasing trend and scale of counterfeiting, consistent with most of the previous reports on this subject. The study then examines how industries and legitimate businesses, governments, employees and consumers representing the public at large are affected by counterfeiting. The study found that the trend of counterfeiting is also expected to remain prevalent for a relatively long time, and the problem does not appear to be limited to particular product types or the luxury sector, but is quite general. Thus, serious attention from the enforcement authorities is necessary to address the problem.

The study also found that, competent IP legal system is crucial in fighting counterfeiting. It requires both the enactment of appropriate legislation and the effective enforcement of rights. The study recognised that the weakness in the IP legal system is actually found in a combination of these elements, thus contributing to the increasing trend of counterfeiting despite most WTO member countries already having implemented the necessary legislation that conform to at least the minimum standards of the TRIPS Agreement. The study argued that since there is a direct connection between the enforcement regime and the prevalence of counterfeiting activities, it is recommended that governments should immediately address the flaws in this area by improving the enforcement capacity and allocating sufficient resources.

Improvements in enforcement may include continuous training for enforcement officers in the abilities of the investigating and prosecuting officers, so that they may have the necessary expertise or knowledge of the technical issues that is necessary in pursuing a case. The improvement in this area will benefit the country economically in the long run, as successful prosecution and imprisonment not only serve as a useful deterrent for future behaviour, but also send out the right message to investors on the competent legal system in protecting their rights.

It is also recommended that expeditious remedies should also be available to the injured parties such as injunctions, compensation for damages, orders to destroy infringing products, provisional measures to seize infringing products and secure evidence, border measures by customs authorities, and the availability of criminal enforcement and sanctions. Allocating adequate resources is also necessary particularly in increasing the numbers and expertise of enforcement officers. This is because criminal conviction requires a thorough and complete process from the investigation stage through to prosecution.

Thus, the findings of this study are intended to provide policymakers with an effective available enforcement framework without resulting in drastic structural changes, yet conforming to international standards. Proper implementation and effective enforcement not only assist the country in question by meeting international requirements, but importantly, benefit the public at large as they will be better protected from the risk caused by counterfeit goods.

It is also worth to note that, given the illicit nature of counterfeiting, these results must be interpreted with care as they may not constitute conclusive proof on the problem. While this study has helped to improve our understanding on the determinants and impacts of counterfeiting within business environment, certain scope remains for further research by using the data compiled for this study.

For example, further analysis can be conducted on how joint efforts by government agencies and industry may yield better result to enhance the effectiveness of enforcement efforts. It is recommended that consistent enforcement from all relevant authorities that strengthens their co-operation at all levels must be improved by providing appropriate training to the officers and sharing information and intelligence with industry. Competency of officers and collaboration with industry will be necessary in order to achieve success in fighting counterfeiting.

Conclusion

The massive infiltration of counterfeiting harms many aspects of life – from businesses whose goods are counterfeited, to governments and to the public as a whole. With many factors to provide a good environment for its growth, counterfeiting has evolved into a much more lucrative business in very sophisticated ways. While there are many contributing factors to its proliferation in recent years, this paper argues that the only real area where the government can make a difference is in setting up a responsive legal system that includes good enforcement.

Since there is a direct relationship between the strength of the enforcement regime and the prevalence of counterfeiting activities, it is argued that more attention should be given by the relevant authorities to this matter. It is believed that the stronger the enforcement, the less likelihood there is of counterfeit goods to be on the market. Hence, factors which are likely to hinder this process must be identified and addressed. Weaknesses in enforcement capacity and resources must be addressed immediately. This is to ensure that the enforcement mechanisms used will have a deterrent effect against counterfeiters and at the same time assuring protection to all the parties concerned. Protection in this context may include effective remedies to the injured parties such as compensation for damages, injunction orders by courts for infringement, border measures by customs authorities, and the availability of criminal enforcement and sanctions. Such effective enforcement of IPRs is a matter of crucial importance and relevance to all countries in addressing the endemic of counterfeiting.

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The Causal Relationship between the Housing and Labor Mobility

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Abstract

The housing market, similar as the labor market is regionally and structurally differentiated in every country. Since the human capital itself is not homogeneous, a mutual discontinuity occurs. Consistency between housing (with emphasis on rental housing) and jobs (labor market) in several developed economies has become an important part of state public policy and local governments. The problem of Slovakia in the sphere of labor mobility needs to be taken from several angles. First, in significantly lower proportion of rental housing (including social rental housing) and also the low regional mobility. The article discusses the problems and the causal relationship between the housing market and labor mobility in Slovakia.

Keywords: Housing market, Labor market, Labor mobility, Rental housing in Slovakia

Introduction

Housing need and its solution is determined by several interconnected factors. The demand determining factor on the side of the housing market is demographic development of the population from which the need for housing is objectively derived. The real demand for housing is largely dependent on social-economic status of potential applicants for housing and their current and expected financial situation. From that are subsequently derived activities of investors and developers who create a certain supply of housing. Demand and supply side of the housing market is influenced by the state housing policy, which should create a framework for harmonization of these two sides. State housing policy generally reflects some well-established national practices but should also respond to current issues and needs for sustainable socio-economic development of society. In this meaning, in recent years Slovakia receives recommendations of the various relevant international institutions towards more assistance for rental housing in order to increase labor mobility (Car, 2014). Housing is therefore an important source of employment. The functioning of the housing market is connected with the mobility of housing, which is closely linked with the desired and undesired labor mobility. Many people have become "prisoners" of their homes, whether rented or own housing due to lack of offers or for economic reasons. Requirement of ensuring increased mobility of housing is a prerequisite for greater labor mobility and thus better opportunities and success in the labor market. In order to ensure the competitiveness of regions and foster job mobility, it is necessary to diversify the supply of housing - not only at the level of different types of ownership and usage, but also diversity in the supply cost to provide housing. The reason is particularly the availability of quality housing, which will proportionally correspond with the financial resources of households. Also instant availability of housing for employees is an essential condition for the development of a dynamic labor market - the development of employment is blocked by the lack of housing (see also Spirkova, Zubkova and Stehlikova, 2015).

Demand for housing is significantly higher in those areas of Slovakia which provide more job opportunities which can be, based on economic and social parameters, considered as more advanced. For example due to the currently implemented mega-investment Jaguar Land Rover in Slovakia, the pressure on prices of flats in the region of Nitra has increased. The arrival of the new investor makes from the surrounding of Nitra a lucrative locality which greatly contributed to an increase of apartment prices about 10 to 15 percent, in some cases up to 20 percent in comparison with the end of 2015.

Despite significant regional differences in unemployment levels (see Fig1), regional mobility of labor in Slovakia is relatively low and limits allocation of available job opportunities to suitable job applications. Slovak labor market has one of the lowest fluctuations of the labor force in the EU, which is also caused by low internal geographical labor mobility (EC, 2015) (see Fig. 2 - we have obtained available data until 2009, new data for 2010-2015 are currently being processed).

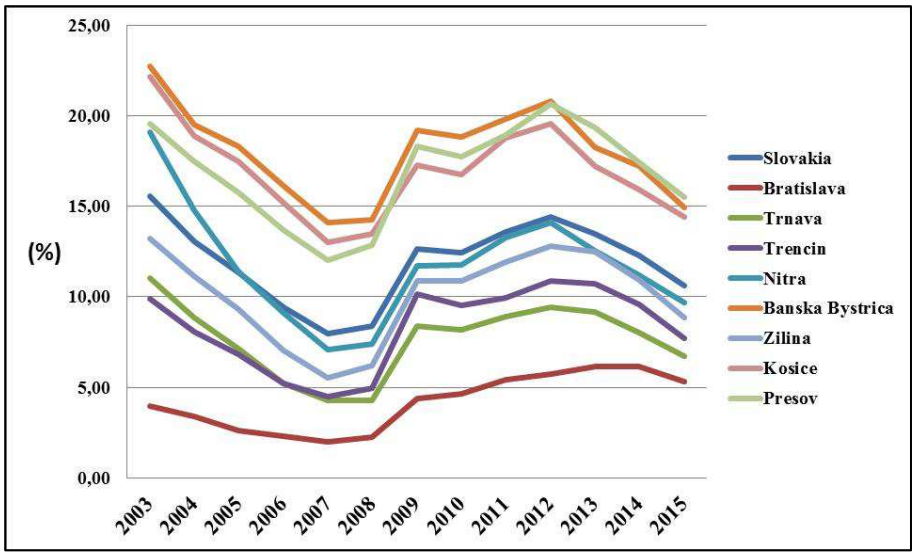

Fig. 1 Unemployment rate in the Slovakia by regions and years (%)
Source: Statistical Office of the Slovak Republic

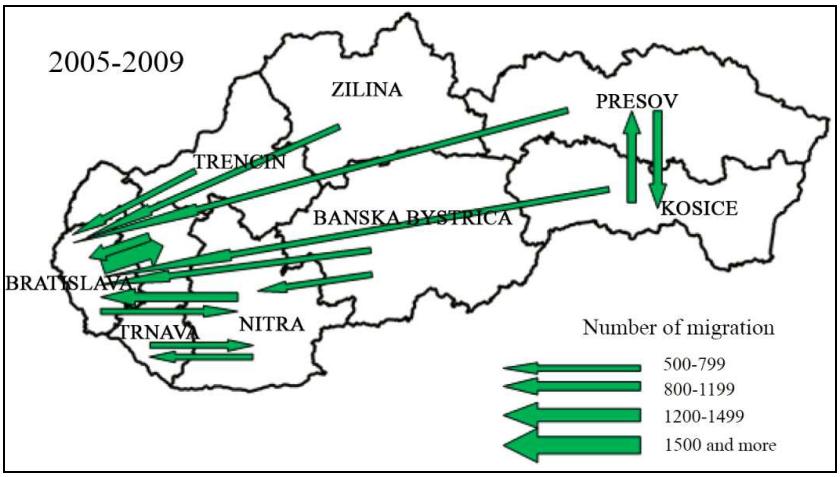

Fig. 2 The main migration flows between regions of Slovakia (number of transfer)
Source: INFOSTAT, Slovak Republic, 2010

Some of the factors hindering mobility are insufficient transport infrastructure, high transport fee and accommodation costs as well as underdeveloped market with rental housing. For example, in 2011 in Slovakia, only a very small population of working age (15-64 years) changed place of residence, with only 3% of those who moved, the reason of moving was linked to employment. The number of available rental housing in Slovakia is generally low, and access to social rental housing belongs to the lowest in the EU (see Fig. 3).

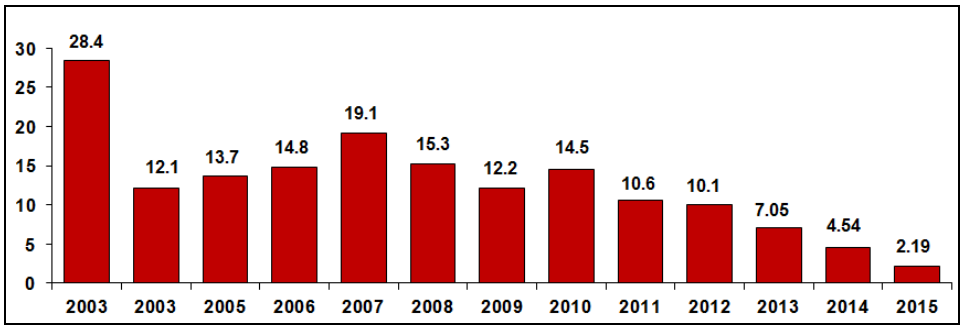

Fig. 3 Evolution of share of rental apartments in Slovakia among the total number of completed apartments (in %)

Source: own processing according to data from the Statistical Office of Slovak Republic

Important is also the fact that social rental housing depends on income. This means that in case of entitlement of rented apartment, the motivation to earn more money is lower. The reason is the fear that the tenant loses his entitlement to a rented flat. The result of such a situation is reduced incentives to work and thereby decrease the mobility of labor. On the other side, the second extreme in Slovakia is a high proportion of persons who have apartments in their ownership. Purchase, respectively rental of residential property is generally not just a matter of rational economic calculation, but to some extent it is also a reflection of national usage. Within the internationally comparable survey on income and living conditions (Statistics of Income and Living Conditions - SILC) in European countries is proven that not only in Slovakia but also in most countries is ownership of the house or apartment preferred more than rent. In the EU 28, 70% of the population subscribes to the ownership of residential property. However, between countries are obvious differences. Slovakia clearly belongs to the category of countries where the term ownership of real estate considerably resonates (up nearly 90%). On the other hand, the most significant relationship to the rental housing in Europe is shown by people of Germany and Austria.

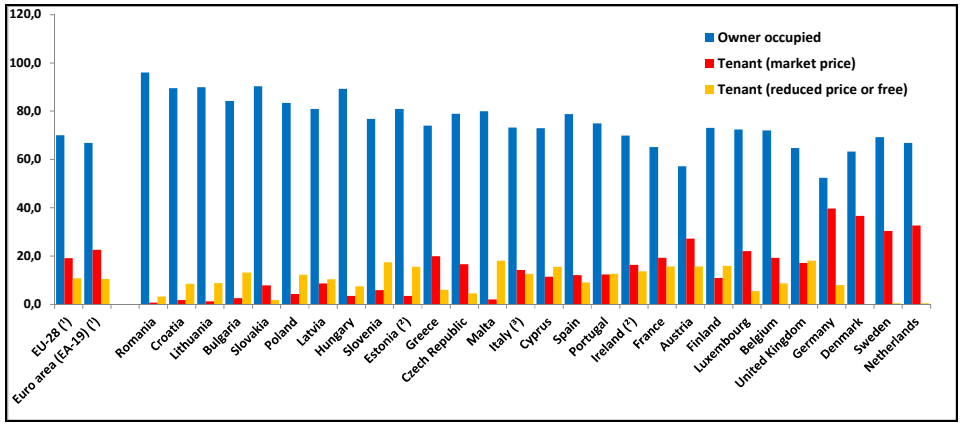

Fig. 4 Distribution of population by tenure status, 2014 (% of population)

Source: own processing according to EUROSTAT data

Based on data from Eurostat, we can assume that in 2014 up to 70.1% people in the EU-28 lived in an owner-occupied home, while 19.1% were tenants with a market price rent, and 10.8% were tenants in reduced-rent or free accommodation. More than a half of the population in each EU Member State (see Fig. 4) lived in owner-occupied dwellings in 2014, ranging from 52.4 % in Germany up to 96.1 % in Romania. As such, none of the EU Member States recorded a share of tenants that was higher than the share of people living in owner-occupied dwellings.

Theoretical basis and Methodology

The housing market is one of the structural factors impacting the regional mobility of labor. Consistency between housing (housing market) and jobs (labor market) in several developed economies has become an important part of the public policy of the state and local governments. There are several reasons why housing affordability is increasingly linked to the availability of jobs: improving the quality of life through better access to work, education and services, corporate demand for workers living in the vicinity, solving traffic problems (high travel costs, etc.), environmental protection, efficient use of land resources etc. As reported by Cervero (1989), answer to this discrepancy can be so called balance of housing and work policy (job and housing balance policy). Based on the theoretical assumption that the ideal balance between jobs and housing leads to higher efficiency, equity, quality of life and environmental sustainability. Measures of balance work and housing policy do not have purely residential nature, but rather operate in synergy with other policies, especially social protection, labor market and transport policy.

In Slovakia, the real estate market is characterized by a high proportion of owner-occupied real estates and almost non-existent rental housing. Moving for work is therefore complicated because of lacking availability of rental housing. The current structure of the housing market is largely due to historical development - both in the development before 1989 as well as the lack of adaptation of the housing sector to the new conditions in recent decades. After the change of political system in 1990, the transformation process began, which also included the privatization process. Part of the privatization process in 1992 was the introduction of the right to redeem the property for tenants in state apartments at very reasonable prices (apartments were redeemed into private property at prices that correspond to 5% of their market value), resulting in a change in ownership structure. A large proportion of public rental housing was subsequently purchased by tenants into the private sector. For example in Bratislava, the share of private housing increased from 12% in 1992 to 70% in 1998. Apart from the historical context, the main factors and reasons why housing sector limited mobility may include long-term development of the housing market and the structure of the use of apartments (Vagac, 2003). High occupation of flats, the rise of prices and rents, geographic differentiation of wages etc. leads to the reduced labor mobility. While the historical development has helped to shape the current structure of housing, housing support policy helps to preserve this structure and thus contributing to the slower development of rental housing. At present, most public expenditure spent on housing support is used for subsidy of owner-occupied housing. Cheaper financing of owner-occupied housing has direct impact on the entire housing market. Subsidized owner-occupied housing is financially more attractive and more accessible than rental housing. This promotes the demand for owner-occupied housing at the expense of rental housing. Market reacts to lower demand for rental housing with lower investments into creation of new rental housing, which leads to slower development of this segment of market.

Flexible labor market enables workers the better choice of employment and the efficient allocation of labor among companies. In Slovakia, one of the obstacles of labor mobility in the labor market is low regional mobility. Compared internationally, Slovaks move for work much less than people in neighboring EU countries. One of the factors that may negatively influence this condition of the labor market is the housing market. Low mobility on the labor market has a negative impact on economic growth. Regional unemployment is rising while jobs remain unoccupied. The low labor mobility also reflects regional differences in unemployment rates. It leads to inefficient use and allocation of human resources. People are forced to refuse job opportunities in other regions, where they could generate more economic value and thus earn more money. Higher unemployment and limiting productivity growth are associated with lower GDP and lower living standard. Labor mobility involves changes in the physical location of workers (geographical mobility) or their movement across jobs and sectors (occupational mobility). Two main types of internal labor mobility are in the center of attention - internal migration and commuting. Migration is usually associated with a change in the residence of a worker (in economic literature, a migrant is considered a person who stays in the destination region for more than one year). Commuting occurs as a rule without a change in a

worker's residence (i.e. a worker's place of work and place of residence are located in two different regions) (Vagac, 2013).

Available cross-country comparisons show that mobility flows in Slovakia are low in international terms. This applies in particular to internal migration, which means to flows connected with a change in the place of residence. The internal migration rate for Slovakia, measured as gross regional outflow as a percentage of working age population, is significantly lower than in most EU countries and other advanced economies as well as neighboring Visegrad countries (see for example Paci et al, 2007). According to national statistics, 1.6% of the productive age population (15-64y) changed their place of residence in 2011, of which 46% moved between municipalities within districts (i.e. short distance migration), 29% between districts within a region and 25% between regions. These figures are remarkably stable over time (there are only minor variations in data between 2000 and 2013), implying that the overall internal migration capacity and main flows are relatively unresponsive to external factors such as international migration or policy interventions. No more than 3 to 4 percent of residential migrants (3.3% in 2011) indicate employment-related motives as the reason for relocation. "Housing reasons" and "following a family member" account for almost two thirds of officially declared migration reasons. The share of labor migration increases with the spatial distance of relocation and is the highest in migrations between regions (8.5% of all inter-regional migrations in 2011; in comparison, employment reasons were stated in merely 1.1% of relocations between municipalities). Jurcova (2011) points out that this observation is consistent with data on the educational structure of migrants and the general assumption that propensity to move for work increases along with educational attainment.

When processing graphs and tables we used data from the national statistics - Ministry of Transport, Construction and Regional Development of Slovak Republic, Centre of the Institute of Informatics and Statistics (INFOSTAT), Statistical office of Slovak Republic, Eurostat data, research reports and OECD studies.

Discussion

In recent years, Slovakia has taken a number of measures to address housing issues. Law on the State Housing Development Fund entered in force since 2014 and supports public and private rental housing. The law on short-term leases entered into force in May 2014 and it promotes flexibility in the housing market and the growth of rental housing sector by establishing a specific legal regime for private-sector rental housing. Since last year, in the social housing sectors entered into force new restrictions concerning the level of subsidies. However, statistics show a declining number and proportion of municipal rental housing. One of the determinants that influence the decision between rental or buying (i.e. owner-occupied) is the criterion price (annual rent). Quantitative assessment of the advantages of ownership or lease of the property consists of comparing the average house prices to average annual price of renting a comparable property(Car, 2014):

$$\textit{The ratio of rental price} = \textit{price of residential property} / \textit{average monthly rent} \times 12 \quad (1)$$

The simplified ratio shows that how long does it take (normally years) from the value of lease to accumulate the amount that would allow to ensure average housing. In this context, in Slovakia, custom monthly rental price of intensive is often compared to the amount of monthly payment of possible housing loan. In the case of relative equality of the monthly rent and monthly payment of the loan, there is a high probability that the household chooses to purchase their own housing. In connection with the evaluation of the property under criteria of price / annual rent, there are some general empirical boundaries to determine their degree of objective evaluation. By this way, it is possible to reach an attitude that the property can be regarded as fair if the ratio of prices and rents represents a value of 14.2 years. This value corresponds to the reciprocal value of 7 percent of the gross revenue from the residential property rent. If the price of owner-occupied housing is too high, potential customer will logically prefer to live in rented accommodation (Car, 2014). This usually reduces the demand for new construction and brings the price of owner-occupied housing closer to

the price of rent. When the ratio of owner-occupied housing and rental housing prices remains high for a long time, it means that housing prices are set on unrealistic expectations of their future significant recovery compared with the reasonable rent and therefore the price of housing is likely to be overstated. In case of criteria price / annual rent, it is appropriate to compare not only its level, but also the dynamics, which also shapes the evolution of housing prices.

Criterion of price / annual rent can be included in a very important indicator in assessing the stability but also a possible overheating of the housing market. At first glance, it seems illogical that the person interested in purchase of a house or apartment would also address the situation in the rental market. However, there are several reasons why potential housing market participants should pay attention also to other evaluation parameters. Value of criteria price / annual rent below 12.5 indicates undercut house prices and encourage the purchase of real estate - is more profitable to buy than pay rent. In such situations, it is advantageous to buy property also with a view to its subsequent rental. On the other hand, value of criteria price / annual rent is higher than 20, it means overestimation of house prices and the cost of purchasing real estate is higher than the costs associated with its rental. In such a situation, any purchase of real estate is disadvantageous. Range of relatively reasonable prices of residential properties in accordance with the criteria of price / annual rental values between 12.5 to 20 corresponds to the reciprocal range according to the criteria of gross rental income between values from 8% to 5%. Values of criteria from this range indicate that the prices of the houses and apartments are at reasonable values. Residential property prices are becoming much understated if the value of the criterion price / rent is less than 6.7 and gross rental yield is over 15%. On the other side, house prices are becoming much overvalued if the value of the criterion price / rent is higher than 40 and gross rental yield is below 2.5% (see Table 1).

Table 1 : Scoreboard for real estates in the housing market

The ratio of price / rent	Gross rental yield (%)	General evaluation
6.7	15	Very undervalued
10.0	10	Undervalued
12.5	8	On the edge of underevaluation
14.2	7	Fairly valued
20.5	5	On the edge of overvaluation
33.3	3	Overvalued
40.0	2.5	Very overvalued

Source: Global Property Guide, 2015

An important prerequisite for a reliable assessment of whether house prices are overvalued or undervalued is availability of relevant data about property prices and rentals.

Conclusion

Focus on promoting owner-occupied housing with existing instruments creates some distortion in the housing market. There are options that will help to correct the current status and to avoid possible future complications. One of them is redirecting state support on owner-occupied housing to financial contributions on housing (housing allowance). This tool of housing policy would allow the recipient to choose between rent and owner-occupied housing. This means that financial contributions could be more bonded on income and other social criteria and thus achieve greater reinvigorating of the resources. Strengthening of this tool in Slovakia is recommended also by OECD (2009). Based on the experience of many developed countries (e.g. Great Britain), another solution for improving mobility in Slovakia, in particular the labor mobility of tenants of social rental housing could be the creation of databases of rental housing and the subsequent connection to a database of jobs. Creation of such a service would allow job seekers to find the available rental housing and job at the same time.

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Electronic Government Portals and its Impact in the Successful Application of E-Tenddering Systems

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Abstract:

This study aims to examining and analysing the role of Electronic government in the world through the mechanism of selecting and implementing of public and private institutions for the E-tenddering system conducted with each other. The successful implementation of Electronic government programmes highlightes important issues at the global level in the success of organizations in the implementation of E-tenddering system successfully. Also this study discussed the role of the Electronic government programme in Jordan through the application of E-tenddering system in public institutions within the country. The subject has been discussed through a field study designed to identify and interview some general organization that works on the same subject; study found a set of conclusions and recommendations about the topic.

Procedural Definitions: Electronic government, e-gate, E-tenddering system

1. Introduction:

Cullen A., Elsheikh Y, and Hobbs D., 2007, Icts revelotin is affecting all our life aspects. One of the significant effects of this revolution is promoting change in the way the Government dealing with its ministries, governmental departments, businesses sectors and other partners such as citizens in General, and governmental officials through the services provided by them. The term Electronic government emerged as a result of the informatics revolution and information technology in order to improve the services provided and the shift from traditional to electronic delivery of services within the community. One of the significant objectives Electronic government seeking to improve order and regulate the relationship between the public and private sector in terms of organizing tenders and E-tenddering system.

E-tenddering system is considered the most important mean employed by departments for developing public utilities; therefore, such contracts must include some conditions and concessions that will help public sector institutions.in this study, researchers will try in this field study to highlight and indicate the most important standards and procedures brought about by the Electronic government programmes for the successful implementation of E-tenddering system in terms of applicationin addition, to identify the main causes that lead to non-compliance with conditions and procedures for a successeful implementation of E-tenddering system.

2. Litreture review:

- ✓ **E-Government**: Sahem Nawafleh, et al, 2012, Is the use of new technology to improve the government methods of service delivery, or it is changing services performance from a routine, bureaucracy, multiplicity and complexity of procedures method to a method depend on the use of new technology to improve the services performed by the government targeting to deliver it for the citizens in a simple way through using internet.

The term e-Government is achieved through some basic conditions, such as accountability and flexibility. Of the positive factors of e-Government is working to reduce possible illegal and suspicious relations for officials and employees

- ✓ **E-Government objectives:**

The following the most important e-government objectives according to Matthias Finger and Gaëlle Pécoud, 2003:

1. Increase the efficiency and effectiveness of the procedures and processes within the Government through the use of information technology in reducing the time in performing the work with accuracy in completing this work.
2. Reduce Government expenses and costs through improving and developing of business processes with high transparency
3. Increase the users' satisfaction of the electronic services provided by the Government to reduce the time required to perform those services.
4. Increase integration between Government and private enterprise in serving countries in general.

- ✓ **E-Government partners:**

Jordan E-Government Program 2006, It aims to provide users with governmental electronic services through the government sites on the internet to deliver their personal needs such as access to public or private documents, as documents of general nature does not requesting verification of the client such as registration certificate in the commercial records.

Bernd W. Wirtz Peter Daiser, 2015, E-Government plays the role of regulator, tax collector and customer support for businesses regardless of the service or product provided by private sector organizations, of the essential services the Government provides under its relation with the business organization is tax e-performance.

Andersen, K., 2006, E-Government aims coordinate between governmental devices to perform businesses in an integrated manner at all administrative levels, as well as the relationship between central organizations and local devices such as exchanging data, information about regulations, rules, work systems and procedures in business performance. The local organizations are linked through internet and achieving integration in services that involve more than one governmental sector.

In order to improve staff performance and clarify the methods through businesses are performed; information technology is used in human resources management which includes self-services provided to staff like obtaining leave and accessing to e-training and efficiency reports.

- ✓ **E-Tendering:** David Chaffey (2012), Organizations of all sizes are interested in E-Tendering in order to reduce the costs incurred by those organizations generally for procurement. That's why these organizations moved to procurement strategies through the bidding system to get rid of purchasing high costs and thus increase the efficiency of the organization.

Public and private organizations significantly concerned in improving procurement and it practices intense scrutiny on the procurement process which has led to the cancelling many projects and therefore employees' dissatisfaction and some whimper from stakeholders.
Traditional tendering system was implemented on traditional methods, used paper and emails to send and receive requests, so that the traditional method generally lead to wasting time, effort and resources, therefore taking inaccurate decisions as a result of inaccuracy of the available data, which generally reflected negatively on bids because of the limited tender participants and finally failed to execute those bidding successfully and thus increase costs and significantly wasting employees efforts. As a result of all of these reasons, public and private organizations have resorted to E-tendering.

E-tendering is a collection of interconnected electronic processes aimed at managing the tender from advertising stage till final stage. That is it's a central process that helps organizations to overcome the high costs associated with traditional tendering costs through electronically advertising and increasing procurement integration, as well as to increase society acceptance of electronic transactions within E-tendering .

In addition, E-tendering aims to achieve transparency and effective internal audit through E-tendering system in procurement throughout the world, resulting in increased dealing with those electronic systems and widely accepting them. In addition E-tendering systems provide instruments and mechanisms for the advancement of electronic bidding and arranging access to documents and forms for participating in E-tendering system, and the needed tools to resolve disputes that may arise between buyers and sellers.

✓ **E-government Portals**: E. Turban, et al, 2008, Portals have become an integral part of basic infrastructure project for any e-Government; it represents the frame including all components and other systems necessary for the citizen and the Government alike. Pushing most Governments interested in e-Government to build a port or an integrated Government Portal supported by several applications that integrate and unite in interface form concerned with citizen and focus on investor; so through they are able to get all government services they need, thus achieving a citizen satisfaction about the service and fulfilling and fitting its requirements.

3. Discussion of the study:

The study aims to examine and analyse the role of Electronic government programs for effective, successful commitment and execution of tenders and contracts conducted between the public and private sector institutions in terms of all procedures and norms to participate and engage in government tenders; the need for such procedures and standards are clear and available to everyone through the e-portals of the ministries and governmental departments and are applied with high transparency. From this perspective the study seeks through this part to identify the field side of research and statistical procedures and methods that were used, data analysis and study questions, as well as the study sample, it also demonstrates the statistical analysis, data analysis and variables that are illustrated by tables, and developing a set of recommendations in the same area through the survey results.

✓ **Study questions**:

- Are the required standard conditions in the tender and E-tenddering system through Electronic government portals available?
- How are these standards applied in Jordanian ministries and institutions (Electronic government)?
- What are the main actions and procedures Jordanian institutions (Electronic government) follows in organizing tenders and bids and contracts? Are they available on the Electronic government portals?
- What are the organizational factors within institutions (eGovernment portals) that affect the successful implementation of tendering and E-tenddering system?

✓ **Statistical methods:**

A group of methods were used like statistical Analysis package "SPSS", the Arithmetic Median, Repetition, Percentages and Standard deviation in order to examine the relations between the study areas by relying on analysis of variance "OWN WAY ANOVA" to determine significant statistical differences for demographic variables and using F test and Level of Significance to examine the basic hypotheses.

Table (1) representative sample characteristics:

Sex	***frequencies***	***percentage***
Male	139	67.9
Female	61	32.1

Total	200	100.0
Age	***frequencies***	***percentage***
18-25	19	5.0
26-35	75	40.9
36-45	60	34.6
46-55	37	17.0
56 and more	9	2.5
Total	200	100.0
Current job	***frequencies***	***percentage***
Director	15	5.7
Head of Department	35	15.8
Engineer	61	32.0
Head of Division	21	6.9
Other	68	39.6
Total	200	100.0
Years of experience	***frequencies***	***percentage***
1-5	23	10.0
6-10	33	17.6
11-15	62	32.8
15-20	52	26.4
21 years and over	30	13.2
Total	200	100.0
Educational level	***frequencies***	***percentage***
Less prescriptive	12	4.4
Guideline	25	10.7
Diploma	57	29.5
BA	89	49.7
Postgraduate studies	17	5.7
Total	200	100.0

Table "1" shows the distribution of respondents according to the study variables, for example in relation to the gender variable; the number of participants in this sample is 200 participants where 139 are males (67.9%) and 61 female (32.1%).

Table 2

Sex	***Issue***	***Percentage***
Male	139	67.9
Female	61	32.1
Total	200	100.0

Table "2" shows the answers of the participants that the number of individuals who responded to the questionnaire is 200. The number of male individuals was 139 people compared to 61 female participants.

Table 3

Age	***Number***	***Percentage***
18-25	19	5.0
26 – 35	75	40.9
36 – 45	60	34.6
46 – 55	37	17.0

More than 56	9	2.5
Total	200	100.0

Table "3" shows the participants' responses according to their gender:

Age group 18-25 years; the number of respondents were 19 members by 5.0% which is low in comparison with other groups, this is due to lack of experience and qualifications. Where the age group 26-35; the number of respondents were 75 persons by 40.9%, which is the highest proportion in the sample.

36-45 years: the number of respondents was 60 individuals by 34.6% and is close to the previous category. Through studying the previous two groups; they were staff of administrative, professional and various engineering posts.

Age group 46–55 years: the number of respondents was 37 by 17.0%; which includes department heads and managers. While, age over 56: number of respondents were 9 by 2.5%, which is the lowest and indication they of being within retirement age.

Table 4

Current job	***Number***	***Percentage***
Director	15	5.7
Head of Department	35	15.8
Engineer	61	32.0
Head of Division	21	6.9
Other	68	39.6
Total	200	100.0

Table "4" shows the sample responses according to their current job, and is divided into five categories; where the incumbents of the position of other functions are the highest where number of the respondents was 68 employees by 39.6%. Followed by the engineer's category where the number of respondents was 61 engineers by 32.0%; being the category that oversees the effective implementation and standard conditions of execution. Then the of department heads where number of the respondents was 35 individuals by 15.8%, after that the head of Division where number of the respondents was 21 by 6.9%, and finally the directors where number of the respondents was 15 and 5.7%, this shows that any department where senior management levels are the lowest due to lack of experience and qualifications.

Table 5

Years of experience	***Number***	***Percentage***
1-5 years	23	10.0
6-10 years	33	17.6
11-15 years	62	32.8
16-20 years	52	26.4
More than 21 years	30	13.2
Total	200	100.0

Table "5" shows the sample responses according to their Years of experience, which indicates that the highest percentage among respondents is the third category (11-15 years) where the number of respondents was 62 employees by 32.8%, followed by (16-20 years) where the number of respondents was 52 employees by 26.4%, and then (1-5 years) where the number of respondents was 23 by 10.0%; this indicates that respondents who responded to the survey are those of long and high experienced.

Table 6

Educational level	*Number*	*Percentage*
Less prescriptive	12	4.4
Guideline	25	10.7
Diploma	57	29.5
BA	89	49.7
Postgraduate studies	17	5.7
Total	200	100.0

Table "6" shows the sample responses according to their Educational level, where the number of staff who do not hold a steering certificate are 12 employees by 4.4%, while the number of staff who hold certification guideline was 25 employees by 10.7 and the number of diploma holders are 57 employees by 29.5%; and the number of Bachelors holders was 89 employees by 49.7% which is the highest percentage, indicating that individuals who responded to the study questions are holdersof diploma, undergraduate and graduate degrees. While the number of advanced degrees holders was 17 employees by 5.7 %. This indicates the management consideration of recruiting staff with certifications and experience.

- ✓ **Analysis by area of study:**

First field: Electronic government portals provide standard requirements in the tender and E-tenddering system.

Table 7 Arithmetic averages, standard deviations and the ranks of the first area descending

Class	*REF.*	*Paragraphs*	*Arithmetic mean*	*Standard deviation*
1	9	Electronic government portals provide clear and specific standards for the tenddeing systems.	1.99	0.75
2	8	standards measure the activity related to performing work effectively	2.44	0.94
3	1	There is acceptance and satisfaction of applicable standards	2.87	1.00
4	6	Standards are within the objectives and conditions of the tender	2.52	0.96
5	3	standards are accessedand achieved easily on the portals	2.61	0.97
6	4	The standards aim to access the strengths and weaknesses of tendering.	2.66	0.96
7	2	Protecting public interest with regard to the implementation through work phases	2.47	1.02
8	7	Effectiveness measurement system affects the objectives of the contract parties and beneficiaries	2.50	0.82
9	5	Research on how to improve and raise the effectiveness of performance	2.49	1.04

Table "7" shows the sample responses about Electronic government portals provide standard requirements in the tender and E-tenddering system; the table reveals that the third paragraph obtained the highest rank with Arithmetic mean of 2.87 and standard deviation of 1.0, followed by sixth paragraph

with Arithmetic mean of 2.66 and standard deviation of 0.96; This indicates that the standards and crateria aims to reach to the strengths and weaknesses of tendering. Followed by the fifth paragraph with Arithmetic mean of 2.61 and a standard deviation of 97% and this underlines the flexibility, accessibility and achievement of these standards.while the paragraph came fourth in with Arithmetic mean of 2.52 and a standard deviation of 96%. Which seventh one with Arithmetic mean of 2.47 and standard deviation 1.02 emphasize to protecting public interest with regard to the implementation through work phases'.

Table 8 Procedures for participation in the tender through Electronic government portals:

Class	***REF.***	***Paragraphs***	***Arithmetic mean***	***Standard deviation***
1	12	Actions are donating simplicity and clarity	2.91	0.90
2	14	procedures are developed and updated constantly on the Web portal	2.87	0.94
3	15	The procedures contribute to protect e-tendering Parties	2.77	0.90
4	11	The procedures apply to all kinds of E-tenddering system	2.68	0.91
5	13	The Portal provides access to the procedures at any time by the e-tendering parties.	2.61	0.97
6	10	Procedures are Compatible with emerging circumstances and variables during execution	2.56	0.19

Table "8" shows the sample responses about the procedures for participation in the tender through Electronic government portals; where the paragraphs concerning procedures got the highest Arithmetical mean for respondents estimates, as the paragraphs (12, 14, 15) achieved the highest Arithmetical mean respectively (2.91, 2.81, 2.77) ; this indicates that the procedures followed on the tenddring systems' implementation dominated by simplicity and clarity and are flexible as it is simply updated, modified and contributed to the protection of the tender parties without affecting the succesful and quality of implementation.

Where the paragraphs (10, 11, and 13) got moderate Arithmetical mean ranged between (2.56-2.68) which emphasizes the considering of procedures to the conditions, variables, the accessibility to these procedures and the application of these procedures to all types of E-tenddering system.

Table 9 Electronic government portals keep pace with technology and technology

Class	***REF.***	***Paragraphs***	***Arithmetic mean***	***Standard deviation***
1	21	There is a concern about studies and research related of e-tendering systems.	3.01	11.08
2	18	Tools are periodically developed and updated contunously.	2.97	0.94
3	17	Availablility of necessary hardware and software for e-tendering system	2.89	0.79
4	16	E-tenddering system process are implemented with high-tech methods and tools	2.79	0.97
5	19	Efficient communication between the e-tendering parties	2.68	0.95
6	20	Ability to access to e-tendering information at any time	2.66	0.97

Table "9" shows the sample responses about Electronic government portals keep pace with technology and technology, which indicates the management concern in research and scientific studies and trying to apply it fully as paragraph 21 obtained the highest Arithmetic mean of 3.01, followed by paragraph 18 with Arithmetic mean of 2.97 which indicates that the methods used in the implementation are development and updated constantly, Then followed by paragraph 17 with Arithmetic mean of 2.89; to confirm that the management possesses technologies and methods used in measuring the implementation effectiveness. While, Paragraphs (16, 19, 20) respectively, with Arithmetic mean of (2.79, 2.68, 2.66) emphasize the ability of efficient communication between the tender parties during implementation as well as Ability to access information at any time by the tender parties.

Table 10 Arithmetic means and standard deviations for independent variables

REF.	Area	Arithmetic mean	Standard deviation	Reliability coefficient
1.	standards	2.451	0.9457	0.8891
2.	Procedures	2.675	0.9448	0.7848
3.	Tools and technology	2.745	0.9921	0.8819
4.	culture	2.154	0.9923	0.7928

Table "10" shows the sample responses about Arithmetic means and standard deviations for independent variables; after analysing the 4 paragraphs, it was found that the standard conditions ranged between 0.9457- 0.9923for all paragraphs and questions. i.e the first paragraph about the existing standards obtained Arithmetic means of 2.45 and a standard deviation of 0.9457 and stability coefficient of 0.8891; which is a worthy percantage donating that Electronic government portals adopt standard conditions and specifications for global influence, contribute to measuring the success of implementation of these tenders and E-tenderring system and emphasizes access and application of those standards. This emphasized that Electronic government Portal provides standards, conditions and specifications that should be adhered to when implementing tendering systems and projects, such as criteria and conditiones for applying and participating in Government tender,technical standards, financial terms and conditions.

analysis the questions of the second paragraphs about administrative procedures contributing to and influence the effectiveness application of E-tenddering system; it has obtained Arithmetic means of 2.67, standard deviation of 0.9448 and coefficient of 0.7848 which is not decent indicater of adherence and compliance to those procedures in the E-tenddering system effectively..

Given the above results, it is noted that they reflect very high ratios and also emphasizes that the eGovernment Portal provides standard conditions used in E-tenddering system and the access to those standards.

4. Discuss the Study Questions

Comparison between established study questions and statistical analysis of questionnaires and personal interviews; a substantial similarity and lack of variances in results were concluded:

- ✓ Are there standard conditions required in the tenders and E-tenddering system through Electronic government portals?

Through the participants answers to this question in the first paragraph of the questionnaire; it is concluded that Electronic government Portal includes conditions and criteria must be available in the E-tenddering system when implementing, and this has been confirmed through respondent’s answers. These answers were Convergent, and have no significant differences, which stress that, the criteria and conditions for the implementation of the E-tenddering system.

- ✓ To what limit these administrative standards applied in the e-tenddernig systems in the Jordanian Electronic government portals?

The results of the personal interviews for the sample participants regarding this question disclosed a significant application for these conditions and standards in Jordan since it is not possible for any particpant to participate in the tenders if not providing acertain bail in application to the financial terms issued on the Electronic government Portal, and offers experience certificates that indicates and prove that he has a high experience in order to ensure proper application.

- ✓ What are the main actions and procedures which the Jordanian institutions (Electronic government) follow in organizing tenders, bids and whether they are available on the Electronic government portals?

Through answer the the second paragraphs questions the sample participants there are some proceduers:

- The announcement of a "tender" in daily newspapers for three days and provide those ads on Electronic government Portal.
- Registration and applying tender through the Ministry web portal.
- Scheduling contract applications during a certain time period (online).

- ✓ What are the organizational factors within institutions (eGovernment portals) that affect the successful implementation of tendering and E-tenddering system?

As the results showed that these factors affect positively or negatively on the success implementation of the tendering.

5. The results of the study:

The results of the study showed, especially by answering questions that:

1. Electronic government Portal offers certain standards and criteria clarify the conditions of implementation which must be identical and with high degree of effectiveness.
2. The implementation of the tendring system starts from the moment of the announcement of the contract to the stage of performing contract terms that advertised through the web portal.
3. Electronic government Portal provides a comprehensive view of the procedures and deterrent sanctions when violating regularities and non-compliance with the terms and application procedures of the tender by the parties, and the effects in terms of rights and duties.
4. demographic variables "sex, age and type of activity and the years of experience and educational level"; revealed that there are no statistically significant differences in the responses of individuals where all are converged signifying that Electronic government Portal provides clear standards and specifications necessary for the contract implementation of and commitment to the contract procedures and implementation.
5. The necessity to provide all the techniques and modern technology in the field of E-tenddering system and bids and the importance of its availability on the portal to enableall parties with transparency of access.

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An Application on Web Path Personalization

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Abstract

The models based on the Markov property are well known for modeling the users' navigational behavior in a web site. In this paper we propose an algorithm that computes the preferential navigational path. The model can be used for web path personalization on a website in order to meet the characteristics and preferences of the users.

Keywords: web path, navigational path, page rank.

1.Introduction

Markov models have been widely used for modeling the users' navigational behavior in a web site. The models based on the Markov property are based on the transition probabilities between web pages, as recorded in web log files. In their paper, the authors Khashman and Nwulu (2011) mentioned that neural networks can be also used as prediction models.

Web usage mining represents the set of techniques used for the study of the users' behavior during navigation on the Internet. A common problem modeled by the Markov chains is computing the navigational paths used by the users during their navigation on a web site as Eirinaki et al (2005) and Sangeorzan (2008) mentioned. Though, Markov models do not handle the case when a path is not included in the training data or is included in low frequency and cannot provide good estimates of the corresponding transition probabilities. The authors Eirinaki et al (2005) used the approach that a page or navigation path is important if many users have visited it before and the prior probabilities are assigned to the pages using a Page Rank type algorithm. In this paper we propose an algorithm that computes the preferential navigational path on a web site during a period of time and can be used for the optimization of the structure of the website. This way, one can predict the preferences of users, if one knows the pages visited before in the preferential navigational path as one can see in papers of Enache David et al (2013) and Sangeorzan et al (2013). Our future work will be focused on adapting the model to complex informatic systems, like the ones described in the papers of authors Carstea (2013), Carstea (2015) and Sangeorzan (2008).

2.Preliminaires of PageRank

In web mining literature there exist a lot of research papers based on a stochastic modelling of the users' navigational behaviour in a web site, as one can see in research work of Srikant (2011) and David and Sangeorzan (2009).

Let us consider a web site modelled as a directed graph $G=(S, X)$, where S is the set of nodes and X is the set of edges. In this model the nodes represent the web pages and the edges represent the links between them as is mentioned by David (2011). The random walk on G induces a Markov chain, where the states are given by the nodes in G and the stochastic transition matrix is denoted by P like in formula (1). The probabilities p_{ij} describe the one-step transition from page i to page j and $p_{ij}=0$ if there is no link between page i to page j.

$$P=\{p_{ij}\}_{i,\,j=\overline{1,n}} \quad \text{and} \quad \sum_{i=1}^{n} p_{ij}=1,\ j=\overline{1,n} \qquad (1)$$

The PageRank algorithm is the most popular link analysis algorithm, used broadly for assigning numerical weightings to web documents. Web search engines use this algorithm in order to rank the retrieved results.

The algorithm models the behavior of a random surfer, who either chooses an outgoing link from the page he is currently at, or he goes to a random page after a few clicks. The PageRank of a page is defined as the probability of the random surfer being at some particular time step $k > K, K \in N^*$ at this page. The authors Eirinaki et al (2005) mentioned that the probability is correlated with the *importance* of this page, as it is defined based on the number of the pages pointing to it.

3. Preferential Path algorithm

We assume that the log files have been preprocessed and contain distinct user sessions. Next we will give the definition of a user session.

Definition 1: A user session denoted by US is defined as a sequence of states $X_k \in S, k \in \{1,...,n\}$.

3. 1. Transition Probabilities

We denote by w_{ij} the number of times the page X_j was visited right after page X_i. It means that w_{ij} is computed as the sum of the weights of all directed edges between nodes X_i and X_j. In Eirinaki et al (2005) the authors define w_i as the sum of all the weights of edges pointing to $X_i, i = \overline{1,n}$:

$$w_i = \sum_{k \in In(X_i)} w_{ki} \quad (2)$$

Using these weights, we can estimate the prior probabilities of the web pages and the transition probabilities between two pages.

Definition 2**:** The probability of a transition between two pages X_i and X_j is defined like the following:

$$P_{ij} = \frac{w_{ij}}{\sum_{k=1}^{n} w_{ik}}, \; i, \; j = \overline{1,n}. \quad (3)$$

We consider the transition matrix denoted by P:

$$P = \{p_{ij}\}_{i, j=\overline{1,n}}. \quad (4)$$

3.2. Prior Probabilities

Eirinaki et al (2005) mentioned that there exist many approaches for assigning initial probabilities, i.e. prior probabilities, to the states of a Markov model. One of them assigns equal probabilities to all states. Another approach estimates the initial probability of a page as the ratio of the number of times this page has been visited as a first page to the total number of user sessions. The researches have proven that neither of these approaches provides accurate results in the case of modelling web navigational behaviour.

The initial probability of a page should reflect the *importance* of a page in the web navigation. Eirinaki et al (2005) compute the pages probabilities taking into account a variant of the Page Rank algorithm.

We propose the PreferentialPath (PP) algorithm that computes the preferential path using the edge weights. It can be used for websites structure optimization, by creating additional links between the start state and the states from the preferential path. In figure 1 the PP algorithm is presented.

The PP algorithm starts with the state X_1 and computes the maximum weights of the outlinks. The output is the preferential path that consists of the pages that are directly linked each other and have the maximum weights.

Input Data

- Website's pages $X_1,...,X_n$
- $W=\{w_{ij}\}_{i,j=\overline{1,n}}$ set of edge weights (number of times X_j was visited right after X_i)
- $P=\{P_{ij}\}_{i,j=1,n}$ where $P_{ij}=\frac{w_{ij}}{\sum_{k=1}^{n} w_{ik}}$, $i,j=\overline{1,n}$.

Algorithm PP (Preferential Path)

```
i=1 {X1 is the start page}
M={X1}
repeat
  max=-1
 for j=1,n
   if ( P_ij ≠ 0 and max < P_ij ) then
     max= P_ij
   end if
  repeat
  Add X_j to M
   i=j
until X_j =F
```

Output Data

$$M=\{X_1, X_2,..., X_j, F\}$$

Fig. 1: The PP algorithm

4. Experimental Results

We consider a website having 9 pages: $X_1, X_2,..., X_8, F$, where X_1 is the start page and F is the log off page. The user sessions have been collected from the log files for a period of time. The user sessions are presented in Table 1.

Table 1: User sessions

User Session No.	Path
1	$X_1 \rightarrow X_2 \rightarrow X_1 \rightarrow F$
2	$X_1 \rightarrow X_2 \rightarrow F$
3	$X_1 \rightarrow X_2 \rightarrow X_8 \rightarrow F$
4	$X_1 \rightarrow X_2 \rightarrow X_5 \rightarrow F$
5	$X_1 \rightarrow X_3 \rightarrow X_1 \rightarrow F$
6	$X_1 \rightarrow X_3 \rightarrow X_5 \rightarrow X_3 \rightarrow F$
7	$X_1 \rightarrow X_3 \rightarrow X_6 \rightarrow X_3 \rightarrow F$
8	$X_1 \rightarrow X_4 \rightarrow X_6 \rightarrow F$
9	$X_1 \rightarrow X_4 \rightarrow F$

In Figure 2 we represent the navigational graph that illustrates the users' navigation sessions.

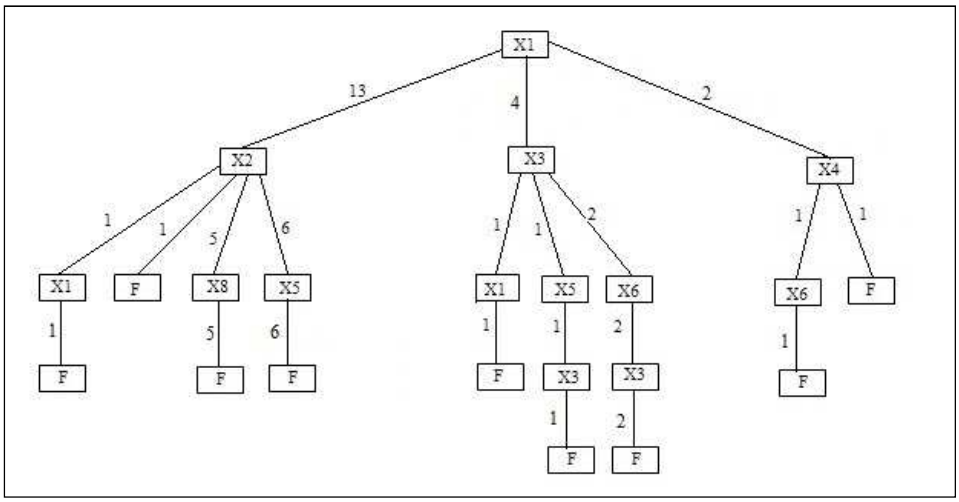
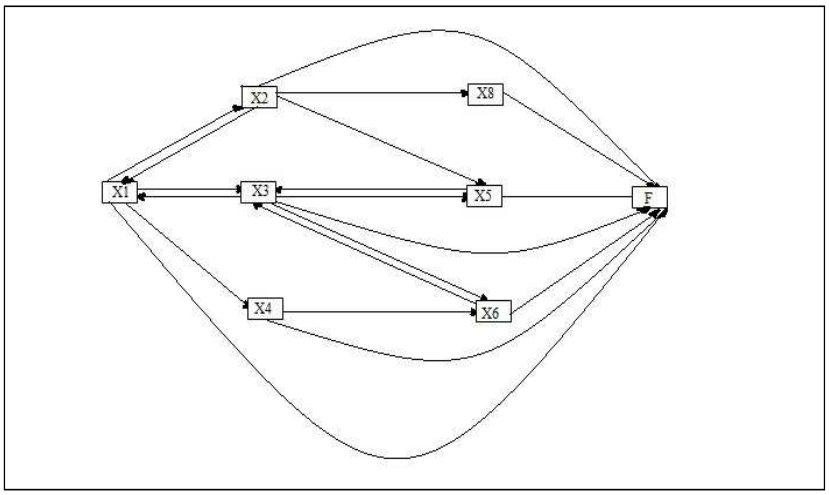
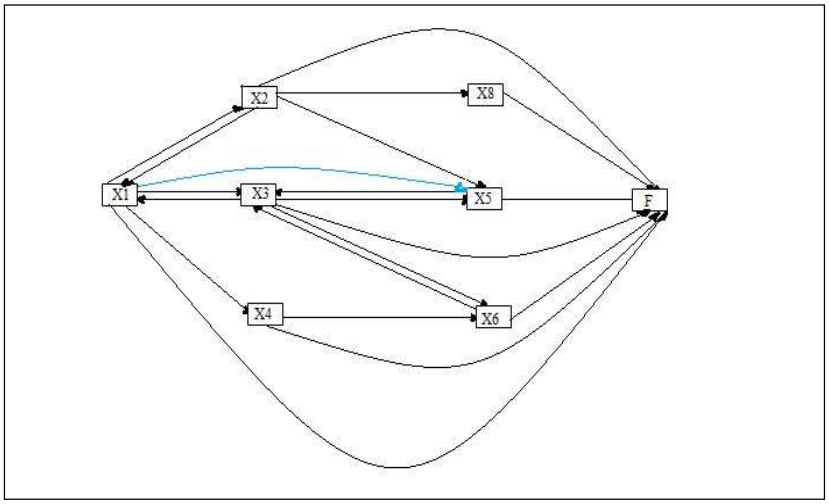


Fig.2: Navigational graph

Applying the PP algorithm, we obtain the preferential path $M = \{X_1, X_2, X_5, F\}$. We can add an additional link between the states X_1 and X_5, like in figure 3. It means that the users that are interested in navigating on the preferential path $\{X_1, X_2, X_5, F\}$ can go directly from the start page to page X_5, where they find useful information.



a) initial structure



a) adding a new link

Fig.3: Markov chain synopsis

5. Conclusion

In this paper we propose an algorithm that computes the preferential path on a web site. Our approach is based on a Markov model that assigns weights for all the edges using the number of visits recorded for every edge during a period of time. The algorithm can be used for the optimization of the structure of a website by adding additional links between the start page and the pages from the preferential path. This way the users can have a direct link from the start page to a certain page they are interested in. The model can be extended to meet the characteristics and preferences of the users.

This model can be used in marketing purposes, by placing advertisements, banners or product offers on the pages from the preferential navigation path.

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Ancrage Territorial, Capital Immatériel Et Création De Valeur, Peut-On Identifier Un Lien ? Cas De Deux Entreprises Agroalimentaires De Terroir

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Abstract

Cet article vise à analyser le rôle du capital immatériel d'une coopérative et d'une entreprise familiale du secteur agroalimentaire dans le processus de création de valeur. L'attachement au territoire constitue un point commun entre ces deux entreprises et explique leur positionnement stratégique. Cet article défend l'idée que l'ancrage territorial de l'entreprise combiné avec les différentes composantes du capital immatériel identifiées (capital humain, organisationnel et relationnel) constituent pour ces PME un atout stratégique majeur sur leurs marchés et contribuent de manière importante à la création de valeur. Cette recherche est exploratoire et à visée compréhensive.

Mots clés : Capital immatériel –PME - Terroir – Etude de cas

Introduction

Depuis le début des années 90, les travaux de recherche portant sur l'importance de la dématérialisation économique se sont multipliés (OCDE, 2013). Les TPE/PME agroalimentaires investissent de plus en plus dans l'immatériel (image de marque ou capital humain par exemple), mais les richesses accumulées sous forme d'actifs immatériels ne sont pas visibles dans les états financiers (Thésaurus-Bercy V1, 2011 ; Louzzani, 2016). Un autre phénomène prend de l'ampleur dans ce secteur agroalimentaire en France, celui de la célébration de l'authenticité ; le retour aux produits alimentaires de terroir.

La littérature n'aborde que très peu les modalités de création de valeur à travers les actions des dirigeants de PME de terroir en matière de la mobilisation et du développement du capital immatériel (Louzzani, 2013).

Cet article défend l'idée que l'ancrage territorial de l'entreprise combiné avec les différentes composantes du capital immatériel identifiées (capital humain, organisationnel et relationnel) constituent pour ces PME un atout stratégique majeur sur leurs marchés et qui contribue à la création de valeur. Cette recherche est exploratoire et à visée compréhensive (Yin, 1994).

Dans la première partie de l'article, nous précisons la notion de terroir et celle du capital immatériel en lien avec le mode de création de valeur. La deuxième partie est consacrée à la présentation de la méthodologie et à la description des deux PME de terroir. La dernière partie est consacrée à l'analyse et à la discussion du rôle des trois composantes du capital immatériel (humain, organisationnel, relationnel) en lien avec l'ancrage territorial des PME et leur mode de création de valeur.

1. Le Capital Immateriel Et La Notion De Terroir Au Cœur Des Modes De Creation De Valeur

1.1. Les différentes facettes de la notion de terroir et ses implications managériales

L'agroalimentaire possède un dispositif réglementaire qui permet aux entreprises de bénéficier des attributs institutionnels (tels que l'AOP, appellation d'origine protégée, l'IGP, indication géographique protégée, AB, Agriculture Biologique, …). Ces attributs que l'on qualifie de labels sont reconnus comme de terroir et permettent de communiquer sur l'origine et/ou la qualité des produits.

Ils permettent d'établir une relation de confiance entre les consommateurs et les acteurs de la filière alimentaire (Pichon, 2006).

Le « refus de l'opacité du système alimentaire et la volonté de retrouver du lien entre le producteur et le consommateur, traduisant une forme d'attachement au territoire » constitue une des tendances observées dans l'acte d'achat du consommateur (Laisney, 2012). Avec Casabianca et al. (2005), on peut considérer le terroir comme « un espace géographique délimité, où une communauté humaine, a construit au cours de l'histoire un savoir collectif de production fondé sur un système d'interactions entre un milieu physique et biologique et un ensemble de facteurs humains. Les itinéraires sociotechniques ainsi mis en jeu révèlent une originalité, confèrent une typicité, et aboutissent à une réputation pour un bien originaire de cet espace géographique ».

Les produits alimentaires qui sont considérés de terroir peuvent bénéficier d'un label lorsqu'ils ont un lien tangible avec le terroir déclinant une identité géographique et répondant à un cahier des charges précis. Ils peuvent aussi bénéficier d'une image de terroir construite par le mode de production, tels que les produits fermiers ou biologiques, ou par un effort important en marketing. C'est le cas par exemple des fromages P'tit Basque qui en dépit de l'évocation claire d'une région n'est qu'une marque commerciale du secteur agroalimentaire appartenant au groupe Lactalis.

Tout comme les produits, les entreprises de terroir « sont encastrées dans un tissu de relations sociales qui confèrent une identité propre à la triade marché-produit-territoire, ce qui conduit à évoquer une forte idiosyncrasie, liée notamment à des ressources, et/ou à des compétences propres, soit au milieu, soit aux acteurs » (Marchesnay, 2001a). Cet auteur propose une grille d'analyse qui distingue deux logiques d'action dominantes chez les dirigeants des entreprises, entrepreneuriale et patrimoniale (Marchesnay, 2001b). Dans une logique patrimoniale les dirigeants visent d'abord la pérennisation de l'activité et l'indépendance en termes de capital social. Alors que ceux qui sont mus par des logiques entrepreneuriales cherchent d'abord à prendre des risques et à entreprendre.

Cet auteur souligne la double légitimité de l'entrepreneur, concurrentielle et territoriale. La première a trait à sa performance, i.e. utilisation efficiente des ressources, et efficacité dans la conduite des activités de l'entreprise, réalisant un niveau satisfaisant en termes d'effectivité. La seconde rappelle l'importance de son attachement au territoire (i.e. son enracinement) et l'intensité des liens avec les acteurs du territoire (i.e. son imprégnation territoriale). Cet auteur qualifie l'entrepreneur d'entreprenant lorsqu'il est fortement attaché au territoire (de manière affective mais aussi technico-économique), adopte des structures adhocratiques et est sensible au niveau d'effectivité au sein de l'entreprise. Pour ce type d'entrepreneur l'intégration territoriale participe au renforcement de la performance concurrentielle.

1.2. Le capital immatériel comme un véritable potentiel de création valeur

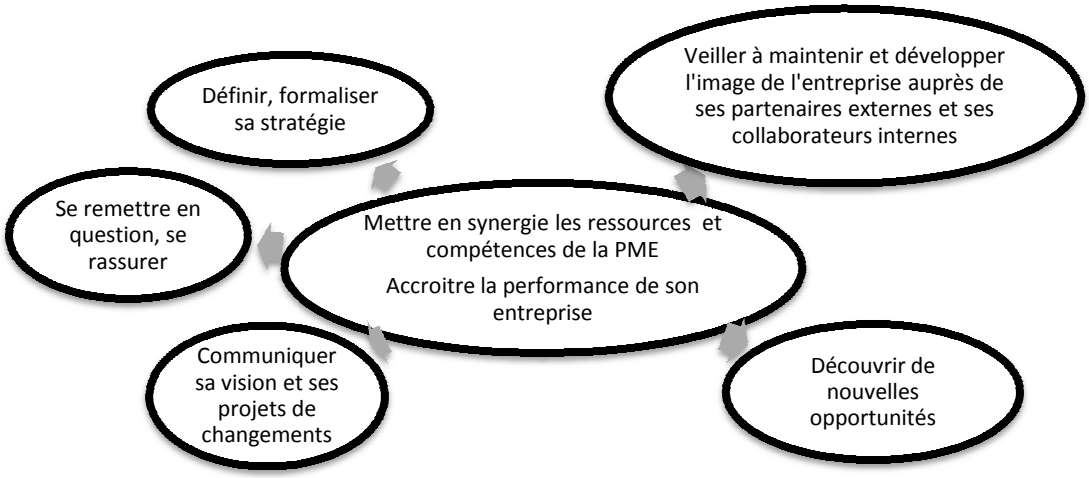
La notion de capital immatériel proposée par Leif Edvinsson dans les années 90 (Edvinsson et Malone, 1999) représente la valeur cachée de l'entreprise (Fustec, 2013). Dans une approche analytique on considère que les investissements immatériels dans la R&D, la formation, les activités commerciales, utilisés dans les détours de production, sont à mêmes de former le capital organisationnel, humain et relationnel des entreprises (Ngobo, 2013).

De nombreux auteurs considèrent que cette notion recouvre trois composantes essentielles incorporées dans les hommes et les organisations (Beattie et Thomson, 2010) :

- Le capital humain, qui représente le savoir et le savoir-faire individuel, les aptitudes et compétences des personnes et leur créativité pour développer des produits ou des services répondant à l'attente de la clientèle. On peut distinguer l'action qui conduit à la création de l'actif (ou le capital) et le capital lui-même (Thésaurus-Bercy V1, 2011). Un dirigeant qui crée un climat propice à la fidélisation de ses collaborateurs renforce le capital humain. Ce dernier enrichit la valeur patrimoniale de l'entreprise. Sa dépréciation se mesure par le turn-

over observé dans cette organisation. Ce capital est généralement scindé en deux types, capital dirigeants et capital collaborateurs. La valeur du volet dirigeants dépend du niveau de stabilité de l'équipe dirigeante, de sa compétence notamment en matière de vision stratégique claire et de sa capacité à prendre des décisions et des risques. Devant la difficulté de cerner le métier du dirigeant, le centre de ressources et de prospective propose un schéma synthétique qui met en évidence ce que pourrait apporter une formation aux dirigeants des PME (cf. schéma 1). Ce schéma permet de relier les activités du dirigeant, sa vision, son action, sa réflexion avec la performance de l'entreprise. Nous l'avons adapté pour mieux percevoir le rôle du dirigeant en tant que ressource intangible créatrice de valeur dans les PME. Le dirigeant vise donc par sa démarche entrepreneuriale à assurer le déploiement coordonné des actifs et ressources stratégiques et intangibles créant ainsi une compétence organisationnelle spécifique (Durand, 2013), créatrice d'un avantage concurrentiel et par conséquent de valeur. Dans notre analyse, la valeur d'une ressource se mesure par sa capacité à conjurer une menace ou à saisir une opportunité (Koenig, 1999) en gardant à l'esprit que les ressources tangibles ou intangibles, prises de façon isolée, créent rarement de la valeur (Grant, 1991).

Schéma 1 : Métier et activités managériales du dirigeant de la PME



Source : Adapté d'Observatoire des PME, 2005, p. 62.

Quant au volet collaborateurs, sa valeur se mesure par le niveau de compétence individuelle et collective, le niveau de fidélité et l'adhésion aux valeurs de l'entreprise.
En effet, les modes de gestion spécifiques, dans les PME, s'appuient sur des logiques de proximité (spatiale, hiérarchique, fonctionnelle, familiale) (Torrès, 2003).

- Le capital organisationnel qui représente ce qui permet aux flux d'informations et de décisions et au flux de matières de s'accomplir dans le cadre de la chaine de valeur interne de l'entreprise. Il est représenté par des bases de données, des processus de production, un système d'information, etc. En d'autres termes, tout ce qui permet l'amélioration de l'efficience organisationnelle.
- Le capital relationnel, exprime la capacité de l'entreprise à valoriser ses relations avec ses partenaires extérieurs clés.

Par conséquent, avec Lacroix et Zambon (2002) on peut considérer que le capital immatériel est un stock de ressources internes (compétence, savoir-faire, ...) et de ressources tournées vers l'extérieur (marques, réputation, ...) qui permet la combinaison et l'interaction de l'ensemble des ressources en vue de la création de valeur pour l'ensemble des parties prenantes par la recherche d'avantages concurrentiels.

Aussi nous défendons l'idée que pour les deux PME agroalimentaires ce qui permet à l'entreprise de se distinguer sur le marché des produits de terroirs du même groupe stratégique, au sens de Porter (1982), dépend de la capacité de la PME à mettre un dispositif managérial qui permet d'identifier et valoriser son capital immatériel (humain, organisationnel et relationnel) et l'adosser à l'ancrage territorial.

2. Méthodologie de l'étude et description des Deux PME

2.1. Méthode de collecte de données

L'étude empirique porte sur deux PME agroalimentaires de terroir, la COP[1] et la FAM qui sont deux entreprises fromagères auvergnates. Elle est exploratoire et à visée compréhensive (Yin 1994). Le travail de collecte des données a commencé lors de la réalisation de séquences pédagogiques avec des élèves ingénieurs en collaboration avec ces deux PME. L'objectif de ses séquences pédagogiques est de réaliser un diagnostic stratégique de l'entreprise. Suite à ce travail de diagnostic, nous avons analysé les données présentées par les étudiants (pré-codifiées) et repéré les thèmes principaux susceptibles d'expliquer le niveau de performance de l'entreprise. La comparaison de cette analyse avec les affirmations théoriques autour des notions de création de valeur, de terroir et du capital immatériel nous a permis de préparer nos entretiens approfondis.

Nous avons donc réalisé un premier entretien semi-directif approfondi (de deux heures et demie) avec les deux chefs d'entreprise en 2008 et en 2009. Mené sur la base d'un guide d'entretien comportant plusieurs volets : la présentation générale de l'entreprise, sa stratégie, son caractère territorial, sa performance et un focus sur le dirigeant. Deux autres entretiens furent réalisés en 2011 et 2012, avec un guide d'entretien similaire à celui utilisé en 2008 et 2009. Nous avons enregistré et retranscrit ces entretiens.

Par ailleurs, cette recherche s'est également nourrie de nombreuses rencontres et réunions formelles et informelles que nous avons eues avec les deux dirigeants (cf. tableau 1). Ces derniers nous sollicitent régulièrement pour réaliser des missions pour le compte de l'entreprise.

Dans cette étude, nous avons privilégié l'analyse des données primaires, en accordant aux données secondaires un rôle le plus souvent confirmatoire. La collecte des données s'est réalisée entre juillet 2008 et fin 2013. 35 pages de verbatim pour la PME COP et 26 pages pour la PME FAM furent exploitées.

Tableau 1 : Méthode de collecte de données

Données observées	Données orales	Données écrites
Ressources et compétences	Entretien semi-directif	Documents financiers
Gouvernance de l'entreprise	Entretiens informels	Rapports (de diagnostic)
Gammes de fabrication	En face à face	Compte rendu de mission
Collecte de lait	Téléphoniques	ingénieur (fiches)
		« *Posters* »
		Courriels

[1] Tous les noms utilisés sont des noms d'emprunt différents des noms réels.

2.2. Description de l'organisation générale des deux PME

L'agroalimentaire auvergnat mise sur le volet terroir de ses produits (Mauvy, 2014). L'Auvergne, avec ses 5 fromages AOP, fabrique le quart de la production de fromage AOP en France. Dans ce qui suit, nous présentons successivement la COP et la FAM.

2.2.1. COP, une coopérative de terroir

a) Organisation et dirigeant

La COP est spécialisée dans la production du Cantal (sous AOP). Le marché de cette AOP connait des difficultés structurelles, baisse des prix et perte de 25% de part de marché en 2009 et 2011. Sa production est de l'ordre de 1200 tonnes pour un chiffre d'affaires (CA) de 7.5 millions d'euros. Elle emploie 35 salariés, possède deux sites de production et 5 sites d'affinage. Les conditions de production dans le premier site, réservé au lait cru, ne répondent pas à l'ensemble des exigences de l'IFS (International Food Standard). Le second, récemment rénové, est réservé au lait pasteurisé. La vente des fromages affinés représente 75% des ventes et celle des fromages en blanc (vendue à un affineur) représente 25% des ventes.
Cette entreprise assure la collecte de lait, la production et l'affinage des fromages et apporte un appui technique à ses adhérents. En 2008 cette coopérative a recruté des fromagers et a engagé un plan formation important. Elle rassemble environ 90 coopérateurs (producteurs) sur une zone de 50 km^2 de la région auvergnate. La majorité écrasante des producteurs s'est engagée dans l'appellation.

M. Clément, directeur de cette coopérative et âgé de 49 ans, est titulaire d'un bac+5 en management et en économie territoriale. Après de nombreuses années d'expérience dans les administrations publiques des régions voisines, il s'est lancé dans l'entrepreneuriat, chez COP, en 2004.

La COP a deux organes de gouvernance : le conseil d'administration et le comité exécutif. C'est le comité exécutif qui est le véritable décisionnaire de la PME. Toutefois, c'est au directeur de la coopérative de proposer une vision stratégique chaque année. « Cela me permet de prendre du recul et d'orienter les choix stratégiques » précise M. Clément[2]. Ce dirigeant regrette le regard qu'il qualifie de «court-termiste» de beaucoup de coopérateurs. Notamment, lorsqu'il s'agit d'investir dans l'immatériel ; i.e. développer une marque propre par exemple. Il note par ailleurs que la relation de confiance réciproque qu'il entretient avec le président facilite beaucoup la prise des décisions importantes et lui –dit-il- « transmet une certaine légitimité territoriale ».

b) Mécanismes de création de valeur dans la COP

La coopérative met sur le marché plusieurs produits avec trois niveaux d'exigence en matière de la qualité des produits. M. Clément est persuadé que pour la COP, il est crucial de développer un produit pour porter la marque propre et ainsi exister sur le marché durablement de manière différenciée. Ce produit, Fromarc, constitue un « gros tiers de nos ventes » précise M. Clément (i.e. 430 tonnes). Il est vendu sous MDD (marque de distributeur) à une grande enseigne de la GMS (grandes et moyennes surfaces). Au regard des efforts engagés par les coopérateurs et de ceux de la COP, les produits certifiés Bio[3] font partie de cette catégorie de produits exigeants en matière de qualité. Ils représentent 40 tonnes et sont écoulés auprès de magasins spécialisés. « Même si ce produit est moins rentable que le Fromarc, … la marge nette dégagée est satisfaisante », note M. Clément. Ce dirigeant souligne que la COP a opté, en matière de gamme de fabrication, pour une « maturation longue qui colle aux us et coutumes de la région et qui a un effet positif sur la qualité de fromage. »

[2] Nous avons consulté ce document pour l'année 2009.
[3] Certifié par une entreprise spécialisée, Ecocert.

La deuxième source de revenus est constituée de produits « Standards affinés au lait cru » pour un quart de la production, vendu aux grossistes. Et enfin les « produits standards pasteurisés et non affinés » pour 450 tonnes vendus aux affineurs et aux industriels.

M. Clément rappelle que la coopérative de par ses statuts a l'obligation de collecter du lait chez l'ensemble des producteurs. De ce fait, pour tirer la qualité des produits vers le haut, la coopérative a créé une association (ASSOCI) pour gérer au mieux son image et sa marque propre, i.e. son capital immatériel. Elle établit un cahier des charges exigeant et garantit une rémunération supplémentaire aux adhérents (6% des ventes) qui répondent aux exigences en matière de qualité. Ces adhérents doivent s'acquitter d'une cotisation de 10 € et d'un droit d'entrée qui est proportionnel au volume vendu à la coopérative. Il était important de créer cette association signale M. Clément, car « devant un jury de dégustation, nos fromages sont meilleurs par le goût et l'onctuosité mais moins bon en aspect (croutage) et en texture. D'où l'importance que cette qualité gustative soit portée par une marque propre. »

Par ailleurs, la COP a créé une SAS (Société par Actions Simplifiées), SOCCO, pour commercialiser l'ensemble de ces produits.

2.2.2. FAM, une PME familiale de terroir

a) Organisation et dirigeant

La FAM emploie 50 personnes et a réalisé un chiffre d'affaires de 15,8 millions d'euros en 2010. Cette SAS familiale, créée en 1928, est spécialisée dans la fabrication de Saint Nectaire. Mono-produit et leader sur son marché, 90 % de produits sont vendus sous AOP, ce qui lui permet de réaliser des économies d'échelles importantes. L'activité de l'entreprise est saisonnière, avec des collectes du lait concentrées sur 4 mois par an. En revanche, la demande reste constante sur l'année.
Le coût du lait représente 70 % du coût de revient, ce qui réduit la marge de manœuvre du dirigeant en matière de génération de revenus.

En 2005, M. Valex, le chef d'entreprise âgé de 47 ans, a racheté –à son père- le fonds de commerce et a repris l'entreprise. Il a un style de management qu'il qualifie de directif. Il considère son entreprise de par son processus de fabrication comme une entreprise traditionnelle et de terroir. Avec une formation de BTS commercial et plusieurs formations professionnalisantes, il se considère comme autodidacte.

Il s'appuie pour gérer l'entreprise sur un petit comité informel, constitué de trois cadres attachés à la région : responsable de personnel et de fabrication, responsable d'affinage et de la production fermière, responsable de collecte. Ce comité, selon M. Valex, représente « une des richesses principale de l'entreprise ». Il précise que lors des recrutements, l'attachement à la région constitue pour lui un atout important pour le candidat. Une des sources majeure de fierté qu'a ce dirigeant est de participer activement au développement économique local, en employant une cinquantaine de salariés locaux, « sans compter les producteurs de lait » souligne-t-il. C'est ce qui explique le peu de turnover dans cette entreprise.

b) Mécanismes de création de valeur dans la FAM

Dans un ton démonstratif M. Valex explique que la gamme de fabrication semi-artisanale, a un impact important sur la qualité des produits. Il insiste sur la préservation du savoir-faire régional en matière du traitement physique du lait. D'ailleurs ce dirigeant s'interdit de recruter des fromagers « intérimaires » considérant que c'est une activité clé pour l'entreprise. De plus il souligne l'effort important de l'entreprise en matière de formation dans les technologies alimentaires, en hygiène et sécurité alimentaire.

La moitié du CA est valorisée en MDD de terroir auprès de cinq grandes enseignes nationales. Cette voie de distribution est privilégiée par M. Valex car elle permet une meilleure valorisation des produits. De plus, le nom de l'entreprise figure sur l'étiquetage et la qualité est tirée vers le haut à travers le respect des normes IFS par exemple. Ce qui rassure et donne une certaine visibilité aux consommateurs sur l'origine du produit et permet à la PME de réaliser des économies en matière des dépenses de communication.

M. Valex nous confie que son observation des tendances de consommation, à travers le nombre important d'appels d'offres lancés par les distributeurs pour avoir des fromages « bio », lui permet de noter que le consommateur souhaite « du naturel ». Par conséquent, l'entreprise verse une prime de 25 % supérieur au prix pratiqué pour le lait conventionnel à tous les fournisseurs qui adhèrent à cette logique. De plus, M. Valex souhaite que l'entreprise soit perçue comme une entreprise citoyenne.
Pour ce qui est de l'innovation, le dirigeant nous explique que « les petites innovations[4] que nous mettons sur le marché concernent généralement les formats (…), car la qualité des produits (…) dépend notamment des outils de production, de la technologie utilisée, de la qualité du lait collecté et du savoir-faire des collaborateurs. » Ce dirigeant note qu'il existe un différentiel de 15% entre le premier prix et celui le mieux valorisé au sein de l'appellation.

Enfin, un des atouts majeurs de la FAM, selon M. Valex, est que l'entreprise fonctionne comme une coopérative dans la mesure où il s'impose de collecter le lait chez l'ensemble des producteurs de sa zone. Cette manière d'agir crée un climat de confiance entre le dirigeant et ses fournisseurs.

3. Analyse Et Discussion Du Cas : Capital Immateriel Et Ancrage Territorial Renforcement Reciproque

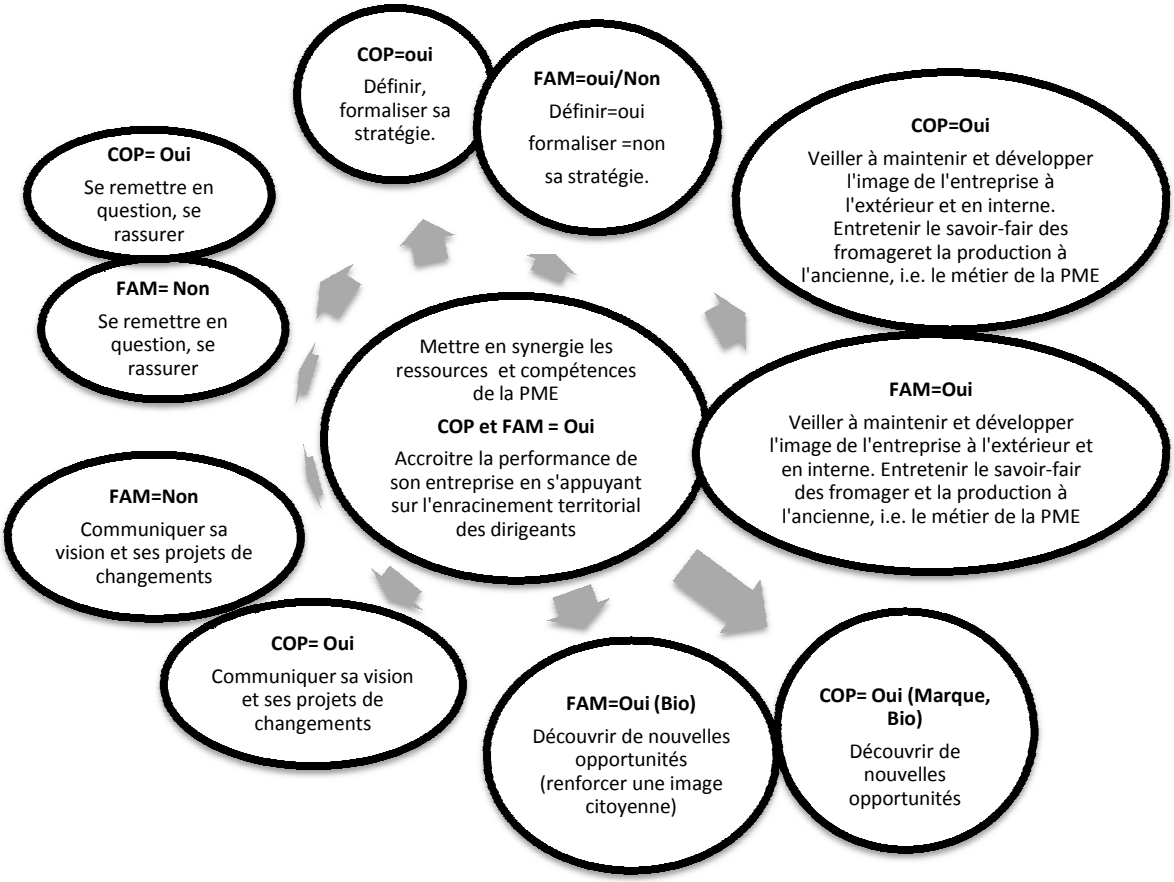
Dans ce qui suit nous présentons d'abord le rôle du capital humain adossé à l'ancrage territorial (3.1) et analyserons par la suite le lien du capital organisationnel et relationnel avec l'ancrage territorial des deux PME (3.2).

3.1. L'ancrage territorial et les qualités managériales des dirigeants jouent un rôle déterminant dans la création de valeur des deux PME

Le capital humain et notamment le capital dirigeant combiné à l'attachement territorial parait, dans les deux PME, impactant (cf. schéma 2).

[4] Il s'agit d'innovations incrémentales au sens du Manuel d'Oslo (OCDE, 2005).

Schéma 2 : Description du volet capital dirigeant à travers des activités managériale et entrepreneuriale des deux dirigeants



Les deux dirigeants adoptent deux styles de management différents. Le directeur de la COP, ne bénéficiant pas d'une forte légitimité territoriale compense ce manque de reconnaissance territoriale par des objectifs économiques ambitieux. Il propose une vision stratégique –formalisée- pour la coopérative. Il propose la création de la marque propre et s'engage sur le marché Bio. Alors que le dirigeant de la PME familiale bénéficiant à la fois d'une forte légitimité territoriale et concurrentielle ne formalise pas sa vision stratégique et considère que le dirigeant doit être capable de comprendre et anticiper les grandes tendances de consommation. On peut qualifier les deux dirigeants d'entrepreneurs-entreprenants, au sens de Marchesnay (2001b). Opportunistes, ils cherchent à comprendre les tendances de consommation et à adapter les produits aux clients potentiels. Cela est particulièrement perceptible lorsque les deux dirigeants visent à davantage investir le marché Bio. Les raisons nous paraissent quelque peu différentes dans les deux PME. Pour la FAM, ce marché permettra le développement d'un capital image (i.e. capital relationnel) autour de l'entreprise citoyenne. La prime de 25% accordée aux producteurs adhérant à cette démarche montre clairement cette volonté du dirigeant.

En revanche, pour le directeur de la COP investir ce marché lui permet de se distinguer du groupe stratégique de l'appellation avec une marge nette plus élevée que les produits AOP standards. En revanche, étant un acteur de l'économie sociale et solidaire l'image de l'entreprise citoyenne semble acquise de par les statuts et le fonctionnement de la coopérative.

Les deux dirigeants sont attachés au territoire. Pour le dirigeant de la FAM, l'attachement est affectif ; natif de la région un contrat tacite et social le lie avec les habitants du village. De plus, ce dirigeant adopte une préférence locale lors de recrutement de ses collaborateurs.

Alors que le directeur de la coopérative estime avoir une légitimité concurrentielle de par les choix stratégiques (formalisés) et s'appuie sur le président de la coopérative pour bénéficier d'une certaine légitimité territoriale (cf. tableau 2).

Tableau 2 : Rôle primordial du capital humain dans le processus de création de valeur des deux PME

Capital immatériel	Efforts (actions) de l'entreprise - FAM-	Potentiel de valeurs économiques – FAM-	Efforts (actions) de l'entreprise COP	Potentiel de valeurs économiques – COP -
Capital humain				
Capital dirigeant				
Qualités managériales du dirigeant	Préférence territoriale en matière de recrutement collaborateurs	Climat de confiance et de sérénité. Forte légitimité territoriale	Travail en concertation avec le président de la coopérative (qui bénéficie d'une forte légitimité territoriale)	Confiance, attachement aux valeurs de l'entreprise. Une certaine légitimité territoriale.
	Mono-produit Entrepreneur entreprenant (Stratégie de distinction)	Economies d'apprentissage Légitimité concurrentielle	Création de marque propre Plusieurs produits Entrepreneur entreprenant (Stratégie de distinction)	Forte légitimité concurrentielle (remplit son rôle économique)
Capital Collaborateurs				
Savoir-faire des fromagers	Plan de formation Stagiaires	Compétences clés de l'entreprise. L'attachement au territoire constitue un atout supplémentaire	Plan de formation Stagiaires	Compétences clés de l'entreprise. Le caractère transférable de ses ressources peut être considéré comme une menace forte !
Fidélité des salariés	Bonnes conditions de travail Caractère judicieux des recrutements	Capital collaborateurs important (sérénité, motivation, peu de turnover)	Conditions de travail plutôt satisfaisantes Difficulté de recruter, l'imprégnation territoriale du candidat n'est pas nécessaire.	Capital collaborateurs pas suffisamment nourri et exploité Doit être renforcé par un effort en matière de communication interne sur les choix stratégiques.

Quant au capital collaborateurs, la FAM bénéficie de l'enracinement territorial des trois cadres dirigeants et de leur expertise. Il s'agit certainement d'un capital, créé par une action, au sens de Thésaurus V1 (2011), engagée à travers une politique de recrutement « localisée ». Le savoir-faire des fromagers nourri par des investissements importants en formation au sein de cette entreprise familiale augmentent la fidélisation des salariés et rendent ces ressources stratégiques, au sens de Koenig (1999). Pour ce qui est de la COP, le directeur a bien souligné l'importance de l'investissement en formation nécessaire au développement et au maintien du savoir-faire des fromagers. Dans les deux cas le peu de turnover laisse penser que les deux équipes dirigeantes ont réussi à créer des conditions de travail propices à une fidélisation des collaborateurs. Le tableau 2 propose une synthèse du rôle majeur du capital humain dans le processus de création de valeur.

3.2. Capital organisationnel et capital relationnel adossés à l'ancrage territorial

Le fort ancrage territorial des deux PME est représenté entre autres par des labels des produits, lesquels constituent des droits (i.e. capital immatériel). Ces labels permettent à ces PME de se distinguer de l'ensemble du groupe stratégique de terroir (cf. tableau 3).

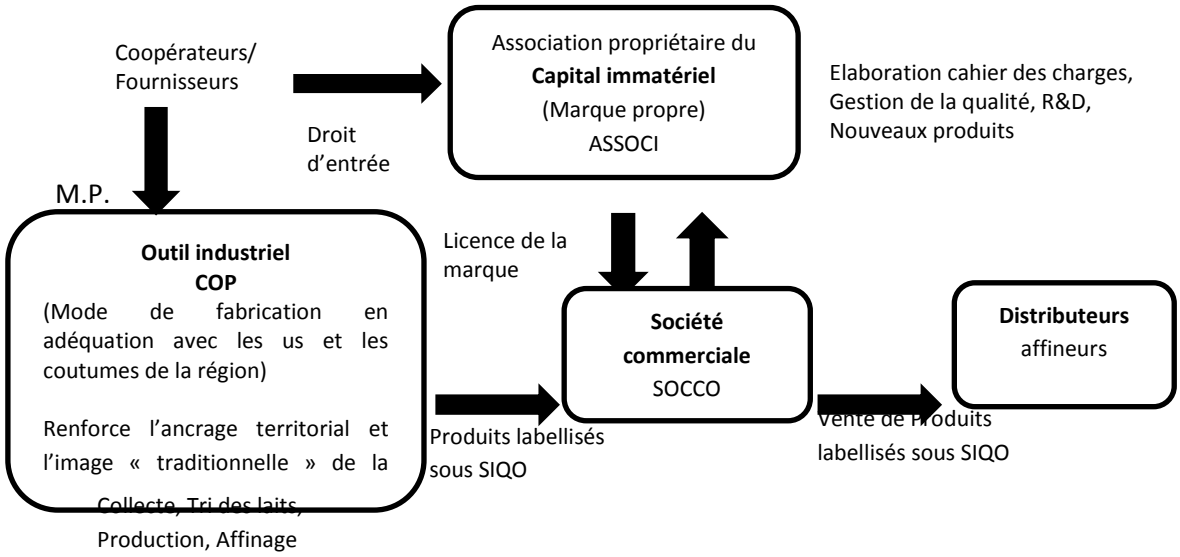
Tableau 3 : Le capital organisationnel et les capitales relationnelles sources de distinction des deux PME

Capital immatériel	Efforts (actions) de l'entreprise FAM	Valeurs (ou potentiel de valeurs économiques) créées	Efforts (actions) de l'entreprise COP	Valeurs (ou potentiel de valeurs économiques) créées
Capital organisationnel				
Processus de fabrication, d'innovation, de décision	Entretien de la gamme de fabrication à l'ancienne	Image de la production à l'ancienne (ou traditionnelle). Potentiel de distinction du groupe stratégique de terroir. Qualité organoleptique irréprochable des produits	Développement d'une gamme de fabrication qui colle aux us et coutume de la région (Maturation longue des fromages)	Image de la production à l'ancienne (ou traditionnelle). Image de « Terroir » consolidée Potentiel de distinction du groupe stratégique de terroir. Qualité organoleptique irréprochable des produits
Processus combinatoire des ressources (connaissance du métier du dirigeant et le savoir-faire des collaborateurs)	Processus complexe qui contient l'agencement évolutif du système de ressources matérielles et immatérielles	Rentes quasi-ricardiennes Image de « Terroir » consolidé Compétences spécifiques (rares et difficile à imiter)	Création d'une entité pour gérer le capital immatériel	Multiplication des sources de revenus. Rentes quasi-ricardiennes Compétences spécifiques en raison de la systémisation de la gestion du capital immatériel
Capital relationnel				
Capital relationnel (fournisseurs).	Collecte de lait dans l'ensemble de la zone (plutôt un atout).	Image d'une entreprise responsable et solidaire. Fidélité des fournisseurs Image de terroir. Produits « typés » et de qualité. Rentes ricardiennes (à l'ensemble de la zone)	Collecte de lait dans l'ensemble de la zone (obligation statutaire).	Image d'une entreprise responsable et solidaire (obligation statutaire). Fidélité des fournisseurs/propriétaires. Image de « Terroir » Produits « typés » et de qualité. Rentes ricardiennes (à l'ensemble de la zone) Quasi-rentes ricardiennes
Capital relationnel (clients)	IFS exigé par les clients, notamment GMS Prime pour les produits « Bio ». Pas de possibilité de créer une marque propre.	Capital relationnel consolidé (en répondant aux exigences des clients), permet d'écouler un volume important Distinction par rapport au groupe stratégique de terroir	Réactivité vis-à-vis des souhaits de la GMS (pas d'IFS). Prime pour les produits marketés et « Bio ». Création de la marque propre	Routines organisationnelles efficientes pour répondre aux clients exigeants. Tire la qualité vers le haut Fidélité des clients Distinction par rapport au groupe stratégique de terroir

Les sources de revenus de la COP diffèrent par le niveau d'exigence en matière de la qualité de la matière première et du temps d'affinage qui dépasse largement les exigences de l'appellation.

Aussi la création de l'association ASSOCI permet de rendre visible le capital immatériel (i.e. la marque propre) issu de l'investissement des adhérents, de rémunérer de manière équitable l'ensemble des adhérents (en fonction de leur implication) et d'instaurer une gestion systématique du capital immatériel. Cet investissement prend la forme de cotisation, de droit d'entrée et des efforts en matière de la qualité de lait collecté (cf. schéma 3). De plus, de par ses statuts, la COP a un capital relationnel fort avec ses adhérents.

Schéma 3 : Organisation de l'architecture de la valeur chez COP



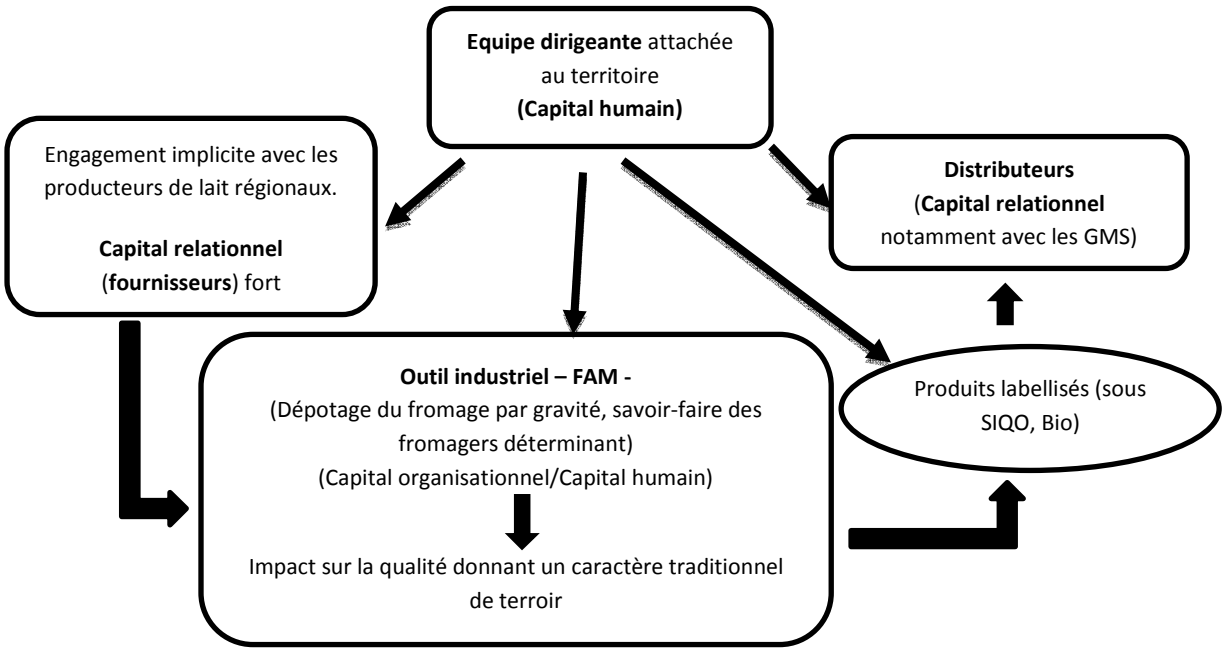
Pour ce qui est des clients, le directeur considère que la fidélité de la grande enseigne nationale s'explique par sa disponibilité et la réactivité de la COP, sans oublier la qualité des produits.

Quant au mode de fabrication, M. Clément le considère en adéquation avec les us et coutumes de la région. Cette façon de produire renforce le capital organisationnel et a impact positif sur l'image que dégage l'entreprise consolidant ainsi son capital relationnel. Une société commerciale (SOCCO) fût créée pour développer un savoir-faire en matière commerciale. Ces trois entités organisent la création et la répartition de la valeur entre les parties prenantes (cf. schéma 3).

La FAM, quant à elle, met en avant son capital organisationnel ; i.e. un agencement particulier des équipements matériels, de façon à dépoter le lait à l'ancienne (cf. schéma 4). Ce processus de fabrication a un impact positif sur la qualité des produits et sur son image.

Ces ressources spécifiques, i.e. difficilement redéployables dans d'autres contextes, engagées et combinées dans le processus de création de valeur permettent de dégager des rentes de type ricardien (Koenig, 1999). La valeur créée trouve de ce fait son origine dans l'agencement du savoir-faire des fromagers, de la connaissance du métier des cadres dirigeants et leur enracinement territorial, du processus de fabrication à l'ancienne, de la relation de confiance avec les fournisseurs. Pour ce qui est des clients, un pragmatisme réciproque entre les GMS et la FAM justifie le renforcement de son capital relationnel. Pour les premiers il s'agit de bénéficier d'une image d'un acteur responsable et local bénéficiant ainsi d'un transfert de légitimité territoriale (Beylier, Messeghem et Fort, 2011), alors que pour la PME FAM cette collaboration permet d'écouler un volume de produits important et de tirer la qualité des produits vers le haut.

Schéma 4 : Organisation de l'architecture de la valeur chez FAM



Ce système de ressources – au sens de Koenig (2001) - est évolutif et confère à cette entreprise son caractère distinctif avec des compétences difficilement imitables.

Conclusion

Le cas de deux PME agroalimentaires de terroir constitue le support central de cette recherche. Nous avons montré que le capital immatériel représente une force considérable de singularité sur le marché pour les deux PME à fort ancrage territorial. La coopérative a séparé, par une démarche entrepreneuriale, une bonne partie du capital immatériel, alors que l'entreprise familiale tente de développer son image à travers un système de ressources qui rappelle son enracinement territorial.
Soulignons ici que notre réflexion comporte des limites que l'on peut résumer :

- elle n'a pas vocation à être généralisée (sans être nuancée) à l'ensemble des PME de terroir et encore moins à des PME ;

- elle se contente des déclarations des dirigeants d'entreprise.

Malgré ces limites, retenons un enseignement managérial majeur, les actions stratégiques des deux PME sont pensées autour de cet ancrage territorial et du capital immatériel. Il parait donc primordial d'identifier le capital immatériel dans ce type d'entreprise pour pouvoir le gérer de manière systématique.

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The Perception of the Roles of the Main Stakeholders in Protection and Recovery Following Natural Catastrophes in Romania

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Abstract

This paper presents the main natural disasters risks in Romania, the financial solutions to fight against natural disasters and analyses using a direct research method the way in which the role played by different entities in the protection and recovery following natural catastrophes is perceived in Romania. The main objectives of the direct research were studying the perception of natural risks and of protection instruments, as well as the perception regarding the quality of the relationship between the main stakeholders: public authority, population, and insurance companies. The survey results indicate that in Romania the risks perceived as the most dangerous are earthquake and floods. The main role in fighting natural catastrophes is played by local authorities, but the perception is that the central authority as well, the insurance companies, the population and the EU institutions are important in the prevention and recovery following natural catastrophes.

Keywords: natural risks management, perception of natural risks, insurance, survey, Romania.

Introduction

In this paper we aim at studying using a direct research the way in which the role played by different entities in the protection and recovery following natural catastrophes is perceived in Romania. The public authorities play an important role in the prevention of risks, and also in case of the occurrence of the natural risk (evacuation, shelter etc.).

Romania has a National Strategy for Flood Risk Management for medium and long term, for 2010-2035, elaborated in concordance with the Directive 2007/60/CE of the European Parliament and of the Council on the assessment and management of flood risks. The strategy sets out clearly for the next years the legal, institutional and technical framework to mitigate the adverse consequences of floods on: socio-economic activities, assets (land and dwellings), human health and environment (Negru and Neamtu, 2014). The strategy aims to prevent and reduce the consequences of floods on socio-economic activities, life and human health and environment through coordinated, inter sectorial actions. The strategy is part of an integrated water and resources management and contains a set of principles, but also specific economic, social and environmental objectives, concrete actions and the plan to implement the strategy. This strategy defines also the specific responsibilities of central and local authorities and of the population.

Moreover, the climate change considerations are presented in the National Strategy on Climate Change, which explains two key elements: the prevention and combating of climate change (through actions aimed at reducing the emissions of greenhouse gases) and the adequate adaptation with minimal damage to the existing climate changes. The strategy includes a chapter dedicated to water resources and also one for insurance, highlighting the importance of mandatory home insurance.

The financial solutions in Romania to fight against natural disasters can be structured in ex-post financing instruments, such as the Intervention Fund, budget reallocation, international funds, European Union Solidarity Fund, domestic and/or external credit, donor assistance, and ex-ante financing instruments, among which home insurance, mandatory and/ or optional insurance.

In Romania, the financial protection against natural catastrophes is realised by a mix of compulsory insurance and of State intervention in case of damage. The most widespread solution in Europe is the case in which the State's intervention is totally absent and most of the covers relating to natural hazard are optional (CEA, 2007). The rate of penetration of these covers varies according to the risk perception and to the effective risk exposure.

Among the ex-post sources of financing natural disaster there is the Intervention Fund, which is allocated for the financing of urgent action, for counteracting the effects of natural calamities and for the support of affected persons. The Intervention Fund can be increased by the government over the years with amounts from the Reserve budgetary fund for assuring the amounts for the counteracting of the effects of natural catastrophe.

Other ex-post sources of financing are the loans from international financial institutions, for rebuilding the damaged infrastructure.

As a member of EU, for Romania a very important fund in the recovery after large scale natural disasters is the European Union Solidarity Fund (EUSF). The European Union Solidarity Fund (EUSF) was set up to express European Union solidarity to disaster-stricken regions within Europe in an efficient and flexible manner. The EUSF was created in 2002, after the massive floods from the Central Europe and since then 24 different European countries have received aid for an amount of over 3.784 billion € (European Commission, 2015).

The main ex ante financing instrument is the mandatory home insurance. In Romania, according to the Law 2602008 homeowners must insure their buildings against three natural risks: flood, earthquake and landslide risk. There are fines for the homeowners for not having mandatory home insurance and the fines are the responsibility of local public authorities. The law supposed to motivate homeowners to reduce the risk, because the government does not provide financial compensation to homeowners to rebuild their properties after disasters related to floods, earthquake and landslide. In Romania, the insurance industry has developed after the fall of the communism in 1989 and even if the starting point of the Romanian insurance market was very low (Petrescu, 2005), today the supply on the Romanian insurance market is diversified and the potential of the Romanian insurance market is high.

Natural disasters risks in Romania

There are many natural hazards: earthquakes, floods, storms, landslides, drought and extreme temperature, which are causing important losses in Romania. The seismic risk is a significant natural risk in Romania in terms of economic damages and population affected.

The seismicity of Romania is clustered in several epicentral zones: Vrancea, Făgăraş-Câmpulung, Banat, Crişana, Maramureş and South Dobrogea. There are also epicentral zones of local importance in Transylvania, in the area of Jibou and Târnava River, in Northern and Western part of Oltenia, in Northern Moldavia and in the Romanian Plain (National Institute for Earth Physics, 2016).

In the case of earthquakes the economic losses can be especially high because densely populated areas are affected and the infrastructure and the residential buildings present a high vulnerability to seismic risk. The capital of Romania, Bucharest is considered as one of the capitals with the highest seismic risk.

The event with the most severe consequences was the 1977 earthquake, which killed 1641 persons and the statistics indicate that the amount of total damage was of more of 2 billion $ (Guha-Sapir, D.

Below, R. and Hoyois Ph., 2015). The World Bank loss estimation after the 1977 earthquake indicates that from the total loss of 2.05 Billion US $ more than 2/3 was in Bucharest and the magnitude of direct loss and indirect consequences of loss explain the concern of civil engineers and government for assessment and reduction of seismic risk in Romania (Lungu D. et al. 2004).

However, the most frequent disasters with important economic losses were related to floods. As far as flood risk is concerned, 1028000 ha of land are exposed to flooding, 928935 citizens live in high flood risk areas and 903 localities are situated in high flood risk areas (Romanian Waters National Administration, 2013). Floods are a devastating phenomenon and in this century there were major floods and in 2005, 2008, 2010 and 2014 floods have affected large areas and the country received aid from the European Union Solidarity Fund.

Estimating the future impacts of flooding in view of socio-economic and climate changes Rojas et al. (2013) indicates that Czech Republic, Romania and especially Hungary will likely experience large flood damages by the end of this century and the United Kingdom, France and Italy in Western Europe as well as Romania, Hungary, and Czech Republic in Eastern Europe show the highest absolute damage estimates and are likely to bear the highest costs of adaptation.

Objectives and methodological framework of the research

In the context of a larger research, we analysed the way in which the role played by different entities in the protection and recovery following natural catastrophes is perceived in Romania using a quantitative method of research. The market survey is the method of research used the most often and the most common instrument used to collect primary data is the questionnaire. Through the market survey, we aim at quantifying the information obtained.

The main objectives were studying the perception of natural risks and of protection instruments, as well as the factors influencing it, the perception regarding the quality of the relationship between the main stakeholders: public authority, population, and insurance companies.

The perception of roles of actors in protection and recovery following natural disasters in Romania was studied in May 2015 using a quantitative method of research. The population studied was formed by homeowners from Romania. According to the "Population and Households Census" (published by National Institute of Statistic) the records of the census data for the years 1992, 2002 and 2011 indicate a number of households of:7.666.181, 8.111.391 respectively 8.723.699.

The sample was calculated function of the formula (Cătoiu et al., 2009, p. 494):

$$n = \frac{t^2 * p * q}{e^2} \qquad [1]$$

where:
n = sample size,
t = t value of Student coefficient for the confidence level (in this case 1.96 for 95% confidence level),
p = the proportion of sample components that are characterized by a particular attribute (if we do not know the value of we consider p = 0.5, for which p*q is max),
q = 1-p
e = margin of error.

The sample size is of 461 people (homeowners), for a confidence level of 95% (t=1.96) and a margin of error of +/-4.56%.

The main rules applied when the research was conducted were: the participation was voluntary in all phases and the respondents were not mislead when required to cooperate. Another important principle is that the respondents are strictly anonymous and the confidentiality of data obtained

through direct marketing research is maintained. In the research there is a clear distinction between the results of the marketing research, and their interpretation by the researchers and the recommendations made on those grounds.

Analysis and interpretation of the information resulted from the research

In order to study the perception of risks among the population we asked the interviewed subjects to estimate the potential of disaster in Romania in terms of human and economic damages for earthquake, floods, landslide, drought and heavy snow. We have used the semantic differential scale: very high risk=5, very low risk=1. In the opinion of homeowners the risks perceived as the most dangerous are earthquake (3.69) and floods (3.51) – see Table 1.

Table 1: Opinions of respondents regarding the potential of disaster of natural risks

	earthquake	floods	landslide	drought	heavy snow
VERY HIGH RISK	36.44%	24.95%	8.68%	9.76%	14.75%
HIGH RISK	21.69%	32.54%	24.95%	19.09%	19.09%
MEDIUM RISK	23.21%	21.26%	31.45%	31.89%	24.95%
LOW RISK	11.71%	11.50%	25.81%	25.16%	25.81%
VERY LOW RISK	6.94%	9.76%	9.11%	14.10%	15.40%
Score	3.69	3.51	2.98	2.85	2.92

In the opinion of the subjects interviewed the main role in fighting natural catastrophes is played by: local authorities (3.46), but the perception is that the central authority as well (3.34), the insurance companies (3.27), the population (3.24) and the EU institutions (3.05) are important in the prevention and recovery following natural catastrophes – see Fig. 1.

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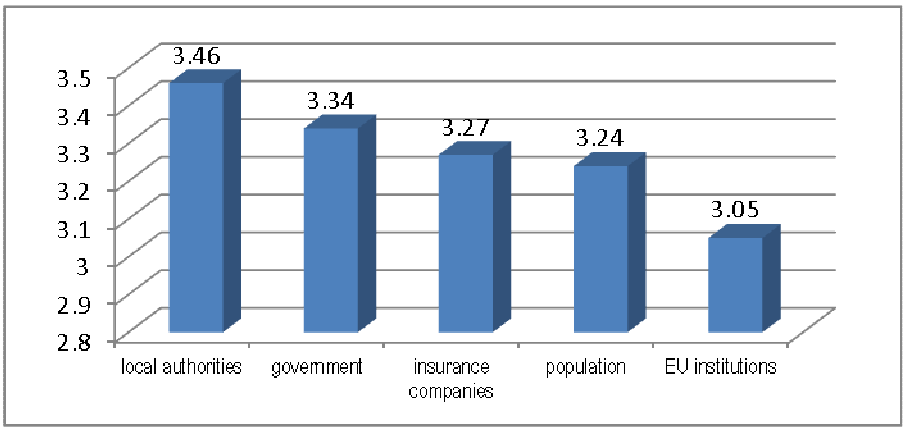

Fig. 1: Perception of the role in preventing and reconstruction after natural catastrophes

As far it concerns the importance of different measures in the prevention of natural catastrophes the answers indicate that the measures considered with high importance in the prevention of the natural catastrophes are: building new constructions respecting security norms (4.48), consolidating existing buildings (4.34), legislative restrictions regarding deforestation (4.24), reforestation measures (4.20), damming (4.12) and insurance of properties (3.81) – see Fig. 2.

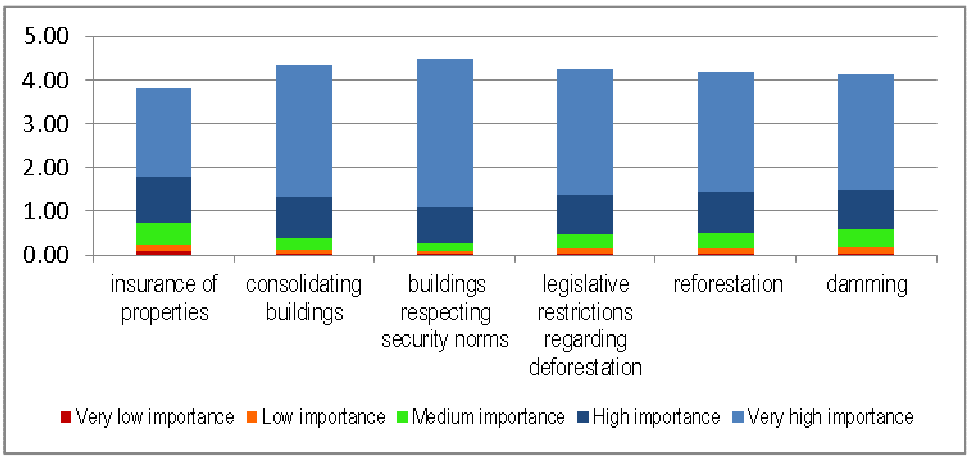

Fig. 2: Importance of different measures in the prevention of the natural catastrophes

67.90% of the subjects consider that the construction of new buildings respecting security standards is very important in the prevention of natural catastrophes, 20.61% consider it important and only 5.42% appreciate that the measure is of low or very low importance. In the case of the insurance of properties, 40.56% consider it very important, 26.25% consider it important and only 16.70% consider that the insurance of buildings is with low or very low importance in the prevention of natural catastrophes.

The opinions regarding the measure in which the local authorities, government, insurance companies, homeowners and EU institutions are prepared to fight natural catastrophes was studied using the semantic differential scale (very well prepared = 5, not well prepared = 1). As far as the measure in which they are prepared to fight natural disasters is concerned, the answers indicate that EU institutions are considered to be well prepared to face the natural catastrophes (3.33), insurance companies are perceived as being prepared to fight natural catastrophes (3.05) while the government, population and local authorities are not considered well prepared to fight natural catastrophes.

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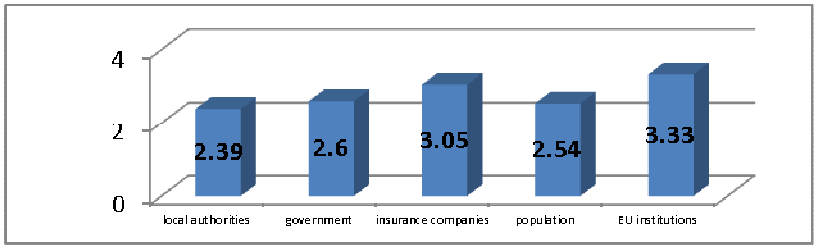
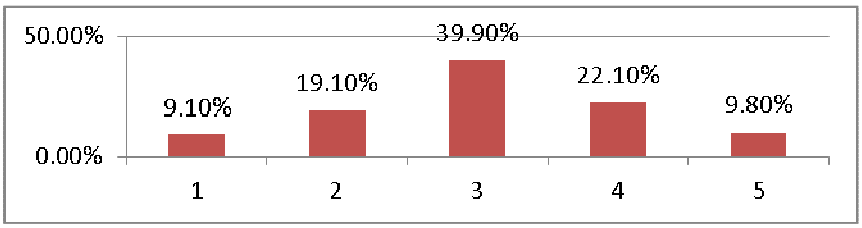


Fig. 3: Measure in which the local authorities, government, insurance companies, homeowners and EU institutions are prepared to fight natural catastrophes

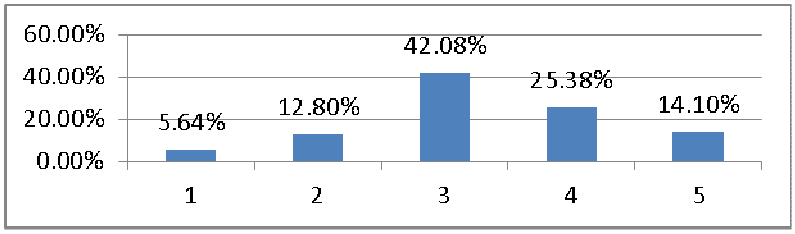
Regarding the general perception on the activity of insurance companies in Romania related to natural disasters, 31.90% of respondents have a favourable opinion. The score of 3.044 on the scale 1 (Not at all favorable) to 5 (Very favorable) indicate a slightly favorable opinion.



Not at all favorable=1, Very favorable=5

Fig. 4: Perception of the activity of insurance companies related to natural disasters in Romania

The general opinion regarding the collaboration between homeowners, public authority and insurance companies in the case of the mandatory home insurance is favorable (3.3).



1=Not at all favorable, 5= Very favorable

Fig. 5: Perception of the collaboration between the homeowners, public authority and insurance companies

Then, we asked the homeowners to evaluate in the case of mandatory home insurance the bilateral relationships between the public authority, insurance companies and population (very poor = 1, very good = 5). Even if the general opinion regarding the collaboration between homeowners, public authority and insurance companies is favorable, the relationships among the population and insurance companies, the relationships among public authority and insurance companies and the relationships between population and public authority are not perceived as good.

The results of the surveys indicate that in the opinion of homeowners the risks perceived as the most dangerous are earthquake and floods.

The main role in fighting natural catastrophes is played by: local authorities, but the perception is that the central authority as well, the insurance companies, the population and the EU institutions are important in the prevention and recovery following natural catastrophes. Regarding the measure in which they are prepared to fight natural disasters, the respondents consider that EU institutions are well prepared, and the population, the local and central authorities are less prepared to fight natural disasters.

The premises for improving the activity of prevention related to natural risk are better cooperation and better communication among the public authorities, insurance companies and the population.

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Natural Catastrophes and Home Insurance

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Abstract

This paper presents the main particularities of the home insurance market in Romania related to the protection against natural risks. Using direct research the situation of the mandatory home insurance as a tool in the protection against natural catastrophes is analyzed. The opinions of respondents from insurance companies and brokers regarding the mandatory home insurance are studied. The research showed that mandatory home insurance is perceived as being opportune by insurers. The survey results indicate that there is a need for facultative home insurance as well.

Keywords: natural catastrophes, mandatory home insurance, survey, Romania.

Introduction

In this paper we aim at outlining the situation of home insurance in Romania, and presenting the perception relative to the mandatory home insurance in Romania using the point of view of insurance specialists, from insurance companies and brokers.

The protection against natural catastrophes can be obtained using home insurance. In Romania, there is mandatory home insurance for protection against three natural risks: earthquake, floods and landslide (Law 260/2008) and there is, as well, optional home insurance, supplying protection for more risks.

The mandatory insurance of homes has been introduced in Romania in the context in which natural phenomena to be feared, such as floods, landslides, earthquakes can affect the population. There are three parties involved: the population (the potential insured), insurance companies and the authorities. According to Law 260/2008, homeowners in Romania have to purchase home insurance, and if they do not, they can be fined by local authorities. The mandatory home insurance provides cover in case of three natural phenomena: floods, landslides and earthquakes and according to the law, all natural persons and legal entities are required to insure against natural disasters all the homes in the rural or urban environment.

The premium and insured amount depends on the type of the constructions. There are two categories: the construction type A, with reinforced concrete resistance structure, metal or wood or with exterior walls made of stone, brick or any other material resulted from heating or chemical treatment and the construction type B with exterior walls made of other materials which have not undergone a chemical or heating treatment. For the constructions type A the insurance premium is 20 Euro and the insured amount 20000 Euro, and for type B the insurance premium is of 10 euro and the insured amount 10000 euro.

The first mandatory home insurance policy was issued in July 2010 and at the end of 2010, there were 2132778 optional home insurance contracts and 367287 mandatory (ASF, 2015). In 2011, there was the highest number of optional home insurance contracts: 4747280 and 574229 mandatory, which translates to a degree of insurance coverage of houses in Romania of about 63%. In 2014 the number of optional home insurance contracts has decreased to 2057208 and the number of mandatory home insurance has increased to 1491329 (ASF, 2015).

The potential of the Romanian insurance market is high due to a series of factors. The main factors are: the large number of people; Romania is on 7th place in EU function of the population, the geographical area, the size of the country places Romania in EU on the 9th position and due to the large number of properties. The real demand is quite low and since 2009 the economic crises have affected the insurance demand. The main factor affecting the demand is the low purchasing power of potential insured.

The insurance demand on the Romanian market is focused on geographical areas with a high economic potential and on the above-average income population. In 2014, 49.88% of gross insurance premiums were underwritten in the Bucharest well-developed from an economic point of view area (ASF, 2015).

The supply on the Romanian insurance market is diversified (Petrescu, 2009) and the insurance sector in Romania is integrated in the global economy. In Romania in 2010, at the beginning of the year (1st January) there were 45 insurance companies authorized to function and at the end there were 43 insurance companies (one company has entered in 2010 on the Romanian market and three companies left the market). In 2015, the number has decreased and there were 37 insurance companies authorized to function by the ASF, from which 27 companies with non-life insurance activity and 447 brokers. The mandatory home insurance can be closed by the 12 insurance companies authorized to close mandatory home insurance contracts from the Insurance Pool against Natural Disasters (PAID) and by other 11 authorized insurance companies, which have concluded agreements with PAID in order to supply the mandatory home insurance and handle the process of paying out claims.

Good regulation has the role to ensure competitive, solvent and fair markets in which all key stakeholders are adequately protected and to ensure that quality, reasonably priced products and services are available from reliable sources when needed (Liedtke, 2011). The research investigates if the regulation related to mandatory home insurance is, in the perception of specialists in insurance, a good one, adapted to the specific needs.

Objectives and methodological framework of the research

In order to study the perception in Romania of the home insurance as a tool of protection against natural catastrophes a survey was conducted on a sample of 117 companies specialized in insurance: insurance companies and brokers. The research was conducted based on a face-to-face interview with the help of a written questionnaire completed by the interview operator. Among the main objectives of the research were: the perception of main instruments in recovery and in protection against the risks, the perception of mandatory home insurance, the perception regarding the insurance premium and the sum insured for this type of insurance.

The hypotheses of the survey were established by starting from the results of a previous qualitative research which aimed at understanding and explaining various phenomena of insurance perceptions better. A qualitative research allows for a better understanding of the phenomenon investigated without appealing to quantifying (Cătoiu et al. 2009) and was realized in March-April 2014 using semi-directed interviews among insurance companies and authorities. From the interviews resulted that the main instruments used by the authorities in the prevention of natural catastrophes were: allocation of funds for the consolidation of existent buildings/infrastructure, building dams, consolidating riverbeds, reforestation and in recovery following natural disasters the main instruments used by the authorities were: allocation of funds for the reconstruction of damaged goods, giving help to the persons affected, taking the measures to obtain external funds. The answers from the qualitative research helped to design the questionnaire from the survey conducted in May 2015.

The direct research was conducted respecting the rules from the code elaborated by The International Chamber of Commerce (ICC) and by ESOMAR. The main rules applied were that the participation in the research was voluntary in all phases, the respondents were anonymous, the confidentiality was

maintained and there is a clear distinction between the results of the interviews and their interpretation by the researchers.

Analyze and interpretation of the information

In the opinion of the respondents the measures considered very important in the prevention of natural catastrophes are: new constructions respecting security norms (4.57), consolidating existing buildings (4.38), legislation regarding deforestation (4.36), allocation of funds for reforestation (4.22), allocation of funds for buildings dams, consolidating riverbeds damming (4.15) and insurance of existent buildings (4.10).

71.79% of the respondents consider that the construction of new buildings respecting security standards is very important in the prevention of natural catastrophes and 52.99% consider the insurance of buildings in the prevention of natural catastrophes very important (see Table 1).

Table 1: Importance of different measures in the prevention of the natural catastrophes

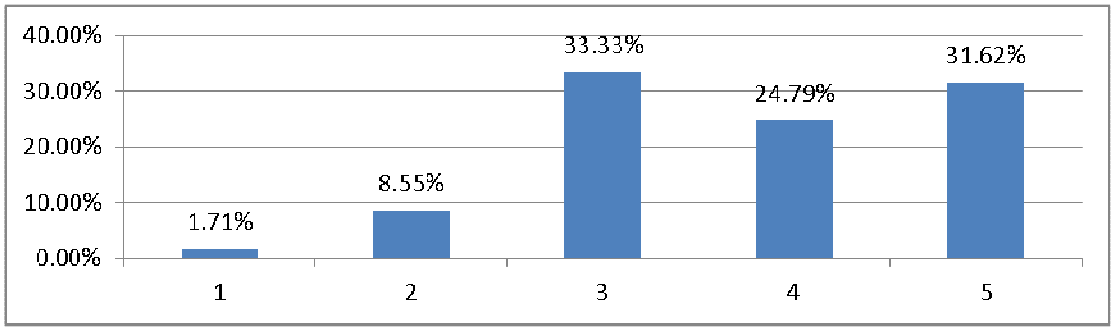
	insurance of properties	**consolidating buildings**	**buildings respecting security norms**	**legislative restrictions regarding deforestation**	**reforestation**	**damming**
Very low importance	5.13%	3.42%	1.71%	5.13%	4.27%	4.27%
Low importance	6.84%	2.56%	1.71%	2.56%	5.13%	7.69%
Medium importance	13.68%	7.69%	5.98%	11.11%	13.68%	14.53%
High importance	21.37%	25.64%	18.80%	17.95%	17.95%	16.24%
Very high importance	52.99%	60.68%	71.79%	64.10%	58.97%	57.26%
Score	4.10	4.38	4.57	4.36	4.22	4.15

The measures considered very important in the reconstruction after natural catastrophes are: compensation for the incurring loss from insurance companies (4.53), giving help to the persons affected (4.26) external funds (4.14) and allocation of funds from the State for the reconstruction of damaged goods (4.11) (see Table 2).

Table 2: Importance of different measures in the reconstruction after natural catastrophes

	Allocation of funds from the State for reconstruction	**payment of damages from insurance companies**	**giving help**	**external funds**
Very low importance	2.56%	1.71%	2.56%	4.27%
Low importance	5.98%	1.71%	3.42%	5.13%
Medium importance	11.97%	6.84%	10.26%	10.26%
High importance	36.75%	21.37%	32.48%	33.33%
Very high importance	42.74%	68.38%	51.28%	47.01%
Score	4.11	4.53	4.26	4.14

The respondents from insurance companies and brokers consider that in Romania the opinion regarding the activity of insurance companies in Romania related to natural disasters is favorable (3.76) – see
Fig. 1.



1=Not at all favorable, 5= Very favorable

Fig. 1: Perception of the activity of insurance companies in Romania related to natural disasters

The opinions regarding the mandatory home insurance were studied using the Likert scale. The respondents agree that mandatory home insurance is necessary (1.37), they consider that facultative insurance is more useful than mandatory home insurance (0.65) and they consider that the mandatory home insurance is very well adapted to the needs (0.13).

The respondents disagree that mandatory home insurance is sufficient for protection against natural disasters (-0.38).

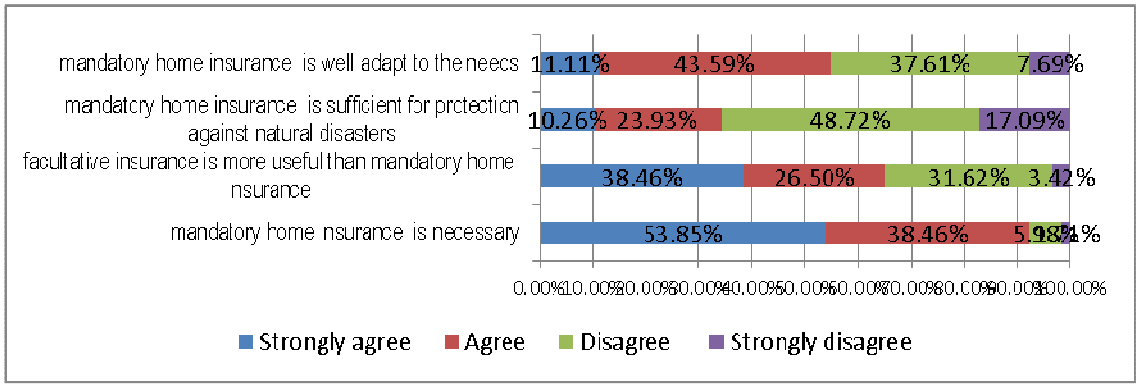


Fig. 2: Perception of the mandatory home insurance

The opinions regarding the way in which the specialists in insurance consider the insurance premium for mandatory home insurance indicate that it is perceived as being low (3.74). 41.03% of the subjects interviewed appreciate that the premium it is medium, 54.70% consider that the premium is cheap and 4.27% thinks that it is expensive.

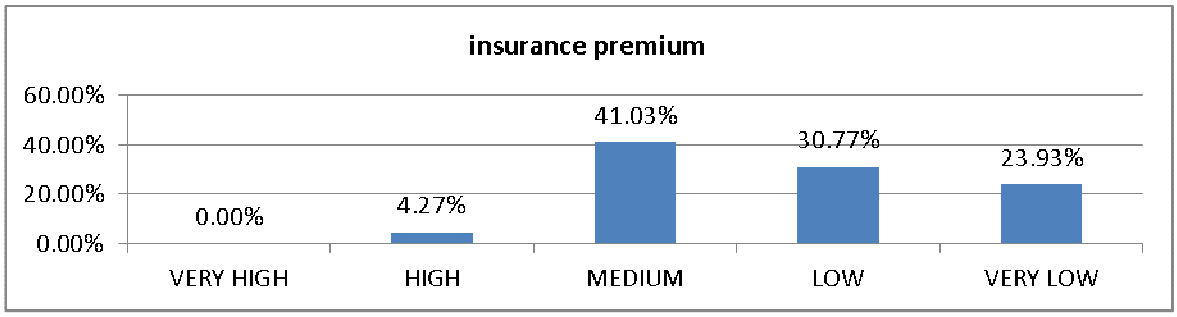


Fig. 3: Perception of the insurance premium for mandatory home insurance

The insured amount is considered medium (3.09). 61.54% of the respondents appreciate that the insured amount is covering the losses of natural catastrophes in a small measure, only 4.27% of respondents considering that the insured amount cover the losses in large measure. The answers indicate that the insured amount is not sufficient (2.22).

The general opinion regarding the collaboration between homeowners, public authority and insurance companies in the case of the mandatory home insurance is favorable (3.65).
In the opinion of insurance specialists, the reasons for which the homeowners close the mandatory home insurance (multiple choice question) are in the first place the need of protection against natural hazards (65.81%) and then the fear of penalties (55.56%).

In the opinion of insurance specialists, the reasons for which the homeowners do not close mandatory home insurance are: not understanding the necessity of the mandatory home insurance (67.52%), not having money (52.14%), not knowing the mandatory home insurance (45.30%) and the insurance premium is too high (11.97%).

Conclusions

The mandatory home insurance in Romania can be considered a measure taken to diminish the impact of the natural catastrophes on the budget of the Government. Mahul and Ghesquiere (2011) consider that governments in many parts of the world have been able to reduce the impact of disasters on their budget and to increase the resilience of their economy by promoting insurance penetration in the private sector.

There is a favourable perception of the mandatory home insurance among the insurers. The results of the survey indicate that in the opinion of insurers there is a need for mandatory home insurance, but there is a need as well for optional home insurance, which is considered more useful.

The direct research has revealed that the current risk solutions studied: the mandatory and optional home insurance are appropriate to the intensive risk, because there is a favorable perception regarding the financial instruments. Their scope and their mandate are appropriate to the risk reduction in the case of Romania, but there are several issues that can be improved and there is the necessity of a better long-term relation between the insurer and the insured because as Aerts and Botzen (2011) observed there are better incentives to reduce risk through undertaking damage mitigation measures by establishing a long-term relation between the policyholder and the insurer.

Acknowledgment

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Introduction to Competitive Intelligence: Process, Applications and Tools

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Abstract

In the world of excessive business competitiveness, almost every company tries to monitor its environment to exceed the competitors. Getting knowledge about competitors is the basic principal of what is called Competitive Intelligence (CI). Many applications of Competitive Intelligence can be used like Opinion Mining and Foresight studies and the process of obtaining such intelligence differs according to the company's needs. In this paper, we will present in more details the definitions of CI and a general process grouping the most used steps in conducting such study. In the end we will present some tools useful in CI.

Keywords: Competitive Intelligence, opinion mining, text mining, natural language processing.

Introduction

For a number of years, many firms have focused on the marketing principle of "knowing and satisfying customers at a profit". This focus has led these firms to consider new customer opportunities, modify channels of distribution, develop new products, and reorganize and restructure to achieve these objectives.

Most companies have informally monitored their competitors for some time. They know something about their competitors' management, markets and customers, products and services, facilities, technologies and finances.

As the business world gets more competitive, the informal information-gathering is no longer adequate for proactive companies. Because of the complexity of businesses and the uncertainty of the economic climate, these corporations are becoming far more sophisticated at inspecting the competition. They seek out more information, and spend more time and effort analyzing it. As these companies have discovered, an effective competitive intelligence program is absolutely necessary for success in today's—and tomorrow's—competitive environment.

In this paper, we will first start with an overview of Competitive Intelligence definitions. We will then focus in the second part on the steps of CI process. In the third part, we will see some applications of CI in the business world and the final part will present some CI tools.

1 Competitive Intelligence Definitions

We now live in a world driven by hyper-competition. Hyper-competition is where too many businesses are pursuing too little business; i.e. there is not enough demand to go around for all providers of goods and services. The knowledge base for managing in this hyper-competitive environment is called Competitive Intelligence. Competitive Intelligence is a process of giving you insights into what might happen in the near future. This process requires that we go from data to information to intelligence. The differences between data, information, and intelligence can be subtle, but very real (Evans, 2011):

- Data => Unconnected pieces of information: Nice to know, but so what!
- Information => Increased knowledge derived by understanding the relationships of data: Interesting, but how does it relate to what I do!
- Intelligence => Organizing the information to fully appreciate the implications and impact on the organization: Oh really, then we better do something!

Competitive Intelligence is one of the key factors for enterprise risk management and decision support. With the coming of the 21st century and the advent of Knowledge Economy, knowledge management and enterprise competitive intelligence have become two "Weapon" to respond to environmental changes, realize the organization innovation, and enhance the competitiveness. "Knowledge management" can condense enterprise's mutual recognition, and accomplish knowledge transformation, knowledge sharing and knowledge innovation within business to promoting enterprise power; "Competitive intelligence" can analyze and assess external environmental changes and keep a close watch on competitors' movements to make right competitive strategy, ultimately to maintain and develop competitiveness of enterprises. Knowledge management systems and competitive intelligence systems are two different levels of the concept, with different construction methods and steps, but their fusion is an inevitable trend (Tang & Li, 2010).

Competitive intelligence is frequently misunderstood as it's a sort of business espionage. The reason of this confusion is they both have common activities. Competitive intelligence means a "systematic process initiated by organizations in order to gather and analyze information about competitors and the general socio-political and economic environment of the firm". Espionage is unlawful and unethical while competitive intelligence is legal and associated with a detailed code of ethics (Colakoglu, 2011).

Fuld & Co. a high-profile CI consulting firm, takes an inclusive approach in defining the function of CI: "Competitive intelligence can mean many things to many people. A research scientist sees it as a heads-up on a competitor's new R&D initiatives. A salesperson considers it insight on how his or her company should bid against another firm in order to win a contract. A senior manager believes intelligence to be a long-term view on a marketplace and its rivals" (Fuld, 2014).

Competitive intelligence means a "systematic process initiated by organizations in order to gather and analyze information about competitors and the general socio-political and economic environment of the firm" (Colakoglu, 2011). According to Amarouche (2015) the CI is research and information processing in relation to the enterprise market in order that a company prepares its future actions based on these analyses.

The Strategic and Competitive Intelligence Professionals (SCIP), formerly the Society of Competitive Intelligence Professionals, is a global nonprofit membership organization for everyone involved in creating and managing business knowledge. According to SCIP definition, "Competitive intelligence is the process of monitoring the competitive environment and analyzing the findings in the context of internal issues, for the purpose of decision support".

Roberta Brody is an Associate Professor at Queens College, City University of New York and a member of Competitive Intelligence Foundation (CIF) wrote: "In answer to the frequently asked question (FAQ) "What is CI?", the Society of Competitive Intelligence Professionals (SCIP), gives the definition as "a necessary, ethical business discipline for decision making based on understanding the competitive environment" (SCIP, 2007a). The definition of competitive intelligence included as a parenthetical phrase in the summary section "About SCIP," currently posted on the SCIP website refers to competitive intelligence as "the legal and ethical collection and analysis of information regarding the capabilities, vulnerabilities, and intentions of business competitors" (SCIP, 2007b)" (Roberta Brody, 2008).

The main objectives of competitive intelligence in enterprises include the following (Bayandin & Kretov, 2012):

- Anticipation of changes in the market;
- Anticipation of the actions of competitors;
- Identification of new or potential competitors;
- The study of the successes and failures of competitors;
- The study of new technologies, products, and processes;
- The monitoring of changes in the political, legislative, and regulatory areas that affect a business;
- Start a new business;
- A clear view of an enterprise's own activities.

As a summary and based on these different definitions, we can state that competitive intelligence is a process makes to research, collect and analyze information in relation to the competitive market in order to know the strengths and weaknesses of competitors. So, the following part explains some processes of CI describing the most important steps of these processes.

2 Competitive Intelligence Process

Competitive intelligence is a process consisting of phases that are linked (Pellissier & Nenzhelele, 2013). The output of each phase is the input to the next phase. The overall output of the CI process is an input to the decision-making process. Among the competitive intelligence processes that exist in the literature, there is, first, the PCMAC (Plan and prioritize, Capture, Manage, Analyze and Communicate) model that consists of the following phases (Charlotte & Margareta, 2015):

- Plan and prioritize – The first step in this model where the work is planned, resources allocated and the key intelligence topics and questions are identified.
- Capture – where the information is collected.
- Manage – where the collected information is filtered, sorted and compiled.
- Analyze – where the analyses are done and the dots joined up.
- Communicate – where the result is disseminated to the target groups and archived for further use.

A Second process contains five steps (DAI, Y.,2013):

- Identification of CI needs – Identification of the key intelligence topics and the determination of the course the CI practitioner should take in completing the analysis.
- Acquisition of Competitive Information – Information collection of CI from different sources.
- Organization, Storage, and Retrieval –organize and store the information for CI.
- Analysis of Information – Brain of the CI system that transforms information into intelligence.
- Dissemination.

A third process (fig. 1) contains four steps (Amarouche et al., 2015) including time in order to make on-the-spot decision. The following part describes the most important steps of the CI process.

2.1 Identification of CI needs

This is the first stage of the intelligence cycle, which requires the identification of the key intelligence topics and the determination of the course the Competitive Intelligence practitioner should take in completing the analysis.

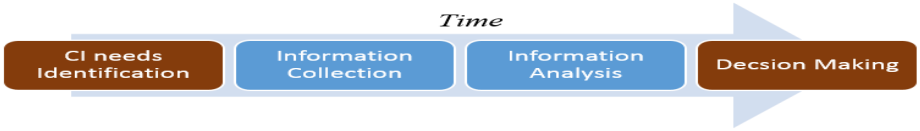

Fig. 1: Process of Competitive Intelligence (Amarouche et al., 2015)

Different names are given to this phase (Pellissier & Nenzhelele, 2013), such as 'obtaining CI request', 'intelligence needs and determine key intelligence topics', 'understanding the need', 'planning and direction', and 'defining CI demand'.

According to Botha and Boon (2008), this phase involves identification of intelligence needs of decision-makers and narrowing these intelligence needs down to key intelligence topics (KITs). The KITs are those topics identified as being of greatest significance to an organization's senior executives, providing purpose and direction for CI operations (Bose, 2008). In this phase, the CI director identifies and prioritizes both senior management and organizational key intelligence needs. Moreover, what the CI unit should research and to whom this intelligence should be delivered are determined in this phase.

According to Bouthillier And Shearer (Bouthillier & Shearer, Assessing Competitive Intelligence Software : A Guide to Evaluating CI Technology, 2003), the terminology "identification of CI needs" was chosen to represent the major information-related activity involved in this first step. This step is crucial for ensuring a relevant CI product.

2.2 Information Collection

The information research can start in the prioritized primary and secondary sources (Charlotte & Margareta, 2015). The primary information sources are the well-known phenomenon that much of the information needed in an organization is already there. It is, however, kept with different people and it is very difficult to get an overview of who knows what. One way to capture this tacit information is to participate in networks. Secondary information sources, covering explicit information, comprise not only various websites and databases, social media, newspapers, journals, reports and books but also the unstructured mass of e-mails, memos, forms, faxes... Previously, the problem that limits the functions of competitive intelligence is the lack of information sources, while nowadays with the emergence of web 2.0, the information about competitors can be accessed by the public on the web. E.g. the product opinions coming directly from customers are a source of information for CI. Also, discussions on different forums and blogs can provide crucial competitive intelligence when analyzed in proper perspective. Social media content can also contribute to competitive knowledge in a big way. Table 1 captures the different kinds of web resources along with the types of competitive intelligence they can provide (Dey et al., 2011).

Table 1 : Competitive Intelligence resources on the web

Type of competitive intelligence	Web resources
People events	News, company web-sites
Competitor strategies – Technology investment etc.	News, Discussion Forum, Blogs, patent search sites
Consumer sentiments	Review sites, social networking sites
Promotional events and pricing	Twitter, Facebook
Related real-world events	News, Twitter, Facebook

After the information has been collected from different sources, it must be organized and stored. This part of the CI process has typically been ignored in the CI literature, presumably because information is seen as having a very short life span (Bouthillier & Shearer, 2003). Now, the information is available to analyze. So, the next sub-section explains some techniques used in this part.

2.3 Information analysis

Called, by some, the brain of the CI system, analysis is the key process that transforms information into intelligence (Werther, 2001). Traditional data mining techniques are not aimed at dealing with unstructured and semi-structured materials written in natural languages. Thus, in the scope of CI, we need text mining (TM) and natural language processing (NLP) technologies to discover knowledge from textual information sources to gain competitive advantages. Technologies based on TM, NLP, web mining (WM) and visualization are presented in the analyses of several emergent CI software solutions (R. Bose, 2008). Many techniques can be used to conduct a good information analysis. Following are some of these techniques:

2.3.1 Natural Language Processing and Text Mining

Jurafsky and Martin (2000) state that the goal of NLP is to "get computers to perform useful tasks involving human language, tasks like enabling human-machine communication, improving human-human communication, or simply doing useful processing of text or speech". The ability to process natural language is the precondition for researching and developing the new generation of "intelligent computers." It is an essential technology to realize effective communication between a human and a computer that processes natural language at the semantic level. It is also a method for artificial intelligence (AI) to acquire general knowledge and logical ability.

The AI and NLP methods and technologies involved in the process of TM include: information retrieval (IR), information extraction (IE), WM, topic tracking, summarization, categorization, concept linkage, information visualization, and question answering (DAI, Y. ,2013).

2.3.2 Social Network Analysis

Social media have been adopted by many businesses. More and more companies are using social media tools such as Facebook and Twitter to provide various services and interact with customers. As a result, a large amount of user-generated content is freely available on social media sites. To increase competitive advantage and effectively assess the competitive environment of businesses, companies need to monitor and analyze not only the customer-generated content on their own social media sites, but also the textual information on their competitors' social media sites (He, Zha, Li, 2013).

Social network analysis is the study of social entities (actors) and their interactions and relationships. The interaction and relationships are represented as a graph, where each node represents an actor (user), and the edge between two nodes represents their relationship. Several link analysis algorithms have been proposed, that are applied on such graphs in order to identify and analyze the role, position, and influence of each user (Cagliero & Fiori, 2013).

2.3.3 Event Detection

Event detection (ED) is a subtask of information extraction (IE). ED focuses on identifying information about events, such as type, time, place, participants and date of the event. Examples of a business event appearing in a newspaper could be a company establishing a new factory or releasing a new product (DAI, Y., 2013). The advantage of ED is the ability to deal with unstructured data to capture the events

that have occurred in the environment, which can help in obtaining CI, to a certain extent, to monitor the business environment.

2.3.4 Opinion mining and sentiment analysis

Opinion mining (OM), also known as sentiment analysis (SA), refers to the process of identifying the opinions that a particular discourse expresses; it attempts to automatically measure human opinions from a text written in natural language. OM techniques have been recently used in applications such as extracting suggestions from consumers' product reviews, classifying consumers' positive and negative product reviews, tracking sentiment trends in online discussion boards, detecting Internet hot spots, tracking political opinions, determining consumers' dissatisfaction with online advertising campaigns, tracking emotions in emails, predicting stock market movements and differentiating between informative and emotional social media content (M. Mostafa, 2013). The application of opinion mining in many areas is also important for CI, e.g. companies to monitor the advertising or marketing activities of competitors or detect Competitors' products news.

In this part, we have discussed the main steps of the general process of CI. We also highlighted some techniques used in Information Analysis step. This will lead us to a very large number of applications of CI in different domains like Foresight that contains trends analysis and weak signals detection. In the next part, we will present some of these applications.

3 Competitive Intelligence Applications

There are many areas where competitive intelligence might be applied including Research& Development (R&D) management. Competitive technical intelligence (CTI) and strategic technological foresight (STF) are two good examples applied by a foresight program that recently studied Canada's foresight capacity (Colakoglu, 2011).

CTI is competitive intelligence within the R&D arena and is defined as "business sensitive information on external scientific or technological threats, opportunities, or developments that have the potential to affect a company's competitive situation" (Calof & Smith, 2010). It is also defined as Competitive Intelligence with a strong emphasis on science and technology and their impact on research and development activities. CTI is clearly focused mainly on supporting competitive advantages within business firms and industrial organizations such as industry associations. (Dou & Manullang, 2004).

On the other hand, STF has mainly evolved with the cooperative practices of the US military technology planning environment (e.g. Rand Corporation), global oil and resource processing business roots (Royal Dutch Shell Group Planning, and The Global Business Network) and the Japanese and German government's Delphi work of the last 30 years. STF is defined as "a set of strategic tools that support government and industry decisions with adequate lead time for societal preparation and" strategic response". STF can also be both a source of CTI and a means for its application. In business, new and emerging technologies pose constant risks of rapid eclipse – known as disruptive technologies (Calof & Smith, 2010).

Other applications of CI can be cited like product opinions (Amarouche & al., 2015). So, the company may be interested in gathering and analyzing the sentiments and opinions of costumers about a product or a service of its competitors in order to track the market environment. As it says, tracking the market can be very helpful to be ahead of the newest product lunched for example and this will help the company to improve its own products. The last example is the foresight, and this is an important need that many companies are focused on and also contains many sub areas like Trends analysis (Kevin et al., 2008) and Weak Signals detection (El Akrouchi & al., 2015).

Now that we have seen some applications in CI, we will present in the next part some tools used to conduct a full process of Competitive Intelligence.

4 Existing Competitive Intelligence Tools

As business decision makers are getting more interested in CI, many academic researchers have developed new text-capable solutions and algorithms, and in parallel, several software companies have developed products to help analyze textual data. For example, Cheng (2010) develop CTMiner using data mining to mine time interval-based patterns (Cheng et al., 2010). IR and IE are employed to detect topics and events based on a timeline (Y. Jiang, 2011).

In this part, we will talk about existing competitive intelligence tools that are available to companies to know more about their competitors. The following tools have different capabilities like semantic analysis, natural language processing, statistical analysis…There are various software tools in the market that claim to help the collection and analysis of CI. Table 2 summarizes the CI software that are the most relevant to the research reported in the thesis.

Table 2: Summary of CI software that utilize TM technologies (DAI, Y., 2013)

Tool name	Vendor	Type of tool	CI methods	Data sources
BusinessObjects	SAP	TM, OM, WM	Enterprise performance management, information management	UT
Enterprise Miner	SAS	DM, WM	Modeling and assessment, statistical analysis	SD
Coldfire Innovator	Coldfire	TM, WM	Product lifecycle management, enterprise resource planning	UT
LUXID®	TEMIS	TM, OM, WM	Competitor analysis, strategy management, weak signals	SD, UT
OneCalais	ClearForest	DM, TM, WM	Knowledge management	SD, UT
RapidMiner	Rapid-I	DM, TM, OM, WM	Enterprise performance management, customer monitoring	SD, UT
SPSS	IBM	DM, TM, OM, WM	Customer analysis, environment monitoring	SD, UT
STRATEGY!	Strategy Software, Inc.	TM, WM, data visualization	Benchmarking, SWOT analysis, competitor response profile	SD, UT
Text Analytics	SAS	TM, OM, WM	Customer monitoring	UT

Key: DM = data mining, TM = text mining, OM = opinion mining, WM = web mining, SD = structured data, UT = unstructured text

As illustrated in Table 2, all the evaluated text-capable CI software apply TM and NLP technologies. Only RapidMiner and SPSS use DM, TM, and NLP technologies, including OM and WM.

The benefits of BusinessObjects are the extraction and federated search, but it requires an input of specific categories for practical use in particular industries (Y. Dai, 2011 ,2013). Enterprise Miner can

mine document sets and cluster the documents into common themes based upon document content. Goldfire Innovator has a sophisticated semantic analysis module, but it requires in-house training and has a high cost (Y. Dai, 2011). LUXID® offers powerful TM solutions to help users drill down the full text to discover the most relevant answers, but it has limited visualization options and high costs (Y. Y. Yang, 2008; DAI, Y. ,2013). RapidMiner supplies powerful TM and NLP technology to analyze text by customizing the analyzing process, but training and background knowledge on TM technology is required to use the system efficiently (DAI, Y. ,2013). The strength of Text Analytics is the extraction module, but it needs a significant investment of money and training (Y. Y. Yang, 2008).

Other competitive intelligence tools are used. We can find:

- **Cipher Systems' Knowledge.Works**[1] **-** Cipher's award-winning competitive intelligence software application, Knowledge.Works can be customized to facilitate everything from concentrated competitive intelligence efforts to everyday decision-making tasks. Taking advantage of the existing database infrastructure, (Lotus Notes, MS SQL Server or Oracle), Knowledge.Works satisfies most intelligence process and application requirements.
- **Intellicomp CIS (Competitive Intelligence System) Software**[2] **-** is an information management system designed to hold a wide spectrum of strategic and tactical information about the competitors, plans and programs for dealing with the competition.
- **AMI**[3] **-** AMI SCI is a strategic and competitive intelligence software solution. It is specifically designed to capitalise on the value of information held within large volumes of unstructured data.
- **Acquisition and Competitor Intelligence System (ACIS)**[4] **-** is an application solution for growth-related business processes. The ACIS intelligent portal integrates internal and external information to create new insights about opportunities and threats, and supports acting on them.
- **AdGooroo Search Engine Advertising Intelligence**[5] **-** is the leading provider of advertising intelligence to search engine marketers. Its proprietary technology tracks all search advertising activity in any given industry, empowering sophisticated agencies and advertisers with competitors' keywords, ad copy, campaign statistics, daily alerts, and other information needed to generate the highest possible return on advertising investment.
- **ClearCI**[6] **–** ClearCI automates four activities that are conducted manually in an inconsistent, ineffective and unstructured format: Research, Monitoring, Organizing and Sharing. ClearCI empowers today's knowledge worker to become more efficient.
- **Attaain, Inc: AttaainCI**[7] **-** is an award-winning web-based solution for business development, sales, marketing and competitive intelligence research, analysis and tracking. The system is used by companies in a wide range of industries to identify and track key sales prospects, customer growth opportunities, competitor activities, strategic partner prospects, industry developments and more, across single or multiple lines of business.

In this part, we exhibited and categorized some tools existing in the market that help conducting efficient competitive intelligence analysis.

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[2] www.mcgrawmarketing.com/services/competitive-intelligence-software/
[3] www.amisw.com
[4] www.trademarkia.com/acquisition-and-competitor-intelligence-system-acis-78149766.html
[5] www.adgooroo.com
[6] www.clearci.com
[7] www.attaain.com

5 Conclusion

Competitiveness exists in every business environment, a thing that incites companies to look for new and efficient ways to lead the market and to know more about competitors. These techniques and ways are grouped in a very large field which is called Competitive Intelligence. It creates many research leads using a large number of techniques and approaches.

In this paper, a general overview of definitions of Competitive intelligence was presented. We exhibited some processes generally used to conduct this study. We presented, then, a detailed definition for each step of the process and the techniques used. We mentioned some applications of CI and finally an overview of the tools existed useful for this area.

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Peculiarities of Management Teams in Romanian Small Family Businesses from it Sector

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Abstract

In SMEs from ITC sector, where management often lies in the hands of the entrepreneur, there can be a lack of the resources and competences necessary to generate important changes and innovation. Literature review considers innovation to be the main determinant of a firm's capacity to generate added value. We selected a sample of 79 family-controlled SMEs and gathered managerial information about them. We collected data on the change and innovation of these family-owned firms by interviewing their entrepreneurs or top managers and by through regression analysis of the data collected we demonstrate the importance of managerial teams. This paper presents only a theoretical approach regarding team management issues developed in our qualitative research.

Keywords: entrepreneurship, change, family firms

Theoretical Background

Most studies which conclude that the performance of family firms is worse than that of their non-family counterparts (Morck et al., 2000) suggest that the “family's desire for stability and risk aversion keep the company from pursuing strategies that might otherwise improve performance, but would also threaten the family's continued control”. Furthermore, this risk aversion can limit the firm's ability to grow and innovate (Cho et al., 2005). Family firms have also been found to pursue cautious investment policies that likewise tend to inhibit growth (Mustakallio et. al., 2002).

Conversely, research suggesting that family firm performance is superior to that of other firms often uses the argument that families are better stewards of firm resources because of an overall aversion to managerial opportunism to explain this result (Ceptureanu EG, 2015a). Recent research seems to provide compelling evidence of superior family firm performance (Miller et al., 2006). The negative and positive effects, of family ownership-management upon SME ability to develop change and innovation, will be described separately as the dark and bright sides of family management in SMEs (Ceptureanu EG, 2015b). Despite this, most studies have focused on explaining aspects of financial performance, while few have examined how the broader management structure of the firm affects change and innovation (Pettigrew, 1992; Ceptureanu EG, 2015c). In an SME context, the use of performance as a dependent variable is problematic due to the multitude of goals that usually prevail in such firms (Wiklund, 1998). Concerns for employee well-being and/or the welfare of the owner-family may be of great importance to small business managers (Wiklund et al, 2003), rendering other dependent variables, such as change and innovation, appropriate.

On the other hand, change and innovation typically generate risks. Concentrated nature of ownership puts closely held firms at a disadvantage in terms of risk bearing and promotes inertia (Schulze et al, 2002).

Moreover, in the family firm, the blending of family and business matters in decision-making may promote inertia, for instance when a CEO postpones necessary business decisions, such as a generational succession, because of concerns about family welfare (Schulze et al., 2002). There is also a current in the family firm literature that depicts these firms as conservative and resistant to change (Aronoff et al., 1997), introvert (Poutziouris et al, 2004), and paralyzed by internal family conflict (Barach, 1984).

The concentration of ownership among the firm's top management can lead to risk aversion and a lack of willingness to engage in change activities such as product innovation or entering into new markets (George et al, 2005). It also means that the entrepreneurs, given that they are family members, will be subjected to less pressure from outside investors and other monitors who demand accountability, transparency and renewal, things which might give rise to a defensive attitude that may harm efficiency (Carney, 2005).

With respect to the theory of the firm, the Stewardship theory (Davis et al, 1997) offers a different and complementary perspective on family purposes and behaviour. It posits that managers and entrepreneurs are driven by more than economic private interest, and often act altruistically for the benefit of the entire organization and its stakeholders. The belief is that stewards are motivated by higher level needs they identify with the organization, embrace its objectives, and act for its collective good.

Another important feature of family firms is that the controlling shareholders normally aim at keeping their investment in the long term. Indeed founding families "are a unique class of investors. The combination of undiversified family holdings, the desire to pass the firm onto subsequent generations, and concerns over family and firm reputation suggest that family shareholders are more likely than other shareholders to value firm survival over strict adherence to wealth maximization"' (Anderson et al, 2003). From a stewardship perspective, the orientation toward the firm's long-term survival is seen as a motivation to manage capital carefully and invest in long-lasting assets, like reputation and social capital (Miller et al, 2006a), for the benefit of all stakeholders.

To increase returns over what could be a lengthy career, family CEOs may make what are quintessentially farsighted investments, such as those in research and development, training, and state-of the-art infrastructure. Indeed, some evidence reveals that family firms do outspend non-family firms peers in R&D (Miller et al., 2006b) and in capital investments in plant, equipment, and even information technology (Kang, 2000). Due to these stewardship concerns, large investments in the future and refusal to be distracted by short-term expedients, family-managed firm will have a better chance of developing distinctive core capabilities (Munteanu et al, 2015a). Boards of directors perform a service task and are supposed to bring different types of resources to the firm (Huse 2005). These resources, which also include knowledge and relationships with third parties, may become indispensable for the making of change when the firm's environment changes significantly (Gales et al., 1994, Ceptureanu SI, 2014).

With regards the firm's innovation processes, Moran et al. (1996) state that, in order to create new or better products and services, firms need to exchange and combine new resources, or find new ways to do so with existing ones. Innovation requires diverse resource inputs and combinative capacities (Kogut and Zander, 1992). Thus, giving access to the board to individuals with knowledge and experience or combinative capacities that are different from those of the family owner-manager, may be associated with innovation, which may serve as an indicator for value creation (Tsai and Ghoshal, 1998, Nicolescu et al, 2009; Ceptureanu SI, 2015a). A board, which does not limit itself to controlling, but rather assists, the management might reinforce the initiatives of change and innovation undertaken by the family owner-manager and/or may minimize or oppose tendencies towards stagnation, immobility and poor innovation (Ceptureanu SI et al, 2015a).

According to the upper echelon theoretical perspective (Hambrick et al., 1984), the management team may also help increase the firm's potential for change and innovation (Ceptureanu EG, 2015d). This perspective purports that firm performance is a "reflection" of the characteristics and actions of the firm's central managerial team, known as the management team. In this work, it is argued, in accordance with past research, that the human capital of this team is an important element in success (Thakur, 1999).

Higher echelon research generally focuses on the entire group of the firm's top executives as the appropriate level of analysis, and, thus, implicitly assumes an even distribution of power within the elite echelon of corporate actors (Dalton et al., 2005). However, there is research which supports the argument that group characteristics are relatively less important than the characteristics of the leader (Cannella et al., 2005). This particularly applies to family-controlled firms where a CEO who belongs to the main owner family exerts a strong leadership influence on corporate decisions and outcomes (Munteanu et al., 2015b).

Romanian small- and medium-sized companies often have a single administrator or a small sized board which nominates the managing director from within (Ceptureanu SI et al, 2015b) use the title chief executive officer to indicate this single administrator or managing director. The CEO is the leader of the management team (Wu et al, 2005) and dominates the distribution of responsibilities and tasks within the team itself (Haleblian et al., 1993).

In SMEs which are also family firms, board and top management often overlap, with the same people, or people from the same family, involved at all levels (Mustakallio et al, 2002; Nordqvist et al., 2002). Therefore, management research regarding small or medium-sized family firms investigates how ownership, board and management are interrelated in creating key organizational outcomes such as change and innovation (Ceptureanu EG et al, 2014). In this work, the CEO is a family member who controls the company and at least one other family member is present in the management team. However, the size of either the board or the management team may grow as a result of individuals from outside the controlling family becoming involved.

A board of directors may make an important contribution to the firm's strategy with regards, generally, the processes through which the firm makes its most important decisions. Indeed, boards participate in various phases of decision making through interacting with management team (Forbes et al., 1999). Previous to this, the international literature had shown the important influence of board insiders and outsiders in the choice of the firm's innovation strategies. The board has been described as the "apex of the firm's decision control system" (Fama et al., 1983). Family SMES, however, are closely held and owner-managed and thus owners have direct and detailed insights into internal processes of the firm (Cowling, 2003). In such closely held firms the role of the board is different, because the risk of opportunistic behaviour by management is lower (or zero). The board can therefore focus less on control and more on service activities, such as on stewardship and development. As a result, there is less need for the board's control function (Brunninge et al., 2004), while a vital function of the board is to perform service tasks. Over the last two decades, researchers have enhanced our understanding of the board's tasks from different perspectives (Ceptureanu EG et al, 2012). Fama and Jensen have pointed out that, according to agency theory, the board should perform ratifying, controlling and evaluating strategies to fulfil its function as "the apex of the firm's decision control system" (Fama and Jensen, 1983). In an early review of boards of directors, studies applying resource dependency theory show that directors' involvement in the strategic arena usually takes the form of initiating analysis and suggesting alternatives (Zahra and Pearce, 1989). Based on a practical view of board strategic involvement, other researchers have specified implementing strategies as one critical part of this involvement (Huse, 2005). In short, board strategic tasks cover a set of activities that may range from initiating strategies to implementing them.

Managerial Team in SMEs

The ability to introduce innovation in family firms is influenced by phenomena which typically affect this type of firm and are related to the management team. Carney (2005) theorises that the tendency to restrict the top management team to family insiders is one of the ways in which these firms exhibit their natural parsimonious propensities. There is a strong negative relationship between such propensities and the capacity for innovation, since parsimonious propensities may encourage an efficient operational environment which roots out some of those slack resources that Nohria et al. (1996) describe as necessary for successful experimentation and innovation (Gedajlovic et al., 2010).

Ensley et al. (2005) suggest that management teams with many members from the same family should mean more shared consensus in the management team as a result of altruism, loyalty and commitment. Moreover, the fact that a management team quickly achieves a greater consensus regarding a firm's strategic direction is not always beneficial to that firm's innovation processes. Indeed, Gedajlovic et al. (2010) note that in firms where family members dominate the management team, such a consensus is soon arrived at, but that such dominant leadership may reduce constructive dialogue and the screening of novel ideas.

Cohen and Levinthal (1990) define the absorptive capacity construct as the capacity of a firm to value, assimilate and apply, for commercial ends, knowledge from external sources (Ceptureanu SI, 2015b). Based on previous studies such as Allen (1984), they hold that absorptive capacity is a by-product of an organization's Research and Development (R&D) efforts. However, the passage from knowledge absorption to its economic use is not always guaranteed (Ceptureanu SI, 2015c). Greater effort in R&D means greater capacity to generate within the organization and interpret and understand the knowledge of others, but Davenport and Prusak (1998) note that absorbed knowledge, whether from an individual or an organization, may remain unused for diverse organizational reasons. This argument is highly relevant in this paper given that it is directly linked to the functions performed by management teams in SMEs (Ceptureanu SI, 2015d). Indeed, small size and flexible organizational structures intensify its involvement in all of the firm's activities. For example, specialized departments for marketing and product development are less common in SMEs (Cowling, 2003) and, if they exist, their decisions are heavily influenced by top management.

Non-family member involvement in management teams increases diversity and the breadth of the organization's knowledge base (2014; Gedajlovic et al., 2010), so helping the processes by which knowledge absorbed from external sources can be utilised within the firm and incorporated into its own product portfolio. The resource-based view "perceives the firm as a unique bundle of idiosyncratic resources and capabilities where the primary task of management is to maximize value through the optimal deployment of existing resources and capabilities, while developing the firm's resource base for the future" (Grant, 1996). In dynamic markets the dynamic capabilities by which firm managers "integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece et al, 1997) become the source of sustained competitive advantage (Ceptureanu EG, 2015e). The manipulation of knowledge resources, in particular, is especially critical in such markets (Grant, 1996, Ceptureanu SI, 2014).' Research on the dynamic capabilities of the firm (Raff, 2000) suggests that dynamic capabilities are embedded in organizational processes and are directed toward enabling organizational change and evolution (Zott, 2003). These capabilities enable the firm to reconfigure its resource base and adapt to changing market conditions in order to achieve a competitive advantage.

The effect of team management characteristics on change is likely to be particularly strong in SMEs because flexible organizational structures intensify management team involvement in all activities of the firm. When non-family members are involved with the management team, this leads to an increase in the

diversity of the organization's knowledge base (Ceptureanu SI, 2015a). Therefore, larger management teams are likely to have more resources and competences available to them in decision-making. Moreover, team management members are unlikely to have the same tasks, so adding to diversity. By increasing cognitive diversity, a larger and functionally more varied group may increase creativity in decision-making and point to new alternatives for the firm's future development (Forbes et al., 1999). In closely held firms, a larger team management with more non-owner top managers may partly counteract the dominant influence that the owner-managers otherwise has on strategic direction. Being one of several management team members, the individual member may feel more confident about suggesting alternative strategic ideas and advocating change. Hence, a larger team management should increase willingness for change as well as the number of available options for carrying out change.

Conclusions

Small- and medium-sized family firms have tendencies which may inhibit change and innovation. The inclinations of family firms may promote an efficient operating context which hinders the forming of all those conditions that Nohria et al. (1996) describe as necessary for successful experimentation and innovation. Family firms have also been found to pursue cautious investment policies that likewise tend to inhibit growth (Mustakallio et al., 2002). Furthermore, this risk aversion can limit the firm's ability to grow and innovate (Cho et al., 2005) and might lead to “reluctance to change” (Denis et al, 1997) and a general “conservativeness” (Sharma et al., 1997).

Particularly in SMEs, there can be a lack of resources and competences to generate change. The results indicate that it is possible to facilitate change by introducing an integrated management system who can increase general competence of the company and its employees. The presence of outside directors on the board makes change more likely to happen. The additional managers can contribute to change by increasing cognitive diversity (Forbes et al, 1999), linking the company to important stakeholders (Huse, 2000) and increasing the legitimacy of the organization (Johannisson et al., 2000).

The results do not support the hypothesis that the including of outsiders on the board leads to improvement in the family SME's innovation capacity. In order to interpret the latter result correctly, it should be remembered that board insiders are those who work for the company on a daily basis, whether or not they are a part of the main owner family. What is said in the literature about innovation requiring a high degree of intra-firm integration should also be born in mind: a firm involved in innovation brings more insiders on to the board in an attempt to integrate the functional activities of the firm around its strategy (Hill et al., 1988). By way of contrast, a firm which has diversified into many different fields brings outsiders on to the board for their expertise (Hill et al., 1988), either of the different areas the firm is active in, or in pursuing a diversification strategy. Board members might be selected by family owner-managers of SME on the basis of requirements. Given that, by virtue of their selection, insiders are likely to prefer innovation and outsider’s diversification. In particular, greater effort in R&D means greater capacity to generate knowledge within the organization and interpret and understand the knowledge of others (Ceptureanu SI, 2014). However, the tendency of family owned firms to restrict the top management team to family members may inhibit the development of absorptive capacity, and reduce access to outside sources of information that are needed to calibrate and refine the complex systems which often constitute the base for important innovation. Our study is not without its limitations. We opt for a sample that contains SMEs from the same sector- ITC(Ceptureanu EG et al, 2014). In this sector, change and innovation are very important aspects in a firm's survival. The advantage of analysing data from firms belonging to the same sector is the homogeneity that characterizes the examples studied. We need to understand the fact that change and innovation are complex phenomena and that management mechanisms only represent a limited part of the variables affecting change and innovation in a small company. On the other hand, the data for this study were gathered only in ITC sector of Romanian

economy. Therefore, special attention should give when generalizing about our discoveries both with regards other sectors and cultures.

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Critique Review on the Causes of Elderly Poverty in Malaysia

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Abstract

Recent discussion of the analysis of poverty at old age draws attention to the limitations of currently dominant approaches. Measuring the incidence of poverty at old age is an important first step in understanding it, but measurement alone does not explain the causes of poverty. This paper draws the discussions on causes of elderly poverty across the countries and develops an analytic framework of poverty at old age. Research framework and propositions are suggested to guide the future research in this area.

Keywords: retirement, elderly poverty, Malaysia

I. Introduction

Many countries have experienced aging phenomenon. However, it seems to be a shocking trend for the world population as this issue would somehow affect the development process of the country. According to statistics from Malaysia's Department of Statistics, the average life expectancy in Malaysia has increased to 75 years but most employees stop working at the age of 55 compare to Sweden where retirement age is 67 (Department of Statistics Malaysia, 2010). Malaysia is predicted to have 15% of elderly populations by 2030 and elderly Malaysian have experienced alarming rate of poverty at 22.7 per cent (United Nation ESCAP Report, 2008). Most Malaysian does not have adequate saving when they get retired. Survey reported that average saving of people at the age of 54 years is $ 3,9750. The required amount for them to survive is $4,7500 (EPF annual report, 2009).

Whereas 50% of retirees finished pension fund within 5 years, 70% of them finished their saving within 10 years, and 14% of them finished it within 3 years. These facts are alarming especially those who are still thinking that to rely fully on their pension fund saving for the postretirement income. Rapid increase in the aged population, together with the longer life expectancy reflect that well planned personal financial planning turns out to be of utmost important (Mohidin et. al., 2013). According to Kim (2003), most of the people were not afraid to retire but they are not well prepared for retirement due to lack of money. More than 90% of Malaysians do not prepare for retirement and they do not take into account of inflation rates and rising medical costs (Lai et al, 2009).

II. Financial Support for Elderly living in Malaysia

Malaysia is a Southeast Asian nation and constitutes of two districts (Peninsular Malaysia and East Malaysia). The Malays, Chinese, and Indians are the main ethnic groups in Peninsular Malaysia, whereas indigenous people are concentrated in East Malaysia. Malaysian citizens consist of around 55% Malays, 24% Chinese, 7% Indians, 13% Indigenous people, and 1% of other ethnicity (Department of Statics Malaysia, 2010) The Government has always maintained that it is the responsibilities of children to provide care and support for their aging parents (Caraher, 2003 & Chan, 2005). Traditionally, it has been the norm and cultural practice of all ethnic groups for children to repay their parents (Yaacob, 2003). However, Malaysia has undergone rapid demographic transition, with continuing decline in fertility and increasing life expectancy over several decades. Since independence from British rule in 1957, the total fertility rate has declined from 6.1 per woman to 2.1 in 2010 (Departmental Statics of Malaysia, 2014). The increasing number of older persons with diminishing family size will put more stress on traditional family support systems. Previous findings in Malaysia revealed that older Malaysians, especially those living in rural areas, largely depend on financial support from their children (Tengku Aizan, H and Jariah, M, 2010). However, family support for the elderly may be eroding due to social-demographic changes such as the trend towards delayed and non-marriage, shrinking family size, out migration of the children, increased female labor force participation, and living in condominium (National Population and Family Development Board Malaysia, 2004).

Pertaining to retirement financial planning, most working Malaysians are depending on monthly contribution to employee pensions fund (EPF). It has an average contribution rate of around 23% (i.e. employer 12% and employee - 11%) of their gross salary every month to their retirement savings with EPF (Ong and Lee, 2001). Malaysia's EPF was established in 1951 and it is the oldest provident fund (PF) scheme in the world (Thillainathan, 2004). Compared to other East Asian countries, Malaysia is in higher rank with respect to the overall contribution rate to pension fund however with respect to retirement age, it has only recently legislated to be increased to 60 (refer to the table 1). Nowadays most Malaysian do not have enough saving when they get retired and they used up their pension fund within few years. Table 1 shows an overview of contribution rates and retirement ages for selected countries in Asia and some other regions. Refer to table 1, it shows that Malaysia's pensions fund has higher contribution rate of total 23% to pensions fund compare to United States which has 12.4%, even Japan as 23% and U.K as 23.8%, however Malaysia retirees still do not have enough saving. Statistics further shows that Malaysia's per capia income of $ 10,432, which is far lower than United States with amount of $ 51,749, United Kingdom with amount of $ 39,093 and Japan with amount of $ 46,720. Whereas, Singapore which is closer neighborhood of Malaysia, it has higher income capital $ 51,709 with highest pension contribution rate with total of 38% (Holzmann, 2015).

Malaysian elderly are living longer that increase the percentage of the total population. Taking into consideration of normal retirement age as approximately 55 years, there is an urgent need to establish an adequate system that cover sufficient saving when they get tired. This begs the questions of:

- What are the reasons behind most Malaysian ends up with poverty at old age?
- What direction they should plan for the future retirement so then they can live comfortably at old age?

Therefore, the purpose of the study is to explore the causes of poverty at old age and also to recommend the action to reduce the poverty at old age.

III. Causes of Poverty across the World

In many non-western countries, such as Malaysia, there is considerable debate over how much government versus family support should be provided for the care of the older population. In United States where government provided substantial transfers to the elderly through social security and medicare, some non-western countries are trying to reinforce family support-networks (Da Vanzo, 1994,). The lack of comprehensive social security system in most developing countries including Malaysia increases vulnerability of the elderly to poverty especially among older women and the self-employed (Caraher, 2003). Meanwhile, limited financial resources, coupled with inability to manage financial resource, can lead to financial problems (Suwanrada, 2009). Today's older Malaysians are unguarded to poverty due to forced retirement, lack of saving during younger years, limited social security coverage, and coupled with changing family structure and lifestyles, (Masud and Haron, 2014). Increased cost of living becomes another factor for the need to have good financial practices. Good financial practices during younger years can be a factor to ensure financial security in old age since one of the recommended financial goals is savings for old age (Garmen and Fougue, 2004).

Table 1: Contribution rate and retirement age of selected countries

Country	Per capia Income 2012 (US$)	Employee Contribution Rate (%)	Employer Contribution Rate (%)	Total Contribution Rate (%)	Statutory Retirement Age
East Asia					
China	6091	8.0	20.0	28.0	50/60
Hong Kong	36 796	5.0	5.0	10.0	65
Indonesia	3 557	2.0	3.7	5.7	55
Japan	46 720	7.7	7.7	15.4	65
Korea	22 590	4.5	4.5	9.0	65
Lao	1 417	4.5	5.0	9.5	60
Malaysia	10 432	11.0	12.0	23.0	60 [1/]
Mongolia	3 673	7.0	7.0	14.0	55/60
Philippine	2 587	3.3	7.1	10.4	65
Singapore	51 709	20.0	16.0	36.0	62
Thailand	5 480	3.0	3.0	6.0	55
Vietnam	1 755	6.0	12.0	18.0	55/60
Other regions					
Argentina	11 573	11.0	10.2	21.2	60/65
Brazil	11 340	7.7	20.0	27.7	60/65
Chile	15 452	10.0	0.0	10.0	60/65
Mexico	9 749	1.7	6.9	8.6	65
Poland	12 708	9.5	9.8	19.3	60/65
United Kingdom	39 093	11.0	12.8	23.8	68
United States	51 749	6.2	6.2	12.4	67

Source: World Bank Pension database
Notes: [1/] Increased by law in 2013 but not yet effective

Poverty among the elderly has been a global concern, as stipulated in the Madrid International Plan of Action on Aging 2002 (United Nation, 2002). People in sub-Saharan Africa, are among the poorest in the world, not only in terms of real income but also access to social services. Traditionally, the African social structure was established around the family and even the extended family network was closed together. This network assure against all disabilities of old age and other shortcomings. A general assessment of poverty in old age at provincial level reveals that the majority of the aged are poor due to unemployment/retrenchment (Madzingira, 1997). In the later research, Carter and May (2001) further clarify that functional illiteracy is higher among the chronically poor, and other risk-

reducing measures such as insurance and savings as important issues for poverty reduction. Issues for further analysis include the impact of unemployment and the prospect of early involuntary retirement must take into consideration.

Where as in United Kingdom, aged population is projected to increase rapidly and a significant minority of people of pensionable age fully dependent on state-based financial assistance. Besides due to absence of money, causes of poverty are; intergenerational worklessness and economic dependency, family breakdown, serious personal debt, educational failure, and addiction to drugs and alcohol (McKee, 2009). In the case of Latin American and the Caribbean, the incidence of poverty among older persons is not only based on income. It also depends on factors such as health, education, and labor market opportunities. Thus, poverty is certainly a multidimensional issue. Aging Americans like other age groups are feeling the effect of challenges at old age poverty. Currently, 3.4 million senior ages 65 and older live below the poverty line and retirement income adequacy will decline due to insufficient amount of social security benefits and less certain income from employer pensions (Munnell and Soto, 2005). Although government has increased the social security benefits to reduce the elderly poverty, high medical cost can reduce the income available to meet the other needs (Cawthorne, 2008). Thus, American Government has introduced the ObamaCare program in 2010 to give more Americans access to affordable and quality health insurance. This program expands the quality, affordability, and availability of private and public health insurance.

Causes of poverty in developed countries like Canada are due to lack of sufficient income and resources to live a full life. Some analysts view poverty as the outcome of personal decisions such as dropping out of school, having a child at early age, becoming addicts to drugs/alcohol or refusing to relocate the employment. Other analysts argue that poverty is a product of government programs that are not well structured. The middle ground is both individual and social responsibilities coexist. Echenberg (2009) identified four ways to reduce the elderly poverty by having income from investment at early age, income from work, income from government transfers such as provide incentives to participate in labor market, and support particular behavior or activities and non-monetary benefits such as affordable child care, social housing, and recyclable affordable used clothing. Canadian federal and provincial financial support programs provide the financial support to nearly all provinces (Ruggeri et.al,1994) and also ensured that there should not be any individual falls below the threshold (Sarlo, 2001). Feedbacks from retirees conclude that retiring Canadians have adequate financial resources, with the exception of those who retired involuntarily as a result of poor health (Alan et al., 2007). Unlike the U.S. system, which relies on the earnings-related pension component, Canada's system offers a guaranteed income in the form of Old Age Security (OAS), regardless of past participation in the labour force. Thus, Canada Government has well designed and effective old age fund for its citizen (The Conference Board of Canada, 2016). Surprisingly, Australia has the higher rate of elderly poverty, and nearly 40 per cent of Australian seniors live in relative poverty. An OECD (2009) report notes that increase in elderly poverty in Australia is due to inefficient income-support payment program.

In South Korea, families and close relatives provided majority of financial support for elderly. The government took advantage of this and did not prepare any extra measures to provide the elderly with pensions (Cook and Kim, 2010). The public pension scheme was only introduced in 1988, and retirees do not have accumulate pension entitlements in the new system when they retirees in the mid-2000s. With modernization, tensions and gaps between generations will diminish the elderly roles in society and could lead to less responsibility for the younger generations to support elderly. Thus, the root cause that contributes to the higher rate of elderly poverty in Korea is due to late preparation for proper pensions system for the citizens, secondly is due to the lack of support from families, thirdly elderly do not save enough to sufficiently support themselves and finally is they have provided extensive support for their children (Lee, 2014).

Southeast Asian countries are sometimes grouped with East Asian "developmental stages" (Japan,) which maintained a low level of spending on welfare but with social policies bring used in the overall pursuit of economic development (Kwon, 2005). The reason was due to initial focus on contributory social insurance programs, household saving, and universal access to education. The policies of these

countries have also been described as productivity in emphasizing investment in education and public health as underpinnings of economic development (Wood and Gough, 2006). Singapore is expected to experience rapid aging of its population in the next two decades. Therefore, old-age income security is increasingly becoming an important economic, social, and political issue. Citizen concerns are growing across a range of social issues, including: relative poverty; access, equity and affordability in health care; and retirement income provision. Both in Singapore and Malaysia, social protection relies primarily on personal savings and family support networks and whole government support is channeled towards public provisions of health and education services (Cook and Pincus, 2014)

Many people regard 'absolute poverty' as no longer existent in a Western European context. The EU Member States agreed on using poverty indicators, which are one-dimensional (monetary) and relative (based on a threshold defined in relation to the distribution of income within each country) (Eurostat, 2005). A poverty measure commonly used within the EU is to describe individuals as poor whose net equivalence income is less than 60 per cent of the median income in a given population (BMGS, 2005). Since the late 1980s/early 1990s researchers and policymakers alike have increasingly acknowledged the multi-dimensional character of poverty. The key question for European, national, regional, and local policymakers concerned with the alleviation of poverty in old age is how to reduce the risk of poverty in the long run. Research evidence points to the crucial importance of education – the higher the level of education and, thus, the socio-economic status – of any individual (young or old); the less likely is s/he to be affected by poverty. These are the strongest determinants of health and quality of life in old age (Marmot & Wilkinson 1999).

The basic ingredients for a review of causes of poverty are much similar across countries in the region: low income, unemployment, no education/low level of education, no proper financial planning, spends too much on the children, lack of support from children, inadequate pension program, and expensive health care.

IV) Literature review on root causes of elderly poverty

One route for investigating the causes of poverty is to examine the dimensions highlighted by poor people. Some of the reasons could be due to low income and assets to attain basic necessities. Other relevant variables as education, health, housing, water, sanitation, and labor market opportunities also should not be ignored. Global Age Watch Index (2015) provides a good working framework to review the measures of vulnerability for older people. The framework identifies four domains of well being for older persons. These are 1) financial security, using indicators on the pension income beneficiaries ratio, older people's incomes or consumption relative to the rest of the society, and poverty risk among older people, 2) health status, using healthy life expectancy at 60, and psychological well-being as indicators of physical health and mental well-being, 3) Employment and education among older people as a proxy for the coping attributes of older people, given that lacking these attributes makes them more vulnerable; and 4) Enabling environments, using indicators pertinent to enabling age friendly attributes of the societies in which older people live—they correspond to societal resilience. On the other hand, Glaser et al. (2009) suggest three domains of the well being of older persons as income, health, and social support to reduce the vulnerabilities of poverty in old age.

The routes into low income in retirement were shaped by one or more of the following: low earnings in employment, minimal financial planning for retirement and the impact of key life events on this planning, such as divorces and deaths. A sustained growth in earnings should eventually lead to lower poverty rates among the elderly. Bardasi et al. (2002) suggest the importance of income and effects of having low income on poverty at old age. In developed economic systems, those with high household income often consider themselves and their employers as the most important sources of retirement income whereas; households with lower incomes report the government and their families as most important (HSBC, 2008). Besides, retirement preparation among those employed influences income during old age. Moen et. al., (2006) discover that spouses' decision making in the form of retirement planning tends to be positively related to lower poverty at elderly.

Rowland and Lyons (1996) found that poverty rates increase with age and nearly one-fourth of elderly women were poor, reflecting their lower wage levels during working years, their increased of financial stress from widowhood and longevity that exceed savings. In addition, poor elderly are less likely to have family or companions living with them who can assist with their medical and financial needs. Similarly, Millward (1998) suggested that the most at risk of significant poverty include those over the age of 80, women, those living alone and disabled elderly persons. However, Zaidi and De Vos (2008) further argue that the employment record during working life is critical in many contexts, because entitlements to pensions in most schemes are accumulated with the help of the social insurance contributions deducted from wages. People accumulate wealth over their working lives to finance consumption after retirement (Friedman, 1957). Thus, the longer the employment period increase the amount of saving for their retirement. The occupation and type of job held also matters, because both levels of earnings and the likelihood of pension coverage in the employment sector affect the accumulation of pension entitlements. With lower level of educational attainment, older persons have limited economic opportunities and this eventually affect their ability to continue work, earned incomes and to some degree, savings and wealth (Jariah and Sharifah, 2008).

For many reasons, for most people the income potential diminishes after a certain age and then poverty is more likely to occur. In addition to improper financial planning and employment status, a number of other factors also are pointed out to an urgent need to address. Rake et al. (2000) discovered that lower retirement incomes for those women who had children, and for those who divorced and did not remarry. These findings were supported by Ginn (2003), Walker et al. (2000), and Johnson and Favreault (2004), which showed a significant loss of pension entitlements among women who had children and who experienced marital disruptions. In apparent contrast to these studies, Bardasi and Jenkins (2004) and Sefton et al. (2008) found that marital history appeared to make no difference to pension income in old age once other factors were accounted for. On the other hand, past study reported that poverty among the elderly in rural areas is much higher than in urban areas, men reported receiving twice as much income compared to women and higher levels of income for men are clearly associated with enhanced levels of educational attainment (Masud & Haron, 2014).

Demey et al. (2013) argued that those mid-life men who have not had children, have no educational qualifications, are not economically active and who live in rented housing were likely to be most at risk of needing a social and economic safety net in old age. Some have reported no relationship between divorce and help given or received in old age (Pezzin and Schone 1999). However, others have found that older divorced or separated parents were more likely to receive help from children compared to those who are still married (Glaser et al. 2008). Researcher such as Johnson and Favreault (2004) argued that there is a significant loss of pension entitlements among women who had children and who experienced marital disruptions. In the same vein, other research also has shown that marital disruptions over the life course may have adverse consequences for social support and connectedness at older ages.

In Malaysia, the retirement age was 55 (Muhamad and Kamis, 2002) and nearly 70% of the Malaysian retirees received less than RM 500 per month (Ithnin, 1995). Employees Provident Fund (EPF) in Malaysia was established to reduce the poverty among elderly who were working before. Unfortunately, it does not adequately address poverty among older persons (Olsen, 1994). Many of elderly still need to work at retirement age and need careful financial planning in earlier years. A common problem among Malaysian workers is that they tend to spend first and save the balance, whereas you have to encourage people to save first and spend only the balance. Currently only about 10 to 20 per cent of Malaysians are considering non-mandatory retirement savings and investments to supplement their EPF contributions. The concern with low retirement savings is compounded by the fact that it is the only significant form of savings for most Malaysians, due to rising cost of living and wage stagnation. Elderly have less working capabilities and have limited sources of income due to the lower education level (Mat and Taha, 2003). As such, most of Malaysian elderly depended to their adult child to support them but those whose children do not have enough money to support them, have serious problem to manage their living costs (Mazanah and Mazalan, 2002. With declining support from children and other family members due to rapid-socio-economic and

demographic changes, many older persons may indeed end up with financial problems. Hence, older age is an important period when elderly persons stretch their limited financial resources and deal with many complicated financial management tasks.

V) Proposed framework and hypothesis development

The absolute concept of poverty means one's inability to obtain minimum necessities to maintain physical efficiency or to fulfill basic human needs (Jamilah, 1994). According to Deaton and Paxson. (1998), poverty is a syndrome affecting people in situations characterized by malnutrition and poor health standard, low income, unemployment, unsafe housing, lack of education, inability to acquire modern necessities, insecure jobs, and a very negative outlook on life. Based on the review of past literature, this research suggests four main factors that cause the elderly poverty. These are improper financial planning (income and saving), social-demographic factor (employment status and education), inadequate government support (retirement age, social security and health) and lack of social support (family, community). Figure 1 shows that the factors the causes the poverty at old age.

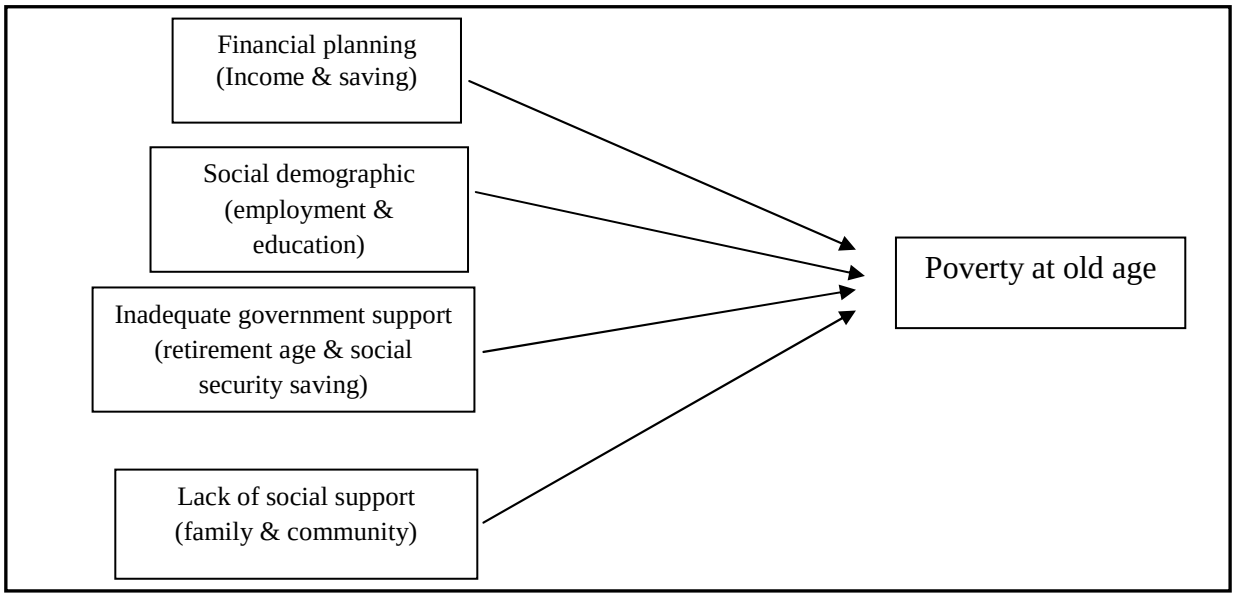

Figure 1: Framework of factors that cause the poverty at old age

Many elderly households do not have adequate savings for post-retirement expenses (Helman,R., 2005). Due to insufficient retirement funds, many elderly persons are confronted with serious financial problems (Gardyn, 2000). A survey on elderly in public service shows that elderly in Malaysia anticipate financial constraint to be the major challenge upon retirement (Muhamad and Merriam, 2000). Many of elderly still need to work at retirement age as they do not have careful financial planning in earlier years. Based on this statement, the research proposes as follows.
Proposition 1: There is relationship between improper financial planning (income and saving) and elderly poverty.

Older people might be poorer just because they are less educated than the younger generations.
Due to the lower education level, elderly have less working capabilities and have limited sources of income (Mat & Taha, 2003). Therefore, this research proposes as follows.

Proposition 2: There is relationship between social-demographic (employment status and education) and elderly poverty.

Government's ability to manage a social security system is important in determining the system best suited to a country. Many countries have had serious problems managing their social security systems and consequently lead to elderly poverty (OECD, 1998). Financial constraint is the major challenge upon retirement (Yaacob, and Nurdin. 2000.). Thus, the research proposes as follows.

Proposition 3: There is relationship between inadequate Government support (retirement age, social security, and health) and elderly poverty.

Most of Malaysian elderly depend to their adult child to support them but those whose children do not have enough money to support them, have serious problem to manage their living costs (Merriam and Mohamad, 2000). Although allowances from children significantly reduce elderly poverty, it is not clear whether this practice does indeed last in the long run. Thus, the research proposes as follows.

Proposition 4: There is relationship between lack of social support (family, community) and elderly poverty.

VI) Future directions for retirement plan

Old-age financial protection has become a key focus of policy interest and research efforts in South-East Asia, including Malaysia. In developed countries the combination of strong social security systems, well-developed capital markets, and small households contribute to higher living standards for the elderly. Due to demographic, social and economic changes, there is a need for effective system in income provision for the elderly. Reliance on traditional means of family support combined with individual savings may not reduce the poverty at old age. To prevent such a scenario, action needs to be taken to ensure that all workers are covered by a system that offers a minimum guaranteed income through periodical payments. However, any such reforms are dependent upon the political will of government to address such concerns.

Government should provide assistance through effective public policy to protect the welfare of the elderly, involvement of private entities through corporate social responsibility, encourage both formal and informal sectors for voluntary savings, ensuring the adequacy of savings to support post-retirement living, and create the awareness of the benefits of savings from young through early education in schools and parental guidance (Samad, 2013). Indeed, most developed countries have introduced policies and organizational practices that target older workers, including: reducing incentives for workers to take early retirement, encouraging later retirement and flexible retirement, passing legislation to counter age discrimination and helping older workers find and keep jobs (The conference board of Canda, 2016). As the number of elderly grows annually, their demand for healthcare also relatively increases. Hence, in the future, Malaysia government should build more hospitals and clinics especially in the rural area to cater the huge healthcare demand from the elderly.

Lifelong learning has an important potential contribution to poverty reduction. Individuals engaged in lifelong learning are more likely to improve their livelihoods through better employment opportunities, higher income, broader understanding of financial markets, better health and healthier behaviors, access to health services, knowledge of health conditions, among others. Therefore, government must work hand in hand with private sectors to ensure in maintaining the skills of the current workforce; upgrading the skills of those with the greatest needs to increase their employability; and allowing adults to re-skill to find employment in other areas (Sabates, 2008).

It is important for one to have sufficient financial knowledge, as it would help in understanding one's own financial status. Those who have financial knowledge can have well prepared financial planning for the future (Joo et al., 2004) and thus can avoid poverty at old age. Thus, government should establish a government-linked institution body to create the awareness throughout the country and provide professional advice to the citizens. In addition, government should make it compulsory for the higher education learners to take the financial planning as a required subject or co-curricular

activities. Besides that, both public and private companies should provide the training on financial planning for the working people. The practice will not only help them to prepare for better future financial planning but also indirectly help to country economy growth.

Children in Asia were generally positive and responsible towards their elderly parents. These elderly parents are being cared for not only financially, but also in the form of food preparation, purchase of daily necessities, housekeeping, doing laundry and transportation to visit relatives/hospital/clinic (Chor & DaVanzo, 1999). In many other regions, such as Singapore, China, the United States and Canada, adult children are required by law to support their elderly parents. Legislation of parental support explicitly states that it is the responsibility of the family, rather than the government, to care for their elderly parents. This legislation of parental support and practices should also imply in other Asia countries like Malaysia where still value the closed knitted family. That will help the elderly to have comfortable life with people surrounding them. In addition, every community in the region also must play a role in ensuring that elderly are well taking care of.

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The Essence, Purpose and Principles of Marketing Relationships

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Abstract

The theoretical principles of modern marketing paradigm - relationship marketing are developed. The definition of relationship marketing is given. It is noted that the main aim of relationship marketing is constructing, maintaining and developing the privileged relationship with the company's stakeholders to obtain the mutual benefits and assistance to society. The definition of a privileged relationship is introduced. The concept of relationship marketing principles is clarified and developed: the principle of knowledge and accounting of the relationship factors; the principle of emphasis on creating positive feelings, emotions, feelings and moods; the principle of the new marketing mix. The necessity of the application of psychology in marketing is justified. Given the relationship marketing environment, we propose a new element of the marketing - a psychological approach. Application of psychological approach will allow employees of any company better understand and accurately meet the real needs of customers and other stakeholders.

Keywords: Relationship marketing, privileged relationship, relationship marketing principles, marketing complex, psychological approach

Introduction

Currently, relationship marketing is a subject of current debate among theorists and practitioners of marketing around the world. It is in the end of XX -beginning of the XXI century, a large number of supporters of this concept appeared which is based on the relationships with key market partners. Every year the number of supporters of the concept grows. The interest from the scientists to the relationship marketing concept, which differs from the concept of traditional marketing, acts an effective force for its further development. Note that the theory of relationship marketing is in its infancy and development. An interesting and true, in our opinion, is the opinion of S. Kush Chof the coexistence of two paradigms in the current context of social development (2008) - the traditional marketing and relationship marketing. It is known that the traditional marketing concept is still relevant to a number of companies due to objective reasons. However, in our opinion the struggle between the traditional concept of marketing and the concept of relationship marketing was won by the latter concept. The aim of the article is to develop theoretical relationship marketing positions. To achieve the goal it is required to achieve the following objectives: to define relationship marketing; to clearly define groups of stakeholders with whom the company must build relationships, to designate the purpose of relationship marketing, to clarify and develop the principles of marketing relationships, to justify the necessity of application of psychology in marketing and to define the psychological approach.

Relationship marketing - modern marketing paradigm

The essence of modern marketing concepts

In scientific literature of marketing there are a lot of definitions of relationship marketing. However, there is no a single generally accepted opinion in the definition of relationship marketing. On the basis of the relationship definitions of marketing analysis (2004, 2008), we have three identified substantive items, which should contain a modern relationship marketing. Firstly, extensive interpretations of priority relationship marketing. We prefer a broader interpretation of the definition of relationship marketing to become more understandable by the reader. Second, the vision of relationship marketing as a marketing paradigm, not as a concept. Relationship marketing seems to be not only a self-concept and paradigm. We tend to refer to the concept of relationship marketing as a new marketing paradigm, as the status of the concept of "paradigm" emphasizing the priority of its importance and significance. Third, we focus on building relationships, not only with customers, but also with other groups of person. For the development of a strong partnership network the company must take into account the needs to maintain cooperation with the different stakeholders. The company should win the competition through the establishment and improvement of long-term relationships with all its stakeholders. There are many viewpoints which groups of individuals should companies build relationships with. Based on the review of the literature provided by the issue of (2004, 2015, 2008), we offer the following list of stakeholders.

Firstly, we concern the customers. In most cases, the relationships of the company-customer are the main focus of marketing science. In our opinion, a crucial factor in business success is real love for customers. It is important to know the factors of customer relationships. It is necessary to focus efforts on what we can do for the customer, rather than on what you can get from a customer. Currently, it is the client capital which valuable and desirable for any company.

Secondly, we speak about employees. The employees can meet customers' needs and satisfy their own needs. It is important to have a properly organized system of staff remuneration. We believe that the construction and development of high-quality relationships with employees allows the company to motivate and retain employees, which are qualitatively different needs of customers, are committed to the principles of relationship marketing, and follow the company's mission. The importance of human capital is undeniable.

Third, we take into consideration business partners. This group is one with whom the company communicates in the course of their business activities - distributors, dealers, suppliers, banks, advertising agencies, competitors, etc. We believe for development of strategies for creating and maintaining relationships with business partners, it is advisable to divide the relationships into vertical and horizontal. As it is known, the vertical relationships combine parts of the supply chain - suppliers, manufacturers, intermediaries. Horizontal relationships arise between the organizations occupying the same position in the channel of distribution and seeking cooperation to achieve mutual benefit.

Fourth, we concern members of the financial community. This group should be classified as shareholders, investors and analysts. In view of the difficult economic situation, it is a significant development of mutually beneficial relationships with the financial community. We believe that companies need to be learnt to develop and present a profitable investment projects, attracting foreign investors, have common views with shareholders.

Fifth, we mention the members of the scientific community. In a view of the rapid scientific and technological progress, we identify this group separately. It is important to understand the feasibility of investing in research and development. We believe that for many companies is important to develop and strengthen relationships with scientists from different fields of science. The close relationship between the company and representatives of the scientific community will produce brand new and desirable products and sell them on the market at the best conditions for.

Sixth, we speak about the group which is called “needy". We believe it is important the presence of the social dimension in the modern concept of relationship marketing. For this reason, we offer to mark the sixth group of stakeholders. By the "needy" we should interpret natural persons, legal persons, animals, which are objectively in need of material or moral support. To this group we offer to refer sick children, single parents, disabled, pensioners, people with no particular location of residence, social institutions, charitable organizations, medical institutions, environmental organizations, educational institutions, animal shelters, etc. The purpose of interaction with "needy" is the solution of important social problems.

Based on the identification of the three main marketing positions, it is possible to give a definition of relationship marketing. Relationship marketing - is a modern marketing paradigm, which is based on the construction, maintenance and development of privileged relations with the company's stakeholders (customers, employees, business partners, members of the financial community, the scientific community, "needy"), especially the key, by addressing a wide range of needs and demands of society.
The novelty and features of this contact determination are as follows:

Firstly, as a marketing paradigm. The perception of a relationship marketing paradigm involves allocating a significant place in the relationship marketing theory and practice of marketing. Relationship marketing can be perceived as a concept and as a paradigm. Two approaches are not mutually exclusive.

Secondly, as the emphasis on building of privileged relationships. We believe that a privileged relationship must be understood as long-term, mutually beneficial, trust, securities, sincere and positive quality of a relationship, which is a valuable competitive advantage for companies by allowing to develop in a dynamic market environment and to occupy leading positions in the market.

Third, as the importance of customer segmentation and value of key customers. In our opinion, in the context of relationship marketing segmentation it becomes especially valuable to select customers by psychographic or psychological principle. In this segment the customers are divided into groups on the basis of membership of a social class, lifestyle or personality characteristics. Sellers must be able to draw up a qualitatively psychological portrait of the client. In our opinion, the psychological portrait of the client should be composed of three faces, based on these theories: the theory of temperament, Socionics theory and the theory of perception of the world

Fourth, as the emphasis on building relationships not only with customers, but also with groups of persons. Marketing must recognize the importance of customer relationship management, but understand the needs to develop relationships with various stakeholders’ groups.

Fifth, as a designation of a particular group of stakeholders with whom you need to build a privileged relationship - members of the scientific community. Realities of the twenty-first century need to establish close relations with the scientists. We believe that only by developing and strengthening relations with the representatives of the scientific community it is possible to have positive synergistic effect in terms of creating new products, innovation, resource-saving technologies.

Sixth, as the designation of a particular group of stakeholders, who should be provided by a financial and moral support – “needy” We believe that the social aspect in the current understanding of the relationship marketing concept is underdeveloped. It is important that the relationship marketing company supporters showed concern for the community and assisted in “needy."

Seventh, as the designation of the main ways of building relationships, the needs satisfaction of a wide range of stakeholders and society. It is desirable that the company's employees tried to meet the needs of stakeholders who are at high levels. The more refined the stakeholder needs will be met, the higher the level of welfare of the stakeholders, the more loyal they will be to the company, the more profitable the company will be. Meeting the needs of society will contribute to the realization of self-worth in the face of the company, the formation and strengthening of a positive image in the public

eye (2015). In this regard, it is important to study and propose a competency model for modern vendors selling various goods. For example, we offer an ideological model of competencies for sellers of real estate, vehicles, computer equipment, clothing, jewelry, etc. A good example of universal competence model can be considered a model consisting of twenty-four competences and seven clusters of competence (2015).

The purpose and principles of relationship marketing

In our view, the aim of relationship marketing is building, maintaining and developing the privileged relationship with the stakeholders of the company in order to obtain the mutual benefits and assistance to the community. We believe that the purpose of modern marketing paradigm should contain social aspects. We underline that care about society - a trend of the economy of the XXI century. Private company determines which groups of individuals and what tools should be built privileged relationships with. For other companies strengthen ties with customers and an employee is a priority. It is important to understand that the result of interaction between the company and stakeholders is two side benefits, not just one.

There is a need to develop ideas about the principles of modern marketing paradigm. In marketing literature there are some principles (2004, 2003). We offer the following marketing principles of relations based on our definition of relationship marketing:

1. The principle of staff training with the help of modern technologies.

2. The principle of creating conditions for self-knowledge, self-development and self-employees.

3. The principle of the application of interdisciplinary approaches in marketing.

4. The principle of targeting key customers and partners.

5. The principle of orientation to the constant contact with customers and other stakeholders.

6. The principle of complement contact "face to face".

7. The principle of the preliminary finding information about stakeholders before communication.

8. The principle of universal interaction.

9. The principle of creating a common strategy for working with customers and partners.

10. The principle of the value of personal contact between the stakeholders and employees of the company (the company).

11. The principle of emphasis on creating stakeholders in the positive sensations, emotions, feelings and moods.

12. The principle of emphasis on customer service.

13. The principle of knowledge and taking into account the relationship factors with different groups of people.

14. The principle of importance of segmenting customers based on behavioral and psychological factors.
15. The principle of use of information about clients and other stakeholders from various sources.

16. The principle of identifying and meeting the needs of a wide range of stakeholders.

17. The principle of the application of creativity when working with partners.

18. The principle of forming a positive image of the company (employee).

19. The principle of emphasis on high quality of goods (services).

20. The principle of providing quick answers to customer questions and other partners.

21. The principle of veracity in communication with partners.

22. The principle of long-term, mutually beneficial cooperation and trust.

23. The principle of conquest comprehensive partner loyalty.

24. The principle of distribution to customers and other partners of unexpected bonuses.
25. The principle of orientation on customer retention and key stakeholders.

26. The principle of the company's mission reports to clients and all partners.

27. The principle of the creation of joint value to customers and stakeholders.

28. The principle of evaluating the effectiveness of elements of integrated marketing communications.

29. The principle of concern for society.

30. The principle of monitoring customers' opinions and stakeholders.

31. The principle of rapid feedback from customers and business partners.

32. The principle of work on our mistakes.

33. The principle of individual approach to every customer and business partner.

34. The principle of building relationships with six groups: customers, employees, business partners, the financial community members, members of the scientific community, "needy."

35. The principle of applying a new complex of marketing.

Following the present principles will promote a growth of the main indicators characterizing the effectiveness of marketing and business in general. We believe that it is necessary to conduct research for the finding a new set of marketing requirements. The Concept "4Ps" was really good, important and popular to a certain extent. Taking into account the change of traditional marketing to relationship marketing is important to recognize the need to change the look of the classic marketing mix "4Ps". In our view, the principle of the application of interdisciplinary approaches in marketing activities is one of the most significant. We believe that the successful development of relationship marketing is associated with the use of theoretical and practical development of such sciences as psychology. It is important to justify the necessity of psychological application in marketing.

The importance of psychological application in marketing activities

Commerce psychologisation is one of the actual market trends. We believe that a deep understanding of customers and other stakeholders of the company is the only solid basis for creation and development of a successful business. According to many scientists, the main marketing object - is the study of consumer psychology. Experts have proven that 95% of human thinking takes place at an unconscious level through memories, emotions, thoughts, and other components that people do not

realize (2003). Consumers can not precisely determine the forces that influence the decision to buy and are not able to describe them verbally. This is indicated by various methods of measuring physiological functions, which confirm the activation of brain cells proceeds the moment of awareness and activation of the parts of the brain that are responsible for verbalization. These areas of the human brain are activated when a person has unconsciously decided to express his thoughts orally. We believe that it is important to study the psychology not only consumers, but also the psychology of all stakeholders to develop high-quality relationships and obtain benefits by both parties of material and immaterial nature. In this context we offer to apply a psychological approach in the marketing activities. Under the psychological approach it should be understood an approach of the employee or the campaign itself to stakeholders, or any issue, problem, company decision based on knowledge of mental processes (sensation, perception, memory, thinking, imagination), mental states (tension, motivation, frustration, emotions, feelings) and mental properties (orientation, abilities, inclinations, character, temperament) of people. It is advisable to briefly consider four psychological concepts which are taken as a basis for marketing strategy, known throughout the world .In classic concept by Ph. Kotler (2003), the main role is played by the psychology of motivation and needs. This concept is called classical or needy-motivational. Thus, Ph. Kotler believes that marketing should promote the production of quality goods and services. In this case, efforts to promote the products should be minimal. Needs always exist objectively. Needs do not need to create artificially by means of manipulating the psychology of advertising or consumer. Requirements should be timely and accurately meet. A result of this process will be long-lived brands. The concept of J. Trout (2001), which is called marketing concept prevails general and social psychology. J. Trout believes that the main principle of marketing - is positioning the product in minds of consumers to be the best. The main thing - it's not the product itself, but efforts to fight against competitors. Here, the psychological basis of marketing - it does not work with the product and with consumers' images simultaneously perceiving and comparing different products. The concept of sensory marketing, founded by M. Lindstrom (2010), is based on the use of psychophysiology analyzers consumers and the psychology of religion. This concept is called sensory marketing and comes to two positions. First, any product should simultaneously affect the five sensory analyzers: sight, hearing, smell, touch, taste. Secondly, brand should arouse religious sentiments of the consumer. He must believe that he had bought the best that there is in the market. Neuromarketing concept proposed by J. Zaltman (2003) is based on cognitive psychology and neuropsychology. The author considers the concept to be the main thing in marketing - the management of the decision-making process of the consumer. The basics of the framework for the emergence of the concept of "cool" brands are incorporated in the human subconscious. They need to extract out as much information blocks as possible and return to the consumer in the form of metaphors. Application of psychological concepts in marketing by researchers world-wide is evidence of the appreciable increase of psychology in marketing. Relationship marketing implies the need to use theoretical and practical development of psychology in marketing for the construction, maintenance and development of the high-level relationships with stakeholders. The effectiveness of psychological portrait of the client is connected with allowance precisely and consistently interacts with customers. In turn, its use is guaranteed to lead to the construction of high-quality and effective communication with the client. In its turn, it leads to use of guaranteed-quality construction and efficient communication with the client. We believe that the basis of the client's psychological portrait should be based on four theories: the theory of temperament, Socionics, the theory concerning types of thinking and the theory of character accentuation. Despite rather serious research in the field of differential psychology, methodological approaches affecting psychological portrait of the client need to be improved.

Conclusion

Thus, theoretical relationship marketing principles are developed. Under the relationship marketing it should be understood a modern marketing paradigm, which is based on the construction, maintenance and development of privileged relations with the stakeholders of the company, especially the key ones, by addressing a wide range of needs and requirements of society. It is important to develop relationships with the following groups of stakeholders: customers, employees, business partners, members of the financial community, the scientific community, "needy". A key

aim of relationship marketing is building, maintaining and developing the privileged relationships with the company's stakeholders in order to obtain the mutual benefits and assistance to society. Meeting the needs of society should be considered an important part of the paradigm. In our opinion, it is important to take care of psychological well-being of stakeholders. In your opinion, K. Ryff (1989, 1995) most successfully revealed and described the phenomenon of psychological well-being. It is important to follow the principles of relationship marketing such as: the principle of conditions' creation for self-knowledge, self-development and self-realization of employees; the principle of the use of interdisciplinary approaches to marketing activities; the principle value of personal contact between the stakeholders and employees of the company; emphasis on creating positive feelings, emotions, feelings and moods; the principle of distribution to customers and other partners of unexpected bonuses, etc. It is important to study the psychology of consumers and all stakeholders to improve the relationship between two parties. It is advisable to apply a psychological approach in marketing activities of the company. We consider it important to conduct further research on a new set of marketing offerings, the creation of competency model for developing a method of creating a psychological portrait of the client.

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Investment Strategies in the Field of General Insurance

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Abstract

The evolution of the insurance market will undergo major changes starting with the 1st of January 2016, when the implementation of the Solvency II European Regulation takes effect. This regulation integrates new risks for the insurance companies: the underwriting risk, the liquidity risk, the concentration risk, the market risk, the credit risk, the strategic risk, which will all lead to the insurance company solvency establishment. In this context, we decided to realize an analysis of the structure of the investment portfolio of global and European insurers. Also we identified and analyzed trends, strategies and achievements in the insurance field.

Keywords: insurance, investment, portfolio, efficiency

Introduction

The most important effects of the Solvency II European Regulation are:

- ✓ changes in tariffs,
- ✓ mergers, takeovers or bankruptcies of insurance companies,
- ✓ the transformation of large companies into branches,
- ✓ great responsibility of any insurance company management, even direct responsibility from the part of the company manager,
- ✓ a new approach of the supervision process, at the European level, based on economic principles for the measurement of assets and liabilities, by taking into consideration the number and the variety of risks to which the company is exposed,
- ✓ the draw-up of insurance company rankings by taking into account, not the gross written premiums, that is the volume of sales, but the new indicator, i.e. solvency, indicator which is capable to disclose the company's ability to make payments in the future (future compensation, debts etc.).

This regulation also brings advantages, which, for the insurant, may be correlated with a reduction in the risk of bankruptcy for the insurer, the availability of innovative insurance products, a better correlation between the products offered and individual needs.

1. Trends, strategies and achievements in the insurance field

In most countries, insurance companies continued to allocate investment portfolios in bonds both in the public and in the private domains, an aspect which was encountered in all the insurance sectors. (Dreher A, 2006) Investments generate positive aspects, especially in the life insurance sector. The main strategies adopted by the insurance companies were:

- investment in bonds
- investment in shares
- investment in the real estate domain.

Insurance companies can approach the most profitable investment strategy, i.e. investment in bonds. Bonds continue to dominate the life insurance investment portfolio. (Chien Chiang L., Chi-Hung Chang, 2015)

In 2014, the insurance market from 13 countries (Columbia, France, Hungary, Israel, Mexico, Peru, Portugal, Puerto Rico, Slovakia, Spain, Turkey and Uruguay) allotted 75% of the investment in bonds (figure no 1). In countries such as Hungary, Italy, Slovakia, Turkey, the investment portfolio from the life insurance sector was greater than 85%, the sums of money being invested in bonds. In figure no 1, it may be noticed that, out of the European countries, Turkey has the biggest investment portfolio, with 93.1%, being followed by Hungary with 90.8%. At the opposite pole, there is Finland, with 27.9% of the total investment allocated to bonds.

On the other hand, other countries reported that insurers applied the share investment strategy. In this respect, in Europe, insurance companies from Denmark (52.7%), Iceland (28.5%), and Sweden (36.9%) allocate over 30% from the investment portfolio, the biggest allocation being in Denmark. In countries such as Indonesia, Panama, South Africa over 60% is allocated from the share investment portfolio. In some statistics, the allocated percentage is much bigger due to the inclusion of investment in mutual investment funds (for example, in Panama, the percentage is 78% according to figure no 1). Another strategy, adopted by the insurance companies, is the investment in the real estate domain. Nevertheless, this strategy was adopted on a small scale, Australia, Chile, Norway and Switzerland being the only countries in which the insurance companies invested between 10 – 15% (figure no 1).

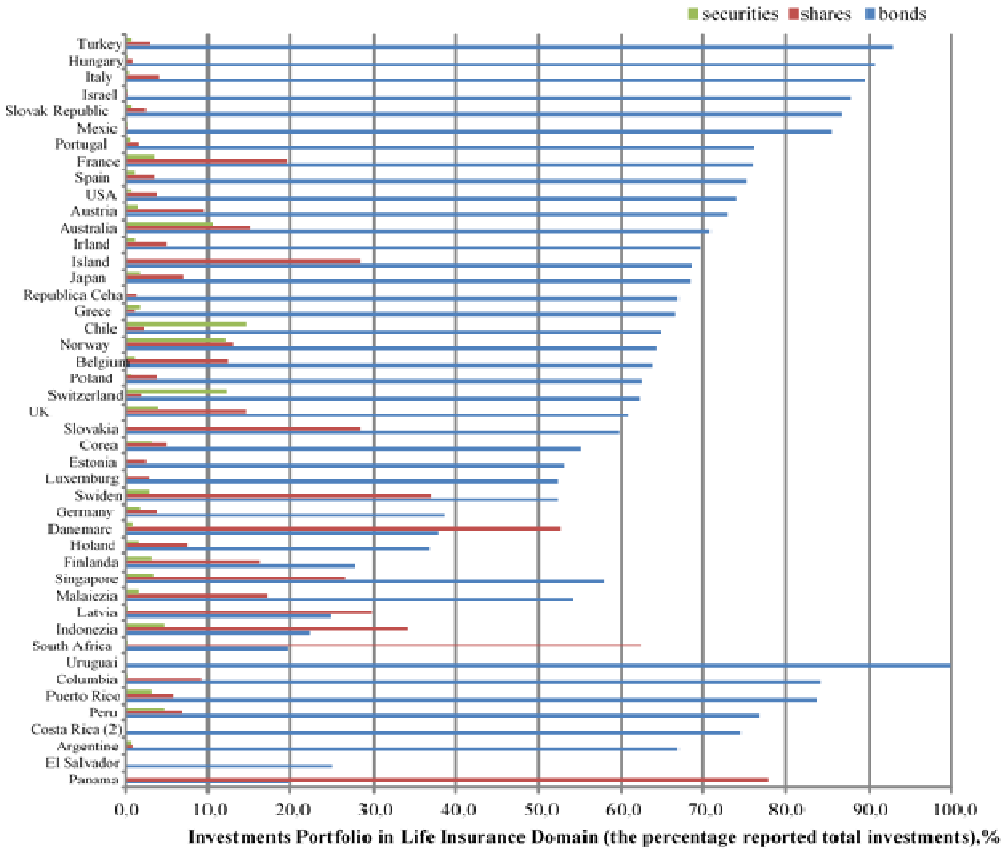

Figure 1: Life insurance - investment strategies (data processed from the OECD Insurance statistics 2014 source)

As far as the investment trends and strategies regarding general insurance are concerned, most countries have stability in investment in shares or in other assets. In 2014, an increase of 5 – 14% was reported regarding the allocation of investment in shares in Iceland and Indonesia. The achievement of great performances for some insurance companies from different countries (Denmark, France, Greece, Iceland, Ireland, Israel, Italy, Luxembourg, Norway, Sweden and Switzerland) entailed investment strategy modifications, from investment in bonds to investment in shares and other assets. Nevertheless, the strategy to invest in bonds dominates most countries, occupying over 75% from the general insurance investment portfolio in Canada, Columbia, Hungary, Italy, Mexico, Paraguay, Puerto Rico, Turkey and Uruguay.

In Europe, the biggest fund allocation for investment in bonds is reported in Hungary with over 80% (figure no 2). Austria allocates 41.2% of the funds for investment in shares, Poland and Germany 66.02%, that is 75.2% less, whereas Finland and Sweden reports over 30% of the total investment portfolio. The general insurance fund investment strategy in the real estate domain is applied only by a few countries and the funds are limited. Thus, Finland, Italy, Slovenia, Spain and Portugal invest between 7-10% of the funds, the first place being occupied by Spain with 9.99%, followed by Portugal with 8.8%.

These investment strategies allow insurance companies to collect real net income. According to statistics, in Hungary, Iceland and Luxembourg, insurance companies collected bigger real net

income from investment in 2014 with up to four percentage points as compared to the previous year. In Poland, life insurance investment income was with up to 5% bigger, whereas in Israel there was a drop, but the benefits of the approached strategies were positive.

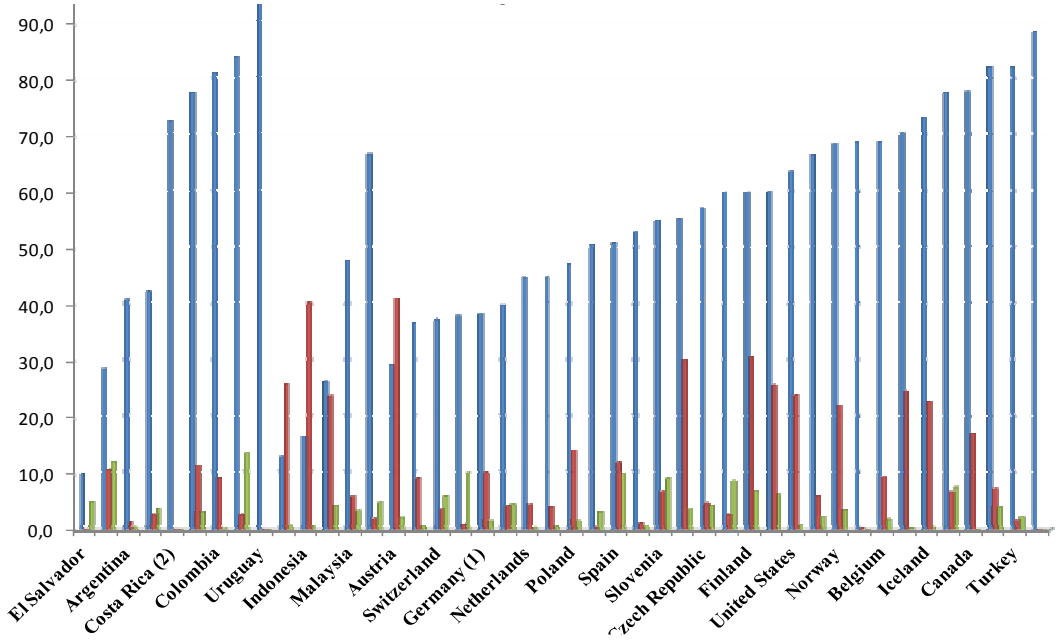

Figure2: General insurance fund investment strategic elements

(Report for the year 2014 - Adaptation after the OECD Insurance Statistics 2015 source)

Regarding return on equity for insurance companies, there has been reported a variable situation from year to year. In 2013, the best evolution of the life insurance return on equity (ROE) was recorded in Greece, Italy and Portugal, which passed through the same economic instability periods generated by the financial crisis. Therefore, the life insurance sector in Portugal recorded the best evolution (from 7.8% in 2011 to 30.6% in 2014). Other countries, from 2012 until 2014, recorded moderate increases between 5 and 10%.

In the general insurance sector, the return on equity varied. Insurance companies from Slovakia achieved a growth from a negative percentage of -43.5% in 2011 to 27% in 2014. In Greece, Finland, Iceland, Poland, the return on investment was of over 10% in the analysed period. France recorded a decrease of 49% in 2012 as compared to 2011 regarding ROE, and in 2013 it recorded a comeback at 7.4%. Switzerland reported an increase of 39.5% for the year 2013 as compared to 2011. Ireland recorded a decrease of almost 43% in 2014 as compared to 2013 when the general insurance reported percentage for ROE was of 16.1%.

2. Insurers' investment portfolio in Europe

Europe is the place of developing modern insurance and remains a key global market, with rapid growth especially in the branches of life insurance and savings, but ranking second after the United States. Developing a European insurance market was a gradual process that lasted several years. EU directives on insurance represent generally accepted principles in the European Community in order

to standardize insurance rules and facilitate international trade, referring primarily to the insurance business, but also to the reinsurance domain. (Novac L.E, 2008)

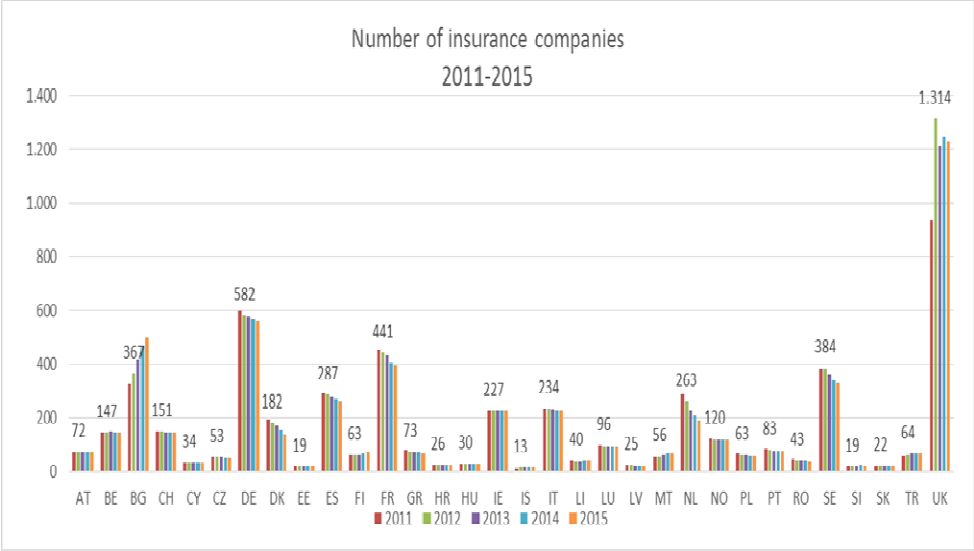

Figure 3: Number of insurance companies in Europe (Adaptation after the Statistics n°50 European insurance in figures)

As we can see in Figure no 3, the highest number of insurance companies in Europe, recounted in the UK (1314 insurance companies), followed by the Germany and France. Insurance is a key sector of the European economy, whose influence is felt both in protection against risks in the economic and social landscape of the member countries, the role of stimulating the idea of saving the medium and long term, and as a provider of funds for financial markets. Incidentally, another role Obligatory insurance is the development of techniques for asset management and risk management.

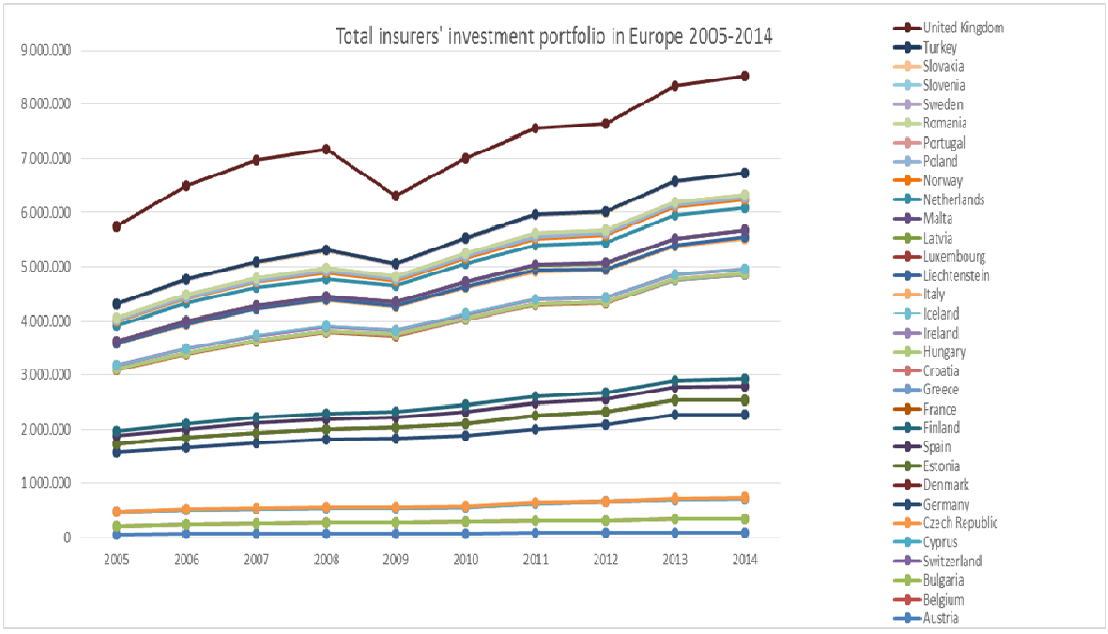

Figure 4: Total insurers 'investment portfolio in Europe (Adaptation after the Statistics n°50 European insurance in figures)

We can observe in figure no 4 that the investment portfolio of insurance companies knows an ascending evolution. Investing activities related to the formation of the investor portfolio investment, which may include different types of investments. The investment portfolio represents all real investment objects and financial (groups of assets such as stocks and bonds, etc.), held by the investor in order to achieve investment activity in line with established investment strategy. Management of securities investment portfolio includes all principles, methods and tools of return on these assets financial crossing the structure of the portfolio less effective structure and operations more efficient.

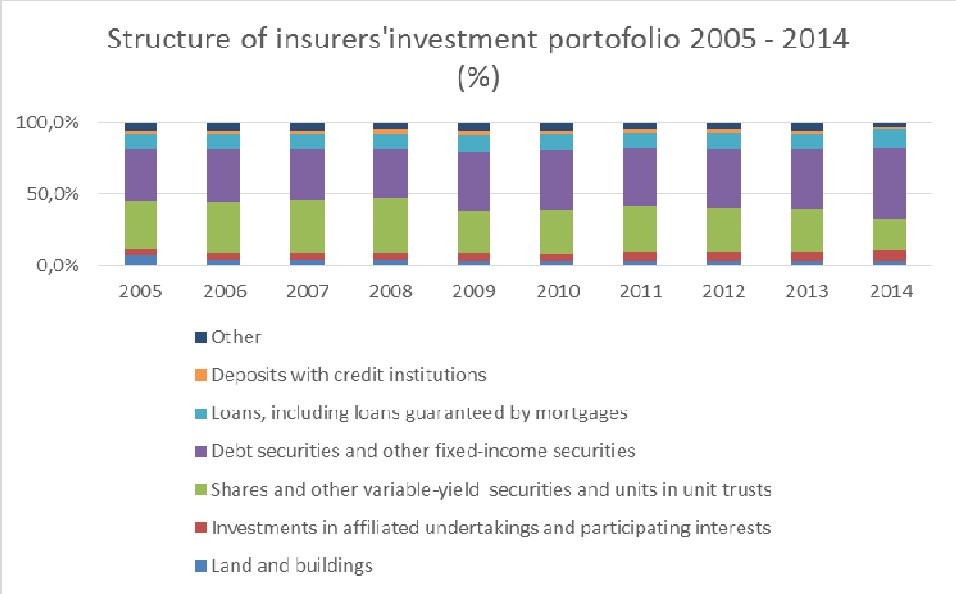

Figure 5: Structure of insurers 'investment portfolio (Adaptation after the Statistics n°50 European insurance in figures)

As we can see in figure no 5, the structure of the investment portfolio of insurers in Europe, the largest share is held by debt securities and other fixed-income securities, followed by shares and other variable-yield securities and units in unit trusts. Portfolio composition is a result of the firm's position risk, expectations developments related income securities (which are subject to financial market developments in interest rates), the fiscal situation and the need immediate liquidity. Performance of a portfolio is determined by comparing yield obtained with the rate of return on financial market. Also, we can observe the constant maintenance of the loans, including loans guaranteed by mortgages.

Conclusions

Globally, insurers do not generate systemic risk, insurance having a stabilizing effect on the economy, due to long-term investments and prudent investment policy, even conservative. Indirect effects, related primarily to the decline in indices, changes in interest rates and ratings of financial instruments, reducing profit margins and in income from hedge "zero" were much stronger in the case of life insurance than those General. Insurer's exposure to "toxic" assets was relatively low, mainly due to conservative investment policy, provisions and restrictions imposed by national legislation on asset investment, portfolio diversification, ban or limit investment in alternative instruments. In the post-crisis period with loss insurers were 261 billion, compared with USD 1 230 billion in banking,

21% (Chien-Chiang Lee, Chi-Hung Chang, 2015). Profitability fell insurance, primarily in life insurance by reducing investment performance due to falling indices and volatility of financial markets.

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Exploitation of Energy Resources from Romania and Its Sustainable Development Features

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Abstract

The concept of sustainable development has been crystallized in time, over several decades, in some depth internationally scientific debates, and acquired precise political meanings in the globalization context. For Romania, as an EU member state, sustainable development is one possible option, but the only rational perspective as a nation, resulting in the establishment of a new development paradigm at the confluence of economic, social and environmental factors. Once accepted that most serious problems of environment are related to the use of renewable natural resources in the production process, we can admit the need to discuss issues related to economic policies that allow optimum implementation, their impact on the economy and, in particular, the contribution in promoting technical progress. Based on these considerations, in this paper, the main objective was to identify those characteristics of sustainable development in the mining industry in Romania, so in the specific conditions of our country, connection to the transition to the new model of sustainable development our country is engaged alongside the other European Union Member States, must be matched by additional national effort to recover some substantial gaps in several areas of the national system.

Keywords: sustainable development, oil, natural gas, coal

Introduction

As a result of injudicious interventions (industrial pollution, especially mining, oil and chemicals industry, storage of waste, faulty agricultural works, failure to deal with erosion), compaction, deterioration of soil structure, depleting substances nutrients often occurs, leading to lower soil fertility in agriculture.

Major consequences for natural capital made by such plans and sectoral programs performed in the absence of a coherent overarching strategy that reflects the complexity of direct and indirect interdependencies between socio-economic and natural capital components at different scales of time and space are found in a number of significant changes in qualitative and quantitative structure and operation of the latter.

To act realistically, knowingly, on the strategic direction towards sustainable development, for Romania (1), its citizens and its foreign partners is necessary to have a clear understanding on the starting point to the road, the real assets of the country, but also on defects inherited from a complicated historical background. Therefore, Romania's specific circumstances, the connection to the transition to the new model of sustainable development in which the country is engaged alongside

the other Member States of the European Union, it must be matched by additional national effort to recover some substantial gaps in several areas of the national system.

For Romania, as a EU member state, sustainable development is not one possible option, but the only rational perspective as a nation, resulting in the establishment of a new development paradigm at the confluence of economic, social and environmental factors.

1. Literature Review

The concept of sustainable development crystallized in time, over several decades, during internationally scientific debate and acquired precise political meanings in the context of globalization.

In recent history, the first signal that the economic and social developments of both countries all over the world and of humanity as a whole can not be separated from the consequences of human activity on the natural environment was made in the 1972 Report of Club of Rome entitled "The Limits to Growth" (Meadows Report) (Meadows *et al.*, 1972). The document summarized the data on the evolution of five factors (population growth, impact of industrialization, pollution, food production, and natural resource depletion trends), suggesting the conclusion that the development model in that period can not be sustained on long term.

For about four decades - namely, the oil shocks of the 1970s – it was established the idea that oil production is an inevitable decline. The influent paper of the Club of Rome predicted the collapse of an industrial system confronted to an exponential growth in energy demand, with growing overpopulation, and pollution. Two years later, National Geographic (Grove, 1974) popularized the theory of peak oil production, of the American geologist M. King Hubbert, who forecasted that the absolute peak of oil production will be reached in 1995, after which alternative forms of energy should be necessary to offset the rapid decline of hydrocarbon-based economy.

The issues regarding the relationships between humankind and environment became a concern for the international community since United Nations' first Conference on Environment (Stockholm, 1972) and resulted in the work of the World Commission on Environment and Development, established in 1985. The report of this Commission presented in 1987 by G. H. Bruntdland and named "Our Common Future" (Bruntdland Report, 1978), offered the first accepted definition of sustainable development as "the development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs". The concept of sustainable development proposes an integrated approach of policy and decision makers in which environmental protection and long-term economic growth are seen as complementary and mutual interdependent.

From this point, the complex issues related to sustainable development acquired a global political dimension being addressed at the highest level at the World Conference on Environment and Sustainable Development in Rio de Janeiro (1992), at the Special Session of the UN General Assembly, by the Millennium Development Goals (MDG) approach (2000), and by the World Conference on Sustainable Development in Johannesburg (2002). Thus, they have outlined concrete action programs at global and local level (Local Agenda 21) according to the principle "think globally, act locally".

If we accept that sustainable development means "meeting the needs of the present without compromising the ability of future generations to meet their own needs", then its accomplishment depends and is influenced by almost every political, social, economic decision and/or administrative action which we take at present.

The analysis starts from the observation that at the end of the first decade of the XXI century, after a long, traumatic transition to pluralist democracy and market economy, Romania still has to overcome significant gaps compared to other Member States of the European Union, together with the adoption

and implementation of the sustainable development principles and practices in the context of globalization.

Despite progress in recent years is a fact that Romania still has an economy based on intensive use of resources, an administration and a civil society still in seek of a shared vision, and a natural capital facing the risk of damages that may become irreversible.

Technological shift in recent years has brought oil in the global energy industry forefront. The hydrocarbons can today be extracted from geological formations that could not have been accounted for as a resource a decade ago. Natural gas abundant on North American markets offers the manufacturing industry a cheap and clean form of energy with much lower carbon emissions than coal. International trade with liquefied natural gas (LNG) has increased significantly, which helps to break monopolies on regional markets, and to obtain better prices and contract conditions for consumers. Oil gives consumers the cheapest and most accessible unit of energy, which enables economic development and construction of reliable and clean high-tech energy systems.

At global level, coal is the main fuel for energy supply, and its price is low compared to other fuels. However, coal is the largest source of pollution in the production of electricity.

According to the EU documents, coal is only part of a diversified energy mix, contributing to the security of supply. The future of coal in Europe depends on the success of the 20/20/20 EU Program, and its rivalry with natural gas on the overall energy mix. While natural gas is threatened by the instability of prices, by the uncertain increase of reserves, and by the exploitation of unconventional resources, the development of technologies for carbon capture and storage, and other emerging clean technologies can enhance the role that coal can play in a secure and sustainable future.

The International Energy Agency scenarios is estimated that the EU energy mix will still be heavily based on fossil fuels, including coal, and for the countries of Central and Eastern Europe, coal will be the main pillar in energy security right up to 2035. Therefore, fossil fuel security and access to resources must remain a priority for the future energy policy of the EU.

Regarding coal, in EU documents this is only one component of a diversified energy portfolio, contributing to security of supply. Given the development of CCS (carbon capture and storage) and other emerging clean coal technologies can play an important role in a secure and sustainable future.

The 2050 Roadmap policy document whereby the European Union assumes de-carbonization policies (90% reduction in emissions by 2050 compared to 1990), is favored but switching to other types of fossil fuels and are encouraged new technologies: natural gas as a transitional solution on short term; renewable resources, on long term; requires increased energy efficiency; requires the development and implementation of new clean coal technology use.

Programmatic European documents tend to give unilateral concerns about emissions of greenhouse gases, neglecting other benefits of coal, always conditioning to keep it as a key resource for successful implementation of clean technologies (CO_2 storage, reducing SO_X and NO_X emissions), at reasonable costs.

2. Characteristics of sustainable development in the hydrocarbon extractive industry

Despite the fact that hydrocarbon extraction is achieved in a closed system, which should enable them to avoid or, at least, substantially reduce all forms of pollution, the exploration and exploitation of oil and gas deposits continue to be among the most polluting industrial activities.

Hence, in the extractive industries of oil and gas, the sources of pollution are numerous as negative effects of pollutants are serious and long lasting.

2.1. Oil

By the nature of its activities, OMV Petrom (2), the main oil producer, has a special responsibility for managing environmental impacts and ensuring safe and efficient operations. It aims to apply best practice environmental management, paying special attention to emissions of carbon dioxide, water resources and including natural gas, the cleanest fossil fuel, into the energy mix.

Oil, heavy oil, salt water and various chemicals contamination of land around drilling and extraction wells is, with all its incidentally character, extremely harmful to soil, surface water and groundwater. The severity of pollution will depend, of course, on the nature of the pollutant, its quantity and scope that the pollution occurs. Inventory of contaminated land in various degrees with oil, salt water or mixed blends indicates for the whole country an area of about 50,000 ha. Of these, about 5,800 ha are directly affected by nearly 12,000 productive wells in operation.

Preventing and combating pollution after it has come true can be done in many ways and it is achieved through complex actions often extremely expensive, especially in cases where pollution has already occurred. Of course, the best way to prevent pollution is to significantly reduce emissions (in air) and discharges (in water and soil) of pollutants from each of those sources for oil extraction industry. This reduction can be achieved by advanced technologies designed to reduce waste generation at source, recovery and reuse of waste, and the efficient use of technology regardless of their performance.

Under existing technology at extract oil rigs, ***prevention and combating the environmental contamination with specific pollutants*** can be carried efficiently out through a range of measures in order ***to comply with sustainable development requirements***:

- building a database that includes all sources of pollution in the investigated area, with identifiers, location, specific pollutants concentration/amount compared to their permissible limits etc.;
- continuous monitoring of extraction installations, storage facilities and all other potential sources, for rapid intervention in case of failures that cause pollutants emissions or discharges;
- regular inspections of installations (especially of pipes and connections) for the timely detection (preferably before production) of cracks and leaks imminent or those who have already occurred in order to remedy their operation;
- prevention, through specific technical means, of corrosion and abrasion of the surface and depth installations;
- enclosure arrangement of each well so as to avoid spilling out liquids that can escape the installations during oil extraction;
- salt water collection and underground reinjection to maintain or restore reservoir pressure;
- diminish or, if possible, avoid long distance transportation and reinjection of salt water in their areas closest to separating/collecting stations;
- efficient treatment of waste waters (resulting from boreholes, wells repair and cleaning of oil tanks) and their evacuation either by underground reinjection or by reuse in the extraction process after proper cleaning of oil substances immiscible with water etc.;
- avoid or considerably reduce seepage into the soil by clay waterproofing, PVC etc.;
- facilities dismantling and perimeters rehabilitation occupied by them, immediately after abandoning oil fields whose deposits have been exhausted;
- proper set up of new wells, taking into account the topography, hydrographic network, aquifer, soils, vegetation and fauna of the area in which they will operate.

In conclusion, OMV Petrom's operations to minimize the impact on the ecosystem, it undertook to manage resources sustainably. These efforts include efficient use of water, wastewater treatment and disposal in an appropriate way in areas with high biodiversity sensitivity, and prevention of harmful emissions.

2.2. Natural gas

Romgaz (3), the largest gas producer, conscious of its relationship to its dynamic business environment, society and the environment, has expanded, in time, its responsibility to shareholders and social media influenced by its work. The management assumes that the ***principles of market economy, people and the environment can be harmonized in a corporate strategy of sustainable development.***

Accepting the role that it has in its relation to the social expectations, Romgaz assume the social responsibility as a freely chosen corporate initiative beyond economic and legal obligations, in order to fulfill in the long term social commitments that contributes to community development and improving quality of life. In this regard, the company has a proactive attitude to continuously improve working conditions for employees, focusing on improving the quality and environmental performance, philanthropic and substantial sponsorship acts for areas such as education, culture and sports.

In its activities, Romgaz pursues an environmental policy focused on continuous improvement of environmental performance, pollution prevention and energy conservation climate. In order to achieve their strategic objectives and to implement the quality management system, Romgaz invests in:

- closed collecting systems of water reservoir during exploitation of productive wells;
- closed separating systems of water reservoir and gas wells on probation (discharge/pumping etc.), RK interventions;
- replacing/upgrading gas compressors in order to reduce electricity, gas, oils, technological waters consumption, noise/vibration;
- drying of natural gas with low energy and raw materials consumption;
- use of vehicles with low fuel consumption;
- eliminate waste from Romgaz exploitation activities, through their recovery;
- achieve the abandonment of gas wells and reuse of aside land affected;
- construction/upgrading of treatment plants for sewage and/or reuse these used waters in industrial and technological flow;
- construction of injection gas wells;
- eliminate all methane gas loss during transportation process;
- using pipes/valves of the highest quality in order to eliminate some current and capital repair costs;
- conducting studies on landslides field to prevent work accidents.

To comply with sustainable development requirements, Romgaz operates promoting actions and initiatives leading to saving resources, reduction and optimal management of specific waste, and reduce risk factors for the environment, continuously pursuing the improvement of efficiency of environmental protection, support for Romgaz managerial process, by:

- pollution prevention;
- implementing programs for environmental protection;
- maintenance and continuous improvement of environmental performance;
- regular analysis of environmental performance to monitor the progress registered by the company.

3. Characteristics of sustainable development in the coal mining industry

Coal is the most prevalent resource for energy production based on fossil fuels. The share of coal as an energy source has experienced significant growth due to its status of safe resource, widespread and its affordable price.

The mining activity produces multiple negative effects on the environment and various effects that persist after stopping of mining operation, involving damage, direct and indirect, which would be borne by the entire community for a long time. Although the severity of the negative impact depends on several factors (the size of area operations, technology used and measures taken to reduce impacts) they are inevitable to some extent.

Like many industrial activities, coal mining generates a series of negative impacts on the environment, the importance of which is closely related to the mining type that is practiced, geography and ecology of the area affected, and the public attitude on this issue. Many modern mining controversial aspects are that the extractive industries must deal with enormous volumes of waste.

In both cases, in underground mining and in quarrying, the operations take place in the vicinity of the extraction area. Damage features and the affected area can vary widely, as in one mine a variety of techniques used to solve these problems may occur. A general distinction can be made between the restoration, in which the land comes back to its original use and initial topography, and the recovery, which creates different uses and topography.

Underground mining produce several types of waste, including those from digging shafts and galleries for bringing to the surface of coal, materials from inside the deposit, and residues from waste treatment facilities. Currently, waste treatment issue is the need to treat old dumps, many of which are in an advanced state of deterioration. Moreover the visual impact produced by them occurs, many becoming structurally unstable due to moisture, especially those on steep slopes.

Exposure to moisture can cause emissions and chemical instability of mineral waste. Toxic emissions when oxidation components for producing acid compounds may be release, and there is a danger of being taken over by local waters. As a chemical reaction, heat may be produced from the combustion of coal particles that remain in the mineral waste. Storage under supervision, compacting, or treatment prevents spontaneous combustion. These methods help to re-vegetation, in many parts of the world being put back into production as agricultural land, especially.

In quarrying mining, stripping to obtain coal share is 25 to 1, this large volume of waste being usually returned to the excavations, when mining was completed. It causes degradation of the landscape and occupation of large areas for land pits, dumps, warehouses, industrial buildings and roadways, preventing land use for any other purpose. Similar problems are often encountered in landfills, producing disturbance of groundwater flows, toxic releases and other pollutants, erosion and crumbling of unstable slopes.

The best practice for land recovery is that stripping from excavations made recently and located near areas of operation, to be compacted, covered with fertile land and re-planted. This method requires financial support for a longer period, which entails high costs. The success of this method depends on many factors such as the acidity or alkalinity of the soil, the presence of moisture, the degree of ground compaction, temperature, presence of nutrients factors and necessary micro-organisms.

Less drastic but still significant is ***the impact of coal mining on other environmental factors,*** namely: ***water pollution, dust and noise pollution.***

To comply with sustainable development requirements, Clean Coal Technologies (CCT) applying can activate new coal resources that can be used in accordance with environmental objectives. Therefore, companies that extract coal operate promoting actions and initiatives leading to saving resources, reducing and optimal management of specific waste, and reducing environmental risk factors, while watching continually the enhancement of their environmental protection through:

- carbon capture and storage;
- obtaining clean coal combustibles: coal liquefaction, underground coal gasification (GSC), representing a growth potential of global coal reserves in an environmentally friendly manner.

4. Conclusions

It is widely accepted that the mining industry is a vital sector of a country where there do exist natural resources that can be exploited. Experts argue that this industry is a source of foreign income, foreign direct investment and, not least, is the main and sometimes sole provider of energy of a country. Activities in the extractive industry of any state provides employment to the population, rending contributions to the public budget through payment of taxes, as revenue from these activities may be directed to charity, but at the same time, there is an environmental risk, greater or less, directly linked to each initiative taking place in this industry.

Mining and quarrying activities are widely recognized as having a significant impact on the population, both in financial, and in social, cultural and environmental terms. More increasingly, in recent years has emphasized the need to minimize the negative impacts and to promote the positive elements that control negative externalities, and to equally develop the skills of those involved in minimizing undesirable impacts.

Entry of Romania into the European Union has imposed harmonization its policies with European policies in all areas, including towards sustainable development, both nationally and regionally. If in time, after 2001, various plans and alternatives to national development strategies were initiated and developed, reflected more or less correct in the "sustainable" realities around us, today we face some commands that will fundamentally influence Romania's future.

Although real progress in recent years have been done, is a well known fact that Romania's economy still relies on intensive consumption of resources, on a society and an administration still aiming to develop a shared vision, and on a natural capital affected by the risk of damages that may become irreversible.

Based on these considerations, ***the main objective of this work was to identify those coordinates of sustainable development policy applicable in the mining industry in Romania,*** so achieving these strategic objectives to ensure, in the medium and long term, high growth and, consequently, a significant reduction of social and economic disparities between Romania and other EU Member States.

In conclusion, for an adequate valorization of sustainable development opportunities in the extractive industry sectors analyzed, the demand on the domestic and international markets will have the decisive word, with its prices and circumstances fluctuations, with the chances they offer, but also with the threats they imply.

Efficient valorization of these opportunities and avoiding the potential threats depends ultimately on the ability of businesses to develop distinctive competencies and competitive advantages, in a word, to be able to face the increasing domestic and international market competition.

By appropriate industrial policy measures in the mining industry, the State can increase this capacity in industries where real competitive advantages and potential exist, as well as in industries showing a particular strategic interest.

Endnotes

(1) Romania is a republic in Southeast Europe, bordering the Black Sea, Bulgaria, Ukraine, Serbia, and Moldova. With 19.94 million inhabitants (2015 estimate), it is the seventh most populous member state of the European Union. Its capital and largest city, Bucharest, is the sixth largest city in the EU. It has been a member of NATO since 2004, and part of the European Union since 2007.

(2) OMV Petrom S.A. is a Romanian integrated oil company, the largest corporation in Romania and the largest oil and gas producer in Southeast Europe. It is a subsidiary of OMV.

In late 2004, Petrom was privatized by the Romanian state and sold to Austrian oil company OMV. As of 2005, it was the largest privatization deal in Romania's history.

(3) S.N.G.N. Romgaz S.A. (or simply Romgaz) is the largest natural gas producer in Romania and one of the largest in Eastern Europe. The company is responsible for producing around 40% of the total natural gas consumption in Romania. Its majority stockholder is the Government of Romania, which owns 70.01%. Fondul Proprietatea owns 14.99%, while the remaining 15% is owned by various shareholders.

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Exploitation of Natural Resources and Market Structure

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Abstract

This paper deals with revealing the many factors that affect production and price trend in mining industry, the most important being fluctuations in profit rates, fluctuations in extraction cost and taxes introduced by the Government. Some, such as taxation and the profit, can be treated as variable pricing policy by the government to influence the extraction of non-renewable mineral resources. As often it had been discussed that market imperfections are "best friends of conservatism", the second part of this paper emphasizes that monopoly can exist in mining industry as in manufacturing industry, affecting depletion rates and thus the cost/price of fossil fuels and mining products.

Keywords: natural resources, mining industry, taxation and profit, price trend, cartel, market

Introduction

Profit level fluctuations may have strong effects on production and price trend in mining industry. At the same time, the charging system may have strong effects on the policies used in the mining industry. Operating with the basic economic principle is restricted by many real world constraints (Virmani, 1985).

For example, fluctuations in profit market rates; if it will increase, ceteris paribus, the extraction will increase, and conversely, if rates fall, then there will be a slowdown of mining extraction rhythm.

It is well known that the profit market rate may increase or decrease quite rapidly in a short time (Samuelson and Nordhaus, 1992). Therefore, the first objective of this research is to reveal this type of uncertainty, as it is always in the attention of resource owners when they set their depletion plan for their deposits.

Economic analysis of extractive industry is fundamentally different from the analysis of agriculture, manufacturing and services. The main reason is that the mineral resources are exhaustible resources. In other words, in mining industry an initial stock of reserves will exhaust in time. If we start from the premise that the owner of a resource, like any other owner, is seeking for maximum gain, then it must consider specific factors, unique in the mining industry (Home, 1979).

Hence, the second objective of this research is to examine the optimal level of extraction of non-renewable mineral resources in terms of government which wants to maximize social welfare by exploiting these resources.

1. Factors affecting the reserve depletion level

There are many factors that affect production and price trend in mining industry, the most important being: fluctuations in profit rates; fluctuations in extraction cost; taxes introduced by the Government. Some, such as taxation and the profit, can be treated as variable pricing policy by the government to influence the extraction of non-renewable mineral resources (Kula, 1994).

1.1. Changes in profit rate

Profit level fluctuations may have strong effects on production and price trend in mining industry. First suppose that the profit market rate increases. This means that the revenue rate obtained from an alternative investment project, say term cash deposits, increases. If owners do not undertake any changes of the originally conceived plan, the reserves stock will lead to achieving sub-optimal rates of income over time (Barnett, 1979).

The way to avoid these losses is to move production today. This means that the owners will extract and sell more now, which will lead to lower the price asked on the market. Therefore, less to extract, higher the net price of the remaining reserves may rise. This means that reserves would be exhausted in less time than it would increase profits.

Situation in Fig. 1 illustrates this situation. The curve “ab” is the production and price trend before increasing profit. Immediately after the increase, owners should make an adjustment by increasing production, and then prices start to fall at moment t(0) to the “a” level. For the remaining time left the owners will extract less so that the annuity/rent of the reserves left would grow at a higher rate. It will short depletion time from “T” to “T '”. The new production and price trend "a'b” will be steeper than the previous one "ab".

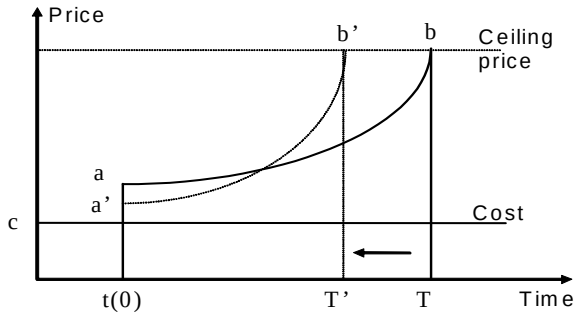

Fig 1: Effect of profit rate growth on production and price trend, and on deposits depletion time

If the profit rate falls, opposite phenomenon will occur. Original price will increase as owners push their production into the future by reducing current extraction. This is because lowering profit rates make stocks return more attractive than current production. This is obvious also in that a lower profit rate would show a lower growth trend than in the previous case. This means that depletion time increases, as shown in Fig. 2.

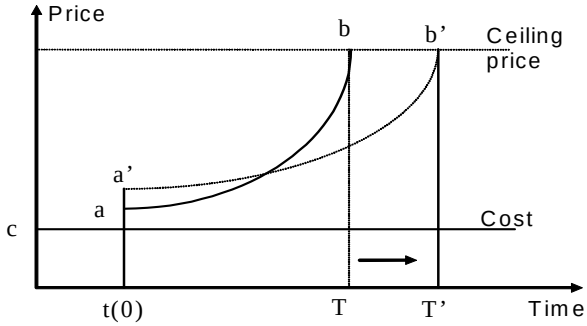

Fig 2:Effect of profit rate falling on production and price trend, and on deposits depletion time

1.2. Fluctuations in extraction cost

In the beginning let's assume that extraction cost increased. This can happen for a variety of reasons such as lack of skilled labor, wage growth in mining industry and basic resources decline as owners start extraction from fields with difficult access.

An increase in mining costs will reduce the current production level and therefore will increase the starting price, but will reduce further prices. This situation, in turn, will reduce the amount required in the near future and will increase the future quantity. The net effect will be the increased depletion time.

The situation is shown in Fig. 3. As the cost of extraction increases, the rent will be reduced. In response, the owners will reduce the current production and will increase, at moment t(0), the initial price "a" to the new price "a'", so the new production and price trend will be "a'b'".

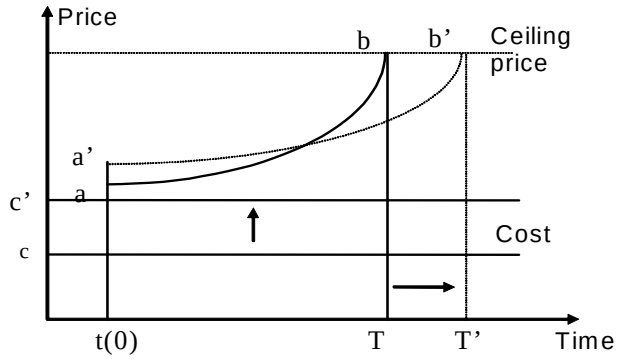

Fig 3: Effect of extraction cost on production and price trend, and on deposits depletion time

On the other hand, a decrease in the extraction cost will have the opposite effect, by increasing the initial value of the rent. If no adjustment is made, it could lead to a situation in which the cancellation price would be reached faster than desired, leaving owners with unsold stocks.

To avoid such a situation, the owners should lower the starting price. The gain will be that when extraction costs fall, the immediate production level increase, which in turn will reduce the initial price and depletion time (as seen in Fig. 4).

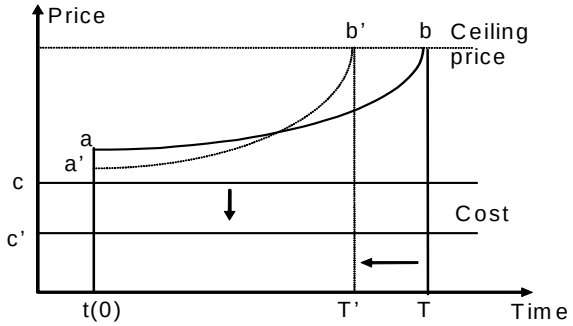

Fig 4: Effect of extraction cost lowering on production and price trend, and on deposits depletion time

1.3. The charging system

The charging system may have strong effects on the policies used in the mining industry. In this respect we can mention several charges.

1.3.1 Excises

Taxing the value of mining production will increase costs, which will have an effect similar to that shown in Fig. 3. For a mine owner, a tax on income is a cost that will reduce the current extraction and enhance deposits depletion time. Moreover, this type of charge will cause mining companies to postpone extraction so as to delay (or suspend) payment of taxes. Thus, they prefer to keep reserves in deposits, where there are no taxes to be paid (Kula, 1994).

1.3.2 Ad-valorem tax

This is a fixed tax on the price of each unit of production, usually a certain percentage of the value of extracted production. The effect of this tax is to reduce the deposits depletion rate and increase their depletion time. Therefore, there is a difference between the effects of ad-valorem tax and excise tax, that the depletion rate reduction is lower in the first taxing case.

Suppose that the owners are proposing to postpone payment of taxes by lowering the rates of extraction. Where ad-valorem tax is chargeable, one will observe that as sales prices are higher, taxes paid on these sales will therefore be higher. Hence, in case of ad-valorem tax, the depletion rate reduction is not preferably as compared to excises.

The difference between specific and ad-valorem taxes can significantly influence decisions in the mining industry. If the government feels that the country's natural resource reserves are depleting too quickly, then a strong measure as excise tax may appear appropriate for a moderated depleting reduction of deposits.

One form of an action with lower impact is the use of ad-valorem tax, as an alternative opposite to imposing through excise tax. This is the main reason due to which conservatives tend for excise tax in the mining industry.

1.3.3 Property Tax

This kind of tax will reduce the depletion time of deposits. From equation (1) inherently results that the stocks value on capital market is the present value of future net profits to be obtained by the extraction and sale of these stocks. This equilibrium value will increase in time at the level of profit market rate, thus providing incentives to owners to keep them.

$$\frac{\delta L}{\delta Q(t)} = [P(t) - C](1+\gamma)^{-t} - \lambda = 0 \quad (1)$$

where: L = Lagrange multiplier;
Q (t) = amount extracted at time t;
P (t) = resource price at time t;
C = cost of extraction, is constant;
γ = rate of return;
t = time, in years.

Ceteris paribus, an annual tax on the amount of resources will powerfully reduce this incentive because as the deposit is kept intact one more time, the greater the taxes to be paid on it. One way to avoid paying this tax on all future periods would be extracting as quickly as possible and investing money in areas where there is a charge similar to this.

2. Models for market structure

Often it had been discussed the fact that market imperfections, especially if highly monopoly, are "best friends of conservatism", says Hotelling (1931). Should be emphasized that monopoly can exist

in mining industry as in manufacturing industry, affecting depletion rates and thus the cost/price of fossil fuels and mining products.

In this sense, arises the question in what ways a monopolistic behavior may differ from a perfectly competitive behavior in the mining industry. It should be recalled again that the objective of any business is the same, that is extraction of resources in a manner which to maximize the present value of profits over time (Hartwick and Olewiler, 1986). When this happens, the market rate of return will be one of the determinants of firms both monopolistic, and perfectly competitive firms. This is inherent in the economic fundamental principle (Ricardo 1817).

First, suppose that a monopolist owner is the sole owner of a set stock that he can extract at zero cost. Market demand curve, the monopolist owner must cope with, remains stationary in time. His problem is to find an extraction scheme to bring maximum profits discounted over time until all original stock (inventory) is depleted over time. Its marginally income increase from two consecutive moments of time will be:

$$\frac{MR(t+1) - MR(t)}{MR(t)} = r \qquad (2)$$

that is the percentage change in marginal revenue equals the time rate of profit, "r", or:

$$MR(t)(1+r) = MR(t+1) \qquad (3)$$

meaning that in every moment of time monopolist owners' marginal revenue amounts to the market rate of return.

In Fig. 5 is represented the situation in which production in each moment of time met conditions in equation (3). In Fig. 5(a), an output level at time t, "Q_t", corresponds to the price level, "P_t". In the next period, t+1, price, and thus marginal revenue, must increase linearly with the market rate of profit, which may be obtained only by reducing production, namely $Q_{t+1} < Q_t$.

When marginal revenue is discounted to market rate of profit, it is the same in different time periods. Last unit of extracted production will produce the highest undiscounted marginal income, which corresponds to the price limit "p*".

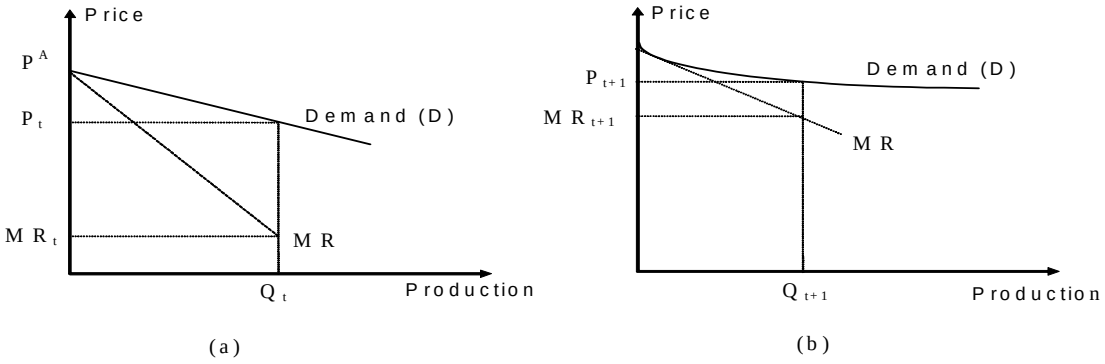

Fig 5: Stock depletion in monopolistic situation, with (a) time = t and (b) time = t+1

As the monopolist owner shifts upward the marginal revenue curve, traders that are competing on mining markets, very many on the market, will shift upward the demand curve every moment of time. In both market structures, the economic fundamental principle must meet the same profit rate. Since the marginal revenue curve is steeper than the demand curve, that is:

$$slopeMR > slopeD \qquad (10)$$

the monopolist owner will have to decrease production less than competing firms, each moment of time. Thus, the monopolist owner will use its reserves more slowly than firms existing on the competitive market.

Because the initial production of the monopolist owner is lower than those in competition, under the condition of two different price trends in both markets, then its initially price must be higher. Because marginal revenue is less than the price (see Fig. 6), monopolist price trend will be flatter than the competitive price, meaning that the price is growing more slowly.

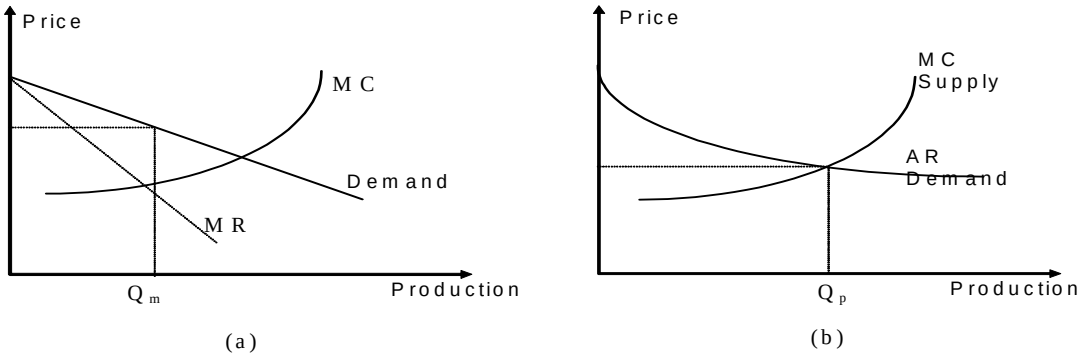

Fig 6: Price and production levels in manufacturing industry, with (a) monopoly and (b) perfect competition

This situation is shown in Fig. 7. In the monopolistic situation, the initial prices are higher, but their growth rate is lower. Assuming there is no change in demand for natural resources, then, in the monopolistic situation the reserve stocks will last for a longer time period compared to competition in the extractive industry.

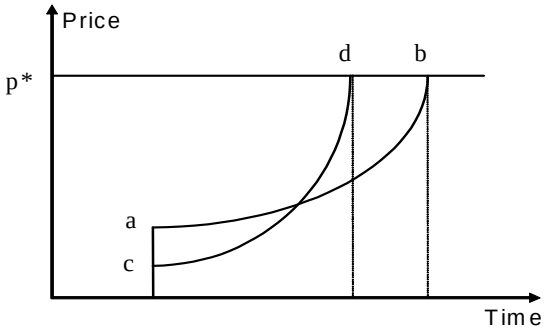

Fig 7: Price trend in the situation on (ab) monopolistic and (cd) competitive market

It was stressed that when depletion time (T) is long, then many changes can occur related to natural resource extraction technology and their use, which will affect the demand curve. It can be argued that as long as the competitive market prices are growing fast, this situation will encourage the users of these resources to seek new sources of alternative raw materials.

In a monopolistic situation, however, demand for natural resources, raw materials for manufacturing industry can not be avoided as long as their users are getting familiar to the slow growth of resource prices and thus will maintain their constant demand. With a constant demand, the ultimate depletion will take place in the competitive market, and if users gradually pass to substitutes, it is possible some of the stock of reserves to remain in deposits.

It is also inherent in our previous assertion that monopoly rent, which includes both the resource rent and excess profits, exceeds the resource rent obtained in the competitive market. It is therefore understandable why independent owners of natural resources are willing to form a cartel where they believe that may manifest as a collective monopoly (Pearce and Turner, 1990).

Indeed, a cartel is a group of independent owners who are trying, by common understanding, to act as a firm. In a cartel case, each owner agrees to produce less than would produce under competitive market conditions. The expected effect of the cartel is to increase the market price so that producers to earn excess profits.

In Fig. 8 are shown the production levels both in competitive market and in terms of a cartel. To simplify the calculations let's assume that we analyze the case of a zero rate of profit. Fig. 8(a) provides competitive price "$0P_p$" and production competition "$0Q_p$" by intersecting supply and demand curve. A competitive market firm believes the market price as given and produce at a level where price equals marginal cost, which then becomes the marginal revenue and schedules its own production at this level. Its market segment covers only part of its total sales.

Suppose now that to achieve excess profits all competing firms would join together to form a cartel. In this case, their production "0Q" would fall so that market prices are rising to "$0P_c$". Note that the ability to offer is not diminishing as production level reduces artificially. To each cartel firm is given such a share so that the reduced rate of production on the market can be maintained. Individual company depicted in Fig. 8(b) is told to reduce production at "$0Q_c$".

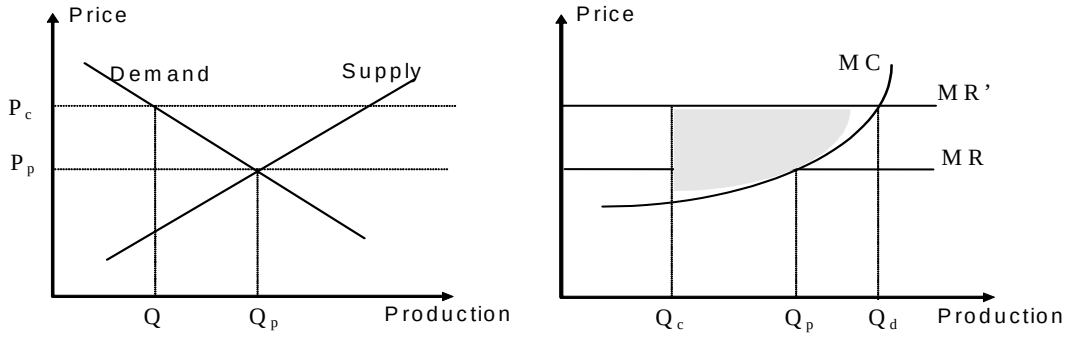

Fig 8: Incentives "to deceive" in terms of a cartel

In this new situation created there is a great temptation "to deceive". Individual company, by reducing its price just a little (slightly below the cartel price), may sell more, "$0Q_d$", at the same expenses as other members. For production "$0Q_d$", the firm's marginal cost equals the new marginal revenue, "MR'", and shaded area shows over-excess profit that can be achieved "through cheating" the cartel.

In fact, all firms are tempted to do likewise. If all are "cheating" the cartel, then market output will be much higher than pre-cartel level and therefore the price will be much lower. In other words, a cartel may also cause disasters to its members (Wannacott and Wannacott, 1986).

3. Conclusions

To conclude this analysis, we must point out that a cartel may increase prices only by reducing its production. However, at higher prices, members forming a cartel are tempted to produce even more than when the competitive market equilibrium. As the cartel situation has more success, the temptation "to deceive" will grow.

To be successful a cartel requires some measure of domestic policy group to ensure that each member takes care of its share. In natural resources depletion terms, in a cartel case, the amount extracted in

each moment of time will be less than in the competitive situation and therefore reserve stocks will longer remain in their deposits.

Economic analysis of extractive industry is fundamentally different from the analysis of agriculture, manufacturing and services. The main reason is that the mineral resources are exhaustible resources. In other words, in mining industry an initial stock of reserves will exhaust in time.

If we start from the premise that the owner of a resource, like any other owner, is seeking for maximum gain, then it must consider specific factors, unique in the mining industry. And such factors have been both identified and developed in this research. And this is both helpful and desirable for a sustainable development in mining industry.

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Examining the Perceptions of Information Technology in an Elite Sporting Organization

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Abstract

In recent years, technology has enabled sporting organisations to become innovators in the global sports arena. Elite sporting teams and bodies are becoming increasingly dependant on technology for daily operations and subsequently these organisations are more and more reliant on technological developments in sport. Player training and management technologies and team performance tools have given sporting organizations the avenues to become more competitive. Organizations invest in information technology for many reasons, for example cutting costs, increase in production and services without increasing costs, improving the quality of services or products and sporting organizations and bodies are no different in looking to technology to gain competitive edges as well as improvement of athlete preparation. However, in spite of these innovations and the potential to gain competitive edges, some seem to struggle with technology resulting in an ambiguous and sometimes negative perceptions of IT services. This work examines the building of credibility in sporting organizations through education and the development of positive perceptions of information technology. The findings provide a basis for further studies and possible trials of differing education formats in technology to further develop both the positive acceptance of sports related technologies and assist in improving the sporting organization's environment.

Keywords: Credibility, Information Technology, Sport

1. Introduction

Organizations, including elite sporting organizations and clubs, operate in a strategic information technology (IT) environment, where the alignment of business and information strategies should be a significant focus for organisational effort. In organisations where the relationship between the IT function and the rest of the business is poor, this severely influences their ability to make the sort of contribution that the business demands (Ward and Peppard, 2002).

Iinformation systems and technology (IS&T) is possibly one of the more important developments in the commercial world over the past 50 years (Carr 2005) and this would similarly apply to the world of sport. Literature has many examples of organizations, including sporting organizations, who have obtained competitive advantage from their use of IS&T. However, in many organizations IT is seen as a cost (Kingsford et al 2003) and in sport the IT resources have been managed by staff in an environment where the potential for loss of knowledge is high due to staff turnover which may occur over short periods and where staff turnover is due to many reasons of which some are differing from the business norm.

If users are not willing to accept the information system, it will not bring full benefits to the organisation (Davis and Venkatesh, 1996). Whether IT is regarded as good or bad depends on how the users of IT perceive it and this perception may not necessarily depend on the technical quality of the systems provided to users. Thus, it is important to find out why users may have a negative manner perception of IS&T.

This exploratory paper reports on an attempt to improve the user perception of the IT function in an Australian sporting organization which has struggled to improve internal user satisfaction. Based on a snapshot of internal user satisfaction survey results and interviews, the paper presents a proposed method to enhance satisfaction and improve the users' perception of IT.

2. IT in the Organization

The IT function of a sporting organization is in somewhat of a quandary as to where it actually resides. Researchers over the last 30 years have put forward the idea of IT being a strategic asset and it being used strategically to further the organization's goals, and there is the perspective that to be competitive the organization would not survive without it. This additionally applies to elite sporting organizations and clubs.

Undeniably IT is the backbone of an organisation and its commercial dealings (Carr 2003): it has transformed business practices, can change the way business is conducted (Beheshti 2004) and in some instances organisations have survived based purely on their use of IT (Malik and Goyal 2003). However, IT is still seen primarily as an operational support function in many organizations (Beheshti 2004) with little emphasis placed on its importance to the organizations.

Though it may not be possible to quantify completely the value of the role of IT to an organisation, it seems imperative that appropriate investments are made in IT to maintain competitiveness. The perception of the "role of IT function in an organization" could have a direct impact on the effectiveness of development of IT capabilities (Ramakrishna and Lin, 1999). Avison et al. (1999) indicate that while IT can be critical to the organisation's ability to conduct and develop business, the IT function is often considered as a secondary activity. A by-product of this is that organisations may be reluctant to divert appropriate investment towards enhancing the IT function, and in sporting organizations and clubs is often the one area where investment is minimized.

IT usage appears to be one of the most significant phenomena to occur within sport in past two (2) decades. It may be used for general organizational functions including operational and managerial control, strategic planning and decision-making. However, the applications of IT have increasingly extended to various functions surrounding the preparation of the individual athlete and/or team.

Perception

Perception is based on the understanding one has of something or someone. It is an impression that a person has based on their understanding of another entity (be that a physical thing, a group such as a team or an organization or another person). Hence perception can be defined as "the process of making sense out of one's environment" (Daft 1997:p562) or "the process of selection, organization, and interpretation of stimuli from the environment" (Milton et al (1984: p22).

When looking at perception in a sporting organization or club, the impressions that a coach/athlete/support staff member has are no doubt influenced by their past experiences, as in any organization (Milton et al. 1984). As they acquire new information or their environment changes, no doubt their perceptions will also shift.

Negative Perception of IT

Negative perceptions of IT are misperceptions based on a lack of understanding or awareness (Overby, 2005a). Today an IT disruption can paralyze a company's ability to make its products, deliver its services and connect with its customers, not to mention foul its reputation, yet only a few companies have done a thorough job of identifying and tempering their vulnerabilities (Carr, 2003).

Reinertsen (2000) believes that no system is so fool proof that it can be operated by idiots, as a result he focuses his attention on the selection and training of people. This is an important concept for organisations and the negative perception of IT within the organisations. It appears to be human nature to act on perceptions, even though it may not be valid, so a negative view of IT can have disastrous consequences within organizations.

In any organization it is hard to change negative perceptions once they are instilled. Even by delivering projects successfully and ensuring IT deliverables, such as network uptime, are maintained

at optimum service levels, changing the mindset of end users within the organization may take considerable effort. Overby (2005a) believes it is impossible to improve how IT is perceived without basic competence in the function and some level of system implementation success. Simply being competent or achieving a major project win is not enough to change a poor perception.

Some consequences of a negative perception of IT within a sporting organization include missed opportunities for innovation and growth, inefficient IT operations, IT budget cuts, a decline in coaching staff / support staff / player morale, and user resistance to IT systems.

Credibility and Trust

Credibility and trust are two important elements that all should strive for in any sporting organization / club. A common misconception is that both credibility and trust are often thought to be same, but this is not the case as one party could have someone's trust but they may not be credible to others. Credibility as defined by Bashein & Markus (1997) is the standing someone gives to another as a result of a positive or negative action and it does not come from the credit we take for undertaking the action. Trust on the other hand requires one party to knowingly place themselves in a position where they may be at risk from or be vulnerable to another party (Brown et al 2004).

Psychology research has shown that a common affiliation leads to improved credibility. That is, in many situations people find others with similar thoughts and beliefs to be more credible than those with different thoughts and beliefs (Fogg and Tseng, 1999). Ignorance in the understanding of an organization's IT infrastructure leads to the formation of negative perceptions and poor credibility (Bashein & Markus 1997). As with industry, in a sporting organization it is important to determine how this low credibility has been attained and what can be done to improve the credibility of IT and change negative perceptions.

A common theme to build credibility is to manage expectations and not over promise. The credibility an IT function has within the organization, and the confidence the users (coaching staff, support staff and players) have in the competence of IT is based on past working experiences (Reich & Benbaset 2000, Huang & Qing 2007). Credibility can be easily damaged by a poor performance in the provided IT service. Once it has been lost, regaining credibility is difficult as restoring confidence may take considerable time and the IT function may continue to suffer for several years (Cormack et al 2001a, Horn Nord et al 2007). To ensure confidence in IT is retained, regular updates of achievements through the application of the organization's IT performance should be communicated throughout the organization. (Overby 2005a).

Trust also implies both parties will lower their own interests in order to achieve individual and joint goals. Once trust has been established through friendship, dedication, and a successful history of working together (Huang & Qing 2007) it will not necessarily be damaged by a poor performance and good performance will only reinforce the trust already gained and improve credibility. Conversely, if a member of the coaching or support staff or a player is not trusted, they will not be credible, regardless of their expertise and performance (Bashein & Markus 1997).

IT staff consult and communicate with all level in the coaching staff and player group in order to build a common awareness and create a positive organization/club-wide impression of the IT function. By partnering with the various stakeholders in the team(s) to tackle problems with shared knowledge and information, IT staff can seek further opportunities to add value across the entire organization. When partnerships are based on trust the joint effort will lead to enhanced outcomes (Barthelemy 2003) as most people 'value someone they have confidence in and can trust' (Bhardwaj 2007:p57). By doing this the IT function will be more focused, credibility and trust between the IT and the club and team's stakeholders will be increase and all entities will form a sound partnership(s).

3. Research Methodology

This exploratory work reports on the attempts by a sporting organization to improve the perception and acceptance of IT within their community – a semi-professional Australian sporting club competing in the premier level competition in their state. The IT function has struggled to over the years to gain meaningful acceptance and subsequently the uses and acceptances of IT dwindled rather than being further embraced.

The study was conducted through a discussion group, a series of interviews with a short survey and a case study. The advantage of doing a qualitative research was that it allowed greater understandings of the interviewees' personal constructs and experiences. All participants in the study were fully informed and voluntarily consented to their involvement. Participants were also free to withdraw from the research without giving reason or justifying their decision at any time, if they so wished.

The sporting organization was chosen due to the broad range of athletes competing at differing levels ranging from the social/weekend participant to individual full time athletes. The first grade / senior team had semi-professional and professional athletes on contract, of which some had additionally been recruited into the club.

The organization had various levels of successes and failures with the introduction of various information technologies ranging team and player management, match and player statistics to training and conditioning programs. The technologies used are stand alone in so much that they are not formal requirements of the club or mandatory to compete in the competition. There are some competition requirements where relevant match data and player statistical data is to be loaded to the competition management systems run externally by the competition management.

Interviews

A pre-interview discussion (n=2) was held prior to the commencement of the pre-season period in relation to the technologies in place in the club. As suggested by Patton (1990) this allows other related topics to emerge. From the discussions, a general interview script was developed based on issues derived from comments and points raised. All the participants were or had been involved in the club in either a coaching, team management or player roles for the previous season, and in the majority had been involved with the club for more than four years/seasons. McCracken (1998) discusses how interviews can draw on the past as well as the present to extract a deeper understanding of an issue than a simple survey type inquiry. Erlandson (1993) states that the use of semi-structured interviews allows the investigator to ask respondents for facts as well as gathering opinions. The same main format of questioning was employed in all interviews (n=11).

The interviewed subjects were solicited through chain sampling. Chain sampling "identifies cases of interest from people who know people who know people who are information-rich, that is, good examples for study, good interview subjects" (Patton, 1990) All of the 11 volunteers were chosen for interview on the basis of availability, suitable experience and use of technology(s) used in the club and in their chosen sport. Erlandson (1993) suggests that this technique of "purposive sampling" is preferred to random or representative sampling because the major concern of the researcher is to maximize discovery of the problem and the heterogeneous patterns that occur within the context of the particular study. Semi-structured interviews were conducted at a location that suited the interviewee and in general lasted on average approximately 20 to 25 minutes after which the interviewees were also asked to provide responses to a survey.

The focus of the interview questions centred on the views, if any, participants had to the uses of information technology and the impact of the use of the technology in relation to their individual or team preparation. Any views or opinions in relation to another sport, or technologies not employed by their sport, were disregarded. Their personal viewpoints on information technology, in relation to levels of application and introduction, what they enjoyed or did not enjoy with the use of the technology(s) employed in the sport, what opinions and frustrations they had with the information technology and IT staff and what aspects they had or had not appreciated. Participants were also

asked about their own adaptation to the use of the technologies, changes to their own practices leading up to, during and after a match were also explored. The interviews were recorded and transcribed for analysis. Follow-up phone calls were made to six respondents where clarification or further investigation was required.

A case study is an investigation of a contemporary phenomenon within its real-life context which provides rich contextual data obtained from an organizational setting and a single case study has the ability to increase our understanding of a particular situation (Yin 2003). It has been argued that a single case study, while not generalizable, has the ability to provide a valuable insight into a known context (Duhan et al 2001) and that the findings may be appropriate for someone in a similar circumstances (Cousin and Jenkins 2001).

3.1 The Field Site

The organization is being studied for the purpose of this study is a sporting organization with athletes competing at all levels from grassroots through to elite national players. The athletes compete in five open age teams and three Under 21 age teams. Each team consists of fifteen players and a group of reserve athletes. The teams compete in a state's premier competition. On completion of the state competition, the state team champion competes against the premier team from the other leading state in Australia to determine the national champion.

The organizational structures of each club in this competition and the sport, although slightly different, are in essence very much the same. The structure of the club in this study has a head coach with each team having one or two coaches and a team manager. A strength and conditioning team and medical and physiotherapy staff work with all teams and support the coaching staff. The organization has a structure with an operations manager overseeing the day-to-day running of the organization and reports to a board headed up by the organization's president. The IT staff are not directly linked to any specific team but provide IT support across all areas of the club. The overall team / player management is administered by the sporting organization's head coach.

3.2 The Problem

The organizational structure has a direct linkage to the problem as even though there is a head coach who oversees all teams and sets directions and processes for the season, individual coaches are not obligated to utilize the technologies, and in some instances, due to individual preferences, introduce their own preferred information technologies, only use a subset of the technologies or do not use the technologies at all. To some degree the individual team staff work fairly autonomously.

Similarly athletes, due to their own needs, are a mix of those using and relying on the information technologies or the feedback data provided to those who elect to not use the information technology due to various reasons.

When initiating a project requiring IT involvement, the head coach usually seeks an endorsement from the board and the technology is then introduced. It is then the responsibility of IT to implement and often manage the technology. There is very little consultation with either the other coaching staff, support staff or the IT staff.

There is very little education or hands on testing by the various end users. The coaching staff and athletes are provided with minimal information as to the functioning of the technology, and the requirements behind the introduction of the technology. The individual teams in the most only utilize the components of the system that directly affect their athletes or provide the relevant data required by the head coach. There is little knowledge within individual teams on how the other teams use the system. Once an information system has gone live, there is even lesser understanding within the club community of how the system holistically fits into the club's structures and processes.

This leads to frustration and eventually a negative perception of the system and IT in general. A single process within the club may involve multiple teams to complete the process. In not understanding the responsibilities of the other teams, users are open to unrealistic expectations of

what the system has to offer, and in some cases what is expected. When given the opportunity, the individual teams often set expectations of the technology without regards for the needs of the remainder of the club. These then become unachievable and the blame is laid on the assumed inadequacy of the system, and eventually adds to this negative perception of IT.

As a typical input from various units within the club, for example, coaching staff and medical staff and strength and conditioning staff, some of these units do not appear to fully understand the impact their own unit has on the structure of the club's processes. Systems are built incorporating the needs of all teams / athletes which is advantageous to IT staff as they are able to have a holistic understanding of the club's process. IT staff often appear to be more knowledgeable than individual units and users due to this holistic view of business processes.

3.3 Interviews and Surveys

Interviews were conducted during the preseason period (January / February) and followed by a survey. The survey was again conducted midway during the season proper. Interviews and the surveys were conducted at the completion of the season (September).

Figure 1 below is a summation of the three surveys. The survey taken in January/February was declared as baseline measurement from which improvements would be measured. Using the baseline measures, all team coaching staff agreed that a 5% increase in satisfaction of the baseline as an achievable target.

This comparison allows the perception of IT within the club to be gauged and the results show the users hold a poor or negative perception. The survey questions included communication skills, professionalism, understanding of the technology, culture of IT in the club, ability to recommend solutions, quality and timeliness of delivery, value to the club and individual teams and athletes, and overall satisfaction.

Team	Jan/Feb (Baseline)	Target 5% Increase on Baseline	Mid Season May	Septembe r	Sept. vs Jan/Feb (Target +5%)	
Team A	6.4	6.72	6.7	6.9	7.8%	□
Team B	7.1	7.45	7.0	6.6	-5.7%	□
Team C	6.0	6.3	6.1	5.9	-1.6%	□
Team D	6.8	7.14	5.9	6.3	-7.3%	□
Team E	6.5	6.83	6.2	5.8	-10.7%	□
Overall	**6.56**	**6.88**	**6.38**	**6.30**	**-3.9%**	

Figure 1: Comparison – May and September Quarters

4. A Framework for Improving Perception of IT within the Organization

While the overall results obtained in the September customer survey were somewhat expected the levels were of a surprise to the IT staff, the head coach, operations manager and the board. Given the perceived successful implementations of information technologies, it was anticipated that the results would have improved or at worst case remain the same. As such research was undertaken on how to improve the perception of the IT function and from the IT literature a six-step model proposed by

Peppard (2001) was identified. This model acts as a guide for studying the perception of IT. The six steps involve getting the basics right, enlisting key influencers, building credibility, seeking involvement early in projects, placing responsibility for IS with the organization (club) and cultivating and maintaining partnership.

Peppard (2001) suggests education plays a key role in this stage to impress upon business managers (the coaching staff) the process of value creation through IT and the key role that they play in this process. The issue at hand in the organization appears to be the lack of understanding of the holistic process that IT systems are built upon. It is important to understand that at this stage that the study focuses on the holistic education and its impact on perception of IT and not education on how IT systems work.

4.1 Getting the basics right

The first stage involves focusing on the IS function itself, ensuring that it can deliver basic IT services (Peppard, 2001). With this environment, while on a smaller scale, this involves basic IT functions such as network availability, support / help desk-like functions and reliability of applications.

Despite the improved use of project management and systems development tools and methodologies, the failure rate of IT projects is still very high. The biannual Standish group surveys continue to show high rates of IT projects that were cancelled before completion or are delivered over budget, behind schedule and with fewer features and functions than initially specified (Marchewka 2012). This is a disturbing statistic for IT departments eager to improve their perception of IT. Thus, it is important to get the basics of IT delivery and service to an acceptable level.

IT departments must make an extra effort to be proficient in project management, end user service and applications quality despite these being an organization wide responsibility. If this is not achieved it may be difficult for IT to meet the basic expectations of the business.

Within the sporting organization guidelines for achieving the basics are in place:

1 Due to the size of this environment, a near 24 x 7 on call support is necessary during the competitive season to ensure network availability, problem fixes, etc. are addressed within minimal timeframes. All outages are reported weekly to the operations manager and head coach.
2 For project management, a suitable methodology needs to be incorporated and adhered to be all stakeholders – coaching staff, support staff and athletes.
3 Good and timely service is a performance objective for IT staff. Review of end user satisfaction be conducted at key point during the year and playing season, to address any short comings and is taken in to account at end of season and staffing reviews.

4.2 Enlist key influencers

There are particular individuals within an organization who are pivotal to what happens and these individuals are the so-called opinion leaders or key influencers Peppard (2001).

Thus for IT transformation to occur it is important to get these influencers on board before proceeding as these individuals bring visibility to projects and add impetus to the process. However they can also decide the success or failure of an initiative. Key influencers also exist within the user community (club). These key users drive system change but may also have concerns regarding ease of use of the system or changes to job roles due to system implementation (Overby, 2005).

Jarvenpaa and Ives (1991) agree with Peppard and say that general managers need to be involved in information systems due to the magnitude of expenditure involved, the ability for IS to enable business initiatives such as business process re-engineering, total quality management, and the weight of evidence which demonstrates that when general managers are not involved in IS, investment is wasted on automating inefficient processes.

Key influencers are enlisted for the introduction of technologies and IT functions within this sporting organization. This is undertaken by ensuring that all projects are initiated and owned by the head coach. The head of the IT staff reports to the head coach and is constantly communicating with the other senior coaching and support staff. Weekly or fortnightly meetings are conducted to ensure that only items that are of high priority are being worked on.

4.3 Build Credibility

In establishing credibility it is important to bear in mind that credibility is not something that is taken, but rather something that is given; in essence it must be earned by and is derived from achievements and actual results (Peppard, 2000).

It has been suggested by Overby (2005b) that IT staff regularly present IT efforts and achievements to the board, the executive committee, other governing bodies and potentially the whole organization. This includes not only project work but also major maintenance and enhancement efforts, as well as successful results through the applications of technology.

To achieve success, a sense of trust and commitment, credibility must be developed between various participants to ensure a free exchange of beliefs and opinions. When credibility is lost it is difficult to regain as once a user perceives that someone or something lacks credibility, then they are likely to stop using the service or resource, hence providing no opportunity to regain credibility. Peppard (2001) says that education showing the value through the use of the technology, and IT and the key role it plays in this process, is important.

An important concept for building credibility is to manage expectations and not over promise as users have more faith in what IT has to offer if IT delivers what it promised. Often this is a difficult concept for IT staff as users can be unrealistic in their demands and has to be managed.

Within the sporting organization there appears to be adequate communication to users indicating value of the technologies and IT. Relationship between IT staff and team management provides the ability for dialogue due to the less formal organizational structures between IT staff and team management; and with the IT staff having a contributing factor in the team decision making processes.

4.4 Seek involvement early in the implementation of technologies

According to Peppard (2001) the IT function should actively seek out the involvement of the team stakeholders in IS projects and be willing to get involved in projects when invited by the stakeholders. From a project management perspective Marchewka (2012) suggests it is important to identify stakeholders as early as possible to enable adequate communication channels to be set up at the start of a project. This also encourages the users to take responsibility for the project. The outcomes are more accurate when the stakeholders/team staff is responsible for the projects.

When users (coaching staff and athletes) and stakeholders are involved early in projects there is less chance of missing important information or requirements about the desired way the system operates in their environment. This also enables athletes and coaching staff to think about the testing process and minimalizes any potential frustrations when the system is implemented.

In this organization this process is working fairly well. The introduction of any technologies, whether they are IT related or team related has to be initiated and approved by the head coach and board. The project methodology ensures that the initiators of any technology related project(s) to the organization and the IT staff work closely where enforced signoff is required. Often the sign off process is a point of frustration for the coaching staff as they feel that it delays the process but once they recognize the value it adds to the outcome they comply with the process.

4.5 Place responsibility for IS with the business

Peppard (2001), highlights the importance of business managers taking responsibility for aspects of IT that traditionally may have been delegated to the IT function and in this environment the senior team management need to take greater responsibility in the applications of technology.

There may be resentment in the taking on this responsibility as technology is foreign to them. However they must realize they are making decisions that involve using technology rather than pure technical or technology decisions. This implies senior team management may need to be educated on how to make these decisions which involve technology; however they must take ownership for these decisions which also infers taking responsibility for their component of IT (including all new and existing technology and systems).

Commitment is considered essential for the success of the system. Overby (2005b) notes that in order to change perception, IT staff must have a sponsor who share ownership and accountability with IT for IT and introduced technology.

In this sporting organization all technologies and IT systems have a "business" owner – usually the head coach. Any changes made to existing or new systems have to be signed off by the head coach and endorsed by the board.

4.6 Cultivate and maintain partnership

Peppard (2001) infers there is a possible danger of management becoming complacent and not recognizing their contribution to IT success.

Despite strong management commitment and detailed planning, an IT project may fail simply because IT personnel and users are unable to effectively handle their day-to-day interactions. Quality interaction, by way of communication and information exchange is considered a key success factor in IS development effort (Marchewka 2012).

IT departments must change their focus from a task-oriented method to a role-oriented method that emphasizes the relationship between IT and users of the technologies. Overby (2005b) says that IT departments should employ internal relationship managers to work with the business units to build relationships and/or partnerships and hence set the foundation to improve perception.

Within the sporting organization close relationships between IT staff and the senior coaching staff are visible at the higher management levels. The IT staff reports to the head coach and has a close relationship with other coaching staffs. However, the level of the relationships may not be noticeable at the lower end team staff and players.

5. Response to negative perception

It appears that the sporting organization is following most of the recommendations given by Peppard (2001 in the six step framework. So why does this negative perception towards IT exist?

For sporting organizations to be competitive, it is important that they invest in addressing problems concerning their technology and IT functions. A negative perception of IT may not necessarily be a problem of the technology / IT staff as it could be related to stakeholders using the technology without a complete knowledge of the how IT systems impact holistic process within the sporting organization.

Ward and Peppard (2002) believe Peppard's six-step process provides the possibility of improving the perception of IT through educating users. An education program could address the mindset blockages and thereby improving the perception of IT within the organization. According to Peppard (2001), education plays a key role to impress team management the process of value creation through IT and the key role that they play in this process.

Other literature supports the notion of education and training being used as a means to improve the view users have of the IT function. Olfman et al. (2003) believe education and training is a strategic necessity for staying competitive and delivering results. IT training literature shows that traditionally IT training has been to impart skills in the use of the particular systems to users. Olfman et al. (2003) indicate that IT skills training are typically built to illustrate the semantics of the system functions. Training is focused on 'what' the system can do and not 'why' it does what it does.

There appears to be little focus on how the system covers a holistic business process and adds value to the organization. By neglecting this aspect of the value of a system, there is little business

ownership. In their study on organizational learning strategies, Olfman et al. (2003) suggest that there is little business focus in terms of application of IT skill to business process and understanding what these skills and systems will do for the individual and the organization. They emphasise that the capability to focus on the larger business picture requires that IT skills training be considered in an integrative manner with organizational strategies.

In an era where sporting organizations are increasingly dependent on IT for value and gaining competitive edges, it seems remarkable that there is limited focus on this topic within sporting organizations. IT training must focus on the organizational needs not just how to use the system. End users must understand the holistic process and how IT assists them in achieving their individual and team goals.

Ewusi-Mensah and Przasnyski (1991) indicated that 30% of the executives who responded to their survey on information system abandonment indicated end users experienced uncertainty about an information system's impact on their job. This may lead to a negative perception of what IT has to offer and eventuate in abandonment of the technology that may have benefit to the organization.

According to Sein et al. (1996), training methods and approaches have focused most exclusively on ensuring that a trainee acquire the skills to use an IT tool and in a specific domain but with the advent and increasing use of technologies and IT solutions this narrow view of training will prove to be inadequate in preparing sporting organizations, teams and athletes of the future. They recommend it is important to incorporate a conceptual level of training, which refers to viewing the tool in the context of the entire system and the organization.

On reviewing the available it appears that training of the user in the holistic process and goals may be an important step in improving the perception of IT.

6. Conclusion and Future Research

There is reduced understanding of IT value and IT departments/staff are stumbling to facilitate the organizations demands for return on IT value which also applies to sporting organizations and elite level clubs. Organizations that fail to value IT and take on the benefits of IT will miss opportunities for innovation and possibly spend IT expenditure inefficiently. Thus many have taken up the challenge of recommending potential solutions to improve the value of IT. This cannot be done just by reducing expenditure on IT solutions as these solutions give organizations the ability to be innovators and have the potential to gain competitive edges.

The challenge for IT staff in a sporting organization is to enable the organization to see value and benefits in IT and technology and hence improve the perception of IT. Through this work, it appears this may be possible by improving the educational methods of end user training within the organization. This may be done by introducing holistic process training along with IT systems training.

This study is significant because it examines how a sporting organization can take advantage of IT. By formulating a strategic learning module for end users, it can assist the organization to stay competitive, provide a better training and match preparation environment for teams and athletes, achieve better results and potentially deliver an attractive environment to attract other athletes to the club/sporting organization. By understanding the value of IT, the sporting organization may be able to service their coaching and support staff and athletes more effectively. The findings could also be applied to other organizations that may be faced with a similar negative perception of IT or potentially where the IT department is viewed poorly.

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Research Concerning the Usage and Concentration of Community Funding For the Fishing Sector on Financing Axis 4

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Abstract

Developing support actions for complementary fishing activities can reduce the pressure on natural resources available within the community. Implementing eligible projects within Axis 4 of the European Fisheries Fund can ensure a sustainable development of the fishing sector, a rational exploitation of the fish resources and additional income for the fishermen community in targeted areas. The article proposes an analysis of the accessing of funds designed for the Sustainable development of fishing areas, while identifying the degree of concentration of the funds and projects implemented on this axis. Following the analysis obtained as a result of applying the Gini Struck methodology, a high level of concentration of funds attracted on Axis 4 has been identified, as well as governmental support funds and number of financed projects. The research represents an original modality to analyse the development of the fishing sector in the context of accessing community funds, useful for the business environment and the population in fishing areas because it can be a model for the future development of EMFF 2014-2020.

Keywords: EFF, Axis 4, Gini Struck, market concentration,

Introduction

The sustainable development of the fishing sector represents a priority for the European Union EU. Fish-based products have rich nutritious value, fish proteins being registered in the first value class from the point of view of chemical composition, with a balanced concentration of essential amino-acids, adapted to human organism. The increase in consumption of fish-based products is a way to ensure the security of alimentation at a global level. According to the Food and Agriculture Organization of the United Nations FAO (2001-2016) data, over 75% of the fish farming worldwide is used for direct human consumption. Fish-based products, which cannot be used for human alimentation, representing around 33 million tons annually, are sold under the form of forage (fish oil or flour), destined to feed poultry, pigs or carnivorous aquatic species. An analysis of Community funds for fisheries is performed by Stanciu (2014), which shows the sector's importance for Romania. Neculita and Moga (2014) analysed the EFF situation in Central and Eastern European countries under the influence of EU funds for agriculture and fisheries, by calculating the Herfindahl–Hirschman Index.

Materials and Methods

Information concerning the development of the fishing sector in the community has been gathered from the European Commission concerning European Fisheries Fund, of the CBI Market, of the Ministry of Agriculture and Rural Development of Romania, or from the statistic data basis of Eurostat, FAO Stat, and International Trade Centre. The EFF Programme (2007-2014) was under analysis, with a focus on the last five years. Gathered data has been statistically processed, graphically represented and interpreted. The results have been compared with those from specialty literature for an adequate interpretation.

Short analysis for the trade with fish-based products in the community

Supporting the fish farming sector in the community represents a way to reduce the dependence of the European Union market from imports, by developing the development of a sustainable fish culture, and a good management of natural resources. The European Commission Data (2014) show that the community market is the biggest importer of fishing and fish farming products in the world, with a percentage between 35 and 38% of the total products marketed worldwide. The exports of Member States represent an average of 22 % of global exports (figure 1). Self-sufficiency, represented by the report between the EU production and the total apparent consumption has been evaluated, for the year 2011, at approximately 45%.

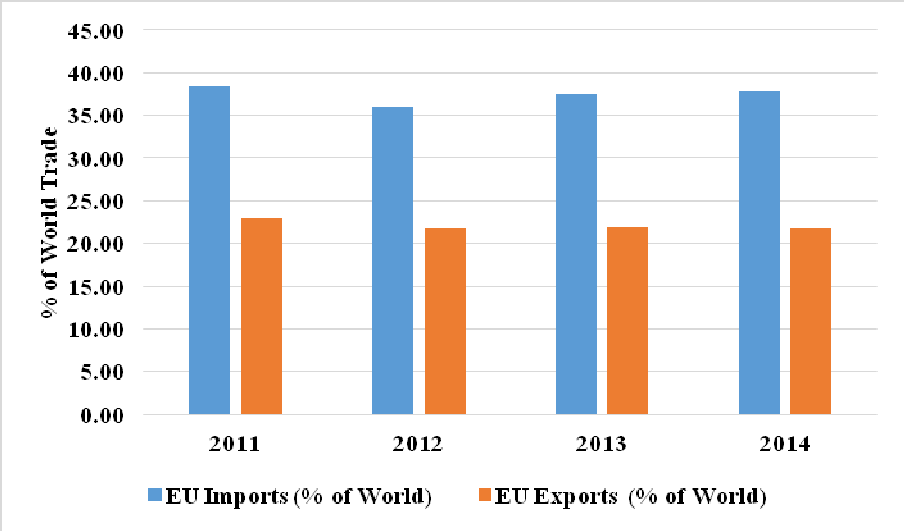

Figure 1: EU trade of aquatic products (% of World Trade)
Source (Author, using the ITC data, 2016)

Even though in the last period progress has been registered, as a consequence of the support given to the fishing sector, the commercial balance of the EU continues to be unbalanced. According to International Trade Centre ITC (2016), the commercial balance of the European Union in the transactions with fish products shows a significant dependency on extra-community imports.

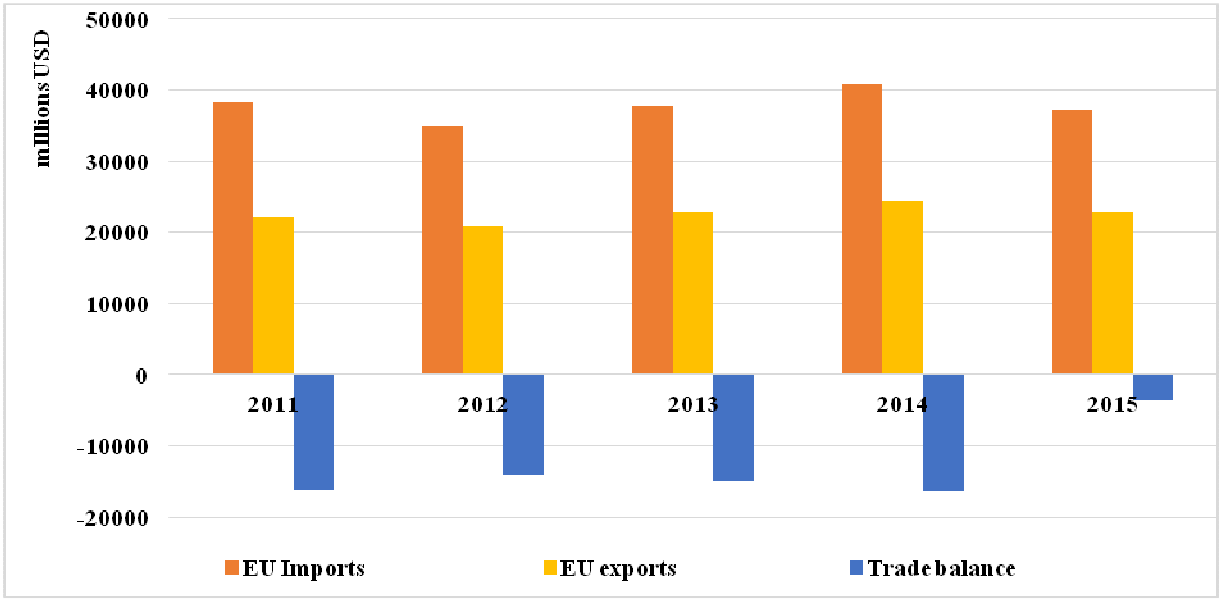

Figure 2: Community balance in the trade with aquatic products (Code 03 ITC)
(Source Author, using the ITC data, 2016)

Community measures to support fishing and fishing-related activities

In order to increase competitiveness in the community sector, to protect resources and reduce dependency of the community on imported fish products 4,5 billion euro have been allocated to member states, through the European Fisheries Fund, which began to be operational from the 1st of January 2007. The European Fisheries Fund (EFF)'s goal is to contribute to la realizing the Common Fisheries Policy (CFP) objectives, which specifically consist of ensuring the conservation and sustainable use of marine resources.

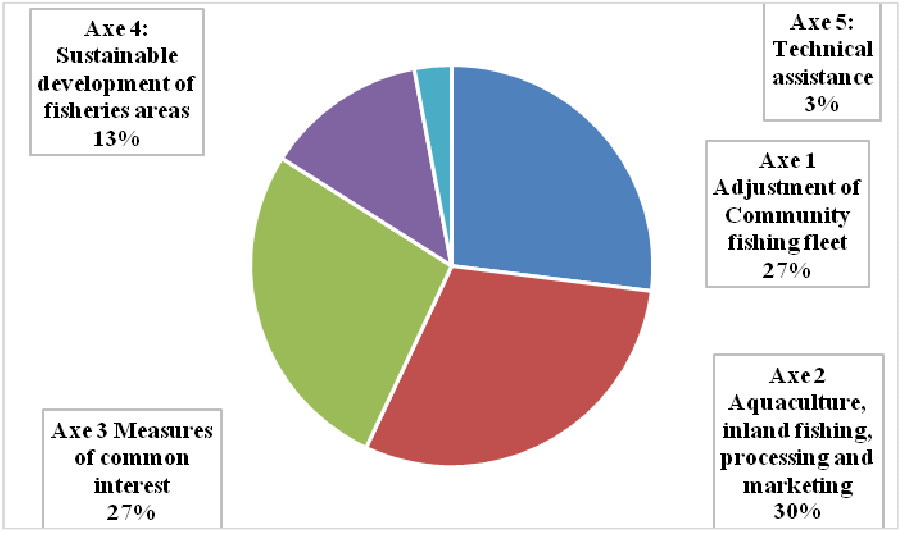

Figure 3: EFF Distribution on the five main axis
(Source Author, using Tokarski data, 2015)

The EFF provided for five priorities: measures to adapt the EU fishing fleet; aquaculture, inland fishing, processing and marketing; collective action; sustainable development of fishing areas; technical assistance to implement Council Regulation (EC) No 1198/2006. The distribution of community funds on the 5 axis show a relatively uniform distribution on Axis 1, 2 and 3 and reduced ratios on 4 and 5 (figure 3).

Analysis of accessing community funds on financing Axis 4 EFF

Funding on Axis 4 (Sustainable development of fisheries areas) is based on local development strategies, reflecting a bottom-up approach. The crucial difference between Axis 4 and other measures in 2007-2013 periods of the EFF was not so much in the contents of the actions. In fact, many of the actions carried out in Axis 4 were probably similar to those implemented under previous programs like PESCA, INTERREG, and EQUAL. The main added-value of axis 4 lies in the way in which these actions are implemented and linked together, both in and by, fishing communities themselves.

Almost 560 million euro has been allocated to help local communities reduce their economic dependency on fish catches. Coastal communities, and those near lakes and ponds with a significant level of employment in the fisheries sector, are eligible for EU aid to strengthen their general competitiveness, add value to fisheries products, develop tourism infrastructure and services, protect the environment, and encourage interregional and transnational cooperation.

Promoting priority Axis 4 concerning sustainable development of fishing areas through the European Fishing Fund (FEP) has been determined by the complex changes which affect the fishing sector and by the challenges with which the fishing communities are confronted at the level of the European Union (EU). The main objective of the Priority Axis 4 is the durable development of the fishing areas in order to minimize the decline of the fishing sector and to support the reconversion of the areas affected by the changes in this sector. Axis 4 completes the short term measures of the Common Fishing Policy (CFP) by economic, social and environmental support measures which fight against the exhaustion of fish stock.

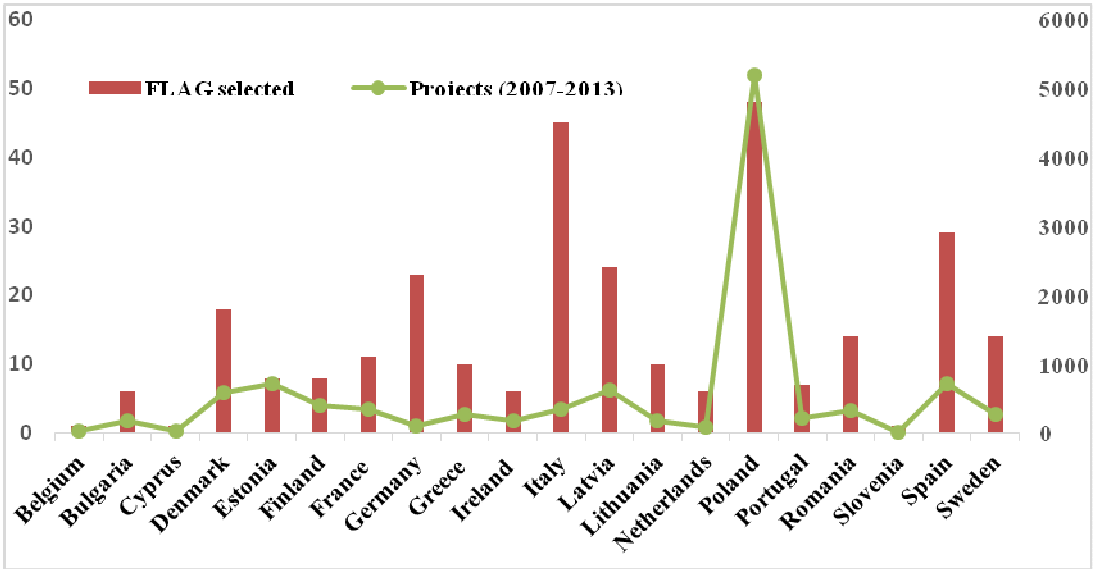

Figure 4: Number of FLAGs and projects implemented on Axis 4 in the community
(Source Author, using European Commission Data, 2015)

The implementing of Axis 4 has been made by the direct implication of relevant actors in well-established fishing areas, associated in Local Action Groups for Fishing (FLAGs) by elaborating and

applying a strategy of durable development, in conformity with the needs of the specific area. At the level of the EU 28, the implementing of measures of Axis 4 has been done through 312 FLAGs, selected, which have implemented until 2015 approximately 11316 projects, localized in 21 member states (figure 4).

The number of FLAGs per member state is between one unit, in Slovenia and 48 groups in Poland, country which detaches itself in the community, with a number of 5200 proposed and implemented projects, with a total value of over 319 million euro. Romania, with 14 local action groups and 322 implemented projects, with a total value of around 66 million euro, occupies modest positions in the community. Poland is the country which has allocated the biggest percentage to Axis 4, with over 45% of the total community funds destined to the fishing sector.

The geographical surfaces and the number of inhabitants which have benefited from the implementation of the measures of Axis 4 are represented in figure 6. Almost 5% of the total EU population, distributed on 14 % of the total surface of community states which have applied the measures of Axis 4 are represented by eligible population segments for proposed measurements.
The percentages of population and areas allocated by member state for the projects of Axis 4 are different, varying between 1, 2 and 49 % for surfaces, respectively between 2 and 62% for the inhabitants in target groups. (Figure 5).

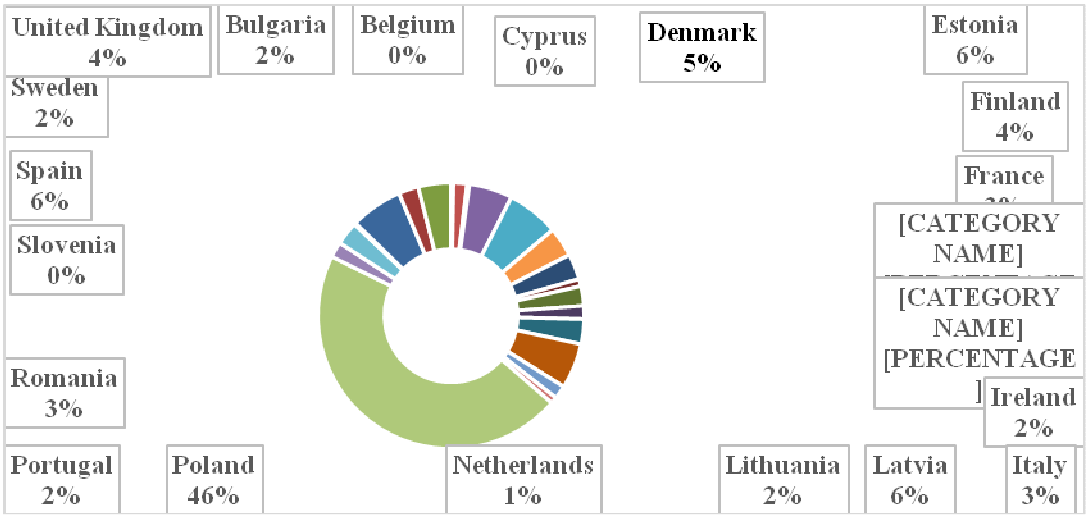

Figure 5:Precentage of funds allocated in Axis 4 from the total of EFF, by Member State

(Source Author, using European Commission Data, 2014)

In absolute values, Poland is the state with the most citizens within the eligible target segment, with over 3,5 million inhabitants, cu followed by Spain with 3,4 million, Germany with over 2,8 million inhabitants within eligible area.

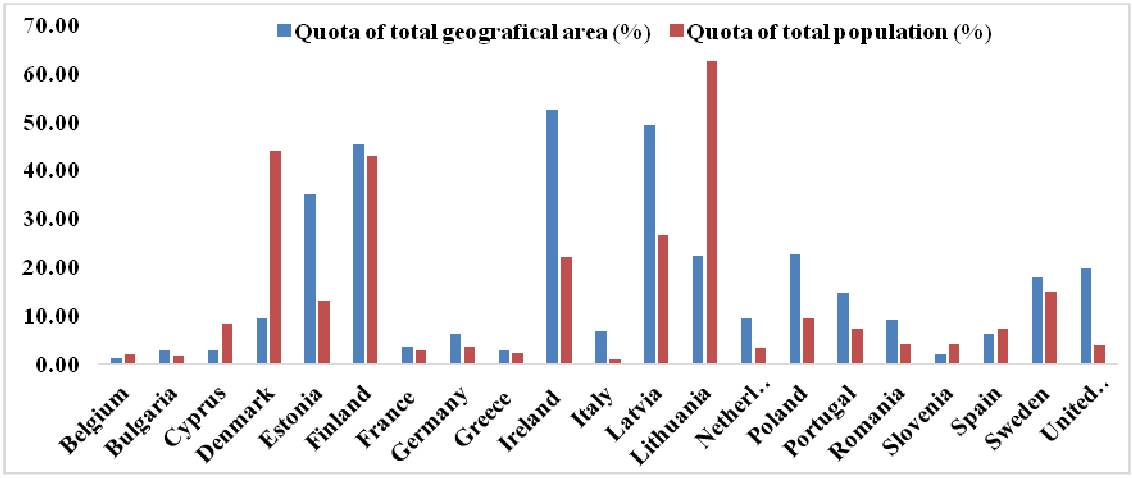

Figure 6:Population quotas and geographical areas which benefit from the projects of Axis 4
(Source Author, using CE data 2015)

Regarding implementation surfaces of the projects, included in the zones of FLAGs, Finland, Spain and Poland are the European States which have allocated the most important fishing areas for complementary measures for fishing. (Figure 7)

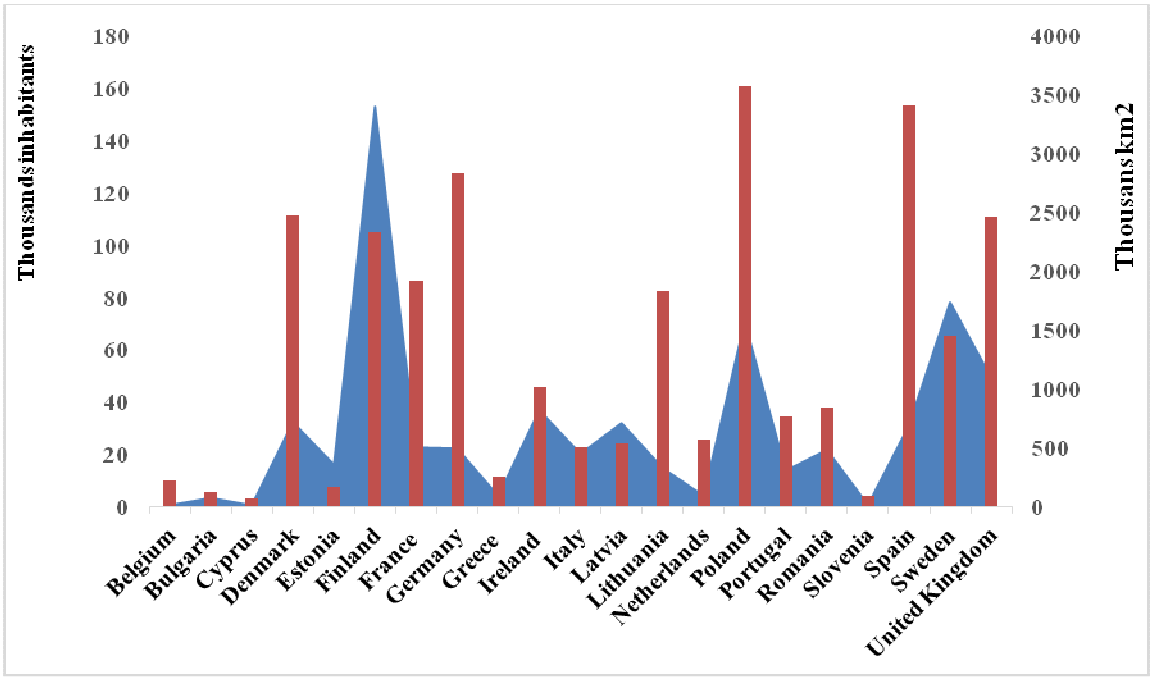

Figure 7: Surfaces and number of inhabitants in the eligible areas for proposed Axis 4 projects, by country
(Source Author, using European Commission Data, 2014)

The concentration of the projects, respectively of the European funds attracted by Financing Measure of Axis 4, in the community can be analyzed through the Gini Struck indicator.

Systemized data concerning the percentage of the projects, of the FLAGs crated, of the funds accessed and of the involved population in the implementing of the measures of Axis 4 are presented in table 1, Appendix. The calculation of the Gini Struck concentration coefficient has been realized based on methodology proposed by Săvoiu, Crăciuneanu and Țaicu (2010), according to the mathematical calculation (1)

$$GS=\sqrt{\frac{n\sum g_i^2-1}{n-1}} \quad (1)$$

Where n – number of member states which have implemented projects on Axis 4

g_i– the share of the analyzed variable

The results of mathematical calculations concerning the value of the Gini Struck coefficient, realized based on formula 1 and data in tables 2 and 3 and 4(presented in the appendix), under the form of the concentration degree of community funds , of the projects and local action groups constructed, of the population and geographical surfaces covered by FLAGs are presented in table 1. The total value of community funds allocated to Axis 4 has been taken into account for the 21member states analyzed (547785006.6 euro), the total number of local groups constructed (312), total number of financed projects (11316), total eligible population (27427311 inhabitants), respectively the surfaces allocated to FLAGs in the community (622533.899 km^2), according to CE EFF data . In the case of British states the conversions from SI measure units has been made. Where data concerning the projects, the population or the surface has not been presented, the FLAGs have been considered not to function and a null value has been considered.

Table 1:The value of the coefficient GS for the analyzed variables

Analyzed variable	FLAGs	FLAGs Projects	EFF (euro)	National Funding (euro)	FLAGs Area (km^2)	FLAGs Population (inhabitants)
GS coefficient value	29,53	49.47	47.39	52.11	34.35	29.56
Concentration degree	medium	high	high	high	medium	medium

Source Author, using own research

The data presented in table 1 show a medium degree of concentration of the population, of the eligible areas and of local groups constructed for the implementation of the measures of Axis 4 and a high degree of concentration for accessing community funds, correlated with governmental support and with the number of financed projects for the 21 member states in which projects have been implemented to support complementary fishing activities. An important part in concentrating attracted community funds is owned by Poland, which through its FLAGs has succeeded to implement 5200 projects, with a total value of (EFF and National Funding) 313212832 euro, with a governmental support of just 25%, visibly inferior compared to other member states. Poland is also the country with the biggest EEF allocation quota on Axis 4, covering over 40% of the total community allocations in this field.

Conclusions

Attracting non-refundable community funds in the fishing domain represents a competition advantage for member states regarding security of alimentation, a possibility to support fishermen communities to develop complementary activities to fishing and the sustainable development of the fishing sector. The analysis demonstrates the existence of a high concentration level for EFF allocated to Axis 4 in the community, correlated to the number of projects deposed and with the support allocated by governmental organisms. The dimension of the population in the target group, the eligible surfaces, close to fishing areas or the number of local groups constructed in order to implement the complementary measures for the fishing sector are at a medium concentration level in the community. There is no correlation between the size of the population and the eligible surfaces and the volume of EFF funds attracted. The analysis made can be taken as a positive business example for

the local communities and fishermen population or the by the governments of the member states concerning the accessing of non-refundable community funds in the perspective of the new EMFF 2014-2020 program.

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Appendix

Table 2: EU FLAG and Axis 4 selected projects

EU State Member	FLAG selected	g_i	g_i^2	Axis 4 Project	g_i	g_i^2
Belgium	1	0.321	0.103	33	0.292	0.085
Bulgaria	6	1.923	3.698	188	1.661	2.760
Cyprus	1	0.321	0.103	29	0.256	0.066
Denmark	18	5.769	33.284	597	5.276	27.833
Estonia	8	2.564	6.575	717	6.336	40.147
Finland	8	2.564	6.575	408	3.606	13.000
France	11	3.526	12.430	353	3.119	9.731
Germany	23	7.372	54.343	100	0.884	0.781
Greece	10	3.205	10.273	269	2.377	5.651

Ireland	6	1.923	3.698	183	1.617	2.615
Italy	45	14.423	208.025	342	3.022	9.134
Latvia	24	7.692	59.172	624	5.514	30.408
Lithuania	10	3.205	10.273	183	1.617	2.615
Netherlands	6	1.923	3.698	91	0.804	0.647
Poland	48	15.385	236.686	5200	45.953	2111.645
Portugal	7	2.244	5.034	215	1.900	3.610
Romania	14	4.487	20.135	322	2.846	8.097
Slovenia	1	0.321	0.103	21	0.186	0.034
Spain	29	9.295	86.395	718	6.345	40.259
Sweden	14	4.487	20.135	273	2.413	5.820
UK	22	7.051	49.721	450	3.977	15.814
Total	312	100.000	830.457	11316	100.000	2330.752

Table 3:EFF and

EU State Member	**National Funds (euro)**	**g_i**	**g_{ii}^2**	**EFF (euro)**	**g_i**	**g_i^2**
Belgium	2528410	0.952892	0.908004	1900000	0.346851	0.120306
Bulgaria	5396988.62	2.033985	4.137096	11064600	2.019880	4.079915
Cyprus	1000000	0.376874	0.142034	1000000	0.182553	0.033326
Denmark	12466279	4.698217	22.07325	12461279	2.274848	5.174936
Estonia	6427171	2.422234	5.867218	19281513	3.519905	12.38973
Finland	12466279	4.698217	22.07325	12461279	2.274848	5.174936
France	5535936	2.086351	4.35286	5699644	1.040489	1.082618
Germany	14146000	5.331261	28.42234	19438000	3.548472	12.59166
Greece	11700000	4.409427	19.44304	33300000	6.079027	36.95457
Ireland	788000	0.296977	0.088195	788000	0.143852	0.020693
Italy	31300000	11.79616	139.1494	31300000	5.713921	32.64889
Latvia	5724262	2.157326	4.654055	17172786	3.134950	9.827911
Lithuania	2231257	0.840903	0.707118	6693770	1.221970	1.493211
Netherlands	5000000	1.88437	3.550852	5000000	0.912767	0.833143
Poland	78303208	29.51045	870.8666	2.35E+08	42.88354	1838.998
Portugal	4780063	1.801482	3.245337	16732965	3.054659	9.330943
Romania	16492570.5	6.215622	38.63396	49477712	9.032323	81.58286
Slovenia	721343	0.271855	0.073905	2164029	0.395051	0.156065
Spain	28534674.54	10.75398	115.6481	49212448	8.983898	80.71043
Sweden	8199720	3.090262	9.549719	8199720	1.496887	2.240669
UK	11598450	4.371155	1293.586	9527638	1.739302	3.025173
Total	265340611.7	100,00	2587.173	5.48E+08	100,00	2138.470

Table 3: The distribution of population area

EU State Member	National Funds (euro)	g_i	g_{ii}^2	EFF (euro)	g_i	g_i^2
Belgium	2528410	0.952892	0.908004	1900000	0.346851	0.120306
Bulgaria	5396988.62	2.033985	4.137096	11064600	2.019880	4.079915
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Total	265340611.7	100,00	2587.173	5.48E+08	100,00	2138.470

An Interactive Game for Applying the Principles of Lean Production in Automotive

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Abstract

The success of manufacturing companies depends largely on how they are able to convert their human capital, it means the knowledge, skills and experience of the people, to the quality of the product or service required by the market. On that basis of that, the human capital is nowadays considered as one of the greatest competitive advantages. One of the goals of the company should therefore be the development of human resources. It means developing knowledge and skills of employees, increasing their performance, support for creative thinking and last but not least, the support of staff in further development. This article deals with the effective transfer of knowledge principle and explanation of the principles of lean manufacturing through a managerial game.

Introduction

More broadly used term management games is often used as a support of employees´ development in lean manufacturing. It means the games in a simulated environment that examine or, conversely, deepen knowledge of the players (employees). The advantage of these games is that they offer a safe environment without risk penalty. And thus they support creative thinking and attempts to solve problems proactively. [8]

Lean manufacturing is a production philosophy which may be associated with the industrial initiative of Henry Ford, which aims to produce as efficiently as possible exactly according to customer requirements. It aims to achieve the elimination of resources waste such as waiting, overproduction, unnecessary operations or movements. It focuses only on the processes that add value to the final product because the customer is willing to pay only for this added value. [1]

By combining interactive games and lean manufacturing principles we get a powerful tool both for effective utilization of human resources in terms of time demands of the adoption of these principles by employees. Employees then further extend these principles to the production process.

Basic description of managerial game

It is a desktop management simulation game that demonstrates how to improve the organization of production and workplace downsizing. Production is stimulated in a way that players take the role of workers in the workplace, and gradually assemble the product. The game is suitable for 4-5 players, and playing time is variable from one hour to three hours. The presence of a moderator during the game is very important. The moderator must be thoroughly familiar with the principles and rules of the game, but also the theory of the methods that this game demonstrates.

The game consists of two main parts. The first part is used to display the original state. At this stage the production organization is given either: intentionally wrong or not clear, or it is unknown for a, in order to demonstrate that it is insufficiently systematic.

The main content of the second part is a gradual improvement. Players are introduced to several methods which can improve production. The task of the players is to point out the deficiencies that were reflected in its original state and then invent the order in which lean manufacturing methods will be implemented so that they follow and gradually improve the entire production.

The first part of the managerial game - Simulation of the original state

Players are at various positions around the room. To maintain the universality of the game it is not possible to prescribe a specific room of the specific size and with the same equipment, so this step is rather at the moderator. Generally, you can specify that players must spread out across the room and not to concentrate on one or two tables. At the same time two other locations are indicated somewhere in the area. It is a material warehouse and warehouse with finished products.

The facilitator explains the rules for the round to players, rounds length is 5 minutes. An assessment is based on the fact that the number of finished products is compared with the planned amount in each round.

Depending on the number of players available, the game will either go towards maximum utilization of existing workplaces (4 players) or via the maximum productivity of the entire production line (5 players) and the moderator has to adapt the game, it in particular concerns phase "balancing line".

Rules:

- Each player represents one worker and all players are located variously around the room.
- Each playing piece is identified as a "Store of material" and a place for warehouse of finished products is also marked.
- Each player gets a production plan of the product.
- Players take positions at their workplaces, they go to the material warehouse, where they have to find enough pieces to build the product.
- The product can be manufactured only at their workplaces, and once the product is manufactured, players put it into the warehouse of finished products.
- Other arrangements are up to the players.

Players must first orientate themselves in the new environment, they have to study the production plan of the product and think about preparation. Players must go to the material warehouse, where they have to look for the pieces together with other players and after manufacturing of the product, the product will be placed in the warehouse of finished products. In this phase a confusion, errors in the products, pieces substitution, delays in material storage, etc. are expected and all of these result in a wasting in the form of unnecessary transport, scrap, waiting, unnecessary movements, etc., which leads to the low number of assembled products. After the end of playing time the moderator stops player and finds the number of final products. Then further evaluation will take place.

Evaluation of the first part of the managerial game

After the first part there is a discussion between a moderator and players. Players are asked to evaluate an original condition and pointed out all the flaws that have emerged during the game. Most of the deficiencies is for a game clarity really obvious, but if players forget to mention any of them, moderator does it. Once players know all these problems in production, it will be easier for them to think about their elimination in other part of the game.

The second part of the managerial game - Better organization of production

The following methods and lean manufacturing principles are presented to players:

- Professional staff training (basic training)
- Standardization of del REFA standard
- Operations balancing
- Layout edit
- 5S

The player has to think in group and sort methods in the order in which they will be introduced to the workplace, in order to improve production and leaner workplace. For their function certain methods and tools require introducing some of the other methods, or vice versa after the introduction of additional methods they lost their effectiveness. This is clearly shown in the matrix below. The moderator should lead players to the expected results through appropriate questions and comments, but above all players should think about it themselves.

	Method of implementation (following)					
Implemented method (previous)		**Training**	**Layout**	**Standardization**	**Balancing**	**5S**
	Training		**Yes, when workers already know the basic job description, it is possible to make further changes**	First it is necessary to realize basic training	First it is necessary to realize basic training	First it is necessary to realize basic training
	Layout	First it is necessary to realize basic training		**Yes, after changing the layout standardization of operations can be done**	It is not possible to balance operations, unless there are standards, specifically the times of operations at workplaces	It is not possible to adjust, tidy, clean, all clearly organize etc., and then change the entire layout
	Standardization	First it is necessary to realize basic training	The change of standardized workplace layout would result in a change of distances as well as a change of times and standardization would be unnecessary		**Yes, after standardization and finding times of operations, it is possible to balance operations**	There are times of operations, but without subsequent balancing is 5S useless
	Balanci	First it is				**Yes, 5S is finally**

	ng	necessary to realize basic training	The change of standardized workplace layout would result in a change of distances as well as a change of times and standardization would be unnecessary	Standardization at balanced workplace has no longer any meaning		**introduced at balancing workplace for better understanding and overview of production**
	5S	First it is necessary to realize basic training	Changing the layout of workplace, where 5S is implemented, would reverse the entire original 5S	Standardization and balancing of all workplaces cannot be done after 5S	Balancing the operations of all workplaces cannot be done after 5S	

Figure 1: Matrices of methods and principles of lean manufacturing implementation

Professional training

In the first phase of the game workers were placed into full operation without sufficient training. Orientation in the workplace, studying of manufacturing drawings, figuring out how to assemble products etc. took them more time than actual production.

Therefore it was mostly wasting of resources than a productive activity. This involves:

- Presentation of all parts required for the product manufacturing.
- The opportunity to try several times to assemble test product.
- Notify pieces of kit that can lead to confusion.
- Explain the most efficient method for assembling pieces

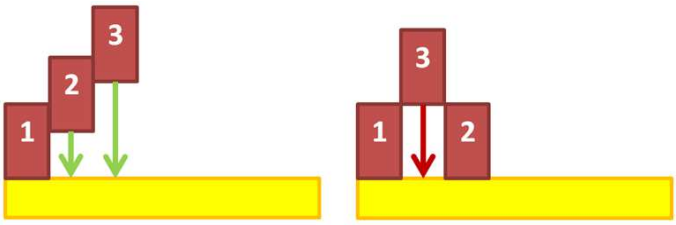

Figure 2: Appropriate and inappropriate system of assembling pieces

Standardization according REFA standard

On the production line there is one workplace, which is a bottleneck. Namely it is workplace number 2 and all players should already know this fact. This bottleneck must be removed as soon as possible regarding the fact that because of it the whole production is slowed down. This leads to a waste of resources, especially in the form of waiting and excessive amounts of work in process before the bottleneck and the production line is therefore inflexible.

Two workers will assemble the product from pieces exactly as they would be for a real round of the game. The other two players will measure time of joining two pieces together for these workers. More specifically, it is the time interval from griping to "snapping" the piece into the counterpart. It is

not necessary to assemble the entire product because all operations are regarded as about the same length.

After obtaining a sufficient quantity of values all of these values are written into the appropriate table in a prepared Excel file and the average length of a single operation, which should be about 2.5 seconds, is determined. Also, players should decide whether there are more time-consuming operation or whether it is possible to consider all operations as the same long.

Balancing of operations

Players use obtained and measured values to eliminate the bottleneck in the workplace. If there are only 4 players, existing workplace will be maximally utilized. If there are five players, it is possible to play the game for a maximum efficiency of the whole production line and workplace, where is a bottleneck, will be reduplicated in this way.

Layout editing

Editing the layout may consist of the following steps:

- Workplace organized into lines. Workplaces are placed in the way that each other immediately followed.
- The entire production line is placed on one or two benches (according to the propositions of the room)
- The distance between workplaces must be minimized.

5S

Now, when the production is stabilized and smoother it is possible to start with introduction of 5S method.

- 1S: Sort all unneeded.
- 2S : Set in order all the rest
- 3S : Shine - to pay attention to cleanliness and order
- 4S : Standardize
- 5S: Sustain is 5S and keep improving.

The first two "S" are already introduced in the workplaces system in the form the layout changes and workplaces placement in a row. This phase of the game focuses more on the 3rd and 4th S and manifests itself as follows:

Players take out the material (parts of the kit) from the boxes

- From the moderator all players will receive documents as the "Material warehouse," "Unfinished products warehouse" and "Finished products warehouse"
- Players will place pieces of the kit at the appropriate fields, which can be found on the basis of images on the "Material warehouse" card
- Unfinished production between workplaces will be always placed to a field in the "Unfinished production 1" card or card 2 and 3 for other workplaces.
- Final products will be placed in the field on the "Finished products warehouse" card.

Conclusion

The new interactive game for the application of lean manufacturing principles in automotive showed significant benefits that represent mainly the effective training of new employees, promoting creative thinking, eliminating the possibility of error during the real production process - quality assurance process.

Presented savings are determined by the quality of the moderator of games, who is an integral part of this interactive game. The moderator has think ahead about the direction of the game and following steps. This interactive game was tested during five trainings in automotive companies, where above-described benefits were confirmed.

Acknowledgments

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The Use of Methods ABC and XYZ for Effective Inventory Management in the Enterprise

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Abstract

This article aims to highlight the importance of warehouse inventories and the need for their effective management. This article contains information regarding the relevance of inventory and internal logistics in company in general. The article also contains basic principles, meaning and importance of analysis of inventory - namely ABC analysis, XYZ analysis and a combination of both analyses, it means the resulting matrix ABCXYZ, through which we can recommend appropriate way of managing the flow of inventory. Case study that shows the use of analyses and their possible benefits in practice, is also included in the article.

Keywords: Inventory Management, Internal Logistics, ABC Analysis, XYZ Analysis, ABCXYZ Analysis

Introduction

Among the essential items in terms of share in the assets of the company certainly includes an inventory item, which usually forms the most important part. Inventories bind significant capital of the company for some time. Likewise logistical processes associated with the acquisition, storage and distribution of inventories also require significant costs. From the above it can be concluded that every company should strive to minimize inventories and to "hold" the minimum amount.

Another important factor that makes the whole issue even more complicated is a nowadays highly competitive environment. If a company wants to be competitive in the market, it must be able not only to maximally meet diverse wishes of its customers, but also to react quickly to these wishes. This fact in the contrary leads to a tendency to keep large quantity of inventory which is however a significant economic burden for the company.

Above-mentioned facts are the reason why it is necessary to pay proper attention to the issue of inventory management and associated processes. But interests of different departments across the company are as contradictory as the above mentioned facts. While business and production departments prefer to keep a sufficient amount of inventory, including emergency inventory, economic department would prefer to purchase them just before consumption. A logistic department are facing a difficult task, namely somehow manage the discrepancy between the needs of sales and financial pressure.

Analysis of inventories

That workers of the logistics department can efficiently manage inventories, they need to know not only patterns of production and inventory management company, but also need to get a comprehensive view of inventory, which is achieved only by detailed analysis. The diagram below outlines possible procedure of inventories analysing and the partial results of analysis.

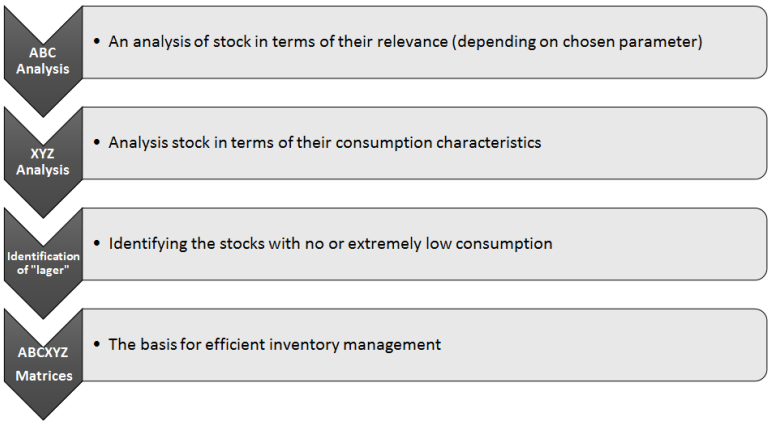


Figure 1: A flowchart of analysis of inventory

Mentioned analyses have been widely described in various articles such as Pekarčíková, Trebuňa, Filo (2014) or Scholz-Reiter, Heger, Meinecke, Bergmann (2012). Because of it this article describes only the basic principles of analysis without detailed description. Subsequently, a case study from which the use and outputs of these analyses in practice is obvious, is described.

ABC analysis

ABC analysis is a widely used method in the corporate logistics. The analysis is based on the so-called Pareto rule, which says that 80 % of all consequences are caused only about 20 % of causes. ABC analysis is thus based on division of items into three categories in terms of their importance, the parameter determining their importance may vary depending on the observed problem. By the categorization it is possible to achieve considerable savings, as the attention of the company and the associated time, space and money are devoted to significant items, it means items for which it makes sense.

XYZ analysis

XYZ analysis is an analysis used for an evaluation of inventories in terms of their timing of the consumption or sale, reliability and predictability of their consumption. The analysis is used as a basis for decisions which logistics technology would be the ideal one for inventories management. XYZ analysis itself does not provide complete results, therefore it is advisable to combine it with the above described ABC analysis.

ABCXYZ matrices

So called ABCXYZ matrices, which adds further insight into the way of work with different inventories and which serves as a basis for possibility of effective inventory management, is formed by combining above mentioned analysis. Matrices divides inventories into nine categories, depending on their significance and regularity respectively predictability of consumption. Features of each group can be seen in the table below. Attention should be paid to items of AX, AY and AZ as they form a major part of the turnover and therefore are assumed for the high inventory levels. Items BX and CX

have a very regular consumption and can therefore be relatively easily predicted. Due to lower significance of these items they are not assumed as core items of the company.

Table 1: ABCXYZ matrices[1]

	A	B	C
X	a large share of turnover regular consumption	medium proportion of turnover regular consumption	small share of turnover regular consumption
Y	a large share of turnover consumption with fluctuations	medium proportion of turnover consumption with fluctuations	small share of turnover consumption with fluctuations
Z	a large share of turnover irregular consumption	medium proportion of turnover irregular consumption	small share of turnover irregular consumption

Appropriate logistics technologies are then recommended for each category. There are several approaches, one of them is shown on the scheme below. It should be realized that these recommendations cannot be taken as dogma. It is always necessary to take the specific nature of materials, nature of particular production and other conditions into account.

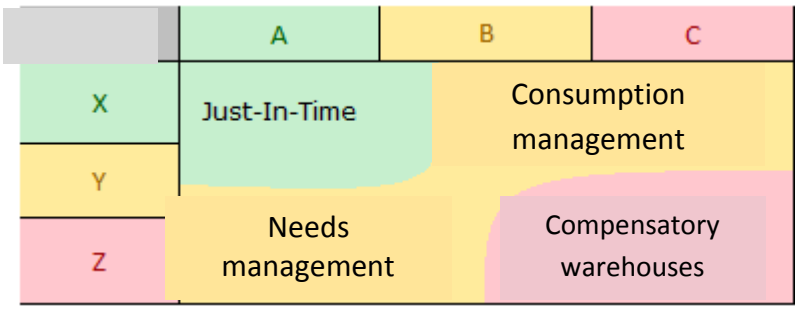


Figure 2: ABCXYZ matrices – logistics approaches[2]

Case study

An unnamed industrial automotive company manufacturing cable harnesses produces in total of 6 production halls. Each of the production halls has a production warehouse into which the material is regularly transported from central warehouse about 50km away. The company currently divides material on so called A-parts, B-parts, semi-finished and finished products. A fundamental difference

[1] *Reference: http://pu-del.ch/webseite_case_study/_private/hauptstudie/bereitstellungs.htm*

[2] *Reference: http://www.der-wirtschaftsingenieur.de/index.php/abc-xyz-analyse/*

between A and B parts is in the way of picking up to production. Currently, A-parts are picked[3] from production warehouse directly to production on demand, it is about 80 % of the material. B-parts are placed directly in production, in so-called supermarkets, where each production line has the particular shelf where workers can take and return back the material as needed.

The basic parameters which are the base for sorting materials into specific groups include the character of the material and the frequency of use of a particular material on a particular production line. But in fact, no fixed system on assessing the material does not exist. However, the common practice is that upon entry into the company material is added to the appropriate category on the basis of experience of the workers and in case of unsatisfactory state there are disputes between logistics and production about changing the material classification.

Another problem associated with almost nonexistent system of materials assessment was that production had to often deal with so-called backordered A-parts. This was mainly due to inaccuracies in the warehouse when the material was incorrectly counted or weighed or because of inaccuracies in production, where it can be considered as a common scrap.

The situation in the company caused a necessity to carry out the analysis of input material, which would help to establish the system of material categorization and assign the appropriate logistics technology. More than 45,000 items in total were analyzed.

As first, so-called ABC analysis when individual components are evaluated for their contribution to the mean inventories value was performed. Analysis results are shown in the following table.

Table 2: ABC Analysis

group	number of items	the ratio in the total number	medium inventories value (CZK)	the ratio of the overall medium inventories value
A	3 000	6,60%	497 692 459,95	81,00%
B	4 744	10,44%	79 885 132,94	13,00%
C	37 703	82,96%	36 869 946,50	6,00%
Items in total			45 447	
The overall medium inventories value (CZK)			614 447 539,39	

Subsequently, an analysis of so called "lying item" was done. A "lying item" is considered such an item in which there has been no movement[4] from 1st January 2015, all other items are considered to be so called "active items". The analysis showed that more than about 35 % material items belong to the "lying items" that bind significant capital of the company, and more specifically, over 166 million Czech crowns.

[3] *This means that they are prepared by internal pickers directly to order – all the necessary quantity is weighed or counted on order, divided into bags and assembled into the appropriate KLT or other transport units.*

[4] *Note: analysis was conducted in September 2015.*

Table 3: Lying items analysis

	Lying items	Active items	Total
Number of items	16 108	29 339	45 447
Ratio (in %)	35 %	65 %	
Inventories value (in CZK)	166 918 861	447 528 678	614 447 539
Ratio (in %)	27%	73 %	

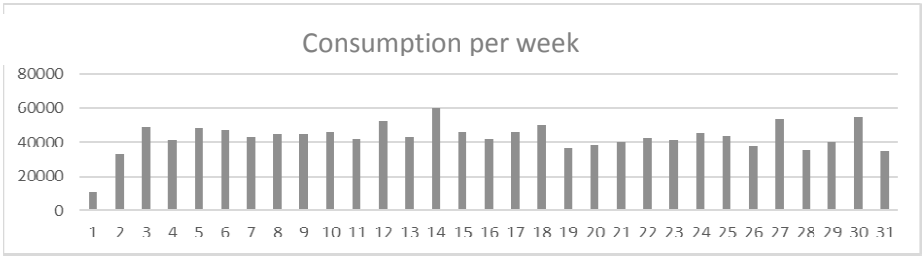
Subsequently, an XYZ analysis, which was carried out for each production halls separately, was done. In this article, we'll cover only selected production halls - Hall 3 and 4. Data provided by the company included daily consumption in the period from 1 January to 31 July 2015, it means in the period of 7 months. During the analysis daily consumption was converted to a weekly one. Results of the analysis are shown in the table below.

Table 4: XYZ Analysis

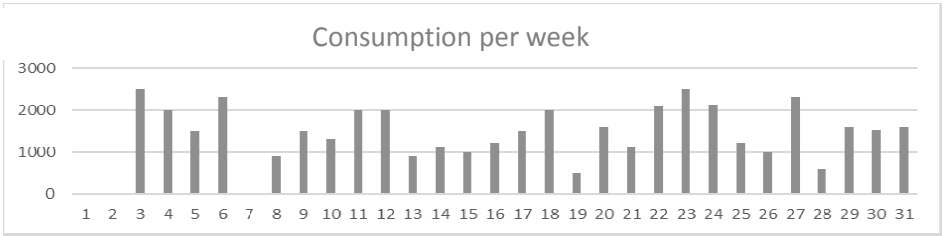
XYZ Analysis - WH 3		
Group	Items frequency	
X	160	13%
Y	314	25%
Z	797	63%
Total	1 271	100%

XYZ Analysis - WH 4		
Group	Items frequency	
X	74	6%
Y	180	14%
Z	1008	80%
Total	1262	100%

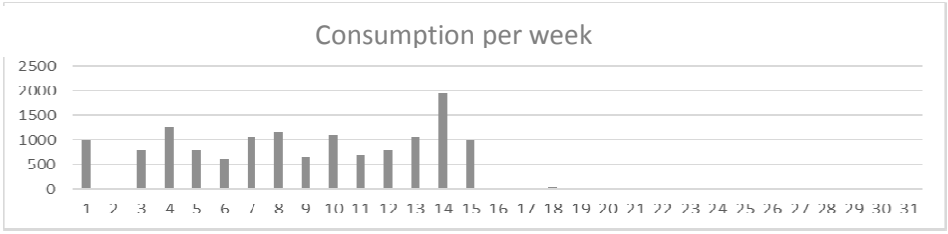
In figures below a regularity of consumption for each of the above mentioned analysis is illustrative. The graphs show how regular is a consumption of the material in the X category, which has the most regular consumption. Some kind of fluctuations can be seen regarding materials at the turn of categories X and Y. Material consumption at the turn of categories of Y and Z is already very unlikely and therefore very difficult to predict. Regarding material from Z category where consumption is entirely coincidental, any notion of predictability of consumption is practically unrealistic. Graphs below show how regular is consumption per week of chosen part numbers (PN).



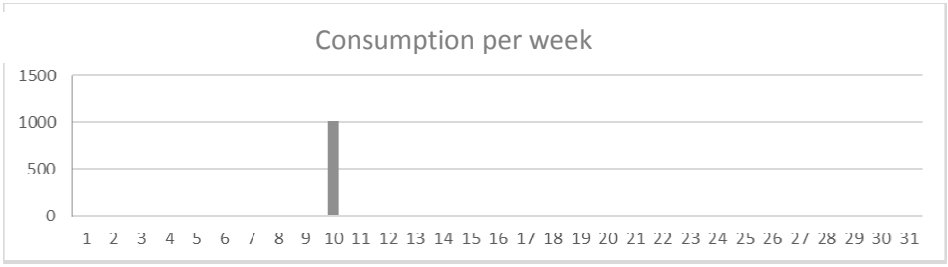
Graph 1 – Consumption/week – chosen PN – X with irregular consumption.



Graph 2 – Consumption/week – chosen PN – turn of X and Y.



Graph 3 – Consumption/week – chosen PN – turn of Y and Z.



Graph 4 – Consumption/week – chosen PN – Z with the least regular consumption.

Finally, the analysis of ABC and XYZ incorporated together and become the matrix ABCXYZ (again for each production facility separately), based on which we can recommend appropriate logistics technology.

Table 5: ABCXYZ Analysis

ABCXYZ ANALYSIS - WH 3

GROUP	Items frequency		Recommend.
AX	133	10%	Supermarket
AY	120	9%	Supermarket
AZ	124	10%	Supermarket
BX	18	1%	Kanban
BY	71	6%	Picking
BZ	132	10%	Picking
CX	9	1%	Kanban
CY	123	10%	Picking
CZ	541	43%	Picking
TOTAL	1271	100%	-

ABCXYZ ANALYSIS - WH 4

GROUP	Items frequency		Recommend.
AX	68	5%	Supermarket
AY	72	6%	Supermarket
AZ	147	12%	Supermarket
BX	4	0%	Kanban
BY	61	5%	Picking
BZ	112	9%	Picking
CX	2	0%	Kanban
CY	47	4%	Picking
CZ	749	59%	Picking
TOTAL	1262	100%	-

Analysis outcomes including recommended logistics technology are evident from the table. It should be noted that the analysis did not take into account the nature of the material. It means that certain parts will not be practically possible to supply to the production in the way of proposed method (e.g. regarding their nature contacts cannot picked into the production).

And what were the particular benefits of analyses, which were carried out? A clear system of categorization of materials between the A and B parts was established. Items belonging to the group of "lying items", which require a certain response from the company, were also discovered. Subsequently, the material was classified into categories in terms of its significance and in terms of regularity and its consumption respectively predictability. By combining both analyzes a basis for effective inventory management was obtained. Additionally, analysis revealed that the top 10 most additionally ordered items in terms of the frequency of additional orders and in terms of overall additional orders amount include items that are currently picking, but according to results of analyzes

these items should be directly in manufacturing supermarkets, which would also largely solve a problem related to additional orders.

Conclusion

As has already been outlined in the introduction, the issue of inventory management is a very complex task in practically every company. It is also necessary to pay attention to inventory control due to importance of inventories in the company. Is practically impossible to effectively manage inventory without the knowledge of inventories nature, consumption, significance, availability, etc. Thorough and regular analysis of inventories enables efficient inventory management. The company may invest their time, money and space primarily to significant items, because in relation to them it makes sense. Effective inventory management can not only save the cost of the actual management (as an attention is paid to the significant items) and storage (because the company maintains inventories only in an amount corresponding to the nature of the item) but it can also prevent problems arising in production in relation to lack of inventories or unsuitable form of supply and extra costs associated with that.

Acknowledgment

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Bottleneck in The Process of Material Income

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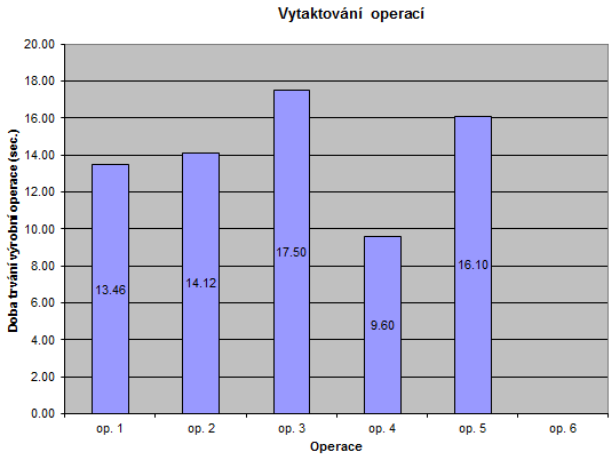
Abstract

A key part of every logistics chain are warehouses. Each warehouse can be divided in terms of the movement of the material into input (income) section, a storage section (physical store) and the output section (expedition). Physical movement of material is always accompanied by administrative operations.
According to the theory of bottlenecks entire system is as efficient as effective is its weakest point. This article deals with both material and immaterial flow in the entrance of the storage system, identifies bottlenecks of sub-processes, for which it proposes and evaluates corrective actions.

Introduction

Bottleneck or constraint was defined by Eliyahu M. Goldratt (Goldratt, E. (1999)), who created a method for increasing the flow through the system. Illustratively we can define constraint as a place with the smallest flow. It is exactly the place, whose maximal flow rate determines the maximum output flow through pipe. In the production management this analogy can be found, for example, in production lines, which build on each other several stations linked, for example, by a conveyor belt. For each machine station the time that is required to meet specific operations can be assigned (either by calculation - MTM methods or elevation - REFA analysis). After that the operation with the longest duration of time determines flow through (production capacity) lines. Operation with the longest time duration are called by (Goldratt, E. (1999)) bottlenecks. Figure 1 shows a production line balancing. Height of the bar indicates the time of the operation. For the calculation of the production line capacity is required to use the longest operation.

During the rationalization of the storage process we are getting to the same situation, only the columns of manufacturing operations are replaced by the columns of the processes associated with receiving the material, its physical unloading, marking, unwrapping, handling, storage, etc.



Storage

Basic functions of storage systems are to move products, to storage them and transmission of information about storage products. These functions inevitably include the following processes:

- Receiving incoming goods and materials (including physical unloading, inspection according delivery notes and quality requirements)
- Storage of material and goods
- Release of goods for processing
- Storage and dispatch of finished products or semi-finished products

Each of these processes involves some specifics. Processes associated with the storage are described in detail in publications (Lambert, S. E., 2000), (Pernica, P., 2005). The paper deals only with part of these processes, namely receiving of incoming material and goods to the warehouse. The latter process, namely storing materials and goods to the warehouse, is affected by its nature.

Receiving into warehouse

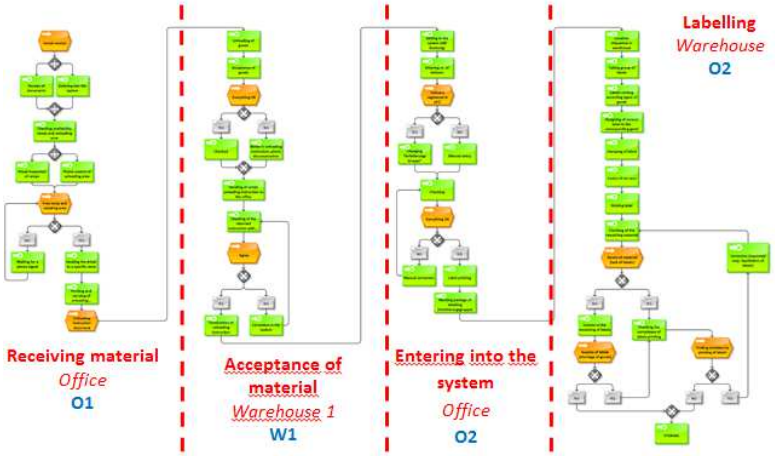
Receipt of materials and goods to the warehouse includes an income based on the invoice, delivery note or receipt. Receipts can be modified, for example, it is possible to add additional items of schedule until the completion of daily processing income. Receipt of material is usually accompanied by physical inspection of the completeness of the delivery and quality control of delivered material or products. After a successful takeover, it is necessary to mark the material and move it to the place of its storage. Due to the focus the article, in which we do not discuss the optimal way of handling the material or its method of storage, we will focus only on the first of these sub-processes, specifically its income and marking.

Case study

The case study was prepared in the automotive enterprise, engaged in the manufacture of parts and accessories for motor vehicles, further processing and making-up of cables. The project of proposal for a new process of receiving material consists of an analysis of activities related to material income and material rationalization including the introduction of new technologies in order to:

- Minimization of error process (quality assurance)
- Minimization of complaints and the associated additional costs
- Streamlining the entire receipt of material process
- Shortening the duration of the process
- Increase the smooth flow of material

The entire receiving process was mapped, described, analyzed and organized into four key parts Material receipt, Acceptance of material, Entering into the system, and Labelling, see Figure 2.



During the analysis bottlenecks were identified across all key parts of the receiving material process. Each part has its bottlenecks (incomplete documents, ramps occupancy, manual operations, long distance, etc.), the most crucial problem, however, is input into the system and sticking labels on individual HU.

Data entering into the system

On the basis of measurements 72,385 HU from 969 suppliers in total were recorded during the month.

The analysis showed that only less than 45% from total number of suppliers entered the supply into the system, which is 65%. The remaining 55% of suppliers do not send anything to the system and a supply must be entered manually, which takes time, determining the proportion of one handling unit, on average for 1.80 sec./HU longer, which corresponds to nearly 25% of the total labor pool (434 hours with the current number of labels) per 1 employee per year. If the remaining 55% of suppliers have entered supply into the system, the company would save an average of 12.82 hours / month.

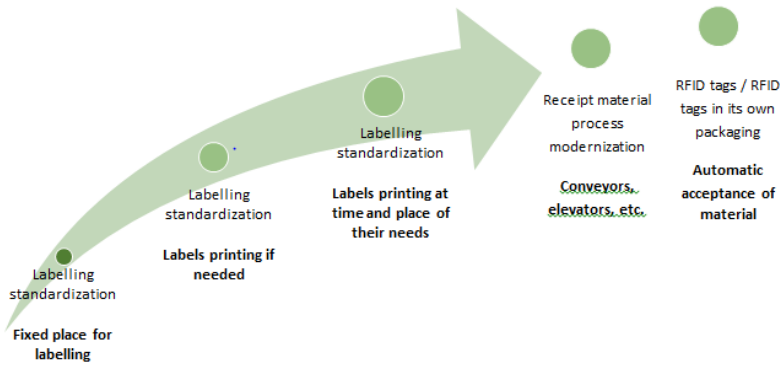
Labeling process

The table below certify that labeling itself is the least effective and the most time-consuming and financially demanding sub-processes of the whole process of goods receipt to the warehouse. The time of the entire process is on average a total of 39.14 sec. /1HU, of which more than 85 % of the time is spent by labelling itself, which takes an average of 33.38 sec. /1HU.

ID and the name of subprocess	O1 Material receipt	O2 Acceptance of material	W1 Entering into the system	W2 Labelling	Total
Workplace	**Office**		**Warehouse**		**-**
Time (sec./HU)	**5,76**		*Not measured*	**33,38**	**39,14**
Time (hour/day)	6,03		-	34,93	40,96
Time (hour/month)	126,59		-	733,58	860,17
No. of employees shift/day	0,75		-	2,25	3,01
Costs (EUR/day)	49,10		-	204,51	253,61
Costs (EUR/month)	**1 031,10**		**-**	**4 294,79**	**5 325,89**

Proposal for a new intake of material in stock

Performed analysis has confirmed that it is necessary to streamline the entire labeling process, and to propose a new process in terms of time and financial cost optimum. Process visions, which were implemented in the third phase (see Figure 3 below) were designed.



The table below compares the different phases in numbers. Table 1 shows the estimated time for labeling process, operating costs, investment demands of alternatives, potential savings and return of each alternative is calculated as well.

Alternative	**Current state**	**A** **Mobile printer**	**A** **Labelling trolley**	**B**	**C**
Total time - labelling (in sec.)	**33,38**	**25,34**	**25,34**	**28,66**	**26,46**
Total operating costs (in EUR/HU)	0,06	0,07	0,05	0,05	0,05
Investments costs - HW equipment (in EUR)	-	**€ 5 708,73**	**€ 13 416,00**	**€ 9 325,09**	**€ 9 325,09**
Potential saving (in EUR/month)		-€ 616,90	€ 1 048,69	€ 615,65	€ 902,60
Return (in months)		**-9,25**	**12,79**	**15,15**	**10,33**

Potential savings that are expected do not include perhaps the most important item - namely saving the extra costs associated with internal label exchanging respectively mislabeling. Mislabeling or low quality during the process of labeling is called soft savings and because of this it cannot be precisely quantified.

After considering the advantages and disadvantages of different alternatives described in the previous chapter and the results summarized in the table above alternative C, which estimated payback period is from all the considered alternatives the lowest one, seem to be an optimal one. Additionally, it is possible to consider the option C as an ideal preparation for the subsequent introduction of alternative D.

Conclusion

The new process of goods receipt to the warehouse will streamline the entire labeling subprocess. Significant benefits primarily relate to the elimination of the possibility of error during the process - quality assurance process by minimizing complaints, ensuring a smooth flow of material in stock due to savings in storage space and the space needed for the reception and the possibility of introducing shorter than the weekly planning, shortening the duration of the entire process of receiving material due to savings in staff costs.

Presented savings are dependent on the assumptions of the new goods receipt to the warehouse process proposal. And the proposal for a new process of receiving material in stock presume the introduction of these improvement measures: appeal to the contractor in connection with the incompleteness of documents from drivers, purchase of additional copiers for receipt of material office and its appropriate positioning, the introduction of electronic visualization and sending the print of the "Instruction for unloading" straight to responsible person in the warehouse.

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The Role of European Funds in Romania for the Development of Tourist Accommodation Infrastructure

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Abstract

Romania, among the countries of Central and Eastern Europe, is vested with the most rich and diverse natural and anthropogenic tourist resources, which gives it a high-availability tourism. Rural tourism and farm tourism developed significantly in Romania, and one can say that it aligns increasingly more to the European standards in this area. European funds are financial instruments through which the Union is working to reduce economic and social disparities between regions in order to achieve social and economic cohesion between regions and Member States. In Romania, the construction of a tourist boarding house by accessing non-reimbursable European funds is possible through the National Rural Development Program (NRDP) and the Regional Operational Program (ROP).

Keywords: European Funds, tourism, accommodation, infrastructure.

Introduction

It is a known fact that tourism represents a factor of economic progress at a global scale and a decisive element for the development of the entire society. In this context, by means of introducing the cultural and historic heritage, the natural resources and certain modern achievements in the field of architecture and art in the internal and international economic landscape, tourism brings dynamics into the economic and social system contributing, at the same time, to the optimisation of the local economy structure, and thus being the optimal solution for the diversification of economic structures. Therefore, the topicality of this subject derives from the fact that maximising the use of tourism potential requires an improvement of the mechanisms designed to manage this sector of modern economy.

In order to provide quality touristic services, it is mandatory to have a modernised accommodation base, an infrastructure meant to receive tourists at the highest level, the tourist offer comprising the attractiveness of sights and objectives representing only one of the prerequisites.

"The interdependence between (international and domestic) tourism development and economic growth is obvious since it drives the demand for a series of goods and services which would not have otherwise been manufactured or rendered" (Snak, 2003). Alluring tourists is an activity which has to be taught and learned by the business operators involved in Romania's touristic activity, in circumstances in which this field ought to be supported and developed according to the market economy laws.

In view of stimulating tourism, the executive guidance of the cohesion policy for the 2007-2013 programming period comprises concrete measures designed to contribute significantly to regional development and the creation of jobs. In that respect, the improvement of competitiveness and tourism quality both at a regional, as well as a local level, can be financially supported by accessing non-reimbursable European funds. Given these circumstances, even in industrial or rural areas in decline or those undergoing urban rehabilitation works, the infrastructure built for touristic activities can contribute to local development, by providing new jobs or keeping the current ones. Thus, tourism represents a factor for the integration of less developed regions and a tool which provides them with equal access to the benefits of economic growth.

The framework for accessing European funds in Romania

The goal of financing through European funds is to promote a high competitiveness level so that the member states may take advantage of a series of several benefits: the free circulation of people, a free market with a currency facilitating and optimising commerce, the creation of jobs, an improvement in the employees' rights, and the promotion of a cleaner environment. The Structural Instruments represent mainly a policy of European cohesion and are funds managed by the European Commission for the 2007-2013 programming period, whose purpose is to provide structural support as far as 3 policies are concerned:

The European Union's Economic and Social Cohesion. "For the 2007-2013 period, the European Union's cohesion policy was reformed in order to better address the goals set forth in Lisbon and Gothenburg (competitive economy relying on knowledge, technological research and development, sustainable development, employment)"

(http://ec.europa.eu/romania/eu_romania/romania_eu/funds_romania/index_ro.htm). The cohesion policy is financed through the European Regional Development Fund (ERDF), the European Social Fund (ESF) and, the Cohesion Fund (CF), respectively, and aims at diminishing disparities and lowering the difference in the development levels of various regions and member states, in order to consolidate economic and social cohesion. The financial solidarity principle, which is the redeployment of a part of the community budget towards the less prosperous regions and social groups, accounts for the grounds of this community policy. The cohesion policy has 3 critical objectives, as follows:

- ***Convergence*** or the reduction of development gaps between regions. The states may request funding for the regions scoring a gross Domestic Product per capita below 75% of the European average.

- ***Regional competitiveness and employment***, which applies only to regions that are non-eligible for funding within the Convergence objective. With regard to Romania, all 8 regions are eligible within the Convergence objective.

- ***European territorial cooperation***, in support of modernising and adapting the work force education, training and employment policies and systems.

Common Agricultural Policy.

The Common Agricultural Policy (CAP) is financially supported by the European Agricultural Fund for Rural Development (EAFRD) and aims at ensuring the food requirements within the Community (the European Economic Community) and rural development, being one of the first community policies. This European policy represents a set of rules and mechanisms which regulate the manufacture, processing and marketing of agricultural products within the European Union and pays an ever growing attention to rural development.

Common Fisheries Policy.

The Common Fisheries Policy (CFP) is financed by the European Fisheries Fund (EFF) and comprises the measures set forth by the European Union in view of guaranteeing the sustainability of fishing activities, without endangering the fish stocks and the sector productivity in the long run. Additionally, it represents a set of rules applicable to the European fishing fleets and designed to preserve the fish stocks which, even though they can be renewed, remain limited. The common fisheries policy provides all the European fleets equal access to the EU waters and the fishing areas and allows fishermen to compete in a fair manner.

In order to access the European funds provided to Romania, following its accession to the community space, a specific institutional and legislative framework was created for managing, coordinating and

implementing the Structural Instruments and, at the same time, the national and the community legislations became harmonised, the institutional structures thus created being similar to the European structures.

Development of the Romanian touristic infrastructure

Starting from the premise that tourism represents a critical element in the economic development process and considering the fact that Romania enjoys a rich a diversified natural environment, numerous natural and anthropic touristic resources, one can state that this sector holds a major role in the country's economic and social, being nevertheless necessary to focus on elevating the quality of the services provided.

„In general, the tourism form may be defined by means of the actual expression adopted by the association/combination of services (transportation, accommodation, food, entertainment, treatment) comprised in the tourist product, as well as the manner of marketing it" (Neacșu, 2012). By launching the concept of Romanian "touristic village" on the domestic, and especially on the international market, the Romanian rural tourism is one of those offers able to create quality and various touristic products, with local specificity, thus contributing to the customisation of the Romanian touristic product. The complex connections emerging between tourism and other economy sectors may determine modifications at a territory level, contributing this way to the economic and social development of the trailing or resource-deprived regions.

Habitats intended for exploration and relaxation can be found all over the country, each enjoying its own customs and regional specificity, whereas services are directly correlated with the chosen area. There are also regions, such as the Rucăr-Bran passage, where rural tourism improved the inhabitants' standard of living, as these understood the agricultural tourism concept and provide, in addition to accommodation and meals, a multitude of pastime activities - hikes, traditional evenings, horse riding, fishing matches, adventure parks, camp fire parties, as well as special offers for the holidays period. The difficult access to certain areas, only by car (Apuseni Mountains, Buzăului Mountains, Banatului Mountains, the Outskirts of Sibiu, the Eastern side of Transylvania Depression) or limited to a single means of transportation (the Danube Delta), renders regions with an invaluable cultural heritage and an immense natural potential touristically unexploited.

From an economic standpoint, tourism turns out to be a progress factor, with vast and positive implications upon the development of the entire society. Thus, by means of acting in the sense of introducing in the (domestic and international) economic circuit the natural resources, the cultural and historical heritage, which have a lot of appeal, and some of the contemporary achievements in the fields of constructions and art, tourism becomes a stimulating factor of the economic and social system, a means to diversify economic structures and an optimising factor of the local economic structure.

Financing a tourist reception unit with European funds

In order to be classified as tourist boarding houses, tourist reception structures with lodging functions, as per the provisions of GD no. 709/2009 on the classification of tourist reception structures, must have an accommodation capacity of up to 10 rooms, for a total of 30 beds, in the rural area, and up to 20 rooms in urban areas. At the same time, these must also operate in private dwellings or independent buildings, and provide tourists with lodging and meal services.

Modern tourism relies on the observance of elevated standards with regard to the building and quality characteristics. Thus, the procurement of non-reimbursable European funds also involves the observance of comfort and quality norms, driving the development of domestic tourism and agricultural tourism, sectors affected by deprivation and until recently limited to insufficient lodging facilities and standards below what the European market has to offer.

"Potential challenges regarding the structural and cohesion funds relate to the ability of institutional and administrative structures to manage these funds" (Florescu, 2012). In Romania, the construction of a tourist boarding house by accessing non-reimbursable European funds is possible through the National Rural Development Program (NRDP) and the Regional Operational Program (ROP). For NRDP, the institution in charge with the technical and financial implementation of the European Agricultural Fund for Rural Development (EAFRD) is the Payments Agency for Rural Development and Fisheries (PARDF). For the Regional Operational Program, within the Ministry of Regional Development and Public Administration, the Management Authority was constituted for the purpose of implementing in Romania the European Regional Development Fund (ERDF) and facilitating "the support for a territorially balanced and sustainable economic and social development of Romania's Regions, according to their specific needs and resources, by focusing on the growth urban poles, and improving the infrastructure and the business environment conditions so as to turn Romania's regions, particularly the trailing ones, into locations more appealing to live in, to visit, to invest and work in" (http://www.fonduri-structurale.ro/Detaliu.aspx?t=Regional).

The National Rural Development Program

In order to access funds made available by NRDP, through measure 313, micro businesses have to fulfil a series of conditions in view of building structures for tourist reception in the rural area. Thus, one may finance, as part of this program, various types of accommodation units with a maximum number of 15 rooms. For agricultural tourism boarding houses the quality standard must be at least one daisy, whereas for investments carried out in tourist reception destinations from other categories at least 3 stars/daisies are mandatory. One may finance such infrastructures in other touristically significant areas, as well, not just in rural areas, but eligibility is granted only to modernisation and extension activities, which require the increase of comfort standards by at least one star/daisy.

In compliance with the provisions and conditions imposed in the applicant's guides, the funding of extensions and even for reshaped fields of interest are only possible if detailed studies intended to thoroughly justify such actions are carried out. For agricultural boarding houses the EU co-financing is 70%, within the 70,000 Euro limit, and for tourist boarding houses it amounts to 50%, within the 200,000 Euro limit. In the assessment of the proposed investments, the criterion with the highest share is project feasibility, given that 50% and 70%, respectively, grants the EU non-reimbursable funding. In the assessment process, the scoring shall depend upon location, maximum points being awarded if the land opted for benefits from all the utilities, is not very remote and offers picturesque sights.

The general goal of measure 313 is to develop tourism-centred activities in rural areas, which would help increase the number of jobs and alternative incomes, as well as elevate the appeal of the rural space. The general goal of measure 313 regards the development of touristic activities in rural areas, but it also covers the following specific and operational objectives:

- The ability to create and keep jobs by means of tourism-related activities
- The increase of added value within tourism activities;
- The creation, improvement and diversification of touristic infrastructure and services;
- The increase of the number of tourists and their visit duration;
- The enrichment and improvement of low-scale tourist reception structures;
- The development of tourism-related information and promotion systems;
- The erection of recreational facilities designed to ensure access to natural areas of touristic interest.

In order to obtain EAFRD funding, beneficiaries eligible to receive support, as per measure 313, are the following types of organisations:

- Micro businesses;
- Townships, through their legal representatives, according to the national legislation in force, as well as intercommunity development associations
- NGOs

- Also, physical persons who are not registered as business operators, and who undertake to officially acquire at least a self-employed person's status and operate as a micro business

Eligible beneficiaries wishing to access the funds allotted through NRDP may choose among the following eligible activities to guide their investment towards:

- Investments in the tourist reception infrastructure: extending, modernising, extending and fitting agricultural tourism and touristic structures according to the agreed upon standards;
- Investments in recreational activities: investments in the recreational tourism infrastructure, dependent upon or independent from the tourist reception structure;
- Investments in the small-scale infrastructure, such as information centres, the fitting of trails, etc.
- Investments related to the creation and outfitting of thematic routes (e.g.: "the wine road", "the pottery road", etc.).
- The development of marketing for rural tourism services: the elaboration of promotional materials, as well as informative and promotional websites.

For public interest investments which do not generate any profit, the public non-reimbursable support shall be up to 100% of the total eligible expenses and shall not exceed the amount of 200,000 Euro per project. For the other investments, the public non-reimbursable support is:

- 85% of the total eligible expenses and shall not exceed 100,000 Euro/project, in the case of agricultural tourism investment projects;
- 85% of the total eligible expenses and shall not exceed 200,000 Euro/project, in the case of investment projects for recreational activities;
- 50% of the total eligible expenses and shall not exceed 200,000 Euro/project or 70%, within the 70,000 Euro limit, for other types of investments in rural tourism.

Non-reimbursable funding for the construction of a new boarding house is granted only for land plots of at least 1000 sm. The land may be in ownership or leased. For the extension or modernisation of an existing boarding house this conditions shall not apply. In that respect, for the 2007-2013 programming stage, as per measure 313, item a), 813 projects amounting to 655,342,492 lei were carried out.

The Regional Operational Program

"The Regional Operational Program was launched on July 13, 2007, the same year when the documents related to the implementation of the projects were also completed. The general goal of ROP consists in supporting and promoting the durable local development, both from an economic, as well as a social standpoint, in Romania's regions, by optimising the infrastructure conditions and the business environment, which are the pillars of economic growth" (http://www.mdrap.ro/comunicare/presa/comunicate/regio-programul-operational-regional-conferinta-de-prezentare-a-raportului-anual-de-implementare-aferent-anului-2010). Investors who wish to locate lodging units in the urban area may also benefit from non-reimbursable funding from the European Regional Development Fund, respectively, though the Regional Operational Program, as part of the Priority Axis 5 - Sustainable development and tourism promotion, Key Area of Intervention 5.2 - Creation, development, modernization of the tourism infrastructure for sustainable valorisation of natural resources and for increasing the quality of tourism services. The total value of a project carried out through ROP must be between 700,000 lei and 89,000,000 lei, and for projects to be implemented in rural areas the minimal total project value must exceed 6,400,000 lei. ROP shall finance those touristic potential sights included in urban localities, in rural localities where projects whose value exceeds 6,400,000 lei and in balneary and health tourist resorts, whereas eligible expenses refer to:

- Investments in the tourist reception infrastructure (construction, modernisation, extension and fitting);
- Investments in recreational activities;

- Investments in the low-scale infrastructure, such as information centres, the fitting of trails, etc.;
- The development of marketing for rural tourism services.

The specific objectives of ROP for Key Area of Intervention 5.2 are the following:

- The capitalisation on natural resources for touristic purposes;
- The diversification of tourism-related services;
- The creation / extension of touristic recreational structures, intended to increase the number of tourists and the duration of their stay;

The SMEs undertaking touristic and related activities, in accordance with the National Classification of Economic Activities (CNAE), are bodies eligible to access non-reimbursable European funds. ROP shall finance all SME categories in the field of tourism, except for micro businesses implementing projects which do not exceed 1,500,000 Euro, located in rural area resorts, save for those situated in balneary and health resorts, which are funded from NRDP. The applicant's own minimal contribution to the eligible project value amounts to:

- for the public use tourism infrastructure: 1.94%
- for the public/private tourism infrastructure, which fall under the rules of state aids: between 30 and 60%, in accordance with the regional aid map for Romania 2007-2013, adopted by GD no. 946/ 2006 on the maximum threshold of the regional state aid for initial investments, and EC Commission Decision N-2/20072.

During the 2007-2013 programming stage, 135 projects were funded for the amount of 2,681,864,562 lei, taking into account the sustainable development principles conceived to diminish and minimise the environmental impact, complemented by the activities in the "Environment" Operational Program.

Conclusions

Tourism nowadays represents a strategic option for numerous national economies, due to its beneficial effects from an economic, social and cultural perspective and, respectively upon the natural environment, to a certain extent. From a social standpoint, a high share of the population is driven into the touristic circulation, since tourism satisfies a multitude of human needs - rest, recreation, knowledge, health care, relaxation, enrichment of one's cultural background, communication, adventure, etc., acting as both an important indicator of life quality, as well as a means to improve it.

Depending on its particularities, a touristic area appeals to investors by means of the opportunities provided for developing an efficient business. Thus, one may refer, on a global scale, to the existence of a complex and diverse offer designed to satisfy all of the tourists' tastes and financial possibilities. As a share, tourism represents the third socio-economic activity in the European Union, being estimated to generate around 12 % of the total work force. This translates into a positive impact upon economic growth and employment figures, as tourism accounts for an important sector, both for the EU citizens, as well as for its industry. Through its global nature and complex content, tourism currently drives vast material and human resources, with a profound aftermath in the evolution of the entire society. Tourism is the main industry when it comes to the contribution to the gross world product, takes the first spot in the employment charts and operates as the most important capital investor, in which case the procurement of non-reimbursable European funds stimulates this economic sector in Romania, by increasing the number of tourist accommodation units and elevating their quality levels, and also by developing recreational opportunities in touristic areas.

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A MapReduce-Based Approach for Continuous K-Nearest Neighbor Search in Road Networks

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Abstract

This paper presents a new approach to the continuous K nearest neighbors search (C-KNN) problem, in the context of road networks. Our approach is based on Formal Concepts Analysis (FCA), which has a mathematical foundation. FCA offers an abstraction of the network based on the neighborhoods. We build the concept lattice based on the binary relations between the target points as well as their properties. The latter are collected from various sensors on the road network. An indexing phase is also defined to speed up the search process and to reduce the processing time. However, the fast increasing number of moving objects and the high dynamic nature of the road network pose a big challenge to the ck-NN search of moving objects. In this paper, we present a parallel search method to improve the efficiency by upgrading the MapReduce paradigm. A density-based road network partitioning approach is employed in our MapReduce based CkNN search. Finally, implementation based on the Storm parallel programming model is discussed to show the effectiveness of our FCA-based solution.

Keywords: K-Nearest Neighbors Queries, Spatial Road Network, Formal Concept Analysis, MapReduce.

1 Introduction

With the proliferation of wireless communications and positioning technologies (e.g. GPS-Global Positioning System), applications and location-based services (LBS) have emerged and rapidly have gained more attention. A major problem in LBS concerns the search of nearest neighbors (NN). For example, a user in his car searches for the nearest restaurants throughout his path. The response to this kind of queries must be valid at the time of receipt by the user.

So far, the search of the k nearest neighbors (k-NN) is a major problem in data warehouses including data that describe dynamic environments of moving objects. There are several techniques for processing K-NN search queries in a static data-environment. In (Roussopoulos et al., 1995), the authors propose a method for calculating the nearest neighbors in a R-Tree. An alternative based on Voronoi cells was proposed in (Berchtold et al., 1998). Other works (Korn at al., 1996; Seidl and Kriegel, 1998) propose to run through the data set, several times, until the shortest distance is reached. Recently, research has focused on continuous k-nearest neighbors search queries (C-KNN) of moving objects in the context of road network (Lee et al., 2009; Samet et al., 2008). A continuous query is a query that, instead of being processed only once at the moment of submission to the system, is continuously evaluated during a given time interval (Terry at al, 1992). With the absence of a standard processing such requests in a dynamic environment, several approaches have been proposed. The challenge is to provide users with valid responses upon receipt.

To meet our goals, formal concept analysis (FCA) seems to be an elegant solution to allow grouping interest points (i.e. moving objects) in a hierarchy of levels. Each level corresponds to a group of mobile objects that share a common set of properties (e.g., speed, position, direction, etc.). The adoption of FCA in various IT fields, such as knowledge extraction and representation (Lakhal and

Stumme, 2005), technologies related areas (Bendaoud et al., 2010) or databases (Rancz and Varga, 2008), has highlighted the importance of concept lattice structures.

Thus, we propose a novel approach to continuous k-NN search which is applied to the road network context. Our contribution is based on a mathematical technique, namely formal concept analysis, in order to present a network abstraction that is based on the neighborhoods. Our approach aims to meet user needs, while considering the road conditions and the user context.

However, the time spent to find the nearest moving objects will exceed the constraints for real-time execution. This also adds more complexity to the FCA-based search method as the complexity of parsing large concept lattice depends on the number of moving objects and the degree of changes in their properties. Thus, this problem becomes especially important and challenging as the number of moving objects in the road network increases.

Similar to most big data applications, the big data tendency also poses heavy impacts on CKNN search systems. Indeed a real road network (modeled as a Big complex graph) is composed of a very large set of nodes and their arcs. Each element is characterized by a set of static and dynamic properties (e.g. disturbance factors). Such properties need to be processed instantly in order to deliver the suitable response (near moving objects) to a user.

Existing methods still cannot support very large road networks (e.g. the whole USA road network). The main limitation of these approaches is either high memory consumption or heavy search overhead.

For example, for the whole USA dataset (24M vertices), we estimate that state-of-the-art approach like ROAD (Lee et al., 2009) needs over 105 days for pre-processing, and SILC (Samet et al., 2008) consumes approximately 618GB memory, which represents a very poor scalability and efficiency on large road networks.

In this paper, we combine the strengths of FCA and MapReduce to present a parallel continuous k-nearest neighbor (CKNN) search method of moving objects in road network and we improve the efficiency of located moving objects by employing the MapReduce paradigm. In particular, our main contributions can be summarized as follows:

- *Road network partionning.* We divide the road network into a set of smaller search spaces and deliver them to corresponding slaver servers to use their changing conditions in the selection of candidate moving objects.
- *MapReduce functions based of Formal Concept Analysis*. We show how the powerful mathematical method FCA is used to represent the data-related moving objects and to allow their clustering and effective parsing and search. In the *Map* function, we extract the near candidate moving objects according to their properties using FCA. In the *Reduce* phase, we merge the candidate moving objects and compute their shortest paths and distance based on their properties as well as the current road data.
- *Prototype implementation*. We show how a parallel programming platform called Storm is used to implement the FCA-based search method.

The rest of the paper is organized as follows: Section 2 presents our previous work. Section 3 gives an overview of the adopted technique. In Section 4, we present our parallel FCA-based approach to the search for k-nearest neighbors in a road network. Section 5 gives some details on the implementation and the performance evaluation of our kNN search approach. Section 6 summarizes the state of the art research methods of k-nearest neighbors in road networks. The last section is devoted to the conclusion and future work.

2 Previous work

In this section, we give an overview of our previous work (Ferchichi and Akaichi, 2015). In the first sub-section, we start by presenting the Formal Concept Analysis mathematical formalism, we have

adopted in our continuous k-nearest neighbor search method approach. The second sub-section presents the main steps of the proposed FCA-based search method.

2.1 Formal concept analysis

Formal Concept Analysis (FCA) is a mathematical formalism that provides hierarchically structured concepts and group objects having the same attributes. The resulting hierarchy of the FCA is known as Galois (Barbut and Monjardet, 1970) or concept lattice (Ganter and Wille, 1999). The mathematical foundation of FCA and conceptual structures that can be derived (Godin et al., 1995) have been exploited in several areas, such as classification and information retrieval (Carpineto and Romano, 2005), Web service selection (Azmeh et al., 2008), ontology construction (Bendaoud et al., 2010), knowledge extraction (Lakhal and Stumme, 2005), software engineering (Tilley et al., 2005) and (Godin and Valtchev, 2005), linguistics (Priss, 2005), etc. FCA allows building a concept lattice from a binary relation Objects X Attributes (see the next sub-section).

Definition 1 (Formal Context): A Formal Context is a triplet K = (G, M, I) where G is a set of objects, M is a set of attributes and I a binary relation between G and M satisfying: $I \subseteq G \times P$; $(g, m) \in I$ with $g \in G$ and $m \in M$, g means that the object has the attribute m or m is an attribute possessed by the object g.

Definition 2 (Formal Concept): A Formal Concept of a context K = (G, M, I) is a pair (A, B): $A \subseteq G$, $B \subseteq M$, A' = B and B' = A, where A' is the set of all attributes of B possessed by the objects of A and, in a dual way, B' is the set of all objects having the attributes of B. The sets A and B are called respectively extension (Extent part) and intension (Intent part) of formal concept C. B (G, M, I) denotes the set of all concepts of the context K = (G, M, I).

2.2 FCA-based continuous k-nearest neighbor search in road networks

A graph is a suitable candidate to model a road network. As shown in Fig. 1, a graph-based road network, which is considered as the search space, consists of vertices (nodes) that are connected by links (roads connecting the various nodes). The graph contains several static information (edges and nodes) and dynamic information (moving objects together with their characteristics).

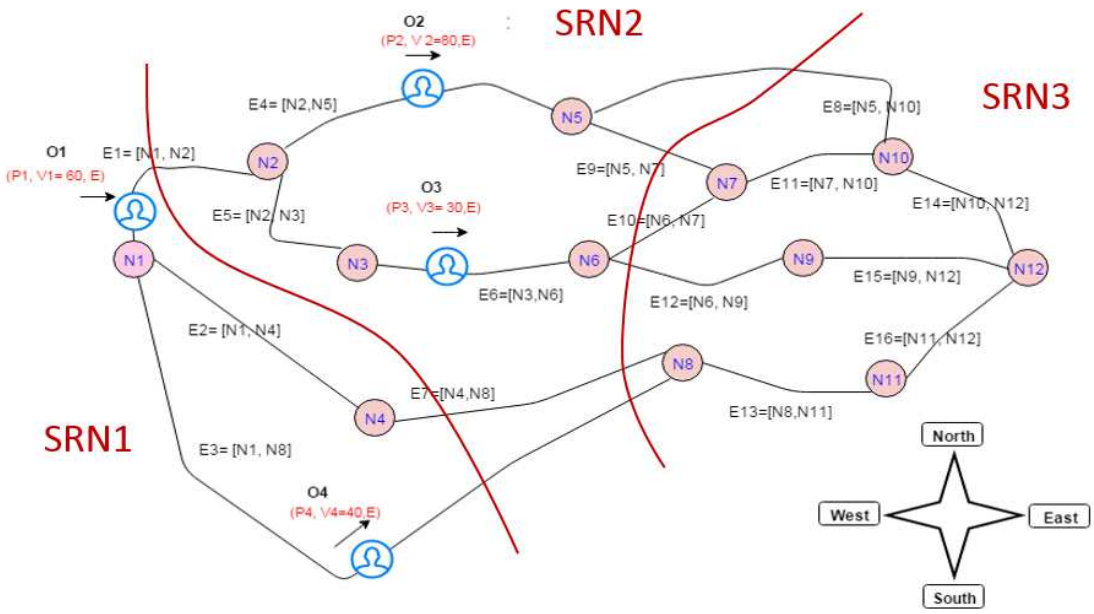

Fig. 1: Research space at time t = 0

Our FCA-based CKNN search method takes as input a graph-like road network and a set of candidate moving objects with their static and dynamic properties. It consists of the four main steps, described as follows:

- **Step 1 (road network modeling).** The search space or the road network is modeled as a graph G. The aim of the first step is to transform the road network to an abstract graph G. G is composed of a set of nodes *N* and edges *E*. The latter carries several information: static information (nodes and edges) and dynamic information (moving objects and their characteristics).

- **Step 2 (Formal context extraction).** In our work, the characteristics of moving objects will be delivered in real time to our system. Based on the road information, and on the different characteristics of the moving objects, this step, first, performs the binarization of the moving objects' characteristics, then the generation of the matrix of formal context from the information extracted from the graph-based road network. We denote by O all the moving objects, and by A the set of their attributes (characteristics of moving objects).

- **Step 3: (Generation of the lattice of moving objects).** This step takes as input the formal context created in step 2, and generates a lattice of candidate points of interest. Each formal concept in the lattice represents a candidate solution to a given search query. To reduce the time spent in the search within the lattice of moving objects, we propose to index all the concepts in the lattice based on what we call "level of concept". A level is defined for each generated concept. An index table will be created (Level + concepts) in order to accelerate the search process.

- **Step 4 (Query Evaluation or answering).** This step consists of searching within the generated lattice in order to extract the relevant formal concepts. This allows retrieving the moving objects that can satisfy the user's query.

The use of FCA for searching the k-nearest neighbors is motivated by two main features: the conceptual structure of the lattice data and the hierarchy between the concepts. The complexity of lattice construction depends on the number of moving objects and their properties. The construction of concepts is equal to O(k.m), where k is the number of properties of an interest point, and m is the number of points of interest. The complexity of the search algorithm is equal to O(L) where L is the number of concepts. However, maintaining the relevance of the delivered results mainly depends on reducing the response time, because these results must be valid at the time of their receipt by the user. To achieve our goals, the proposed approach aims to reduce the search space and the response time by parallelizing the search task. This is achieved with the use of MapReduce parallel programming parading as we will show in the following sections.

3 MapReduce parallel programming model

In this section, we first describe the basics of MapReduce programming Model. MapReduce is a framework proposed by Google to allow processing highly distributed problems across huge datasets using large number of computers. The distribution of the large amount of data implies parallel computing since the same computations are performed on each CPU, but with a different dataset.

In a MapReduce job, the master node first partitions input data into M independent chunks (where M is the number of Map tasks) and passes them to the mapper nodes. Each map task is independently executed in a mapper node. Afterwards, in the map phase, each mapper generates a series of intermediate key–value pairs based on the input data chunks and according to a user-defined Map function. The MapReduce runtime system then automatically sorts and merges these intermediate key–value pairs depending on the key. The intermediate data with the same key are divided into R segments (where R is the number of reducer nodes) using a hash function. Finally, after being notified of the location of the intermediate data in the reduce phase, each reducer accepts a set of intermediate key–value pairs and merges all the data with the same key value, then generates a series of key–value pairs according to a user-defined Reduce function (Li et al., 2015).

4 Proposed approach

In this section, we present the proposed framework for continuous k-nearest neighbour search in road networks with MapReduce (see Fig. 2).

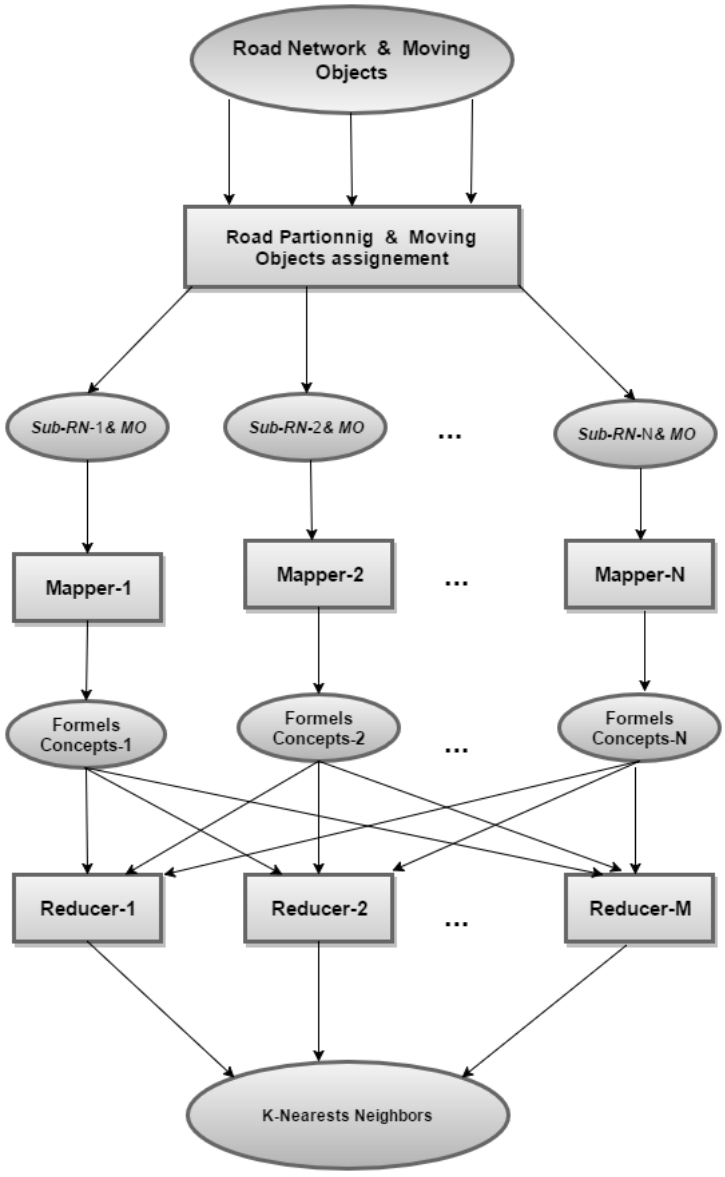

Fig. 2: A system overview of the CKNN search approach. In this figure, ellipses represent road network data, squares represent processing of candidate moving objects and rows show the flow of data.

As shown in Fig. 2, our CKNN search method works as follows:

1. Input road network is partitioned into *N* sub-road networks. Each sub-road network will be processed against the user query by a mapper machine, in order to evaluate the network state and the candidate moving objects that belongs to this sub-road network.

2. Mapper *i* reads the assigned sub-road network partition and returns the corresponding candidate moving objects that meet the user query. Mapper *i* outputs key/value pairs of near moving objects. *Keys* represent properties of moving objects, whereas *values* represents moving objects.

3. For each unique intermediate key, the reducer passes the key property and the corresponding set of intermediate values (near moving objects) to the defined reduce function. According to these key/value pairs (in our case properties/candidate moving objects), the reducer outputs the final list of key/value pairs of the k-nearest moving objects after filtering according to the user requirements, and the feasible solutions.

The next sub-sections give more details about each of the above steps.

4.1 Density-based road network partitioning method

The motivation behind dividing the road network data into sub-road networks is to reduce effectively the search space by dealing with small graphs of roads. This allows searching the k-nearest neighbors in parallel fashion. Finally, the intermediate results are combined to get the k-nearest moving objects. Using this approach, we can decrease the complexity of our previously proposed FCA-based search method (Ferchichi and Akaichi, 2015), as the time complexity of the search process is proportional to the size of the formal context and the concept lattice of candidate moving objects.

However, it is important to adopt an effective partitioning technique to avoid the loss of road network and moving objects information. In addition, the arbitrary partitioning method of MapReduce may be the origin of map-skew which refers to imbalanced computational load among map tasks (Kwon et al., 2012) and consequently to the non-satisfaction of user requirements.

In addition, there is a big difference in the distribution of moving objects across the search space. Non-uniform distribution of moving objects would cause many problems. For example, query response time difference among different areas would lead to difficulties in decision-making. To solve non-uniform distribution problems, we need an intelligent region dividing method to ensure the efficiency of query in different areas and to improve the quality of delivered response.

Considering the fact that the task of CKNN search depends on the road network state and its complexity in terms of roads (considered as arcs in the graph-based modelling), we adopt the density-based method proposed by (Aridhi et al., 2015). The proposed method consists of constructing partitions (chunks) according to the density of graphs. The goal behind this partitioning is to ensure load balancing and to limit the impact of parallelism and the bias of tolerance rate. The following definitions are used:

Definition 3 (Graph). A graph is a collection of objects denoted as G = (*V, E*), where *V* is a set of vertices and $E \subseteq V \times V$ is a set of edges. A graph G' is a subgraph of another graph *G*, if there exists a subgraph isomorphism from G′ to G, denoted as $G' \subseteq G$.

Definition 4 (Sub-road network). A graph-based Sub-road network G’ = (V’, E’) is a sub-graph of another graph (the whole road network) G = (V, E) iff V’ ⊆ V and E′ ⊆ E.

Definition 5 (Graph density). The graph density measures the ratio of the number of edges compared to the maximal number of edges. A graph is said to be dense if the ratio is close to 1, and is said to be sparse if the ratio is close to 0. The density of a graph G = (V, E) is calculated by

$$density(G) = 2.\frac{|E|}{(|V|.(|V|-1))} \quad (1)$$

Table 1 shows the density results of partitioning the graph-based road network. The partition of sub-road network *SRN3* is smaller than those of *SRN1* and *SRN2* because of the possible alternatives offered to a moving objects in terms of roads (i.e. arcs).

Table 1: Density example of the three sub-road networks

Sub-road network	Density
SRN_1	0.25
SRN_2	0.5
SRN_3	0.6

Based on the results of the partitionning step, the moving objects and their characteristics are represented in three Formal Contexts according to the number of Sub-road networks. Consequently, three mappers are responsible for the search task within the generated formal contexts, in ordr to extract the near candidate moving objects.

Due to the space limit in the paper, we only present an example of formal context and lattice derived from the first sub-road networks (see Fig. 3 and Fig. 4).

		Characteristic's of Mobiles Objects														
		Velocity					Direction				N-Direction ()		Edge	Path ()	Statut( )	
		V1	*V2*	*V3*	*V4*	*V5*	*North*	*South*	*East*	*West*	*SD*	*RD*	*Fp(P[MO])*	*Same-Path ( )*	*Near*	*Far*
Mobile Objects	*MO-1*	0	1	0	0	0	0	0	0	1	0	1	0	1	1	0
	MO-2	1	0	0	0	0	0	0	1	0	1	0	0	0	1	0
	MO-3	0	0	1	0	0	1	0	0	0	0	1	0	0	0	1
	MO-4	0	0	0	1	0	0	1	0	0	0	1	1	1	0	1
	MO-5	0	0	0	0	1	0	0	0	1	0	1	0	1	1	0
	MO-6	0	0	1	0	0	0	1	0	0	0	1	1	0	0	1
	MO-7	0	0	0	1	0	0	1	0	0	0	1	0	0	0	1
	MO-8	0	1	0	0	0	1	0	0	0	0	1	0	1	1	0
	MO-9	1	0	0	0	0	0	0	0	1	0	1	1	1	0	1
	MO-10	0	0	1	0	0	0	1	0	0	0	1	0	1	1	0

Fig. 3: Formal context of the moving objects assigned to the 1st mapper

Next, we present the tasks of the Map and Reduce functions for processing the formal context and searching the k-nearest neighbors through the lattice of moving objects.

4.2 FCA-based MapReduce functions

In this phase, we apply our FCA-based CKNN search method that we run it on each sub-road network in parallel. Algorithm 1 and 2 present our Map and Reduce functions respectivelly.

FCA-based Map function. In the Map function, the input key/value pair would be like <i, FC_i>, where *i* corresponds to the i^{th} partition of the road-network, and FC_i is a formal context representing a set of candidate moving objects at a time *t*.

As shown in algorithm 1, the formal context FC_i associated to the i^{th} mapper is transformed into a concept lattice L_i of moving objects (line 1). For the construction of the lattice, we use one of the existing algorithms (e.g. Bordat, Next Neighbor) offered with the Galicia (http://www.iro.umontreal.ca/~galicia/) tool. The lattice constructed by the first mapper is shown in Fig 5. Then, for each concept C_j in the lattice L_i, the mapper checks the status of each candidate object (lines 2 and 3), so that it can outputs the key/value pairs of near objects (line 4).

Algorithm 1. Map function

Require A Sub-road network graph, a user query, a formal contect FC_i
Ensure key/value pairs of near candidate moving objects
1: $L_i \leftarrow$ BuildMovingObjectsLattice (FC_i)
2: for each Concept Cj in L_i
3: **if** MOStatut(Cj.Intent) = near **then**
4: EmitIntermediate(Cj.Intent, Cj.Extent)
5: **end if**
6: end for

The output key/value pairs of the Map function would be like <P, MO>, where *P* is a set of properties characterizing a set of moving objects, and *MO* corresponds to the candidate objects that are characterized by the properties *P* at a time *t*.

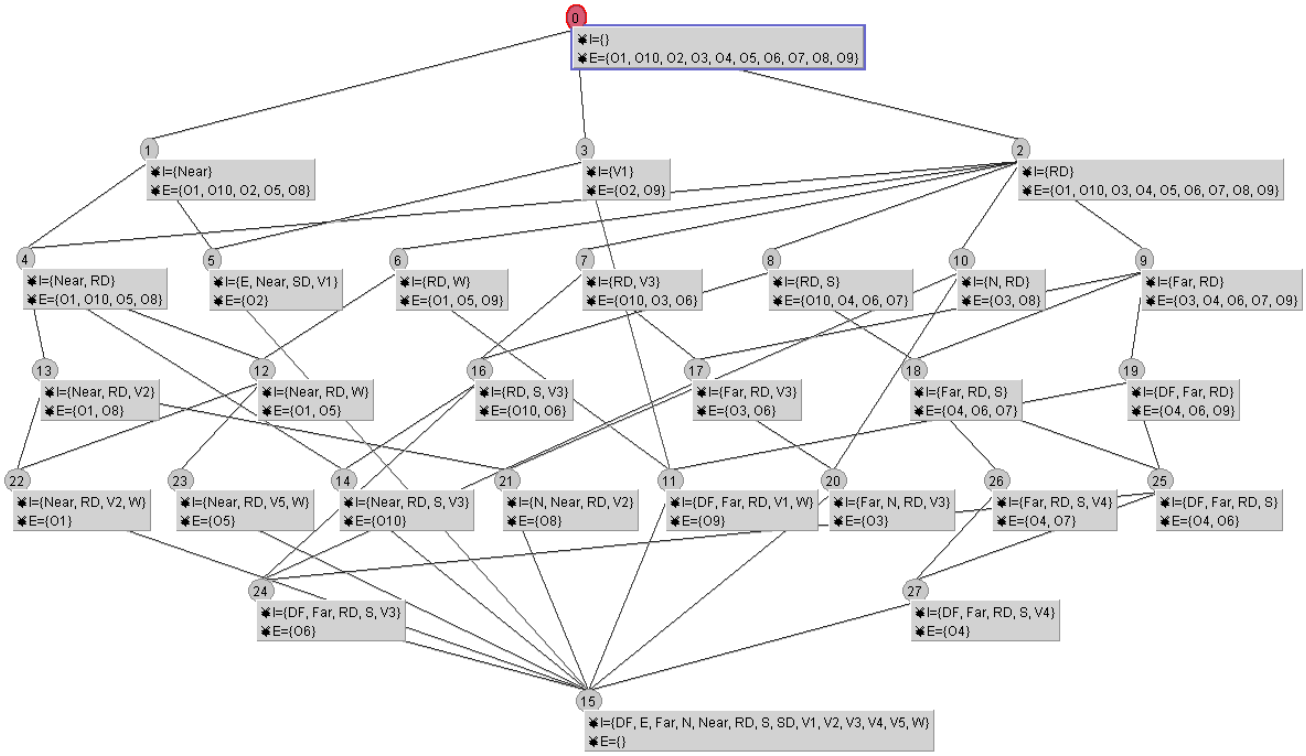

Fig. 4: Generated Concept Lattice of Moving object for the 1st mapper

After searching within the lattice constructed by each mapper, the output key/value pairs of all the Map functions (see Fig. 5) are then processed in the Shuffle phase and grouped together by key (i.e. characteristics of moving objects). Finally, one node is chosen to calculate the distance and the shortest path to the candidate moving objects that share the same properties. Note that this phase is out of the scope of this paper, as the movement of data is transparently orchestrated by the adopted MapReduce framework (see section 5).

Mapper 1		Mapper 2		Mapper 3	
Key	Value	Key	Value	Key	Value
Near	O1, O10,O2, O5, O8	RD	O15, O11, O16, O17, O18, O19, O20	RD	O21, O23, O24, O25, O27, O30
RD	O1, O3, O4, O5, O6, O7 O8, O9, O10	RD, S	O15, O18, O19, O20	V4	O22, O27
V1	O2, O9	RD, V1	O11, O16	RD, S	O21, O25, O30
Near, RD	O1, O10, O5, O8	Near, RD	O11, O19	N, RD	O24, O27
E, Near, SD, V1	O2	RD, S, V5	O18, O19	Near, RD	O25, O27
RD, W	O1, O5, O9	N, Near, RD, V1	O11	N, Near, RD, V4	O27
RD, V3	O10, O3, O6	Far, RD, V1, W	O16	RD, S, V5	O25, O30
RD, S	O10, O4, O6, O7	Near, RD, S, V5	O19	Near, RD, S, V5	O25
N, RD	O3, O8				
Near, RD, W	O1, O5				
Near, RD, V2	O1, O8				
Near, RD, S, V3	O10				
RD, S, V3	O10, O6				
N, Near, RD, V2	O8				
Near, RD, V2, W	O1				
Near, RD, V5, W	O5				

Fig. 5: Key/value pairs' outputs of the Map phase

FCA-based Reduce function. The shortest path problem in real-road networks is the cornerstone of the reduce phase in the CKNN search process. The reduce function receives a set of pairs <P, MO> that represent the near moving objects (results of the FCA-based Map function after eliminating the far moving objects). The reduce function, then, computes the distance and the shortest path to each near candidate object. Only near objects that have a distance smaller than a given threshold (specified by the user) will be kept.

In the Reduce function, the input key/value pair would be like <P, MO>. The Reduce function outpouts a sorted list of moving objects according to the calculated distances. We use the distance between the query point and a candidate moving object as a key in the outpouts of the Reduce function (see Algorithm 2).

To compute the shortest distance between the query point and each candidate near moving object, we adapted Dijkstra algorithm. According to Denardo [29], Dijkstra algorithm is the most time efficient algorithm for computing shortest path. Complexity of the computation time is O(nm log(n)), where *n* is the number of nodes in the graph-like road network and *m* the number of outgoing arcs of the graph.

The procedure *ShortestPathComputation* is based on Dijkstra's algorithme. It takes as input a query point *QP* and a candidate moving object *MO*. The procedure output is a shortest path from *QP* to *MO*, with its corresponding distance. The distance is defined by its origin (QP_x, QP_y) and destination (MO_x, MO_y) positions. Note that the distance and path computation is not realized on a separate sub-graph of the road network, bu on the initial road network.

Algorithm 2. Reduce function

Require A set of key/value pairs
Ensure key/value pairs of candidate moving objects, key = P, Pair = MO
1: for each MO **do**
2: Pth ← ShortestPathComputation (P, MO)
3: D ← ComputedDistance(Pth)
4: EmitIntermediate(D, Pth)
5: end for

As shown in the above algoritm, the reducer starts by calculating, for each near moving object, the distance *D* and the shortest path to the each moving object (lines 2 and 3). Since, several pairs may have the same distance with the query point, the reducer sorts them by distance and according tot he number of nodes in the selected path. Finally, the reduce function returns output key/value pairs in

the form of <D, Pth>, where *D* is a distance in *km* with respect to a minimum threshold, and *Pth* corresponds to shortest path between the query point and the candidate objects MO.

Following is an example of reduce function's output:

<5.4; {N1, N5, N9, N10, N12}>

Here the key *5.4* is the distance in km whereas the value *{N1, N5, N9, N10, N12}* represents a shortest path composed of five nodes.

The final output of this CKNN search process in the road network is an ordered list of the k-nearest neighbors and their positions in the corresponding sub-road network.

In the next section, we present the implementation details of our FCA-based CKNN parallel search approach.

5 Implementation and parallel CKNN search settings

The implementation of our prototype consists of three phases: (1) the extraction of the formal context, (2) the generation of the lattice of moving objects, and (3) the search of interest points within the generated lattice. Our prototype is implemented with the Java language.

To improve its scalability and efficiency in big data environment, our prototype is implemented on Storm (Toshniwal et al., 2014), a widely-adopted distributed computing platform using the MapReduce paradigm. We choose this plateform between other dominant open-source MapReduce frameworks such as Apache Hadoop (http://hadoop.apache.org/) and Spark (http://spark.apache.org/).

Apache Storm is an open source and a fault tolerant framework for processing large data in real time. Storm allows real time data analysis, machine learning, sequential and iterative calculation. It is characterized by its simplicity, scalability and speed of calculation. More precisely, it processes the data in the order of one million tuples per second for each cluster nodes. Following a comparative study of Storm and Hadoop, we find that the first is geared for Big Data applications in real time while the second is effective for batch applications. Also, Hadoop stores its data in the HDFS and thus does not allow iterative computation, whereas Storm allows different resources and iterative computation. Storm use the key-value format and support streaming mode (contrarily to Haddop which processes the data in batch mode), which is suitable to the case of continuous search of moving objects with changing properties (e.g. speed, position, etc.) in road networks with dynamic states.

Based on this comparison, we implemented the parallel FCA-based search search algorithm using Storm because it is suitable for real time applications.

Regarding the evaluation of the accuracy and scalability of FCA-based CKNN search, to see the impact of the number of moving objects on the complexity of lattice construction and k-nearest neighbors' extraction, extensive experiments are conducted. We have varied the number of moving objects (between 500 and 4000) in a road network graph containing 500 nodes (see Fig 6).

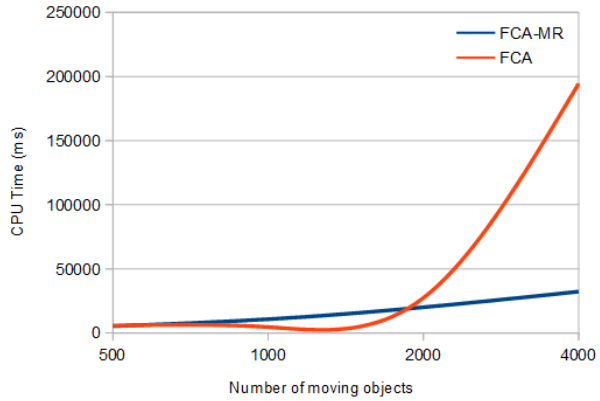

Fig. 6: FCA based search vs FCA-MR based search

Compared to the FCA-based search method, the parallelization of the search (FCA-MR) task significantly reduced processing time. This is explained by the partitioning of the unique context (used in FCA-based method) into a set of formal contexts with reduced sizes (in FCA-MR method). Therefore, the lattice constructed from each small formal context is processed in an acceptable time and, hence, complexity is reduced.

Moreover, partitioning the road network graph also reduced the search space (500 nodes in the case of the FCA-based method) unlike our FCA-MR approach, which allows browsing small sub-graphs (e.g. 125 nodes in the case of the first Mapper).

Fig. 6 also shows that, when the number of moving objects exceeds 2000, our FCA-based method is no longer able to return a valid response in a reduced time which violates one of the major constraints in the continuous k-nearest neighbor research problem. The integration of MapReduce logic into our FCA-based method has allowed delivering a valid response within an optimal (see case of 4000 moving objects).

To ensure that the FCA-MR method maintains an acceptable level of performance even in large scale CKNN problems and to ensure that the processing time will not be affected by the increase in the size of formal contexts, we conducted another series of test by varying the number of moving objects from 5000 to 10000 (see Fig. 7).

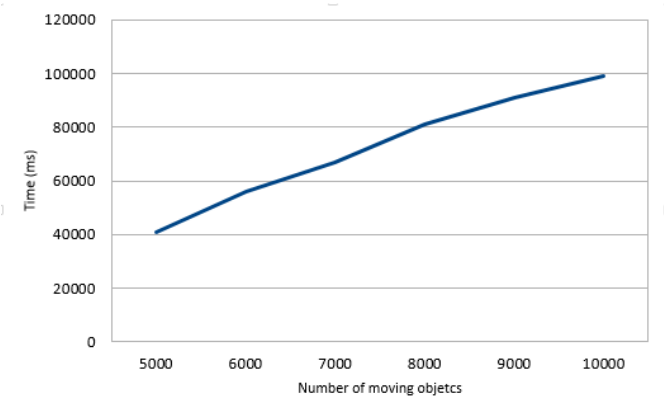

Fig. 7: FCA-MR performance with large number of moving objects

As shown in the Fig. 7, the increase in the number of moving objects did not affect the performance of our FCA-MR method. This is explained by the logic of allocating Map and Reduce tasks in Storm. A suitable configuration of blocks' size in Storm may guarantee the partitioning the formal context in small portions of formal contexts.

6 Related work

To resolve the kNN search problem, several approaches have been proposed. The most common classification of this problem is based on the way the distances between points are calculated, including Euclidean distance and the distance of shortest path.

Multidimensional indexing techniques have been studied extensively such as the R-tree (Guttman, 1984). Several variants of the R-Tree appeared among them R * Tree (Beckmann et al., 1990) or the X-Tree (Berchtold et al., 1997). These indexing structures have shown their limits in case of higher dimensions. The work proposed by (Song and Roussopoulos, 2001) suffers from the quality of results, as it highly depends on the number of examples as input. If the number of examples is small, the result will be wrong. In (Khyati and Akaichi, 2008), Delaunay triangulation is used for modeling a road network consisting of direct routes joining points of the space. The authors propose to apply a partitioning model in the road search space, by adding weighting factors such as urban traffic, elapsed time, velocity.

Recent attempts, such as (Zhong et al., 2013) which propose an index G-tree to find the k-NN at a given location, have shown limitations relative to the size of the studied network.

Most of the above discussed approaches showed shortcomings and are, in most cases, unable to satisfy the users, especially in case of large dimensions or in case of dynamic context. However, the relevance and effectiveness of the expected results depend heavily on the way the search space is indexed and on the research methods used in these indexes structures.

MapReduce-based approaches. Recently, the MapReduce parallel programming model has been applied to resolve the kNN problem (Stupar et al., 2010; Yu et al., 2015; Zhu et al., 2015; Ji et al., 2013; Lu et al., 2012). However, they cannot be directly applied to the problem of k-NN search over moving objects, as they suffer from large preprocessing and update costs.

(Akdogan et al., 2010) presented a distributed Voronoi index and techniques to answer three types of geospatial queries including reverse nearest neighbor (RNN), maximum reverse nearest neighbour (MaxRNN) and k nearest neighbor (kNN) queries. The location of a point in Voronoi takes extra time. It also incurs high maintenance cost and computation cost when the dimension increases.

SpatialHadoop (Eldawy, 2013), is a MapReduce framework that aims to support k-NN spatial queries. However, it is not suitable to the processing of continuous k-NN queries, since it is not specifically designed for moving objects and because the MapReduce paradigm employed by SpatialHadoop is a batching-oriented processing paradigm and is not good at handling the incremental changes to the query results caused by numerous small updates. SpatialHadoop does not consider the maintenance cost explicitly, and the index may not work well in the presence of frequent position updates.

Based on the above discussions, our work aims to resolve the majors issues related to exploring the search space as well as reduce the time spent to deliver a response to the user. This is achieved by combining the strengths of Formal Concept Analysis, as a powerful mean of clustering the moving objects–related information's, and the processing capabilities of MapReduce, as a well-known parallel programming model.

7 Conclusions and future work

In this paper, we have proposed an approach to the continuous k-nearest neighbor search in road networks using a synergy between Formal Concept Analysis and MapReduce parallel programming model. The proposed method relies on a density-based partitioning technique that considers road network characteristics. It uses the densities of roads in order to partition the search space. Such a partitioning technique allows a balanced computational load over the distributed collection of machines and replaces the default arbitrary partitioning technique of MapReduce.

The proposed method allows creating, from a partitioned graph-based road network, a set of formal contexts to be used in the construction of the corresponding concept lattices. These later represent the hierarchy of characteristics of the candidate moving objects. Once built, the step of searching points of interest in each lattice can be performed by a set of Mappers in a parallel fashion, through a classification scheme offered by the generated lattice of moving objects. Finally, the extracted concepts in the map phase are processed by the Reducers in order to return the nearest objects.

The mathematical foundation of FCA method has ensured a high level of accuracy and trust in the delivered answers. Also, the MapReduce framework was used to effectively deal with the highly distributed CKNN search problem across huge number of moving objects.

In the future work, we will study the influence of disturbance factors (e.g. traffic jam, accident) on the quality of delivered responses. We, also, intend to validate our approach through a set of experiments.

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Management of Health Satellite Accounts, Component of the Romanian National Accounts System

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Abstract

Overall objective related to public health in the European Union (EU) Sustainable Development Strategy (SDS) is to promote good public health on equal conditions and improve protection against health threats. The satellite accounts provide the opportunity of making connections between non-monetary statistics and the standard framework of the national accounts. The functional satellite accounts allow new concepts and methods which are characterized by a higher degree of freedom than those in the main national accounts system. When designing and compiling a satellite account, applying the concepts of the main framework for a specific purpose often results in the discovery of certain characteristics. This concept is also applicable in the case of health satellite accounts. Our results clearly demonstrated that, from the point of view of their aim, these characteristics may be helpful, but they can also present previously unforeseen limitations, especially in particular cases as Romania.

Keywords: national accounts system, health satellite accounts subsystem, European Union, Romania.

Introduction

Article 152 of the Treaty establishing the European Community states that 'a high level of human health protection shall be ensured in the definition and implementation of all Community policies and activities', thus acknowledging that public health is heavily dependent on policies in many other areas, including environment, agriculture, industry, trade, and social and economic policy.

The current version of the EU health strategy developed by European Commission (2007) presents three strategic themes intended to meet the major challenges facing health in the EU. The first theme focuses on the promotion of healthy lifestyles to improve healthy ageing. The second, concerned with the protection from health threats, is an explicit objective in the Sustainable Development Strategy (EU SDS) and covers related subjects such as food security and environmental pollution. The third looks at the sustainability of health systems and the role of technological development in improving their efficiency.

At an operational level the health strategy is supported by the Second Programme of Community Action in the Field of Health 2008-2013, as stated by European Parliament (2007). This program supports over 3 000 projects and other actions with the following overall objectives: to improve citizens' health security, to promote health, including the reduction of health inequalities, and to generate and disseminate health information and knowledge.

Gathering and assessing accurate, detailed information on health issues is vital for the European Union to effectively design policies and target future actions.

Overall objective related to public health in the EU Sustainable Development Strategy is to promote good public health on equal conditions and improve protection against health threats. The operational objectives and targets are represented by: improving protection against health threats by developing capacity to respond to them in a co-ordinated manner; further improving food and feed legislation, including review of food labeling; continuing to promote high animal health and welfare standards in

the EU and internationally; curbing the increase in lifestyle-related and chronic diseases, particularly among socio-economically disadvantaged groups and areas; reducing health inequalities within and between the Member States by addressing the wider determinants of health and appropriate health promotion and disease prevention strategies (actions should take into account international cooperation in forums like WHO, Council of Europe, OECD and UNESCO); ensuring that by 2020 chemicals, including pesticides, are produced, handled and used in ways that do not pose significant threats to human health and the environment (in this context, the rapid adoption of the Regulation for the registration, evaluation, authorization and restriction of chemicals (REACH) will be a milestone, the aim being to eventually replace substances of very high concern by suitable alternative substances or technologies; improving information on environmental pollution and adverse health impacts; improving mental health and tackling suicide risks as stated by European Commission (2009).

Satellite Health Accounts in European Union

For the EU Member States, the European Accounts System **(**EAS) is the standard for submitting national accounts data to international bodies. The strict adherence to the EAS is mandatory only in national publications as stated by European Parliament (1997). The EAS concepts are focused on describing the economic process in easily observable monetary terms. The EAS concepts are, in all respects, consistent with the standards established throughout the world in the national accounting, namely the National Accounting System (NAS). The international compatibility is essential for statistics comparisons between countries.

For some specific needs in terms of data, the best solution is to have separate satellite accounts. These needs relate to data requirements for: the analysis of the role the tourism plays in the national economy, the analysis of the cost and financing of the health care, the analysis of the importance of the research and development (R&D) and the human resources for the national economy, the analysis of revenue and expenditure for households taking into account the microeconomic concepts of income and expenditure, the analysis of the interaction between the economy and the environment, the analysis of the production within households, the analysis of the changes in citizens' welfare, the analysis of the differences between the national accounts and the business accounts and their influence on stock and exchange markets, the estimation of tax revenues. Besides, there has been recently introduced the satellite accounts for the social economy as underlined by Costuleanu et al (2011).

Information about healthcare systems and, ultimately, about the health of a population is a prerequisite for monitoring the performance of health policy. The regional indicators currently available for health provide an insight into similarities, particularities and contrasts across regions in Europe. There can be big differences between regions in the same country, while regions in different countries may be very similar. Thorough analysis of trends and variations in health indicators at regional level is therefore indispensable for planning and monitoring action and programmes, formulating new policies, developing new strategies and, all in all, contributing to 'evidence-based health policy'. Costuleanu (2010) mentioned that Eurostat's work on health statistics is focusing mainly on further improvements in the quality, comparability and completeness of the data and further extension of the regional coverage.

The overall aim of a European health information strategy should be to provide information and analysis for evidence-based development, implementation and evaluation of action for health in the EU, at both Community level and within Member States. European health information can provide added-value through information enabling comparisons in particular, which can in turn support identification, dissemination and application of best practice as stated by European Commission (2009).

Effective knowledge management for health information requires more than generating information, such as data or indicators at European level. It also requires mechanisms for providing analysis and highlighting possible areas for action, exchanging and disseminating information in an appropriate way to people who can make use of it; and then supporting and monitoring the application of information in practice. A great deal has already been done with regard to generating information at Community level, and this should be brought together in an overall map of progress so far. Though

more will be needed, it should also now be complemented by a greater focus on analysis, dissemination and application of European health information as underligned by Costuleanu (2011) as well as by Costuleanu and Codreanu (2011).

European Commission (2009, 2011) established the main indicators used to assess the European health information, representing the basis of EU satellite health accounts are as follows:

-Healthy Life Years (Eurostat, 2016)
The Healthy Life Years (HLY) indicator (also called disability-free life expectancy) measures the number of remaining years that a person of a certain age is still supposed to live without disability. Healthy Life Years is a solid indicator to monitor health as a productivity/economic factor. Healthy Life Years introduces the concept of quality of life. It is used to distinguish between years of life free of any activity limitation and years experienced with at least one activity limitation. The emphasis is not exclusively on the length of life, as is the case for life expectancy, but also on the quality of life.

HLY is a functional health status measure that is increasingly used to complement the conventional life expectancy measures.

Any loss in health will, nonetheless, have important second order effects. These will include an altered pattern of resource allocation within the health-care system, as well as wider ranging effects on consumption and production throughout the economy. It is important for policy-makers to be aware of the opportunity cost (i.e. the benefits forgone) of doing too little to prevent ill-health, resulting in the use of limited health resources for the diagnosis, treatment, and management of preventable illness and injuries.

-Deaths due to chronic diseases (Eurostat, 2016)
Data on deaths by cause are usually based on the underlying cause, derived from the certifier's entries in parts I and II of the death certificate. Acceptable causes of death are those listed in the World Health Organization's (WHO) International Classification of Diseases (ICD). All EU countries use either the ninth or the tenth revision of the Classification. Data on causes of deaths are collected by Eurostat (at national and regional NUTS 2 level).

-Unmet needs for healthcare (Eurostat, 2016)
Good health is an asset in itself. It is not only of value to the individual as a major determinant of quality of life, well-being and social participation, but it also contributes to general social and economic growth. Many factors influence the health status of a population and these can be addressed by health policies regionally, nationally or across the EU.

Barriers to accessing health services include cost, distance, waiting times, lack of cultural sensitivities and discrimination. For non-native speakers, language can be an obstacle for those seeking to access services, while barriers to health care may result from poor understanding or a lack of knowledge with respect to a patient’s rights and the administrative practices and requirements of health systems.

The frequency of reporting unmet needs for medical care for reasons of expense decreased with increasing income. At the same time, the frequency of reporting unmet needs for medical care for reasons of high expense, too far to travel or waiting lists increased with decreasing educational attainment.

Generally, Member States with high shares of unmet needs for medical care due to being too expensive, too far to travel or waiting lists displayed particularly high shares for older people

-Production of toxic chemicals (Eurostat, 2016)
The indicator is a Sustainable Development Indicator (SDI). It has been chosen for the assessment of the EU progress towards the targets of the Sustainable Development Strategy.

The EU-28 production of toxic chemicals (all five toxicity classes together) increased by 0.5 % between 2004 and 2007 to reach a peak of 235 million tonnes. Production fell by 20 million tonnes in 2008 (or by 8.4 %) and by the same amount in 2009 (or 9.3 %) to a level of 195 million tonnes. The rebound in activity in 2010 (up 11.7 %) made up for the losses recorded in 2009 but was followed by

further reductions in 2011 (-5.0 %). Since then production of toxic chemicals is almost constant. As a result of these developments, the EU-28 level of production of toxic chemicals in 2014 was 206 million tonnes, almost 30 million tonnes less than in 2004.

-Suicides (Eurostat, 2016)
There are big discrepancies between suicide rates in different EU Member States (Figure 13). The yearly rates range from 3 deaths per 100,000 in Greece to 24 deaths per 100,000 in Finland.

Some of the variations in suicide across Europe may be due to differences in the process of death registration. Procedures for recording a death as a suicide are not uniform. Countries like Luxembourg require a suicide note in order to register a death as suicide, while in the United Kingdom an assessment of intent is required by a Coroner. Cultural and social norms also play a role in death registration. In cultures in which suicide is particularly stigmatised, it may be more common to record the cause of death as of undetermined intent or to record another cause.

-Exposure to air pollution by particulate matter (Eurostat, 2016)
The indicator shows the population-weighted concentration of PM10 and PM2.5 to which the urban population is potentially exposed.

Fine and coarse particulates (PM10) are those whose diameter is less than 10 micrometres, whilst fine particulates (PM2.5) are those whose diameters are less than 2.5 micrometers. Particulates can be carried deep into the lungs where they can cause inflammation and a worsening of the condition of people with heart and lung diseases. The smaller the particles the deeper they travel into the lungs, with more potential for harm. According to the recommendations of the World Health Organisation (WHO) the annual mean concentration is the best indicator for PM-related health effects.

The Directive 2008/50/EC set a framework to define and establish objectives for ambient air quality and to harmonise methods and criteria among the Member States. This does have limits for PM2.5. The limit value that was due to be met on 1 January 2015 is 25 µg/m3, which falls to 20 µg/m3 by 2020.

-Exposure to air pollution by ozone (Eurostat, 2016)
The indicator shows the population-weighted concentration of ozone to which the urban population is potentially exposed.

The principle metric for assessing the effects of ozone on human health is, according to the World Health Organisation's recommendations (*), the daily maximum 8-hour mean. Ozone effects should be assessed over a full year. Current evidence is insufficient to derive a level below which ozone has no effect on mortality.

However, for practical reason it is recommended to consider an exposure parameter which is the sum of excess of daily maximum 8-h means over the cut-off of 70 µg/m3 (35 ppb) calculated for all days in a year.

This exposure parameter has been indicated as SOMO35 (sum of means over 35), and is extensively used in the health impact assessments, including the Clean Air for Europe (CAFE) Programme leading to the Commission Communication on the Thematic Strategy on Air Pollution.

-Annoyance by noise (Eurostat, 2016)
Road traffic is, by far, the major source of traffic noise in Europe both inside and outside agglomerations. It should be also highlighted that significant numbers of people remain exposed to high levels of noise from rail and aircraft.

When available data allows for comparison between 2007 and 2012, different patterns have been observed: there has been a general increase of people exposed to all noise bands from airports, a slight increase of people exposed to noise from roads (only people exposed to lower noise bands), and a slight decrease of people exposed to noise from railways. Nevertheless, for 2012 reference year, information on strategic noise maps is missing for 12 out of 33 EEA member countries.

-Serious accidents at work (Eurostat, 2016)
Effective prevention requires that statistics are reliable and accurate enough to allow the identification of industries, occupation and work tasks where there is a high risk of accident or disease. The measures can then be focused on these tasks and future cases may thereby be prevented.

In the European Union, the Commission's Community strategy (2007–2012) on health and safety at work aims to improve the quality and productivity of working life. Health and safety at work is considered as one of the most important aspects of EU policy on employment and social affairs. The overall objective of the strategy is to reduce by 25% the total incidence rate of accidents at work per 100,000 workers in the EU-27 during the strategy period.

In the European Union, there is a legal obligation to report occupational accidents and diseases. However, there are practical differences on how the reporting systems have been established in different member states.

-Health status, health determinants and use of healthcare services; Healthcare; Healthcare: hospital discharges, hospital length of stay and medical procedures; Healthcare: human and physical resources; Healthcare expenditure (Eurostat, 2016)
Physical and mental problems, as well as ill health, undermine the quality and occasionally shorten the length of people's lives. They also inhibit economic and social development, by stripping countries of valuable human capital.

Poor health conditions mean that a significant part of a given population is unable to benefit from the general progress of society, or actively engage in civic activities.

Long and healthy lives are therefore not just an overarching personal aim for most people.

Moreover, since it has been shown that factors like people's lifestyles, culture and living environment affect health outcomes, objective indicators do not necessarily reflect the quality of healthcare services provided.

The state of people's health in Europe is therefore measured using a combination of objective health outcome indicators, such as life expectancy and infant mortality, subjective perceptions regarding access to healthcare and self-evaluations of health status.

The reason for using a combination of indicators is that healthiness in a given population is a complex matter and we need to look at it from various angles in order to present a more nuanced, complete picture of the reality.

These indicators include elements that constitute risk factors for health resulting from lifestyle, such as hazardous behaviours (e.g. smoking) likely to have an impact on future levels of health, and thus the well-being of European societies.

Satellite Health Accounts in Romania

An important feature of satellite accounts is that they keep, in principle, all basic concepts and classifications of the standard framework. Only if the specific purpose of satellite accounts requires an amendment changes are introduced in the basic concepts. In such cases, the satellite account should also include a table showing the links between the major aggregates of the account and the aggregates from the standard account. Thus, the standard framework holds its role as a framework of reference and at the same time there will be fulfilled several specific needs as mentioned by Costuleanu et al (2013).

Satellite accounts can respond to specific data requirements: they provide further details where necessary and eliminate unnecessary details; they extend the accounting framework by adding non-monetary information, for example information on pollution, environmental or health assets. Satellite accounts provide the opportunity to make links between such non monetary statistics and the standard framework of the national accounts. In this way, we reach to a consistent extended framework. This

framework can serve as a database for analyzing and evaluating all types of interactions between the variables in the standard framework and those of the extended framework as already underlined by Costuleanu et al (2012).

For Romania, the methodology for compiling statistics on Central and Local Government and social security operations is loosely consistent with the statistical framework set out in COFOG. From January 2006 the budgetary Classification was harmonized with the ESA 95 and with the GFS Manual 2001. Costuleanu and Georgescu (2011) showed that, in the functional classification of expenditures, the most significant are: general public services, defense, public order and safety, education, health, recreation, culture and religion, social protection, housing and community amenities, environmental protection, economic affairs (general economic, commercial and labor affairs, agriculture, forestry fishing and hunting, fuel and energy, mining, manufacturing and construction, transport and communication).

"The 2008-2010 multi-annual national statistics program", developed by the National Institute of Statistics (2011) provides in the chapter of the satellite accounts only: environmental satellite accounts, natural resource accounting and health satellite accounts. "The 2008-2010 multi-annual national statistics program" includes some actions on health satellite accounts for 2008 (implementation of data collection on health expenditure, harmonized with OECD methodology and with the most recent methodological recommendations of Eurostat), yearly (for the collection of health expenditure of the three areas: funding sources, health functions and services, health service providers; an additional field is the collection of expenditure on health human resources in the standardized format), for 2009 (review the national methodology of the System of Health Accounts, following the preparation and publication of the second edition of the OECD-EUROSTAT-WHO methodology) and for 2010 (dissemination of statistics on health expenditure).

Conclusions

When designing and compiling a satellite account, applying the concepts of the main framework for a specific purpose often results in the discovery of certain characteristics. This concept is also applicable in the case of health satellite accounts. Our results clearly demonstrated that, from the point of view of their aim, these characteristics may be helpful, but they can also present previously unforeseen limitations, especially in particular cases as Romania.

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To Outsource or Self-Manage Social Media Interactions: An Exploratory Study

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Abstract

Social media tools have made quick communication and free speech a reality, and yet many organizations still do not understand what social media tools are or how to deal with such phenomena. To help organizations deal with this new fast-spreading media a new breed of companies has come into existence; for example, 'socialeyez', 'meltwater', 'mccolins media', 'phenomena' and 'shareable brands'. These new companies provide services such as: media monitoring, listening analysis, newsletters, newsfeed and brand marketing etc. The main aim of this research is to answer the following question: Is it strategically better to use social media management tools or to hire a social media company to manage an organization's social media interaction? The objectives of this study are: 1) to explore the available social media tools that could be used to manage and utilize social media interaction; 2) to investigate the nature of the new breed of social media companies: how successful are they?; what tools do they use?; what kind of services do they provide?; 3) to find out how organizations are utilizing social media: do they have social media policies?; what tools do they use?; are they hiring social media companies to work for them?; if they are, then what are the benefits of employing such companies?) To achieve the research objectives, multi-method research was conducted, which comprised: 1) a literature review (journal, conference papers); 2) an examination of the social media companies' websites (and other online resources); 3) a short survey on the social media companies (sent by email); 4) a short survey on the private/public organizations (also sent by email).

Keywords: Social media tools and companies, government, monitoring, analysis, listening and management tools

1. Introduction

The adoption of social media in the public sector, as in the private sector, is considered to be a crucial step in the transformation of ways of governing, and in companies' communication and engagement with the public [Gharawi et al., 2010]. Recently, the strongest trend that has been observed globally is obviously the use of social media in both public and private sector organizations. It is used as a tool for both internal and external communication, for creating awareness, improving the delivery of services, building an image, protecting a company's reputation, shaping the way of thinking towards a company's products or services and interacting with citizens [Gharawi et al., 2010; Kasper et al., 2012]. Hence, many public and private sector organizations worldwide realize the power of social media in reaching out to their audiences and engaging them in both on and offline activities of the organization.

The appreciation of the value of using social media tools in government organizations and companies is increasing day by day. However, both public and private sector organizations have faced some challenges regarding management of these tools. These challenges occurred because: 1) there was no creative social media team who were able to manage social media tools effectively; 2) there was a lack of balance between openness, government organizations' or companies' strategy and their management process, and 3) there was no, or insufficient, monitoring of social media content [Macnamara and Zerfass, 2012]. In order to meet these challenges, organizations should answer the following questions: "what to do (strategy), how to do it (organization: roles and processes) and which tools would offer support in doing it (information systems)" [Kasper et al., 2012]. These questions can be answered by taking into account the vital process named 'social media management'.

Social media management is a process that leads to the accomplishment of organizational objectives by identifying and mitigating risks, listening, interacting, and reflecting on social media interaction from a stakeholder's perspective [Montalvo, 2011; Zhang and Vos, 2014].
This research will attempt to answer the following research questions:

- What is Social Media Management (SMM)?
- How do public and private sector organizations manage their social media interaction?
- Which is better for public and private sector organizations: using social media management tools to manage their social media presence and interactions or hiring a social media company to do it?

This paper is organized as follows: Firstly, the paper presents the methodology used in this research. After that, it presents a brief review of social media, with a particular focus on social media management (SMM). The findings are then discussed. The paper concludes with remarks and recommendations on which of the two methods is better and in which situations.

2. Research Methodology

To achieve the above objectives multi-method research was conducted which comprised: 1) a literature review (journal, conference papers); 2) an examination of the SM companies' websites (and online resources); 3) a short survey on the SM companies (sent by email); 4) a short survey on the private/public organizations (sent by email).

The gathered data was critically analyzed and synthesized in order to arrive at a complete understanding of which method is better for public and private sector organizations; using social media management tools or hiring a social media company to manage their social media interactions.

3. Literature Review

3.1. Social media for public and private sector organizations

Because of the extensively perceived benefits, the public sector (government agencies) are increasingly using social media to communicate and build relationships with employees and other stakeholders [Macnamara and Zerfass, 2012]. Shah and Lim [2011] confirm that social media tools play a vital role in connecting government with their citizens. Hence, a significant aim of adopting social media in the public sector is to raise government's interaction with citizens by sharing information and allowing them to participate in decision-making in order to achieve more transparency, engagement and participation [Mergel and Bretschneider, 2013].

Regarding social media usage in the private sector, it is not considered a luxury but simply as being required for reinforcing the reputation of companies, increasing stockholders interest and awareness, facilitating the exchange of information between firms and their consumers, enhancing interactions with brands and building new business relationships [Broekemier et al., 2015].

Once the public and private sector organizations have begun to adopt social media, a range of reactions occur. There are many organizational factors that might be influenced such as; organizational size, organizational management and structure, internal and external information, and stakeholders characterization [Broekemier et al., 2015; Mergel and Bretschneider, 2013]. It is important for both government agencies and companies who are on social media to take all these factors into consideration as they have importance not only for them but also for the public. If they do not deal with these factors appropriately and professionally, government agencies and companies will be affected adversely, impacting their image and reputation. Therefore, the proper way to overcome this dilemma lies in: 1) acting, representing the strategy and meeting the goals of organizations when using social media; 2) defining to what extent the government agencies and companies meet the criteria of using social media which are indicated by Veldhuis [2013]; knowledge, monitoring, sharing and relations, presence, strategies and policies and finance, and 3) managing government social media accounts by implementing social media management tools to enable interaction, growth, content posting, audi-

ence and engagement (e.g. number of followers, likes and views, comments and favorites, post activity, visits and reach) [King, 2015].

3.2. Social Media Management (SMM)

Due to the rapid growth of social media use around the world, it is expected that social media are significantly affecting operations, performance and an improvement in relationships of organizations in both the public and private sector [Chelliah and Field, 2014]. Online reviews, online interaction, e-participation and e-consultation are some of the benefits that social media tools offer these public and private sector organizations. Accordingly, organizations should make serious efforts to understand the influence of social media in order to prepare better management processes. This will enable and support the achievement of the organization's objectives, the analysis of social engagements and reactions, and evaluation of the outcomes of specific strategies [Montalvo, 2011].

Social media management is a process that helps organizations to manage outbound and incoming online interactions in a more efficient manner by helping organizations to more easily monitor what people are saying about their services and products and helping to increase their social media presence across several social networking sites [McCabe, 2010].The most important purposes of using a social media management process are indicated by Kasper et al. [2012]:

- Reputation management
- Improving product and building brand image
- Risk management
- Interaction and dialogue management
- Content and activities listening and analyzing.

Arguably, social media management comprises three main processes: *monitoring*, *listening* and *analyzing*. These processes can be achieved by using several tools which offer many features to manage the social media accounts of organizations. Each of these processes is outlined below:

3.2.1 Social Media Monitoring

Social media monitoring has become an essential process of tracking and scanning the organization’s situation and evaluating its operations [Zhang and Vos, 2014; Macnamara and Zerfass, 2012]. Basically, it is used for observing and evaluating interactions through listening to conversations, identifying the issues that are being discussed, opinions, and the positive or negative comments about the organization that are posted online. The most important considerations of social media monitoring are to find out what others think about their products, brands and services and those of their competitors [Laine and Frühwirth, 2010; Macnamara and Zerfass, 2012], and to follow the development of a particular phenomenon that has been identified in the social media dialogue [Zhang and Vos, 2014]. To sum up, the monitoring of social media can be defined as listening, finding out and interpreting what people are saying online about an organization [Stavrakantonakis et al., 2012].

3.2.2 Social Media Analysis

Social media analysis is the practice of gathering data from social media websites and analyzing them to identify users’ sentiments and identify the trends to follow in order to better meet their needs and wants. Social media analysis entails measuring, analyzing and interpreting interactions and relationships between people, topics and ideas [Ambler, 2011]. Furthermore, Montalvo [2011] indicates that “Social media data analysis entails translating data into dashboards, graphics, and metrics reports, which management uses to evaluate the outcomes of specific strategies".

In order to make an effective analysis of social media content, most of social media channels offer some type of analysis or insight that can help an organization to monitor its performance and user's trends and to gather social media information [Lawrence et al., 2010]. Some of these tools are; Google Analytics, Facebook Insights, Twitter Analytics and LinkedIn Analytics.

3.2.3 Social Media Listening

The ability to make an appropriate decision for such an organization and create solid relationships between citizens and the organization through social media content depends on how the comment and online posts are measured [Schweidel and Moe, 2014]. The measurement of the interactions and conversation in social media is called 'social media listening'. This process helps an organization to find out what people are saying about its services and products and then responding appropriately through sorting out their sentiments, comments and posts by their tone or sentience (negative or positive), style (serious, funky, professional), demographics (age, gender, location) and the influencers with the organization's products or services [Schweidel and Moe, 2014]. Correct listening to the social media interaction will improve trust between users and ensure that they stay connected and engaged [Crawford, 2009]. Added to that, social media listening can benefit the organization in the following ways: 1) provide solutions to problems by listening to the users' expectations; 2) identify 'influencers' and 'advocates'.

To sum up, the social media management process offers a means of listening to the social media users and analyzing and measuring the organization's activity in relation to a brand or enterprise, a process that can lead to valuable insights for enterprises regarding which strategy they should employ, how customers view their services and solutions, what the enterprise should expect in the future or which of their offered features are not as effective as had been estimated [Stavrakantonakis et al., 2012].

3.3. Social Media Tools vs. Social Media Companies for Managing Social Media

Managing social media interactions is undertaken by using several tools that are widely used worldwide, which can be obtained commercially or for free. The selection of these tools depends on certain criteria that an organization should take into consideration, such as: cost, supported language, various sources that are aggregated, geographical, historical and sentimental analyses. These tools have been established to support multiple functionalities, such as "analyses of volume, source, author, keyword, region, sentiment, and then reporting these analyses conveniently and in a graphical fashion" (Laine & Frühwirth, 2010, p. 195). However, some of these tools are limited in terms of functionality. This note is more applicable when using free tools that provide one functionality or insight into one media type [Laine and Frühwirth, 2010]. Table 1 shows some of the available social media management tools.

Table 1: Shows some of the available social media management tools

Type of Tools	Tool Name and URL
Social Media Listening Tools	1. Radian6, www.radian6.com 2. Meltwater, www.meltwater.com 3. Sysmos, http://www.sysomos.com/ 4. Comarch, http://www.comarch.com/ 5. Quintly, https://www.quintly.com
Social Media Analysis Tools	6. Google analytics, http://www.google.com/analytics/ 7. SocialBaker, http://www.socialbakers.com/ 8. Buffer, https://buffer.com/ 9. Followerwonk, https://moz.com/followerwonk/analyze 10. Iconosquare, http://iconosquare.com/ 11. Collecto, http://collec.to/ 12. Google Analytics, http://google.com 13. Sumall, https://sumall.com/ 14. Cyfe, http://www.cyfe.com/ 15. Tailwind, https://www.tailwindapp.com/ 16. Keyhole, http://keyhole.co/ 17. Klout, https://klout.com/home 18. Riffle, http://crowdriff.com/riffle/

	19. Mytoptweet, https://mytoptweet.com/ 20. Howsocial, http://www.howsociable.com/buffer 21. Socialbro, http://www.socialbro.com/ 22. Teweetreach, https://tweetreach.com/ 23. Socialbro, http://www.socialbro.com/ 24. Wolframalpha, https://www.wolframalpha.com/input/?i=facebook+report
Social Media Monitoring Tools	25. Hootsuite, https://hootsuite.com/ 26. Klout, https://klout.com/home 27. Teweetreach, https://tweetreach.com/ 28. Socialmention, http://socialmention.com/ 29. Addictomatic, http://addictomatic.com/ 30. Howsocial, http://www.howsociable.com/buffer 31. Icerocket, http://www.icerocket.com/ 32. Twazzup, http://www.twazzup.com/
Other Social Media Management Tools	33. 11 Best Social Media Management Tools, https://blog.dashburst.com/best-social-media-management-tools/ 34. Top 10 Tools for Managing Your Social Media Accounts, http://www.searchenginejournal.com/top-10-tools-managing-social-media-accounts/87843/ 35. Sendible, http://sendible.com/ 36. Favorite Social Media Management Tools for Small Business, http://www.convinceandconvert.com/social-media-tools/favorite-social-media-management-tools-for-small-business/ 37. Buffer: Social Media Management, https://bufferapp.com/ 38. Sprinklr: Social Media Management, https://www.sprinklr.com/social-media-management-system/ 39. 5 Top Social Media Dashboard Tools to Manage Your Social Accounts, Read more at http://www.business2community.com/social-media/5-top-social-media-dashboard-tools-manage-social-accounts-01015451#qxt76zE7iTPOX9v1.99] and [http://www.business2community.com/social-media/5-top-social-media-dashboard-tools-manage-social-accounts-01015451] 40. Stephanie Castillo, 16 Tools Every Social Media Manager Should Use, http://blog.visual.ly/15-tools-every-social-media-manager-should-use/ 41. Digital media, http://www.liftdm.com/ Or http://liftsocialmedia.com/ 42. Social Media Club, http://socialmediaclub.org/

On the other hand, there are many companies working in the social media field worldwide and in GCC countries specifically. They offer several services related to managing social media accounts; analyzing, monitoring, listening and developing social media strategy. Table 2, below, highlights some of GCC social media companies together with the services they provide.

Table 2: Some of GCC social media companies together with provided services

No	Company's name, location and URL	Services
1	Alamah (Oman) http://www.alamah.om/	• Development of strategy. • Managing accounts and preparation of periodic reports. • Helping companies to develop their websites. • Help to make programmed systems that are fast, friendly, and safety. • Developing phone applications that are easy to navigate.

2	Galaxy way (Oman) http://www.galaxy-way.net/home.html	• Creating an identity for the brand. • Creating social media campaigns for the promotion of the brand. • Online promotion. • Advertising for companies in TV and Radio. • Managing events for companies. • Designing brochures and adverts for companies. • Providing companies with posters and signage.
3	Bayantebyan (Oman) http://bayantebyan.com/	• Building public relations between companies and clients. • Online listening. • Managing events and corporate social responsibility. • Offering creative and productive workshops for clients.
4	Wassm Media (Oman) https://instagram.com/wassmmedia/	• Offers a variety services in the field of social media
5	Proshots (Oman) http://www.proshots.org/	• Providing services for Creative Marketing Solutions, Photography, Videography, Film-making, Media Coverage, Event Management and Coverage, Projects Management, Digital Production, 3D Animation, Graphic Design and Sound Production.
6	Socialeyez (UAE) http://social-eyez.com	• Monitoring and analysis of social media for any organization to get a complete picture of public opinion and the relevant trends. • Creating a strategy plan for branding. • Developing mobile application.
7	Meltwater (UAE) http://www.meltwater.com/ae/	• Monitoring the news on the internet and social media. • Managing the interaction between clients and social media. • Analyzing the performance of social media.
8	McCollins media (UAE) http://mccollinsmedia.com/	• Managing and improving the public relations with clients. • Listening to what others say about the brand. • Designing mobile application. • Helping clients to develop their website. • Producing a short video for advertising.
9	Phenomena (UAE/ Dubai) http://www.phenomena.me/social/	• Managing the communication with others via social media. • Advertising brands on social media. • Developing Facebook applications. • Making videos to proliferate brand awareness on social media. • Helping clients to develop their websites.
10	Shareable Brands (UAE/ Dubai) http://www.shareablebrands.com/	• Creating a successful strategy for marketing brands. • Doing research to develop a strategy for brands. • Developing communities by sharing the right content with the right people. • Monitoring and evaluating what others say about companies. • Helping to select the right tools to manage customer interactions and develop processes.

11	Popalmedia (UAE/ Dubai) http://popalmedia.com/	• Animated explanatory video.
12	Zynosure (UAE/ Dubai) http://www.zynosure.com/	• A creative agency for maintaining the consistency of brands. • Offering high impact videos and animations. • Helping companies to design and develop their websites. • Creating advertising for companies in both traditional and digital fashions. • Design and development of E-books. • Online marketing services that offer web marketing, email marketing and social media marketing
13	Global Media Insight (UAE / Dubai) http://www.globalmediainsight.com/	• Maintenance of websites. • Developing mobile applications. • Creating attractive presentations for companies. • Creating advertising for companies in both traditional and digital form. • Listening to what others are saying about the brand, analyzing it and then communicating with others in a positive way.
14	Alsayeghmedia (UAE) https://www.alsayeghmedia.com/	• Helping the client to plan research and create strategies for their companies. • Providing social media management which allows an individual or an agency to manage online interactions in an effective manner. • Making corporate videos, event videos and documentaries for clients. • Managing public relations for clients. • Helping to manage big events. • Helping clients to market their brand online. • Providing a media-buying agency. • Producing audio for clients.
15	Buz (UAE) http://www.ibuz.ae/	• Providing a consultancy service in management and marketing for clients. • Helping clients to organize strategic events and trade exhibitions. • Managing public relations in order to build company brands. • Teaching company managers how to choose staff for positions in the company.
16	Arabia Company For Digital Publishing and New Media (UAE) http://www.arabioo.com/	• Designing and managing digital advertisements. • Producing short videos for advertisements.
17	iclick (Saudi Arabia) http://iclick-sa.com/	• Providing training and workshops for clients in digital marketing, social media marketing and mobile marketing. • Improving the marketing of mobile applications. • Providing a consultancy service in marketing for clients. • Improving digital marketing and online advertising. • Improving social media marketing. • Using Google analytics to build an analytics plan for clients.

18	Social media solution (Qatar) http://socialm.qa/	• Offering a consultancy service in marketing. • Giving training in marketing. • Creating strategies in marketing and operations. • Content management. • Monitoring and analysis of social media accounts.

In order to manage social media interactions successfully and effectively, organizations should consider which way would be the most appropriate by identifying the pros and cons of each. In fact, there are two ways of tackling social media management: either by using the social media tools and forming a local team within the organization or by hiring a third party company to manage the presence of an organization on social media. In the next sections both ways will be discussed in more detail.

- *Using Social Media Management Tools and Forming a Local Team*

This way of managing organizations' social media interactions depends on the social media representative person/team using the tools that are available, whether free or commercial. The advantages for organizations in doing it this way are as follows: 1) it is easy to identify the target audience; 2) it is easy to find solutions and to connect with other departments in the organization; 3) followers' questions can be answered quickly; 3) it can provide a better understanding of the organization's concepts, and 4) the human side of the organization can be presented more easily. Therefore, it is recommended to start up a social media department (team) that has the same characteristics and features as have the other departments. This is necessary because of the significance of social media in this era, it having increased in a way similar to the evolution of the marketing department, from an era when there was no IT to the present day. This social media department (team) would be responsible for managing all organization accounts in social media.

On the other hand, there are some challenges in adopting a local team for managing social media, especially if the team members do not have the experience and skills to manage, interact, engage and monitor.

- *Third Party Company to Manage Social Media Presence/Interactions*

In terms of hiring a third party company to manage the social media presence and interactions, the organization can achieve an acceptable level of quality in order to meet the strategic goals, as follows: 1) by presenting quality and professional social media content (i.e. picture, video, ads, and infographic) that promote branding image and message; 2) by managing accounts more efficiently with skilled and experienced team members, and 3) by creating a comprehensive strategy that reflects the goals of the organization [Zailskaite-Jakste and Kuvykaite, 2012]. To achieve the desired quality social media companies should make serious efforts to understand the impact on the organization of online interactions and prepare better strategies to manage social media presence effectively [Kim et al., 2015].

However, organizations who decide to hire a third party company to manage their social media presence and interactions might face some challenges such as: 1) high costs, including the strategy-building cost, design cost, media coverage cost for events and activities, and proofreading cost; 2) lack of knowledge about the organization and its objectives and strategies; 3) delay in responding to audience inquiries because they need time to contact someone from the organization itself; 4) inability to show the positive side of the organization while interacting with the audience, and 5) inability to measure the impact of social media content. The diagram below summarizes the concept of social media governance.

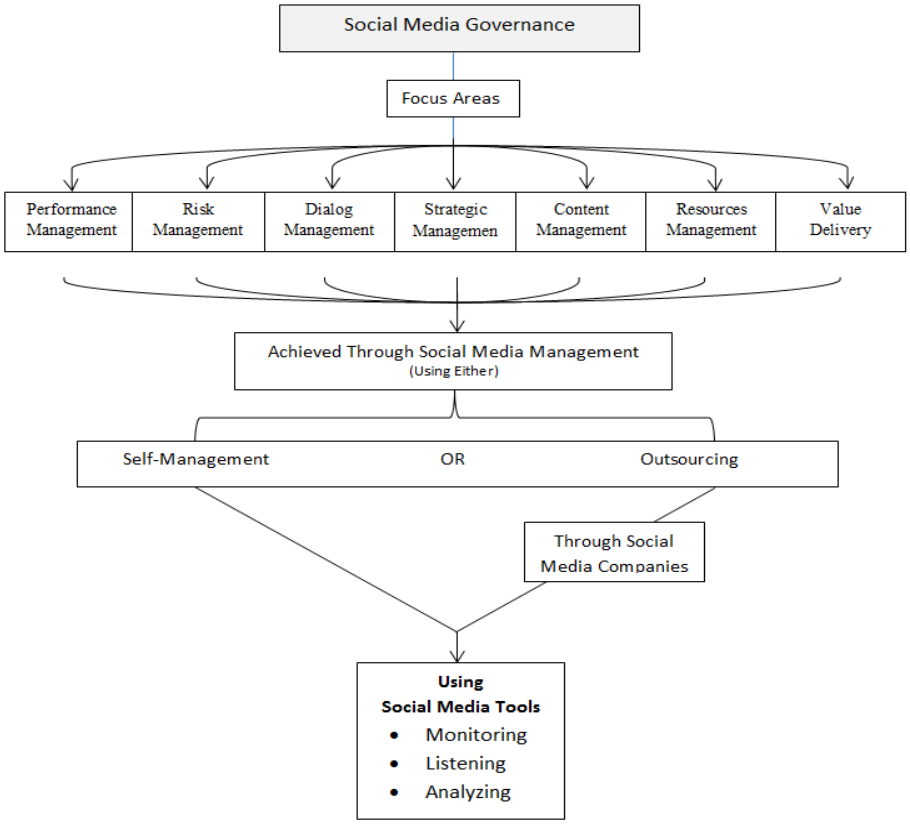

Fig. 1. Social Media Governance

4. Findings & Discussion

The managing of social media presence, interaction and content for any organization plays a vital role in ensuring that it meets its goals and needs, builds its brand, protects its reputation and manages the interaction. The ways of managing social media presence, interaction and content that are outlined in the previous section differ from one organization to another, depending on the following factors: budget, employee's skills, how complicated its operations are, its structure, and available services or products. The following review is an attempt to answer the research question: "Which is better for public and private sector organizations; to use social media management tools and form a local social media team or to hire a specialized social media company to manage the social media presence and interactions?"

Why should organizations build their own social media team?

In order to avoid the high cost of hiring a specialized social media company, organizations should build their own social media team that has the interest, knowledge and skills to work as a creative social media team. Thus, this team should have good integration skills and competence in the following areas: digital content, public relations, design, quality assurance, photography, marketing, branding, developing strategy, content analysis, and using information technology.

Cost is not the only reason to avoid hiring a specialized media company to manage an organization's social media presence. It is well known that organizations are keen to present content that is valuable, of quality, and that has been carefully selected. Therefore, responding and interacting with their audiences will be quicker and more efficient because no one can answer audience enquiries better than the local social media team (within organization) and the team can easily connect/interact with other

departments within organization at the same time. The structure of the social media department/team could be cross-functional, which enable easy and fast collaboration, and hence, response.

In case the local social media team lacks the required skills and capabilities, the organizations can resolve this challenge by seeking training and consultancy from the specialized social media company "*to plan the social media implementation process, to set up the purpose, to plan resources, to define the target audiences, to select social media channels and to pursue planned actions*" [Zailskaite-Jakste and Kuvykaite, 2012] .

5. Conclusion

This paper investigated how to manage social media presence and interactions in public and private sector organizations. It was found that there are three main processes involved in the management of social media presence. They are:

- Monitoring: observing and evaluating online interactions.
- Listening: paying attention to the online interactions.
- Analyzing: analyzing the online content in order to turn it into valuable insights [Stavrakantonakis et al., 2012].

In order to monitor, listen and analyze social media presence and interactions, there are several tools that are available, which play a significant role in social media management.

In comparing the use of social media management tools by forming a local team within the organization and hiring a third party company to manage the social media presence and interactions of the organization, it was found that which one is the best option depends on a number of factors, such as: its organizational philosophy, culture and vision, budget, structure and how complicated its operations are, its size, services or products, and its employee's skills. Therefore, these factors should be considered when deciding to do it yourself or to hire a third party company to do it for you.

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Measuring the Promptness of Destinations to Move toward a Smart Tourism Configuration: The Case of Apulia Destination

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Abstract

The paper aims to contribute at the debate on smart tourism destinations as intelligent configuration of regional integrated and multi-sectorial system, evaluating the promptness of Apulia, as regional destination of growing popularity. At this purpose, a web-survey was used to gather data regarding the level of use of technologies, internet and social media for communication; the collaboration attitude and the level of integration with the other actors of the tourism system for creating new and innovative business opportunities; the level of interaction and collaboration with customers for experience and service co-creation; and the advantages and the main drawbacks related to the use of ICT applications. The results of context analysis evidence that the Apulian offering of hospitality need to invest more in the ICTs' infrastructure, increasing digital services for customers and employees as well as in the creation of a cultural background able to sustain the process of emancipation of the destination in a smart perspective. Moreover, results suggest also the needs to create a culture of collaboration, enhancing dynamic interaction between diverse tourism actors.

Keywords: smart tourism destination, tourism network, social network diffusion, service co-creation.

1. Literature Background

1.1. Smart Tourism Destination

There is growing evidence that in the current economic order the innovation and competitiveness is increasingly driven by open-collaboration networks where systemic innovations are the results of strategic pooling of knowledge, resources, interactions, facilities, competences exchanges, and collaborations and competitive positions of a diversified set of interrelated stakeholders. Innovation activities are increasingly taking place through collaborative networks that are open, cross-border by nature and are governed by open business models (Chesbrough, 2006).

Within this context, there is a need for smart innovation instruments that reflect the networked and systemic character of innovations and can act as catalyser's of systemic change (Albino et al., 2015).
In this logic, the smart cities concept has emerged recently conceptualized 'as territories with high capacity for learning and innovation, which is built-in the creativity of their population, their institutions of knowledge creation, and their digital infrastructure for communication and knowledge management' (Komninos et. al, 2011).

The smart city projects provide an integrated view of the cities and underline that in a dense environment like that of cities, no system operates in isolation.
The smart city concept has been developed, experimented, and demonstrated during the last years within a series of Europe-wide projects as well as in national initiatives.

In order to improve quality of life and services efficiency through an optimal use of Smart City literature, tourism is considered a goal for a Smart City, which embraces tourist activities that are performed and supported by smart technology (Gretzel, et al., 2015a). Therefore, the concept of Smart Tourism Destinations emerged from the development of Smart Cities, where technology is embedded within the city resources (Vicini et. al, 2012).

A tourism destination can be compared with a cluster of interrelated stakeholders embedded in a social network that interact, jointly meeting visitor needs and producing the tourism experience (Baggio et al., 2010). Considering the information-intensity of tourism and the technology relevance for tourism, contributing to alter the way travel is planned (Neuhofer et al, 2014), business is conducted (Ndou, 2011) and tourism services and experiences are created and consumed (Del Vecchio et al., 2015; Stamboulis and Skayannis, 2003), the smartness concept could be increasingly applied to this sector.

The Smart Tourism Destination is understood as a local tourism system characterized by advanced services, high degree of innovation and the presence of open, integrated and shared processes for enhancing the quality of life for both residents and tourists (Florida, 2003; Komninos, 2002, Shapiro, 2006; Hollands, 2008; Caragliu et al., 2009, Micera et. al 2013, Wang et al. 2013).

Principally, the focus in Europe, has been more on innovation and competitiveness and developing smart end-user applications that support enriched tourism experiences using already existing data combined and processed in new ways (Lamsfus et al. 2015; Boes et al. 2015a, b).

This relation of smart tourism destination with smart technologies is mainly due to the tremendous growth of the diffusion of search engines, new distribution channels, virtual tourism communities and numerous social media platforms that have emerged recently support tourists to make smart decisions (Buhalis and Law, 2008; Law, et al., 2014; Sigala, Christou and Gretzel, 2012; Xiang, Wang et al., 2015).

The diffusion of mobile technology (smart-phone) has further transformed the tourism experience enhancing the tourists empowerment by bringing together information search, communication, entertainment, social networking and mobility-related functionalities (Tussyadiah and Zach, 2012; Wang and Xiang, 2012). Moreover, tourists are shifting the competition toward the co-creation experience as a basis of value and as the future of innovation (Prahalad and Ramaswamy 2004, Binkhorst 2006).

However a smart tourism destination in not based simply in technologies and the new approaches to data collection, management and sharing. Instead it encompasses technology, people and institutions (Nam and Pardo, 2011). According to Nam and Pardo (2011) the smartness is increasingly related to human capital (their creativity, diversity and education) and social capital, which facilitated and supported by ICT infrastructures fuel sustainable growth and enhance the quality of life. Therefore the creation of a smart tourism destinations requires the integration of technologies, systems, services, and capabilities into an organic network that is sufficiently multi-sectorial and flexible for future developments, and moreover, open-access (Albino, et al., 2015).

Recently diverse academics and researches have embraced this conceptualisation of smart tourism destination. According to Buhalis and Amaranggana (2015; 2014), a Smart Tourism Destination is the result of the interconnection of tourism destination with multiple stakeholders communities through dynamic platforms and knowledge intensive flows of communication and enhanced decision support systems. The final objective is to enhance tourism experience through an effective resource management maximising both destination competitiveness and consumer satisfaction while also demonstrate sustainability over an extended timeframe.
Lopez de Avila (2015) defines the smart tourism destination as an innovative tourist destination, built on an infrastructure of state-of-the-art technology guaranteeing the sustainable development of tourist areas, accessible to everyone, which facilitates the visitor's interaction with and integration into his or her surroundings, increases the quality of the experience at the destination, and improves residents' quality of life.

It is worth to note that in Smart Tourism Destination, the available technology is used in order to enable the co-creation value and experiences for tourists and wealth, profit, and benefits for the organisations and the destinations (Boes et al., 2015). In fact, different authors, consider smart experience as an output of smart tourism that derives from a social phenomenon arising from the convergence of ICTs with the tourism experience, and its enhancement through personalization, context-awareness and real-time monitoring (Hunter et al. 2015; Buhalis and Amaranggana 2015).

From a managerial perspective, a smart destination enables DMOs, institutions and tourism companies to make their decisions and take actions based upon the data produced in within the destination, gathered, managed and processed by the ICT infrastructure (Lamsfus et al., 2015).

1.2. The features of a smart tourism destination

Following the literature review, on the state-of-the-art of knowledge on smart tourism destination some significant key dimensions and features for characterizing it emerges. In Table 1 are highlighted the main features found in literature.

Table 1: Features of Smart Destinations in literature

Features	**Authors**
Interconnection Cluster of interrelated stakeholders; interconnection of tourism destination with multiple stakeholders communities	Nam and Pardo (2011) Baggio et al., 2010 Buhalis and Amaranggana (2015; 2014)
Technology is embedded ICT is a driver Dynamic platforms Smart technology High-tech communication facilities	Vicini et. al, 2012 Gretzel, Sigala, Xiang & Koo, 2015a) Lopez de Avila(2015)
Advanced services Innovation and integration Skilled labor force Intense and open network linkages Creative business activities High degree of innovation Iintegrated and shared processes	Florida, 2003; Komninos, 2002, Shapiro, 2006; Hollands, 2008; Caraglio et al., 2009, Micera et. al 2013, Wang et al. 2013 Buhalis and Amaranggana (2015) Nam and Pardo (2011)
Tourists empowerment mobility-related functionalities smart experience at the destination	Tussyadiah & Zach, 2012; Wang & Xiang, 2012 Lopez de Avila(2015)
Knowledge intensive flows of communication enhanced decision support systems	Buhalis and Amaranggana (2015; 2014)

In the smart tourism destination ICT infrastructure is considered an enabler, a facilitator for creating a new type of communicative setting. In a tourism setting, technology is the key component that promises to supply tourism consumers and service providers with more relevant information, better decision support, greater mobility, and ultimately, more enjoyable tourism experiences (Gretzel 2011; Werthner 2003; Sigala and Chalkiti 2014).

However the ICT cannot automatically create smartness (Shapiro, 2006, Hollands, 2008), instead creative skills, innovation-oriented institutions, open innovation, and user engagement, broadband networks, and virtual collaborative spaces (Komninos, 2011) are other relevant dimensions of a smart tourism destination.
The smartness of tourism destination is based upon the dynamic interconnection among different stakeholders for service co-creation, service exchange and value co-creation (Gretzel et al 2015). Social media and internet tools are instrumental in enabling firms to develop such dynamic connections, as technologies enable them to network.

Following these dimensions and features it emerges as the creation of smart tourism destinations requires the existence of some conditions related to human capital, social capital as well as a rich environment of broadband networks to support intelligent applications.

Departing from these insights, the aim of this paper is to make an evaluation of the state of the art conditions in the Apulia destination to analysis its promptness as well as for proposing an effective approach for promoting the creation of a smart tourism destination in the location.

Following the literature review and the emergent features of a smart tourism destination, the paper aims to evaluate the following items:

- level of use of technologies, internet and social media;
- collaboration attitude and the level of integration with the other actors of the tourism system for creating new innovative opportunities;
- the level of interaction and collaboration with customers for experience and service co-creation;
- the advantages and the main limits related to the use of ICT applications.

2. Research Methodology

A survey methodology was used in this study to gather data regarding the promptness of the location to adopt a smart destination approach. The target population consists on tourism firms operating in the Apulia Region. The sample of tourism firms operating in the Apulia Region were obtained firstly by the official Apulian Destination Management System www.viaggiareinpuglia.it and then it was integrated with other information source such as the www.bed-and-breackfast.it, web searches and secondary source. In total the sample obtained was composed of 500 Tourism accommodation firms (hotels and bed and breakfast, etc.). The questionnaires were administered online through Google Drive. The rate of return obtained was 23%, with 130 questionnaires filled in. The survey was administered on the time period September-November 2014.

The questionnaire was formed by two main parts. The first part dealt with the profile and characteristics of the tourism accommodation firms in terms of typology of business, number of rooms, services offered to tourists, number of presences and nationalities of tourists. The second part consisted of the items aimed to measure the level of promptness of the destination to make the leap toward the smartness.

In specific questions aimed to measure the level of use of technologies, internet and social media; the collaboration attitude and the level of integration with the other actors of the tourism system for creating new innovative opportunities; the level of interaction and collaboration with customers for experience and service co-creation and finally the advantages and the main limits related to the use of ICT applications were designed and addressed to the sample population.

3. Findings

Table 2 synthetizes the data related to the level of use of technologies, internet and social media by the companies participating to the survey. In particular, the study focused on analyzing the typology of technological tools and solutions used as well as their main functionalities such as booking, reservation, customer satisfaction monitoring, etc..

Table 2: Level of use of technologies, internet and social media

Use of technologies (Nr)						
Internet Technologies	Systems for users profiling	Virtual guides, interactive maps, 3D rebuilding, augmented realities	Digital Marketplaces (booking.com, expedia.com, ecc.)	Mobile Applications	CRM Systems	Social networks (twitter, Facebook, etc) Blogs, and forums
128	69	54	86	23	2	111

Typologies (Nr)										
Adv. on Internet	Company web site	Newsletter	RSS	Podcast	Instagram	Video Sharing	Facebook	Chat	Twitter	Blog	Pinterest
115	117	44	20	14	23	34	111	29	36	28	19

Channels used for booking and reservations (Nr)								
Telephone	e-mail	Booking online on corporate web site	Facebook (with the usage of the specific app)	Twitter	Apps for mobile devices	Online booking websites	Online promotional web sites	Other online tools
112	127	67	19	1	16	78	9	6

Tools to monitoring customers satisfaction (Nr)									
Questionnaires	E-mail	Feedbacks/ Reviews	Forum	Blogs	CRM systems	Software for statistical analysis	Social networks	Traditional tools (guest book, etc.)	Vis-à-vis
43	43	114	3	7	2	2	53	41	10

Reasons and Areas of Usage of Internet (1-7) (Media)										
Managing requests of info from customers	Managing booking online and reservations	Managing booking and reservation telematics tools	Managing promotions and special offerings	Managing customers and fidelity initiatives	Market researches	Buying of products and services	Communicate with public administration	Managing relationships with industry and association of categories	Monitoring and management of online feedbacks	Online payment (credit cards, paypal, etc).
6,55	6,72	5,55	5,85	5.65	4.34	4,02	4.41	4.34	6,19	4,30

As it could be evinced by the table generally the sample expresses a positive feedback related to the use of internet technologies (128/130). Furthermore, 69 companies adopt systems for users' profiling; 54 adopt virtual guides, interactive maps, 3D rebuilding and augmented realities; 86 responded to active on digital marketplace and booking online platforms; 23 have developed a mobile application; while just 2 businesses reported to use a CRM system.

In relation to the use of social media networks, the results are highly positive and optimistic, as 111 companies out 130 have an official profile on at least one of the most popular ones.

In terms of typologies of ICTs used, a large number of companies (115 on 130) use online advertisement services (Adwork and similar), 117 of them have a web site and 44 the companies using newsletter. As for the presence on the social networks and web 2.0 technologies, Facebook is the most used one (111 on 130), followed by Twitter (36 on 130), video sharing platforms (34 on 130), chat (29 on 130), blogs (28 on 130) and Instagram (23 on 130). Less used are RSS technologies, Pinterest and Podcast.

Focusing on the comprehension of trends related to technologies adopted for booking and reservations it is possible to note that email is the technology mostly used (127 on 130), followed by the telephone that remains an useful tool for 112 companies. Online booking systems are used by 87 companies by demonstrating to be adopted for acquiring reservation more than booking online corporate web sites (67 on 130). Although the commercialization by online travel agencies and marketplaces limit the margin of profit for companies, those tools are more used than own services. This demonstrate that there is a lack of confidence by the companies into their commercial capability. At this purpose it could be more useful to take part in or be present on smaller platforms (i.e. www.bed-and-breakfast.it) or in association of categories that by allowing to reach a larger audience could assure lower fees. It is low the rate of usage of social network as well as of mobile apps.

In relation to the monitoring of customers satisfaction, the preferences expressed by the sample can be easily clustered around the feedbacks and reviews (114 on 130), social networks (53 on 130) and questionnaires (43 on 130). The evidences collected demonstrate a wide process of digitalization (with the only exception of questionnaires, all the other tools adopted are digitally supported). However, it is missed the usage of advanced systems of monitoring, such as business intelligence, that is adopted only by 1 company.

The reasons and areas of usage of the Internet have been evaluated on a scale from 1 to 7, where 1 means never and 7 always. With an average of 6.72, the web is used for managing online reservation, to work and satisfy requests, with an average 6.55, to monitor feedbacks from customers, with an average of 6.19. The usage of the Internet for promotional campaigns, customers' retention strategy and updating of databases for newsletters and online transaction is, instead, low considered. At this purpose it is reasonable to derive a relevant gap from the smaller companies and the larger ones, considering that if the presence on OLTAs (parity rate) of those last ones requires the usage of the Internet the smaller ones present a relevant lack of digital skills. Always low is the usage of the web for communicating with public administration (even if for the companies of capitals is mandatory), for market researches, for managing networks of relationships and online purchasing.

About the item 2, related to the collaboration attitude and the level of integration with the other actors of the tourism system for creating new innovative opportunities, the survey highlights a critical situation characterized by a weak attitude to collaborate (Table 3).

Table 3: Collaboration attitude and level of integration

Type of Stakeholder	Activities											
	Promotion/ Exploitation of the regional tourist offer	Training Activities	Participation at public or private call for funding	Joint services of consulting	Creation of an integrated tourist system	Co-working activities	Co-marketing and co-branding activities	Creation of new tourist product/services	Creation of regional brand	Activities of sensitization to adopt ICTs	TOTAL	TOTAL %
Consortia and Associations of categories	11	16	12	15	10	12	9	9	9	8	111	26,37%
Public Agency for management of tourist destinations	21	6	6	6	14	6	7	11	10	6	93	22,09%
Public Institutions	7	16	13	3	11	2	0	3	7	3	65	15,44%
Tour Operators	2	3	1	0	4	7	4	5	3	2	31	7,36%
Web Agencies (booking.com, expedia.com, ecc)	49	5	2	3	3	8	10	8	3	6	97	23,04%
Transport companies	0	0	0	0	4	2	1	2	0	1	10	2,38%
Organizations for the management of cultural heritage (es. Museum, etc)	0	0	0	0	0	0	0	0	0	0	0	0,00%
Universities and Training Centers	0	2	0	0	0	0	0	0	0	0	2	0,48%
Financial institution	0	0	1	2	0	0	0	0	0	0	3	0,71%
Agro-food companies	0	0	0	0	0	0	0	0	0	0	0	0,00%
Customers	4	2	1	1	0	0	0	1	0	0	9	2,14%
TOTAL	94	50	36	30	46	37	31	39	32	26	421	100,00%
TOTAL in %	22,33%	11,88%	8,55%	7,13%	10,93%	8,79%	7,36%	9,26%	7,60%	6,18%		

In general, the main reasons behind the launching of partnership is represented by the opportunity of grasping joint promotions and exploiting tourist offering based on the integration of a wide large community of actors (23%). Specifically, the collaborations are mainly with Online Travel Agencies (booking.com, expedia.com, etc.), followed by associations for the promotion and protection of area, public-private consortia or no profit associations. The updating of professional competencies has been identified as the second most important reason behind collaborations; the main actors interested in this case are consortia or associations and public institutions (32%), while there is a low level of collaboration with universities and training centers (0,48%), probably not perceived as close to the needs of professional figures and competencies required. About the creation of an integrated tourist

system, as further emerging reason of collaboration, the findings show a low propensity of firms to stretch partnerships (11%), as well as it is low the interest expressed by participants to the survey for the promotion/ enhancement of tourism vocation of the area (23%). In both the cases, Consortia or Associations are identified as the most practiced partners, followed by Online Travel Agencies (booking.com, expedia.com, etc.). Collaborations with universities and financial institutions are generally few and poorly diffused are also the forms of collaboration with customers, transport companies, car rental and tour operators. Completely absent are forms of structured collaborations with the agro-food and cultural players, by demonstrating a traditional and not integrated view of the industry.

Aimed to evaluate the level of interaction and collaboration with customers for experience and service co-creation, evidences on item 3 are synthetized in the following table.

Table 4: Level of interaction and collaboration with customers

	Score							
Customers Involvement	1	2	3	4	5	6	7	**Average**
… in the activities of Marketing & Sales	43	17	24	12	11	11	12	3,09
	33,08%	13,08%	18,46%	9,23%	8,46%	8,46%	9,23%	
… in the activities of Customers Care	53	14	17	12	12	10	12	2,32
	40,77%	10,77%	13,08%	9,23%	9,23%	7,69%	9,23%	
… in the activities of New Product Development	45	9	18	17	15	14	12	2,65
	34,62%	6,92%	13,85%	13,08%	11,54%	10,77%	9,23%	
as "part-time employees"	87	16	11	6	3	6	1	1,75
	66,92%	12,31%	8,46%	4,62%	2,31%	4,62%	0,77%	

On a scale from 1 to 7, where 1 means "not at all important" and 7 "all important", the attention reserved by companies interviewed to the strategy of value co-creation with customers demonstrates as the primary area of integration is the one related to marketing and sales activities (with an average of 3.09 on 7). Secondly, customers are identified as suitable partners into the activities of new product development with an average of 2.65. Although the score is lower than the average, the answers at this question present a meaningful distance in terms of feedbacks absolutely negative and absolutely positive ones, demonstrating that even if there a lack of awareness on the importance of collaborate with customers to innovate the offering of products and services, where it is present this is successfully exploited. On the same direction is also the question related to the customers' involvement to create contents and benefits for other customers (average 2.32). It is clearly few perceived the opportunity of considering customers as "part-time employees", by highlighting the need of investing in innovative entrepreneurial (average 1.75).

About the awareness on the opportunity of improvement of firms' competitiveness coming from the adoption of mobile application and the areas of main intervention, as argued in the item 4 of our study, the evidences collected are resumed in table 5.

Table 5. Opportunity of improvement coming from mobile application

Degree of improvement of competitiveness of the hospitality services based on the usage of a mobile application											
	No		I don't know		Yes, low		Yes		Yes, a lot		
Freq.	26		34		8		10		52		
Areas of improvement of competitiveness of the hospitality services based on the usage of a mobile application											
	Pre-experience	Local heritage knowledge	Communication	Visibility	Accessibility	Incentive	Overall Image	Virtual Guide	Instantaneous Info	Creation of unconventional paths/packages	Localization of beauties
Freq.	2	3	4	11	3	1	1	1	1	1	1

Although it is low diffused, companies interviewed expressed a large interested in experimenting the adoption of an application to sustain the firms' competitiveness. Even if with different level of awareness, 70 companies out of 130 have express a positive feedback about. As for the areas of intervention, there is a larger convergence on the benefits in terms of visibility and support to

marketing activities, followed by the improvement of the communication effectiveness and better usability of the areas and deepen knowledge of the destination in its larger definition.

Table 6. Advantage of social network adoption

Advantages of social networks adoption					
	Increase Total Customers	Increase Visibility	Allow Multi-channel Booking	Provide Multi-channel Support	Cost Reduction
No	53	18	66	71	77
Yes	77	112	64	59	53

About the opportunities and advantages associated to adoption of the social networks, there is a large expectation in terms of contribution at the company visibility (112 out of 130), followed by the increase of the customers (77 out of 130), reinforcement of the multichannel booking strategy (64 out of 130). While, the benefits of the adoption of social networks in terms of multichannel support and customers' service as well the opportunities of costs' reduction, are in average less perceived.

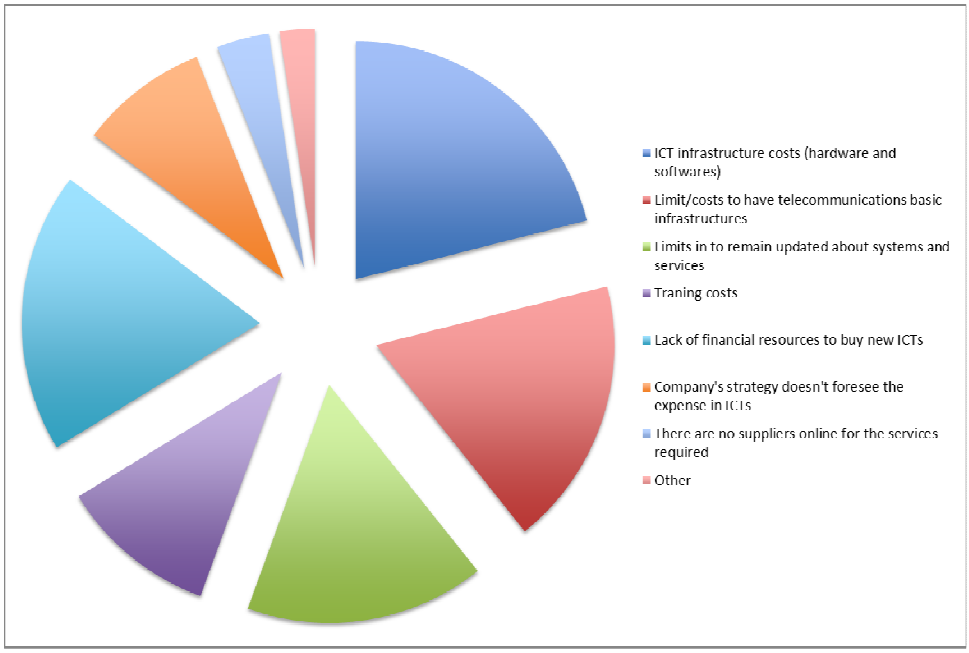

Figure 1. Limitations of ITCs adoption

Focusing on the limitations at the processes of digitalization and adoption of ICTs and web services, costs are identified as the most impacting on this process. There is a large convergence on the costs required both in terms of acquisition and maintenance of the technological infrastructure and training of human resources. This negative perception is surely influenced by the small dimensions of companies participating to the survey (in most of the cases, the stable working organization is based only on the entrepreneur) as well as by the lack of culture in terms of digitalization benefits registered also in the previous questions. This last point is also confirmed by the feature emerging in terms of attempt the process of updating required by the technological infrastructure. In addition to the limited monetary availability to support the investment required it is interesting to note as the weakness of the external infrastructure (broadband, wireless, etc) is a further negative factor affecting the attitude to invest in more developed ICTs or the effectiveness of the investment realized. In all the cases, the limits and disadvantages identified recalled the importance of a larger commitment of the public actors or destination managers in sensitizing, design and accompanying the process of infrastructural development and digitalization required by a smart destination.

Conclusions

Aimed to contribute at the debate on the creation of smart destinations as intelligent configuration of a regional integrated and multi-sectorial system resulting from the integration of technologies, systems, services and capabilities, the study has focused on the evaluation of the promptness of Apulia, as regional destination of growing popularity. The analysis based on a survey addressed to a sample of 500 tourism accommodation firms, with a rate of return of 23%, allows to delineate the profile of a tourist offering characterized by an usage of ICTs, still limited to assure a basic visibility of the firms on the web, as well as by a low awareness on the potentialities that an integrated and multi-channels strategy of digitalization can provide to the companies' competitiveness. The Apulian tourism supply (in specific hospitality sector) needs to invest in the reinforcement of the ICTs' infrastructures, by enlarging the areas of digital services available for customers and employees, as well as in the creation of a cultural background able to sustain the process of emancipation of the destination in a smart perspective.

In the scenario depicted by the data, starting any smart tourism initiative which point directly to the integration of the local supply, through the identification of managing players and/or the development of technological tools, risks encountering all the difficulties related to particular features of the context. Rather, what can and needs to be done as a first step in this context is to initiate a change management process aimed at creating, over time, the necessary cultural, organizational, and technological prerequisites for any further intervention aimed at developing and enhancing the competitiveness of the destination. Initiatives that are aimed at creating the necessary 'platform' of human, structural and social capital for transforming fragmented contexts into more structured and competitive configurations on which to develop more incisive actions, are necessary.

Furthermore, leveraging on the collaboration of nucleus of firms more prone on adopting new technologies, the creation of a regional agenda for the smart destination is mandatory for regional public institutions.

Their contribution has to be addressed toward a dual objective: to make available financial resources for the technological infrastructure as well as to create a digital culture more aligned with the emerging trends of the smart tourist. The effects and benefits in terms of competitive positioning reaped by this first nucleus is expected to drive the path of emulation by other companies, not only limited to the traditional tourist supply chain, but impacting on a wide larger community of local actors.

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Determinants of Cash Holding Decision: Evidence from Food Industry of Pakistan

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Abstract

Cash holding is a critical decision in any corporation around the globe. The ultimate objective of current study is to explore the cash holding determinants for making the decision in food industry of Pakistan. To obtain the objectives of current study data was gathered from the State Bank of Pakistan over a period of 8 years (2008 to 2015) of 39 food companies. The current study used correlation analysis, descriptive statistics and pooled ordinary least square regression model for analysis of selected firms. The empirical results of the research revealed that Cash flow; Leverage and Liquidity ratio observed a significant negative effect on cash holding. Moreover, profitability and size has significantly positive relationship with cash holding. Finally, the dividend policy and cash holding found to be insignificant positive association. The results of this study would help to the management for taking right decisions to keep optimal amount of cash holding.

Key words: Cash holding; Food industry; Pakistan; Decision making

1.0 Introduction:

Over the last two decades, nonfinancial companies accumulate large cash holdings around the globe due to expecting the crisis. In a period of crisis, external financing challenging and becomes more costly to gain in the tense economic markets. As a result, the firms try to build efforts to raise cash holdings to elude borrow external capital such as bank loan, equity offerings and bond offerings in reaction to the strain.

Cash provides liquidity and plays significant role in operation of firms. It is most significant part of an organization's assets. Organizations have stimulus to keep a cash to meet obligations, certain the operations and hold the beneficial investment opportunities Wai & Zhu (2013). In this way, cash management policies have become significant research area in the corporate finance studies in recent

years. However, for investment and operating capital needs firm must manage the effective liquidity position.

Keynes (1936) explained three objectives for why corporations might need to hold cash. These three objectives or motives i.e. the precautionary objective or motive, the transaction motive, and the speculative objective. In other words, The precautionary objective leads that companies keeps cash reserved in order to meet any future financing desires and the transaction objective leads that companies keeps cash for fulfilled their daily operations and also this level of cash will diminish the cost involved in the way of selling different other kinds of assets, while the speculative objective means that companies keep cash for achieve some interest income which investing in short-term interest-bearing assets, this liquidity could also be used to invest in future more profitable projects Al Zoubi (2013).

Theoretically, a firm has several reasons to hold cash. A typical motive are transaction costs Baumol (1952). For instance, taxes imposed on profits can be taken as transaction costs. This argument has been recommended by Foley, Hartzell, Titman, and Twite (2007). The second one called precautionary savings to entice firms to increase cash holding when external financing frictions make it hostile to take advantage of good-looking investment opportunities (Froot, Scharfstein, and Stein (1993)). Jensen (1986) suggested an agency motive that describes additional cash holdings.

Tahir, S.H., Sabir, H.M. and Shah, S.Z.A., (2011) studies the impact of earnings management on capital structure of non-financial companies listed on (KSE) Pakistan. They concluded negative effect of gearing ratio on return on assets. Again Tahir, S.H., Sabir, H.M., Alam, T. and Ismail, A., (2013) analyzed impact of firm's characteristics on stock return by using data of non-financial companies listed companies in Pakistan and revealed that market capitalization (MC) , earnings per share (EPS) and book to market (BTM) value found significant impact while sales growth had no effect on stock market returns.

The recent literature has enlightened the upsurge in aggregate cash-holdings both with a tax-based justification (Foley, Hartzell, Titman, and Twite (2007)), and a precautionary savings motive due to greater cash-flow unpredictability (e.g. Bates, Kahle, and Stulz (2009). Azar, Kagy, and Schmalz (2016) described variation in corporate cash-holdings to variation in the cost of carrying cash .Similarly, Curtis, C.C., Garın, J. and Mehkari, M.S., (2015) concluded that the changes in the real value of carrying cash when they argue that corporate cash holdings are negatively correlated with inflation. Graham and Leary (2015) found mixed evidence for precautionary saving motives and supported for a tax-based explanation for the increase in cash holdings using data ranging back to the 1920s.

Dittmar et al., (2003) explained that the agency costs of managerial prudence play much importance to explaining the cash holdings. With a sample of greater than 11,000 organizations from forty five countries, they found that organizations in these areas where shareholders rights are least protected keep twice cash as firms in countries with excellent protection of shareholders. Their substantiation is reliable with the speculation of that investors in countries with poor shareholder protection cannot force to managers for disgorge excessive cash balances.

1.1 Objectives of the study:

- To attain a relation between cash flow and cash holding of a firm.
- To obtain an association between size and cash holding of a firm.
- To find a connection between profitability and cash holding of a firm.
- To examine relation between leverage and cash holding of a firm.
- To analyze linkage between dividend policy and cash holding of a firm.
- To investigate relationship between liquidity and cash holding of a firm.
- To make policy recommendation to food industry of Pakistan.

2.0 Literature Review:

Cash is the vital liquid assets and is the concern to examine the firm's performance to pay its obligations in the long run. It plays critical role because it contributes high value to firms with extensive liquidity where firms are able to pay their outflows in time as if severe time's hit. To improve profits and sale, a firm needs to keep cash assets by supporting the future needs and adjust the level of optimist cash flow position. Therefore, cash is very important element for organizations to revitalization a business for long run in profitable ways.

Swain (2015) provided a critical analysis and reveled that cash holding are negatively connected to the size of a firm. Leverage could function as a substitute for an organization's competence to issue debt which proposed that highly leveraged firms have more capability to issue debt. Therefore an indirect relationship is expected among leverage ratio and the cash holding. Dividend paying firms have to maintain higher amount of cash holding for paying dividends. So, a direct linking exists among cash holding and dividend payment. Firms with unstable cash flows can suffer from cash shortage at any point of time. Cash shortage carries many costs to firm like foregoing attractive investment opportunities and costs of bankruptcy. More cash holdings are required to be sustained as a defensive to deal with such cash shortfall. So a direct relation is expected between degree cash flow capriciousness and cash holdings.

Pastor and Gama (2013) examined to focuses the driver of cash holding of Portuguese manufacturing small & medium firms for the period ranging 2001-2007. Empirical results disclosed that firm's size, liquidity, leverage, existing capital structure and association with improbability of cash flow had a significant influence at cash holding of manufacturing enterprises. Zoubi (2013) investigated the corporate cash-holding decision of non-financial firms in the time span of 11 years (2000 -2011) with a limited sample of eighty listed firms by using a panel data methodology. The results showed that firm size and growth opportunities have insignificant effect on cash holding, whereas firm's cash flow, leverage and current assets had a negative significant effect on cash holding. Moreover, dividend policy as well as profitability have a positive relationship at cash holding. They also examined a way of collection of descriptive measures effect firms' loan by concentrating on the liquid assets. The study also revealed that the debt ratio is positively linked by company's size and negatively associated with profitability, assets tangibility, growth opportunities, fixed assets and liquidity. The positive association of debt ratio through liquidity, non-tax shields, and debt ratio is positively associated by liquidity, non-debt tax shield, and company's size, tangibility of asset and cash ratio. Moreover, the long-term debt is negatively connected with profitability and growth. The negative association found of short term debt associated by tangibility of assets and company's size, cash ratio with its dissimilar ways.

Hasan, Mutairi, &Risik (2011) investigated the impact of financial performance and industrial sectors using the panel data of 80 listed companies in Kuwait. The results of this study suggested that converse to the financial theory of trade off as the negative association among debt and the financial performance. Mahajan & Chen (2010) found the cash holding of firms in thirty one non- European countries and fifteen European countries over the period of 10 years (1994 to 2004). They discovered that establishment of Economic & Monetary Union (EMU) and the introduction of the euro decreased cash reserving from the companies in areas of Europe. Moreover, they also exposed that companies keep too much liquidity as there is lot of opportunities of investment in the upcoming turnover and the firm's size had a positive link with cash ratio in the EMU. They claimed that current outcomes in response to the existence of cash flow had a positive relationship with cash ratio as companies which earn hand some income be liable to keep handsome amount of cash for the precautionary motives. The negative relationship among net working capital and cash ratio as it could be used as a liquidity standby. Cash holding have a positive connection with Capital cost as administrations are likely to keep up level of cash in the period of growth opportunities (GO). Leverage and cash ratio had a negative connection because availability of more debt could be considered a cash alternate. In addition, firms that paid dividends likely to keep higher level of cash in respect to deal this financial debt.

Ferreira & Vilela (2004) discovered the factors of cash ratio in EMU countries. Their study discovered that cash holding positively correlated with the cash flows and set of investment and leverage, size and liquidity had negatively linked with cash. Cash holdings and debts are negatively linked, which showed that a strong association with financial institutes allows the corporations to keep minimum amount of cash for protective situations. Organizations in good governance areas with concentrated ownership and better investor protection keep less amount cash.

García-Teruel et al., (2008) recognized a positive correlation among profitability cash ratio. They took cash flow as an independent variable and income as corporation which could envelope adequate level of cash flow from through its current operations can be measured excess organizations .Omet & Maghyereh (2002) also found that growth variable at Kuwaiti corporations and future' decision to keep cash was no significant effect. On the other hand, results also showed that debt has negative effect at corporations' cash holding.

3.0 Methodology of the Study:

To achieve the objective of study, secondary pooled data of 39 food companies were collected from the State Bank of Pakistan over the period of 8 years (2008-2015). The undermentioned dependent and independent variables were used in the study. Eviews was the software to be applied to draw the empirical results of the study.

3.1 Dependent variable:

Cash Ratio was the dependent variable used in the study. It was calculated cash plus cash equivalent. As literature had identified, many scholars and researchers calculated as same as current study calculated like as Ozkan & Ozkan (2004).

Cash Ratio (CR) = Cash + Cash Equivalents/Total Assets

3.2 Independent Variables:

Cash flow was calculate to add up the depreciation expense interest over total assets excluding cash. The same formula used by Mahajan & Chen (2010).

Cash flow (CF) = Earnings before tax + Depreciation/Total assets-cash

3.3 Return of Assets:

The return on assets (ROA) was used to measures the overall effectiveness of business in generating profits with its current available assets. Higher return on assets shows the efficient business operations and management to gathering the profit. The same measure also used by Titman and Wessels (1988).

Return on Assets (ROA) = Earnings after tax /Total Assets

3.4 Leverage:

Leverage is an advantageous technique which corporations get debts from financial institution of having a relatively small cost yield at a comparatively high level of returns. Leverage (LEV) was calculated as the total liabilities over total assets.

Leverage (LEV) = Total Liabilities over Total Assets

3.5 Dividends:

The dividend ratio is the amount of dividends paid to stockholders from the company. It has been measured as total cash dividend to total assets.

Dividend (DIV) = Cash Dividends/ Total Assets

3.6Liquidity (LIQ:)

Liquidity leads to liquid assets which could be converted quickly into cash with low impact on the received price. These assets were measured as NWC (net working capital) minis divided over total assets. Liquid assets also mean the ability of short term assets to pay its short term liabilities.

Liquidity (LIQ) = NWC – Cash over Total Assets

3.7Firm's Size:

The size of firm is calculated by the total assets and was measure as the logarithm of total assets of the company's. It's an independent variable of the study which means higher the firm size higher the profitability. The same measure was used by Ozkan & Ozkan (2004) and Ferreira & Vilela (2004).

Firm's Size = Ln (Total Assets)

3.8 Hypotheses:

H_1: *There is a significant negative association among company's cash holding and cash flow.*

H_2: *There is a significant positive link between company's size and cash holding.*

H_3: *There is a significant positive association between company's profitability (ROA) and cash holding.*

H_4: *There is a positive link among company's cash holding and leverage.*

H_5: *There is a negative association among company's dividends and cash holding.*

H_6: *There is a positive and significant link among firm's cash holding and liquidity.*

3.9 Statistical Model:

$$Cash_{it} = \beta_0 + \beta_1 CF + \beta_2 DIV + \beta_3 LEV + \beta_4 LIQ + \beta_5 ROA + \beta_6 Size + \varepsilon \quad (1)$$

Where:

Terminologies	Explanation
β_0	intercept of equation
β_1	coefficients of independent variables
I	No. of firms
T	Time periods
ε	the error term

3.0 Statistical Descriptive:

Table 4.1 indicated the number of observations for the whole research variables which is 312 for the period of study 2008 to 2015. The mean value of leverage is 59.96 which is highest value between all the independent variables of the research. Moreover, Size and return on assets have standard deviation and maximum values are 2.24, 11.25 and 17.74, 49.61 respectively. Standard deviation indicates the deviation of values from the average values. Meanwhile, the median of cash ratio is 1.88 and -1.80 for liquidity. The current study showed that the exploratory variables of the study are constant in the particular period of the research.

Table 1: Descriptive statistics

	Cash ratio	Cash flow	ROA	Leverage	Dividend	Liquidity	Size
Mean	5.64	12.71	5.115	59.96	18.86	-5.59	14.22
Median	1.88	9.08	4.141	68.85	6.86	-1.81	14.31
Std. Deviation	9.82	16.93	11.242	25.04	106.48	9.83	2.23
Minimum	1.62	-31.27	-30.83	22.64	5.810	-57.58	1.10
Maximum	57.61	83.30	49.61	120.60	809.460	9.110	17.74

Table 2: Correlations Matrices

	Cash Ratio	Cash Flow	ROA	Leverage	Dividend	Liquidity	Size
Cash Ratio	1						
Cash Flow	0.125*	1					
ROA	0.144*	.755**	1				
Leverage	-0.488**	-.166**	-.258**	1			
Dividend	0.03*	.233**	.214**	-0.069	1		
Liquidity	-.776**	.278**	-0.068	.343**	-0.038	1	
Size	-0.066	0.200**	.126*	.417**	0.034	0.002	1

*. Correlation is significant at 0.05 levels (2 tailed)
*. Correlation is significant at 0.01 levels (2 tailed)

For further analysis, correlation matrix estimates the relationship among two variables, whether they have positive, negative or no relation between dependent and exploratory variables. Table 4.2 showed the results of correlations for whole variables in the study. The value of cash ratio and leverage is -.488 which is negative and significant at .01 levels. Moreover, ROA and cash ratio value is .144 which is positive significant correlated at .05 levels. The value of correlation of cash ratio and cash flow is .125 which is positive significant at .05 levels. On the other hand, the correlation among size of the firm and cash ratio is negative but insignificant with value of -.066.

4.0 Empirical Results:

Table 4.3 explains the outcomes of pooled OLS regression model for the sample of 39 corporations of food industry. The outcomes of OLS described that model is significant at the levels of 5% with 124.32 F-statistics. The adjusted R squared is higher at 70% value which means the independent variables were explained 70% of the dependent variables. Further explanation of variables, cash flow has significant negative coefficient with the dependent variable for the research. Which means cash flow and cash ratio have negative relationship with each other's? This result also matched by Ozkan & Ozkan (2004).

Table No 3: Regression Results

	Pooling OLS
β_0	0.0507*(3.8735)
$\beta_1 CF$	0.0000***(-0.2159)
$\beta_2 DIV$	0.8759(0.0004)
$\beta_3 LEV$	0.0000***(-0.0909)
$\beta_4 LIQ$	0.0000***(-0.7782)
$\beta_5 ROA$	0.0000***(0.2640)
$\beta_6 Size$	0.0592*(0.2993)
R squared	0.709794
Adjusted R squared	0.704085
F statistic	124.3297
(P value)	0.0000

(Where cash ratio is dependable variable and CF, DIV, LEV, LIQ, ROA and Size are independent variables. The coefficients numbers are in the brackets, ***, **,* showed coefficients are the 1%, 5% and 10% levels significant respectively for the period of 2008-2015).

The dividend ratio has positive and insignificant association with cash ratio, when the corporations pay dividends than they require to keeping high amount of cash. Many research also found same outcomes like Mahajan & Chen (2010). Leverage has significant and negative association with cash

ratio. The result also matched with Ozkan & Ozkan (2004). Moreover, liquidity has a negative and significant association with cash ratio, it means when corporations have high liquidity than they tend to keep less amount of cash. Al Zoubi (2013)also found same result. Return on Assets has significantly positive relationship with cash ratio. This positive association also described by the pecking order theory. Ferreira & Vilela (2004) also have same outcomes. Firm's size has significant positive connection with cash ratio for food industry. It means larger corporations need to hold more cash as smeller and also have higher profitability. Many other researchers have same results such as Almazari (2014), Pastor & Gama (2013).

4.0 Conclusions:

The research was conducted on food industry listed at Pakistan Stock Exchange to explore the determinants of cash holding. To achieve the objectives of current study, pooled data were collected form the of State Bank of Pakistan. A sample of 39 companies from food industry was taken to analyze the data with the help of pooled ordinary least square. The empirical results showed that coefficient of the cash flow has significant negative effect with the cash ratio or vice versa. It means the firms have higher level of cash flow keep lower level cash holding. The results were consistent with Ferreira, M.A. and Vilela, A.S., 2004. Moreover, Moreover, Return on Assets (ROA) has significantly positive relationship with cash ratio. It was concluded the firms having higher level of profitability maintain higher level of cash in company account. These results were in line with the study Mirza, H.H. and Azfa, T., 2010.

.Liquid assets have a significant negative association with cash ratio. It means high liquidity tends to low quantity of cash. If the firm has high level of current assets then lesser need of cash to maintain the operation of corporation. The results were consistent with the conclusion of Ozkan, A. and Ozkan, N., 2004. Similarly, Size of the corporation has significant positive effect on cash-holding for food sector of Pakistan. The study outcomes showed that many insights on the cash holdings decision in Pakistan. Finally, the study recognized the main key players that had been overlooked by the food industry of Pakistan.

5.0 Limitations:

The following limitations are measured:-

1. The results are of some of listed firms and non-listed firms are not integrated.
2. In relation to the factors concerning with corporate cash holding has not been done by a self-determining research. In addition, research was related to corporate cash holding because there is a lack of research work in this ground of study sources in Pakistan.

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A Theoretical Analysis of Factors Influencing the Decision of Faculty to Use Educational Technologies in the Context of Institutions of Higher Education

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Abstract

In this paper we study factors influencing faculty's decision to use educational technologies to support their pedagogical strategies. We briefly describe educational technologies commonly used by faculty to support teaching such as emails, video conferences, chat rooms, video lectures, blackboard discussions and Power Point Presentations for example. We explain in detail faculty factors (i.e., gender, age and cultural background), student factors (i.e., academic performance and gender) and contextual factors (i.e., classroom size, institutional support, course subject, and time constraints) as influential factors in using educational technologies by the faculty to support teaching. The paper findings suggest that the factors under study do influence the faculty decision to use educational technologies to support teaching, however, there are certain strategies education institutions can rely upon in order to overcome the barriers that discourage the faculty to fully integrate technology into their pedagogical strategies.

Keywords: Education technology, faculty decision to use technology, higher education, Instructional technology, pedagogical strategies, teaching styles and technology.

Introduction

The importance of information and communication technology (ICT) in the evolution and revolution of the modern education system is an undisputable phenomenon. ICT has helped in generating, preserving and disseminating knowledge and at the same time improving human abilities to share knowledge and experiences (Afshari et. al., 2009). ICT helps people access, gather, analyze, present, transmit, and simulate information (See, 1994). ICT creates a learning environment where students deal with knowledge in an active, self-directed and constructive way (Webber, 2003). ICT can develop student's skills for cooperation, communication, problem solving and lifelong learning (Voogt, 2003). Education institutions should prepare students to make effective use of technology which they need in the 21st century (Middleton & Murray, 1999) not only in the workplace but in all walks of life. For graduates to be successful in the current and more in the future work environment, educational institutions must make technologies of information and communication available to students since most of such technologies are already being used in the business world (Davis, 1989). When refereeing to the educational technologies or pedagogical technologies (i.e., technology used to teach and learn) faculty members have a variety of options available for them to support teaching but ironically there certain barriers which limit them to do so (Grasha & Yangarber-Hicks, 2000).

Over the past several years the emergence and the use of educational technologies have been on the rise (Downing & Garmon, 2001). This trend has forced universities to increase substantially their investments in educational technologies, technology experts and faculty training as never before. In parallel to the changes brought about by new technologies in the field of education, researchers have become equally

concerns about the actual and potential benefits of integrating technological supports (i.e., the use of software, online discussions and chats; Facebook, Twitters, emails, course websites etc.) into other pedagogical strategies such as case studies, research, problem solving and project management (Grasha & Yangarber-Hicks, 2000). Cuban (1999) is of the view that professors and students are getting used to educational and communication technologies of e-mails and Web pages, but few of the faculty use these technologies for teaching purposes. Even those professors who use technology still face several barriers such as inadequate availability of technology and classrooms that do not support technology (Brill & Galloway, 2007). Simply using whiteboards instead of chalkboards, PowerPoint instead of overhead transparencies, and electronic communication instead of office hours have implications for the faculty (cultural, work habits, work system) for teachers (Katz, 2006). There can be positive outcomes of the use of technology for educational purposes in many ways. For instances, it can improve communication between the teacher and students (Flanagin & Metzger, 2001) and thus, enhancing student-teacher interactions (Waldeck, Kearney & Plax, 2001). Technology can also make it much easier for students to have access to the required educational information cheaply, easily, and timely (Panici, 1998). The use of technology for education purposes may also affects positively student outcomes such as cognitive, behavioral and affective learning (Witt & Wheeless, 2001). But faculty to a large extent, still resist the full technology-pedagogy integration to this date.

Given the fact that the faculty´s resistance to embrace technology fully for teaching purposes is still a big challenge in the educational institutions of higher education, there is the need for a broader and exploratory research to study all those factors which potentially influence the decision of the faculty to fully integrate educational technologies into their pedagogical strategies. Therefore, this particular study is dedicated to the identification and analysis of those factors which influence the faculty to use pedagogical technologies to support teaching. The findings of the study will help the academic leadership of the institutions of higher education to consider those factors while developing curriculum, pedagogical strategies and faculty development programs. Especially, the outcome of the study will be useful when educational technologies are embedded with the existing pedagogical strategies to teach bricks and mortar classroom.

Literature review

The literature review focuses technological platforms that are available for the university faculty to choose from as educational technologies (ET) and explains factors influencing the decision of the faculty to use technology for teaching purposes, as shown in figure 1. The literature review also explains educational strategies (pedagogical approaches) and the integration of educational technologies and educational strategies.

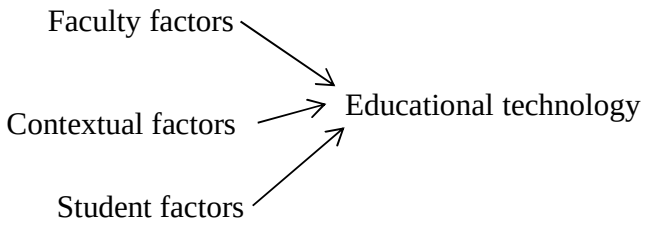

Fig.1: Factors Affecting the Decision of Faculty to Use ET

Educational Strategies

Educational institutions are responsible for developing competencies (Knowledge, skills and values) in students who will become future leaders (Alon & McIntyre, 2005). In order to achieve or fulfill this

responsibility educational strategies (pedagogy) require combining different teaching mechanisms ranging from lectures, classroom interactions, case discussions, simulations, experiential methods, team projects, and report writings (Vance, 1993). The pedagogy of education should include action learning model, the critical reflection learning model, the experiential learning model and service learning project (Holman, 2000). Educational strategies should also include finding out an optimal combination of the different teaching styles such as conceptual versus practical, individual versus collective, and under instruction versus via self-study (Boisot & Fiol, 1987). Ulrich (2005) grouped the educational strategies into four general categories: instructor-centered strategies, interactive strategies, individual-learning strategies, and experiential-learning strategies. The instructor-centered strategies rely on one-way communication where information is provided from the instructor to the students through lecture. Lectures are particularly efficient and effective for large classes and for instruction at the lower levels (knowledge and comprehension) of the cognitive domain (Weston & Cranton, 1986). Interactive strategies use two-way communication between the instructor and students as well as among students. More importantly, with such approaches students have an opportunity to participate actively in the learning and teaching processes. Interactive strategies include small group discussions, cooperative learning, group projects, argumentative discussion, large-class discussion, and seminars (Ulrich, 2005). Individual-learning strategies allow students to learn at their own pace through regular immediate feedback in order to assess their progress. Individual-learning strategies are examinations-in-general, problem examinations, term papers, homework, required readings, and thinking alone (Ulrich, 2005). The experiential-learning strategies are active learning because students take an active role in reaching the more complex educational outcomes of application, analysis, synthesis, and evaluation (Chickering, 1977). Experiential-learning strategies include: internships, management simulation, role playing, structured experiential exercises, videos, case analyses, and case studies (Ulrich, 2005). Any of these teaching and learning strategies, if supported appropriately and adequately by the use of educational technology, the purpose of education, which is graduating students with competencies in their respective fields and disciplines (knowledge, abilities and values) needed in the society and industry, is possible to achieve.

Educational Technologies

Defining the term educational technology (also known as instructional technology) is difficult since there is a need to distinguish between educational technology as a theory and as a field of practice and to focus on either the process or the system approaches (Al-Ammary, 2013). The educational technology is defined as solutions to instructional problems involving social as well as machine technologies in order to improve the effectiveness and efficiency of learning in the context of education (Gentry, 1995). The educational technology is also considered as means of media with four different focuses: media for enquiry (i.e., data modelling, spreadsheets, hypertext, etc.); media for communication (i.e., e-mail, graphics software and simulations); media for construction (i.e., robotics, CAD, control systems), and media for expression such as interactive video, animation software, music composition (Bruce & Levin, 1997). Many in the education industry view education technology as a tool for improving the presentation of material for making lessons more fun for the learners and for making administration more efficient (Cox et al., 1999). Furthermore, education technology is defined as “the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources (Richey, 2008)”. Educational technologies are also defined as the theory and practice of design, development, use, management, and evaluation of processes and resources for learning (Richey, 2013). Educational technologies are the hardware and software packages that provide a mechanism for delivering instruction and needed instructional support for teachers and students (Rice & Miller, 2001).

The educational technology is useful both for the educators and educational administrators. The emergence of different educational tools and software has motivated educational institutions to integrate them into the educational strategies (Hawkins et al., 1996). Educational technologies are considered crucial for improving the quality of education in general and enhancing the level of student learning performance (Bialo & Sivin-Kachala, 1995) in particular. Technology has solved the problem of distance,

time and finance and created a situation where effective and productive learning philosophies got grounds. Higher education's competitiveness will increasingly require that it serve society's needs and the enablement of its missions through information technology and that the campus of the future will embody distributed learning (Oblinger & Maruyama, 1996). Educators and policy leaders are envisioning new approaches to instruction based on communications and computer technology using learning on demand and learner-centered instruction (Twigg & Oblinger, 1997).

Faculty members have a wide range of educational technologies available for them to use in support of the traditional methods of teaching (Boose, 2001). For example, instructors may use PowerPoint presentations, or organize video conferences in order to bring guest lecturers from distant places into the classroom or simply using YouTube lectures to support class lectures. Faculty can also use other computer-based technologies such as electronic mail, Web pages, chat rooms, and electronic bulletin boards to facilitate communication with the students (Driver, 2002). Social networks such as Facebook, Twitter and LinkedIn are also popular among the young generation to share information and communicate interactively. A number of other teaching software, online exercises, interactive televisions and computer simulations are available for faculty members to use (Seay et al., 2001). Table 1 provides a list of information and communication technology tools used in teaching and learning in educational institutions of all categories and sizes (Thieman, 2008).

Table 1: List of ICT to use as Educational Technologies

LCD Projector	Word Processing	Computer Games
DVD/Streaming Video	Internet Search Tools	Digital/video Cameras
Tape/CD player	Graphic Organizers	CD's of student work
Graphics Clip/Art	Web-quests	Spreadsheet
CD-ROM	Webpage/Class websites	Power Point
Smart Board	Subject specific software	Web Log
I-Movie	Podcasts	Email
Photo Shop	Simulations	

Integration of Educational Technologies and Educational Strategies

The use of educational technology in support of teaching enhances learning and benefits students (Kim & Hannafin, 2011). However, most teachers do not fully and effectively integrate technology into teaching strategies (Gorder, 2008) rather they only use educational technology to design instructional materials or deliver lectures (Tondeur, van Keer, van Braak, & Valcke, 2008). The faculty has a variety of technology options to select from to support their particular teaching strategy. Also, faculty has the option to use the technology according to their needs and interests starting from the basic uses (power points presentations and sending emails for example) to the very advanced or well-integrated level (online learning). In any of these levels of technology-pedagogy integration, it is important that two basic educational elements which are content and pedagogy (teaching and learning) must be assisted by the use of educational technologies, not otherwise (Earle, 2002). Educational technologies should be a hindrance neither for the teacher nor for the students (Earle, 2002). An effective and purposeful integration of educational technologies and educational pedagogy must encompass (Tondeur, van Keer, van Braak, & Valcke, 2008):

1. Encouraging collaborative learning through information search on the Internet and sharing information.
2. Using computers for differentiating and creating learning activities.
3. Encouraging students to improve their skills (i.e., information literacy and management).
4. Requiring students to conduct research projects and other learning activities using computer and computer related technologies.
5. Using computer as a pedagogical platform (i.e., instruction and demonstration tool).
6. Teaching students about the possibilities and potentials of computer use.

Educational technologies should encourage students to participate in learning tasks, including collecting, analyzing, and presenting information (Niederhauser & Stoddart, 2001). The integration of educational technologies into pedagogical strategies should go beyond only facilitating student development of conceptual understanding through instructional processes to active teacher-student engagement in learning through learner-centered teaching approaches using for example, project-based learning and collaborative learning (Inan, Lowther, Ross, & Strahl, 2010). Existing studies (i.e., Yen & Lee, 2011) show that students using technology for classroom group discussions and report writings perform better in terms of learning achievements (academic performance) than those students who do not use technology for learning purposes. Instructors using technology to support their teaching ought to act as coaches, facilitators, mentor and guide (constructivist approach) rather than acting like traditional lecturers (instructor-centered teaching). Students should be allowed to use in-depth questioning to acquire information, work in small groups, interact and develop their verbal and social skills (Nussbaum et al., 2009).

Factors Influencing Faculty´s Decision to use Educational Technology

Well integrated pedagogy-technology educational system and culture is fundamental for the provision of quality education now and in the future. Since, educational technologies are the recent inventions, adoption of which by the faculty to support their teaching demands a gradual approach and creative-conducive work environment. It is also important to identify and study those factors which influence or might influence positively or negatively the decision of the faculty to use educational technologies. As suggested earlier the term educational technologies or ICT refers to computers and the associated hardware, networks, and software used and could be used for teaching and learning purposes. The use of educational technologies to support teaching can be affected by several factors such as social contexts and appreciations of usefulness of technology in teaching (Zare-ee, 2011). Factors like lack of necessary resources for the faculty and negative attitudes and beliefs of the faculty are also found some of the main causes for the insufficient technology-pedagogy integration (Park & Son, 2009). Ertmer (1999) identified and categorized barriers which influence the decision of faculty to use technology as external (lack of equipment, insufficient training and lack of on time-technical support) and internal (teacher beliefs and attitude) barriers. Several other factors influencing the adoption and integration of ICT into teaching have been identified by researchers. For example, Stockdill and Moreshouse (1992) identified user characteristics, content characteristics, technological considerations, and organizational capacity as factors influencing ICT adoption and integration into teaching. Balanskat, Blamire & Kefalla (2007) identified the factors as teacher-level, school-level and system-level. Teachers' integration of ICT into teaching is also influenced by organizational factors, attitudes towards technology and other factors (Chen, 2008). Sherry & Gibson (2002) claim that technological, individual, organizational, and institutional factors should be considered when examining ICT adoption and integration. Neyland (2011) found factors such as institutional support as well as micro factors such as teacher capability of using computer and computer related programs influencing the use of online learning. Ahadiat (2005) added ethnicity, rank, sub-areas, as influential factors in using instructional technology by the instructors. Teachers' characteristics (e.g. individual's educational level, age, gender, educational experience, experience with the computer for educational purposes and financial position) were found influencing the adoption of an innovation (Schiller, 2003) or new system of work. In addition, Bauer and Kenton (2005) found that students´ factors such as they did not have enough time to go to computer labs or work with computers and teachers needed extra planning time for technology lessons. Other concerns were outdated hardware, lack of appropriate software, technical difficulties, and student skill levels affect the use of educational technologies at school. According to Carvin (1999) "The teacher's own learning style is certainly one such factor. For example, if a teacher is a creative thinker who likes the idea of constructing knowledge, is a life-long learner, a social learner, and a decision maker, he may be more likely to use computers in more integrative and transformational ways that are useful and valuable to students instead of ways that promote and support traditional classroom practices".

Table 1 list factors that influence faculty decision to use educational technologies to support teaching and learning (Medlin, 2001; Al-Bataineh et al. 2008; Yildirim 2007; Frederick, Schweizer & Lowe 2006;

Goktas, Yildirim & Yildirim 2009; Lim & Chai, 2008; Fu, 2013; Iniesta-Bonillo et al., 2013; Cooper, 2006; Peluchette & Rust, 2005):

Table 2 List of Factors Influencing Faculty Decision to Use Educational Technology

Pedagogical support	Reward system
Skills for managing teaching materials	Mandate & recognition
Software competence	Class Size
Excessive focus on teaching technical or operational skills rather than course content	Course/subject nature
	Resources (time and money)
In-service training on the use of ICT	Student abilities
Technical problems in the classroom	Problems with technology
Uncertainty about the possible benefits of using ICT in the classroom	Infrastructure
	Need for the technology
Lack of specific direction	Technical support and facilities
Faculty gender	Teaching experience with ICT
Area of expertise of faculty	Availability of enough computers
University of origin of faculty	Time constraints
Student factors	Social pressure
Institutional factors	Personal interest
Technology related factors	Individual behavior
Faculty experience	Teacher expectations
Individual culture	Clear goals for ICT use

Other human factors such as individual feelings of anxiety, fears, preferences and perceptions, feelings of competence, and teaching styles and strategies of the professor have also been correlated with the decision of using instructional technologies (Dusik, 2000). Robertson et al (1996) argued that teachers' resistance to computer use was divided into several broad-based themes: resistance to organizational change; resistance to outside intervention; time management problems; lack of support from the administration; teachers' perceptions; personal and psychological factor. Researchers (Osika, 2006) are of the view that if proper and early attention is given to these diverse beliefs and competencies of the faculty, there will be a strong likelihood that the faculty will opt for integrating instructional technologies into their teaching strategies.

Given the fact that there are diverse and multidimensional factors that influence or can influence the decision of the faculty to use educational technologies in their classes, this paper focuses on factors as shown in Figure 2:

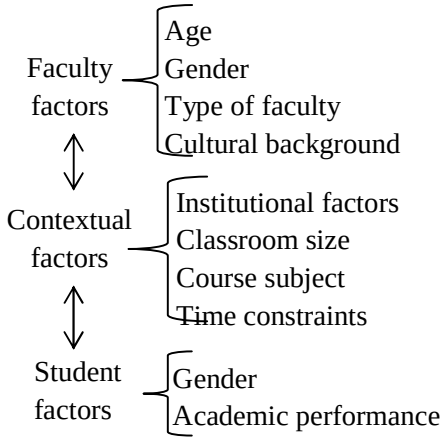

Fig.2: Faculty, Contextual and Student Factors Influencing the Use of Educational Technologies

Faculty Factors: Faculty factors including individual's educational level, age, gender, educational experience, and experience with the computer are found to influence the adoption of an innovation (Schiller, 2003) or innovative system such as instructional technologies. For example, faculty members with fewer years of experience are more likely to use computers in their classes than teachers with more years of experience (National Center for Education Statistics, 2000). This is possible due to the fact that the faculty is new to use the computer and generally new faculty members are provided training to use computers as a part of their orientation programs. The age factor of the faculty is found to be an influential factor as well in the decision-making process of whether to integrate educational technologies into teaching strategies. Faculty who are in the middle or later stages of their careers can resist the use of instructional changes since tenured faculty may not be compelled to use technology and senior faculty may not have the knowledge or required training to use the educational technology (Peluchette & Rust, 2005). Other studies found that different types of faculty view differently the use and importance of technology for teaching purposes. Al-Bataineh and Brooks, (2003) identified these 5 different types of faculty and their corresponding characteristics in relation to the computer efficacy and the use of educational technology for teaching purposes:

1. Knowledge-level teachers aware of computers and may be users or non-users. They are capable of following well-written key-by-key directions.
2. Application-level teachers are willing to use or allow students to use applications, but leave instructional control with the software.
3. Analysis-level teachers are capable of extracting portions of applications to assist in student achievement of identified curriculum objectives.
4. Synthesis-level teachers merge classroom instruction, relevant on-line instructional techniques and supplementary materials.
5. Evaluation-level teachers create and appraise classroom opportunities for learning beyond the design of instructional software and accompanying curriculum materials.

The relationship between gender and the use of technology is a popular discussion within the research community. For example, women's use of the telephone for socialization purposes helped expand this usage in both residential and business areas (Martin, 1991). The importance of gender and technology association study is encouraged since it is important to learn how new technologies are evaluated through the lens of an existing gender system (Hopkins, 1998; Hopkin, 1997). There are emotional, psychological, social reasoning behind the differing views of men and women of the use of computers in personal and professional life. There are differences on how do men and women view the world. Men tend to see the real world as a hierarchical structure whereas women tend to view it as an interconnected web of people (Gilligan, (1982). Therefore, for example, e-learning, which integrates computer and communication

technology, might affect men and women differently because of the communication patterns adopted by them (Heinich et. al., 1996). In another study, women and men were found to have different beliefs of usefulness and the ease of use of email (Gefen & Straub, 1997). According to Spotts (1997), male faculty members tend to rate their knowledge and use of technology higher than their female counterparts. However, female instructors take factors such as lack of time and lack of professional advancement into consideration when deciding whether or not to integrate technology into the curriculum. Additionally, Lumpe and Chambers (2001) argue that female instructors believe that factors such as administrators, students, equipment, and professional development, directly influence a person's ability to be successful with technology. Gender differences are also found in adopting new software systems where men technology acceptance is affected by their perception of usefulness, while women are influenced by perceptions of ease of use and subjective norms (Venkatesh & Morris 2000).

Moreover, studies on the cultural background of the faculty have shown that the individual cultural backgrounds can be a driving force when accepting a change or a new work system in the workplace. In the education field, socio-cultural background of faculty can be an influential factor in accepting or rejecting the use of a particular instructional technology (Cuban, Kirkpatrick, & Peck, 2001; Huang, 1997. For example, a study (Zare-ee, 2011) on education issues in Turkey finds that oral tradition and patronage system combined with the rote memorization and the sacredness of the text, make online textbook less suitable. Also, in societies where interpersonal relationship with relatives, family and neighbors is superior to individual independence and self-reliance, faculty will tend to prefer face-to-face and more personalized teaching and learning strategies (Zare-ee, 2011). In cultures where teachers use textbook as a source the primary source of knowledge and consider correct answers or high scores on paper-pencil tests when assessing learning success (Lee, 2009) may not opt for the use of online or computer-based exams for example. Similarly, in cultures where teachers are expected to cover the textbook of the course as a whole as a source of good academic achievements and performance leading students to high school or university entrance (admission), faculty members tend to cover the textbook content to guide student learning and thus affecting the use technology (C.-H. Chen, 2008). Computer based collaborative works at student and classroom levels have also been shown to affect the role of teachers and expectations of the learners and thus creating a new dynamic of teaching-learning environment (Damarin, 1998). Other researchers (i.e., Reeves & Reeves (1997) foresee the core pedagogical values might be considered appropriate in one culture but inappropriate in another, for example, "the expectation that students will question knowledge, or challenge the teacher's view". More so, "when teachers are overly concerned with academic achievement and skill-based knowledge, and teach textbook content only, or identify with the examination-oriented education culture, technology integration would be insufficient and lack meaningful practices; this may be related to an inadequate understanding of technology integration (Liu, 2010)". Therefore, Henderson (1996) suggested that instructional design models must include cultural contextuality in addition to the cognitive, social and pedagogical issues and "instructional design is about the creation of cultural identity and cannot be culturally neutral".

Contextual Factors*:* The contextual factors that influence or might influence the decision of the faculty to use educational technology for teaching purposes include institutional factors, classroom size, course subject, and time constraints. Institutional factors include a wide range of factors such as faculty development programs, ease of access to use technology, policies and procedures, and support for technological (Osika, 2006). Institutional support include accessibility; technical support; leadership support; professional development, teaching workload; teaching experience (Buabeng Andoh, 2012). The role of the classroom size assigned to the faculty as a contextual factor is also important in the implementation of educational technologies by the faculty. For example, when faculty members use technologies such as email and chat rooms, large classes can be difficult to manage, especially when teaching an online course (Peluchette et. al., 2005). Though there is no answer to the question of what is the ideal size of the class (Kelly & Maushak, 2004), pedagogically it is relatively easier for the faculty to work with a small size classroom when implementing new technology or pedagogical strategies (Maushak, Kelley & Blodgett, 2001).

Another contextual factor which is the course subject (or the course taught by the faculty) is also influences the choice of technology used to support the learning experience. Related variables such as the learning objectives of the course, textbook and other course materials to be used for teaching (Mumtaz (2000) are also important to consider. For example, faculty teaching soft subjects like strategic management and marketing courses may use computer and related software in class to carry out simulation and other group dynamics. But faculty teaching more quantitative and complex courses (i.e., from engineering and medical fields) tend to depend more on traditional pedagogical strategies in order to interact more directly with the students. On the top of these contextual factors described above, lack of time (time constraints) has been found one of the critical factors in influencing the decision of the faculty when using technology to support teaching (Mumtaz, 2000). Lack of time includes both the release time and the scheduled time (Mumtaz, 2000) where both the lack of release time and the scheduled time are found not allowing faculty to use computers in their classes, prepare materials for their classes and practice computers and software. For course development, course management and technology related training faculty requires sufficient time (Bocchi et al., 2004) out of their regular workload. "Teacher's time committed to teaching and amount of technology training are reliable factors of technology use in classroom (Vannatta & Fordham (2004)".

Student Factors: Students factors including academic performance of students, gender, age, academic background, professional experience, ethnicity, socio-economic conditions, nationality and computer self-efficacy are influential factors in the decision of faculty to use instructional technologies in their courses/classes (C-H. Chen, 2008). However, this paper focuses on the academic performance and gender of students for further elaborations. In fact, the pedagogy-technology integration should promote active learning and thus benefiting students by improving their learning and academic achievements (Liu, 2007). For such an active learning to happen, students must participate actively in the learning process and perform well academically. Li (2007) wrote "that if teachers had poor students or were teaching unfamiliar subjects, technology use was not considered, even when teachers understood that students favored technology and technology was the preferred means of acquiring information". In addition to the academic performance of students, the role of gender (female vs male students) of students is also an important criterion for the faculty to use educational technologies. Historically the use of technology is considered as being a male activity (Wajcman, 1991). A study on the gender issue by Shashaani (1995) finds that male students have not only interest in learning and using computers but they also receive encouragement to use computers. Another study of Macleod, Haywood & Haywood (2002) suggests that female students are relatively more apprehensive about computer use and view technology more favorably than their male counterparts (students). Contrastingly, some other studies find that females generally feel more anxiety and less experience with technology than males (Ayersman & Reed, 1995). "Males typically have lower computer anxiety and higher computer interest than females (Schumacher & Morahon, 2001)".

Discussion and Conclusion

The information and communication technologies have brought dramatic and revolutionary changes in all walks of life of human societies and more notably in our education system (Buabeng-Andoh, 2012). Technology has affected and is affecting at the skyrocketing speed the workplace, business and business management, organizations and our individual life. In response to such trends and tendencies our schools and universities are expected to reorganize and reorient their educational programs and services including curriculum and pedagogical strategies. The gap between teaching and learning must be bridged through an effective adoption of the advances in the educational technologies in order to provide learners with knowledge of specific subject areas, to promote meaningful learning and to enhance professional productivity (Tomei, 2005). One must consider the potential benefits of the use of educational technologies to support pedagogical strategies as listed by Becta, (2004): Increased academic achievements; encourages student's collaboration; improves student's communication and interpersonal skills (e.g., ability to be a group member); increase the competency among other academic staff; give the teachers the opportunity to be learning facilitators instead of information providers. Reduce the pressure

of the lecture preparation on the instructor; make the content and delivered materials of the lectures clearer; helps the students to remember the information easily; increases the interaction between students; and, enhances the students' ability to work in a group.

However, a number of factors associated with the faculty, institution, and student make it difficult for the educational technologies to be well- integrated into the existing teaching and learning strategies in the institutions of higher education (Bauer & Kenton, 2005). Teacher-level barriers include lack of teacher ICT skills; lack of teacher confidence; lack of pedagogical teacher training; lack of follow-up of new and lack of differentiated training programs. Faculty factors include beliefs about what (content) and how (pedagogy) to teach and skills including classroom management, teaching skills and computer handling. Also, matching the instructional technology with pedagogy used in teaching a particular subject is an influential factor in the decision of the faculty to use educational technology (Franklin, 2007). Other factors such as feelings, knowledge and attitudes of the faculty influence the use of educational technologies in teaching (Huang & Liaw, 2005). Moreover, faculty perception of the use of technology as better than previous practice; consistent with their existing values, past experiences and needs; ease to use, can be experimented with on a limited basis before making a decision to adopt and finally the results of the innovation are visible to others (Keengwe & Onchwari, 2008). Institutional factors such as technical support, funding, training and facilities influence faculty adoption and integration of technologies into their classrooms (Wozney et al., 2006). The school-level barriers comprise absence of ICT infrastructure; old or poorly maintained hardware; lack of suitable educational software; limited access to ICT; limited project-related experience; lack of ICT mainstreaming into school's strategy and the system-level barriers include rigid structure of traditional education systems; traditional assessment; restrictive curricula and restricted organizational structure. Knowing the extent to which these barriers affect individuals and institutions may help in taking a decision on how to tackle them (Becta, 2004). The general perception felt on campus among the faculty and students alike is that the computers and related technologies are logistical burdens and barriers for the effective teaching and learning in that both faculty and students spend time in learning how to use the technology. Technological platforms are changing without giving the faculty and student enough time learn and take fully advantage from one technology before opting for adopting a new one (Plair, 2008).

Recommendations and Implications

As concluded that the educational technologies are parts and parcels of the education system and there is no way to deny the use of educational technologies in one way or the other. Nonetheless, it is also concluded that there is still resistance from different forces within and without the education institutions to fully integrate educational technologies into the regular pedagogical strategies across the board. Therefore, herewith a number of practical recommendations are put forward for the educational institutions and their leadership to pursue while trying or wanting to adopt educational technologies to support pedagogical strategies. (1) Faculty attitude must be changed from negative to positive towards technology and the uses of technology for teaching purposes. They must be assured that technology will make their teaching interesting, easier, fund, motivating and enjoyable (Bruce & Levin, 2001). (2) Faculty should be made aware that the use of technology in teaching is helpful for the students alike since it encourages inquiry, helping communication, constructing teaching products, and assisting students' self-expression (McCannon & Crews, 2000). (3) The issue of the use of technology and its usefulness must be part of programs of faculty development and when discussing instruction, education, or training issues (Snelbecker, 1999). (4) Faculty perception of the usefulness of the technology should be improved and the constraints of self-efficacy and structure must be removed (Buchanan et al., 2013). (5) Educational institutions must remove or at least reduce the barriers: Lack of time to integrate educational technology in teaching activities; lack of funding to purchase the equipment and software needed; insufficient computing infrastructure (servers, bandwidth, storage capacity; Insufficient computing facilities (labs, technology-equipped classrooms; not enough training offered in the areas that interest you; not enough assistance with technical problems; not interested in using technology (Fu, 2013). (6) Provide trainings and workshops related to technology to update teachers' skills and knowledge (Al-

Bataineh et al. 2008). (7) Support partnerships that help teachers share effective technology practices and experiences (Ertmer & Otternbreit-Leftwich 2010). (8) Augment curricula with technology-enhanced materials (Goktas, Yildirim & Yildirim 2009). (9) Provide enough freedom for teachers in selecting and covering curriculum material (Honan 2008). (10) Provide adequate technical support to the faculty and students (Liu & Szabo 2009).

However, the implementation task of such recommendations is not without limitations (Gilakjani, 2013). *Firstly*, the use of instructional technology alone does not guarantee the effective use of the technology for teaching purposes. *Secondly*, there is need for proper planning, implementing and evaluating the technology-pedagogy integration work. The use of technology in teaching should enhance both the quality and productivity of the education services provided to students. Achieving optimal conditions for faculty, students and the institution to integrate and maintain the technology-pedagogy integration is pivotal. It demands time, money, culture and strategy from the academic leaderships. It is also imperative to provide enough time, financial assistances, technical help and pedagogical guidance to the faculty in order to design teaching activities and experiences supported by technology; implement such activities as planned and assessing the effectiveness of technology based teaching. *Thirdly*, as suggested by researchers in the field (i.e., Gilakjani, 2013), faculty will have to understand and be responsible for the social, ethical, legal, and human issues in connection with the technology-pedagogy integration. *Fourthly*, exercising extreme patience from all the concerned corners is needed since integrating technology-pedagogy fully and truly is a slow and time-consuming process and task (Collins, 1997). *Fifthly*, continuous collaboration from and good communication among the institutional leadership, faculty, students, technology support center and pedagogical specialists will enable the technology-pedagogy integration process and system to function smoothly and properly. For this to happen, all relevant stakeholders need to meet regularly to share best practices and on time information (Usun, 2005). The technology-pedagogy integration management should include faculty evaluation and feedback on how did they use technology in their classes and the impact of the same on their teaching effectiveness (Dahlstrom, 2015). *Sixthly*, it is also a cumbersome task to identify and match differing variables such as new advances in educational technologies, nature of the course, learning outcomes of the course, lecture type and materials, students learning styles and professors´ teaching styles (Trucano, 2005). Additionally, institutions of higher education must make the adoption of new technologies to support pedagogical strategies, an important component of the institutional strategic planning. *Seventhly*, and finally, the macro environment (society, industry and technology) surrounding organizations is constantly changing and thus demanding for permanent need assessment methods, change strategy, new organizational system (Balash et al., 2011), culture and strong leadership.

Limitations and Future Studies Considerations

This study is an exploratory one and therefore, is based on the literature review that exists on the issue of factors influencing the faculty decision to use educational technologies to support pedagogical strategies. The study provides a theoretical foundation and understanding of the issues facing educational institutions in implementing new educational technologies. Research methodologists appreciate the role of literature review based studies in establishing the need for further research while broadening the horizons of the researcher and preventing the researcher from conducting research that already exists (Aitchison, 1998; Khan & Law, 2015). Furthermore, literature review based studies helps the researcher and readers to be knowledgeable and understand the research problem better (Leedy, 1989). Furthermore, literature review based studies are also helpful in establishing theoretical grounds for research, identify gabs in the existing knowledge and weaknesses in previous research, discovers connections or other relations between different research results by comparing various investigations (Bless & Higson-Smith, 2000; Khan, Law, 2015). However, this is a descriptive study involving a type of document analysis and secondary research based on textual information. Some researchers question the validity and reliability of recommendations of such studies since the origin of the information needs scrutiny and critical evaluation (Khan & Law, 2015). Future studies on factors influencing the faculty decision to use educational technology to support teaching strategies should involve quantitative analysis using independent (faculty

factors), dependent (use of instructional technology) and moderating (student and institutional factors) variables as shown in Figure 3:

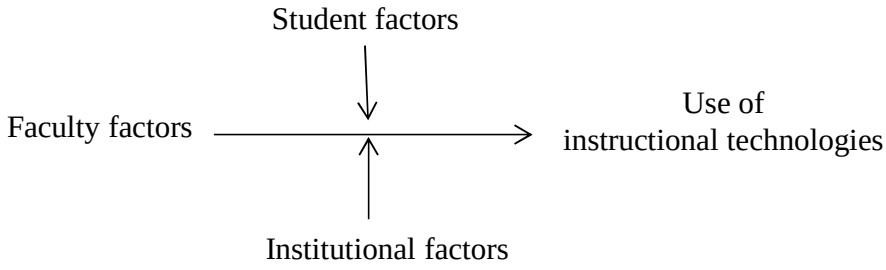

Figure 3 Factors influencing the faculty decision to use educational technologies

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The Evolution of Global Economy during the Last Years under the Influence of Financial Crisis

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Abstract

This paper aims to analyze the global economic developments in recent years under the impact of economic crisis. 25 years ago, the global situation could be described as the scheme suggested by Immanuel Wallerstein: a "center" consists of small group of industrial powers, dominated by the United States, around which revolve "semi-periphery" countries with medium development, rest of the world and constituted the "periphery" massive misery in developing countries. The ascension of the emerging powers and changing their weight in the global economy also implies changes to in this picture and the balance of power globally. Emerging powers are now key decision makers of global order; the United States has to take into account. The recent financial and economic crisis, whose "replicas" continues to be felt today, brought to the fore a process without precedent internationally: moving gradual but firm, the center of gravity from developed countries to emerging economies. Over the last five years the world economy has experienced a long process of macroeconomic adjustment. The first part of the recession was recorded adjust imbalances in the private sector: reduced to a sustainable level of current account deficits in the developed and the current account surpluses of emerging and developing countries.

Keywords: global economy, European Union, financial crisis, GDP, BRIC

1. Introduction

From many ponts of view year 2008 marked the beginning of a new period in global economy. For many people this year marked the beginning of a period of crisis, called first financial, then economic and financial originally global crisis and then after a few years, a crisis of the old order, a crisis that did not affect in fact all world economies and certainly rewrote the world rankings.

Recognizing new realities of the economy and international politics, Robert Zoellick, World Bank President drew attention to the globally changes in the situation, stressing that "the world today has more poles of growth, more options in terms of growth strategies leaving to the past the unipolarity, single-leadership strategy of developing unique and unique ways.

According to some personalities of the economy, today the most relevant emerging powers group includes a total of seven countries, namely China, India, Brazil, Russia, Indonesia, Mexico and Turkey. Representative of this group (by economic and geostrategic potential) are considered China and Russia. Among them, Brazil, Russia, India and China (BRIC) are allied to major common objectives, despite the economic and socio-political peculiarities, and are platoon leaders.

12 years after they were called "locomotives of the world economy" countries that make up the group BRICS are enjoying significant economic growth, even if growth rates do not reach record levels as in prioada before the financial crisis of 2008-2009.

During the crisis, the BRIC nations - Brazil, Russia, India and China - became the engine of the global economy; China's GDP grew at 7.9%, while the United States suffered a drop in GDP. Fiscal stimulus totaled in India, Brazil and China rich the record sum of 870 bln. $. Since then, the BRIC countries have provided 85% of global economic growth. But lately, these engines have slowed amid

the 4 states desire to curb inflation using interest percentage increase, and the future policies to ensure that rapid growth does not happen again.

Rapid economic growth and increasing involvement in international trade of emerging economies, particularly the big players - such as China, India, Brazil and Russia, also known as the BRIC countries - is often perceived as a threat to the economic position of developed countries, while the shares of major players on the scene of traditional global trade have suffered significant decreases in the past decade, the most affected being the USA and Japan.

Thus, developing countries experienced in 2009 only a reduction in growth (from 5.6% in 2008 to 1.2% in 2009), but a decrease from the previous year. Some regions of the developing countries (East Asia and Pacific, South Asia) experienced in 2009 even substantial increases of 6.8% and 5.7% respectively.

It should be noted that such growth rates were not seen in developed countries, especially European Union countries, even during periods when there were no phenomena of economic crisis. In 2009 the US experienced an economic contraction of -2.5% and -3.9% in Euro area; however China has experienced an increase of about 7.5%. In turn, India has experienced in 2009 an advance of 6.6% and South Korea in 2009 had a slight growth of 0.13% (but not decrease).

Another important issue for the global economy is the shift from G7/G8 to G20, which highlights developments in emerging countries and the importance of their decisions much more enhanced. Change is a clear signal that important decisions can no longer take in a small circle. Between 22 to 23 February 2014 took place in Australia meeting of finance ministers and central bank governors of the G-20, which represents about 85% of the world economy. In the final communiqué presented after meeting states that G20 member states will develop ambitious and realistic policies that will lead the next five years the cumulative GDP increase by more than 2% above the level implied by current policies.

G20 member states have expressed regret that emerging economies do not have a higher share of voting rights in the IMF and urged the US to ratify the reforms before the next meeting of the G20. Major emerging powers such as India, China, Brazil and Russia, demanding a greater share of voting rights in the IMF to reflect their growing share of the world economy.

International Monetary Fund adopted a reform in 2010 that reinforces its share in emerging countries, but its entry in application depends on ratification in the US Congress, who has veto rights in this institution.

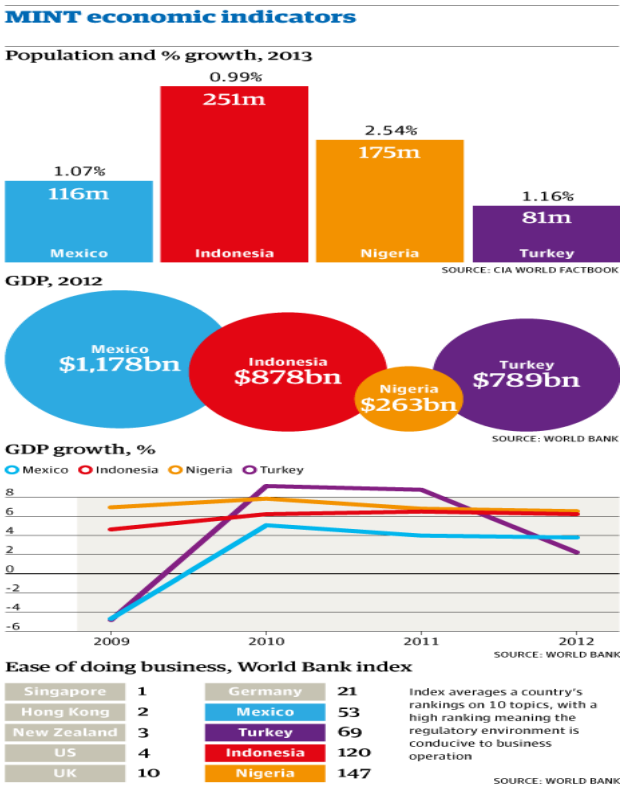
Even if they share the same interest for stability and openness to the West, the emerging powers, primarily the exponential, China, India and Russia, promote economic development means different from traditional powers, the US, Japan, the European Union. Faared new world order described by Zakaria - in "The rise of the rest" will include besides Turkey, Saudi Arabia, Russia, Mexico and other emerging economies, namely, Indonesia. This country will play an important role in the new global configuration, as is apparent from Alfred T. Mahan's theory that states that the XXI century will be decided in the Indian Ocean.

Increasing importance of emerging countries as export markets for developed countries reflect the increasing availability of hard currency resources of these countries, dynamic expansion of a middle class and wealthy large as increasing and diversifying their demand for imported products.
In 2013, however, the large emerging countries, China, Russia, Brazil and India have begun to face economic difficulties, reversing the high expectations of international markets. Economic stagnation, high corruption, indebtedness of the financial system and fiscal issues are some of the drawbacks countries called BRIC acronym.

Given all these problems encountered by Member BRICS the investors found a good time to seek so-called the "next big thing" in global markets. Jim O'Neill, the economist who invented and popularized BRIC name, came up with a new proposal for investors, namely MINT group, composed

of Mexico, Indonesia, Nigeria and Turkey. The four countries benefit from significant economic growth, and a young population and large, which should help them to grow rapidly when the aging trend and decrease of it will lead inexorably to slower rates of growth in many developed countries (and China) over the coming decades.

Another advantage is represented by geographic location that facilitates their chance to take advantage of large markets nearby. For example, Indonesia is close to China, Turkey, on the outskirts of the European Union and Mexico at the door of America. Geographical advantages exist for Nigeria, although less immediately obvious. The country has increased the demand for fuel and raw materials for the industry and with other countries in the group - are leaders of Mexico and Indonezia- production. Of the four countries, only Nigeria is a member of G20. However, it is now seen as the next emerging economy of Africa.



Source: www.wto.org

Fig 1.1. Economic indicators for MINT countries (Mexico, Indonesia, Nigeria, Turkey)

So there are authors who have already identified groups of countries with the potential to compete with Brazil, Russia and India and even the Republic of China, for example Next-11 or N-11 ("next 11" listed alphabetically: Bangladesh, Korea South, Egypt, Philippines, Indonesia, Iran, Mexico, Nigeria, Pakistan, Turkey and Vietnam), among which stands out in particular four of the 11 mentioned above: Mexico, Indonesia, South Korea and Turkey. However, BRICS alliance is the most formidable group among emerging economiesand China, Brazil, India and Russia are and will continue to be, the most powerful emerging economies of the planet.

2. The Main Centers of Power in the Global Economy

The whole history of humanity teaches us that the power balance is continually changing. International economic system since the beginning of the XXI century is a period of transition and readjustment generated major changes occurred in the early 90s, followed by the events of 11

September 2001 and the end of the world economic and financial crisis 2007-2008 whose effects are felt today.

Table 2.1: Comparison between the main centers of global power based on macroeconomic indicators for 2013

INDICATOR / COUNTRY	US	CHINA	JAPAN	EUROPEAN UNION
GDP at PPP	$ 16.720 trillion (1st place)	$ 13.390 trillion (3rd place)	$ 4.729 trillion (4th)	$ 15.850 trillion (2nd place)
nominal GDP	$ 16.720 trillion (1st place)	$ 9.330 trillion	$ 5.007 trillion	$ 16.950 trillion
GDP growth rate	1.6%	7.7%	2%	0.1%
GDP / capita	$ 52.400 (4th)	$ 9.800 (No. 121)	$ 37.100 (36th)	$ 34.500 (41st)
GDP structure by sector				
1. Agriculture 2. Industry 3. Services	1.1% 19.2% 79.4%	10.1% 45.3% 44.6%	1.1% 26.3% 72.5%	1.8% 24.7% 73.4%
Forța de muncă	155.4 million (4th)	797.6 million (1st place)	65.62 million (No. 9)	228.6 million (3rd place)
Rata șomajului	7.3% (79th)	4.1%	4.1%	10.5%

Source: Table made by the author, according to data provided by www.cia.gov and www.wto.org

Today, we can say that the European Union, USA, Japan and a ever increasing proportion lately China are the main centers of power in the global economy. And between them occurs the main international trade.

Changes that occur in global economic have changed the power map. Looming, the world forged by Americans after World War II is coming to an end. World outline of decentralization system is clearly distinguished by long time but its new center coordinates have been far troubled and problematic. However compose the new core of a world in which change will be dynamic, uneven and unpredictable multidirectional.

China's rapid economic growth and increasing influence in relations with other countries has caused concern in Washington because the United States faces a new rival for global domination. China could exceed the purchasing power of the US economy most likely in 2014, according to World Bank estimates. This means that America will cease to be the largest producer in the world for the first time since surpassed the UK in 1876. However, analysts believe that there are important factors limiting China's potential to become a world power.

Amid the recession and the changes that followed traditional big players on the global economic scene have suffered significant decreases, but in 2013 they began to show signs of recovery. So even if recent years have been characterized by a rise of emerging countries throughout the US, Japan and the European Union have most developed economies in the world.

2.1. United States of America

USA have the largest and most technologically economy in the world, with a GDP per capita of $ 49.800, and is the largest and most diversified market for goods and services in the world, where they face daily numerous trade offers and business projects from all countries of the world.
Broadly, the American economic system can be defined by its decentralized nature, capitalism based on private ownership and free enterprise. Federal authorities that intervene in the economy are manifested through fiscal and monetary strategies. Meanwhile, the federal budget has a component aimed at investment in research. US economic legislation allows control of government involvement in business practices, having the US government and the role of supervisor of growth. In this market economy private companies make most decisions and federal authorities and central purchasing goods and services from the private sector. US private companies benefit from greater flexibility than those in Western Europe or Japan regarding the expansion of production sites, dismissal of workers, new product development. Also, US companies face greater difficulties in trying to penetrate the market rivals than they foreign firms seeking to penetrate the US market.

Services contributed with 76.7%, the most important sector of the American economy. The industry accounted for 22.2 and agriculture sector contributes 1.2%. Even if the services were the largest contributor, the United States remain a great industrial power. It notes the car industry (Ford, General Motors), aerospace (Boeing), pharmaceutical, IT (Apple, IBM, Intel, Microsoft, Yahoo, Google). Private sector activities hold 55.3% of the economy, federal institutions and the remaining 24.1% 20.6% goes to local institutions' activities.

The recession of 2008-2009 has severely affected the US economy. The financial crisis of the mortgage market with high-risk (subprime), falling prices for housing, failures of investment banks, lending restrictions and the global economic downturn have pushed the US into recession in mid 2008. GDP fell steadily until the third quarter of 2009, causing the greatest depreciation after the recession of the "30s. Since the financial and economic crisis of 2008-2009, the Fed (and other central banks of the countries affected by the crisis - ECB, Bank of Japan and others) adopted a policy of buying bonds and reducing policy interest money to supplement liquidity in the market and avoid blocking lending.

To help stabilize financial markets, in October 2008 the US Congress has allocated 700 billion dollars for the "Trouble Asset Relief Program" (TARP). The government used some of these funds to purchase shares of US banks and industrial corporations, and most of the funds have been returned by 2011. In January 2009 President Barack Obama signed a bill which approved the allocation of other 787 billion for tax incentives to be used over 10 years, two-thirds for additional expenditures, and one third for cutting taxes, creating new jobs and help the economy to recover.

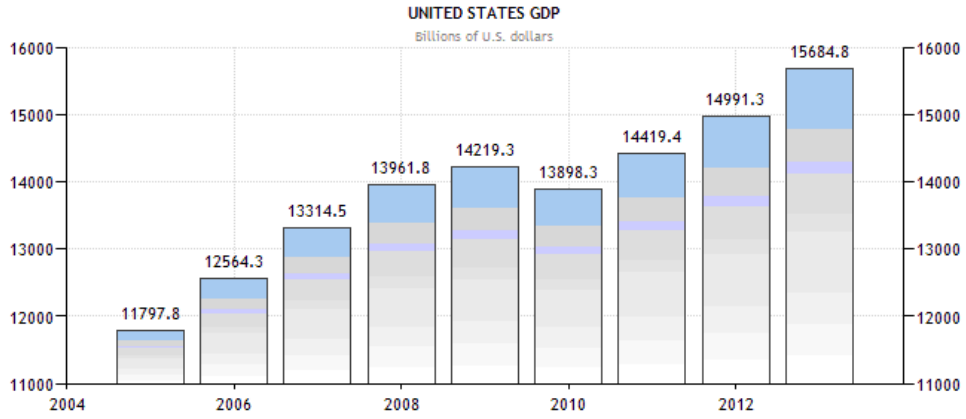
In 2010 and 2011 the federal budget deficit reached 9% of GDP. In 2012 the federal government to cut spending and the deficit fell to 7.6% of GDP. The wars in Iraq and Afghanistan have increased the military department expenditure and contributed to increasing budget deficit and public debt. In 2011 the direct costs of these wars totaled about 900 billion dollars, according to US government statistics.

In March 2010 President Obama passed a law "Patient Protection and Affordable Care Act" providing for reform in the health system, and inclusion in the list of beneficiaries of health insurance to about 32 million people by 2016, and the Dodd-Frank Wall Street Reform and consumer protection Act, designed to promote financial stability by protecting consumers from abuses, and improving accountability and transparency in the banking system in particular.

In December 2012 the Federal Reserve Board (US central bank) has indicated its intention to purchase securities backed by mortgages and government bonds in an attempt to lower interest rates in the long term, and to maintain short-term interest close value 0 until the unemployment rate falls below 6.5% or inflation reaches 2.5% higher values. Sfasitul the 2013 Fed announced that it has decided to maintain interest rates at the range between 0% and 0.25% as US economic growth, which has slowed down due to "transitory factors" face risks even if global financial market tensions eased.

The main long-term problems include the American economy stagnating salaries for low-income families, the rapid growth of pension costs and health mediacală due to aging, energy supply shortages, elevated current account deficit and budget deficit.
The financial crisis has cost the US economy between 6.000 billion and $ 14.000 billion, and the damages could be more than two times higher if the economy is recovering too slowly, according to estimates of the Federal Reserve (Fed) of Dallas, quoted by Mediafax news agency. Some damage on long term to the US economy, the Federal Reserve identifies high unemployment and lost opportunities because of support for the financial sector with 12.600 billion dollars, evidenced in the central bank, published five years after the collapse of investment bank Lehman Brothers . The economic damage is equivalent to 40-90% of GDP of the US, or 50000-120000 dollars per household.

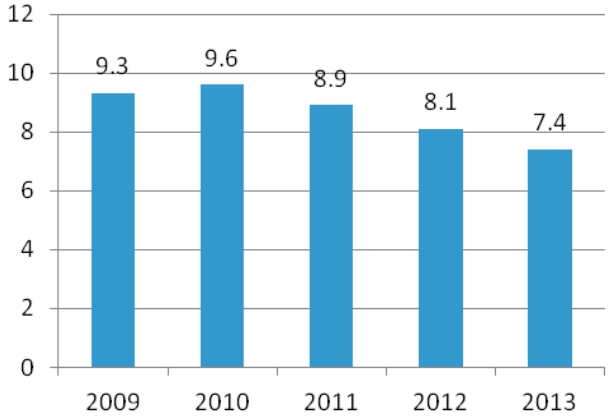
Although major financial intervention of the state in the economy prevented a collapse, aid companies were unfair and non-transparent form of transfer of the burden on taxpayers, according to the Fed.



Source: www.tradingeconomics.com

Fig 2.2. Gross Domestic Product evolution of the United States during 2004-2013

According to statistics provided by the Bureau of Economic Analysis of the US Department of Commerce, the real growth rate of of the United States gross domestic product in 2012 was 2.2%, compared to a level of 1.8% in 2011. GDP growth 2012 was bolstered mainly: private consumption, fixed capital investments, exports and stocks from the economy. The negative impact on economic growth was produced by reducing government spending at both the federal and the states and increasing imports (imports are subtracted from the GDP calculation). The production of durable goods, work in the financial sector and insurance and wholesale trade were the main contributors to real GDP growth. Instead, the agricultural sector had a negative contribution to growth.



Source: Graphic made by the author, based on data provided by http://www.bls.gov/

Fig 2.3. The evolution of unemployment in the US between 2009 and 2013

Regarding developments on the labor market, there is a relative improvement. The Ministry of Labour in January 2013 reveals that in 2012 the average monthly new jobs created amounted to 153,000, close to that of 2011. The unemployment rate decreased to 7.8% in December 2012 (8.9% in December 2011), the lowest in four years. In December, the number of unemployed remained almost unchanged at 12.2 million. Of these, 39.1% were unemployed for 37 weeks or more. The rate of employed persons, 58.6% remained also relatively unchanged.

The number of employees increased by 1.74 million in 2012 (1.64 million in 2011), the most outperform the US labor market after 2006. Although the number of employees increased employment crisis could last many years, say experts, given that jobs in administration, both at the federal and local level is decreasing. The crisis in the banking and the phenomenon of delocalisation of industrial production made an important engine for creating new jobs no longer work.

The inflation rate, measured by the consumer price index, registered a noticeable fall in 2012, standing at 1.7% in December compared to December 2011, compared with 3% recorded in 2011, according to the Bureau of Statistics Department American Labour. This marked improvement was due, for the most part, reducing energy prices (whose index increased by only 0.5%, marking a strong growth slowed from 6.6% marked in the previous year). Especially spectacular fuel prices have decreased, the price of gasoline increasing by only 1.7%, compared with increases of 13.8% recorded in 2010 and 9.9% in 2011. The energy price index declined for the population in 2012, falling by 1.1% after increasing 1.8% in 2011.

The secret of success is linked to US economic and invested huge sums in research and development by both private companies and federal authorities. Another success factor is the readiness and the number of research personnel. In the next 15-20 years, in a multipolar world, even if they hold less power than in past decades, the United States will continue to influence the evolution of the international system to a greater extent than any other global actor.

2.2. Japan

From the economic point of view Japan is between the top 3 countries in the world. Currently the Japanese economy is in a deep process of transformation caused by events such as the 2008-2009 recession and its effects. For over 30 years, Japan was the second economy in the world, but in the second quarter of 2010 was exceeded by China.

Japan is among the countries most affected by the economic and financial crisis, which caused and close relationship with the United States economy. The effects have been felt since the beginning of 2009, when Japan's exports fell by a record rate in January according to data released by the authorities in Tokyo. Official figures showed that exports fell by almost 50% in the first month of the year, while imports fell by a third. Also, these reductions have resulted in an advance-record current account deficit. Thus, the current account deficit of the Japanese economy reached in January to 172.8 billion yen ($ 1.8 billion). It was the first current account deficit recorded for Japan's economy after 13 years. These data have affected the Japanese currency, which recorded the Forex market depreciation against almost all major currencies. Japan has been hit hard by waning demand for domestic products internationally in the downturn. Most products exported Japanese cars and electronic items, recorded the biggest falls in demand. Only automobile exports fell by 66.1%, while exports of semiconductors and parts for electronic products fell by 52.8%. We can talk about a paradox in the Japanese economy by the fact that although it has a huge foreign debt, though Japan is the largest creditor in the world. Japan's net foreign assets reached in 2011-253010 billion yen (about 3.200 billion US dollars), according to the Japanese Ministry of Finance.

At the end of 2011, the world Japan's debt was 3,000 bln. And during the recent global liquidity crisis, the Japanese archipelago saved, almost alone, the International Monetary Fund itself. Japan is from 21 years in the position of largest creditor of the world. The data for 2012 confirms this position, achieved thanks to massive foreign acquisitions of Japanese companies, encouraged in this direction and state authorities.

After the 2010 IMF data, the indicator NIIP (Net International Investment Position) ranked first in the world - Japan, with 3,087,703.98 million, followed by China with only remote 1,790,651.81 million. NIIP is defined as the arithmetic difference between total foreign assets held by residents of a country, minus the total national assets held by foreign entities.

Investors take into account the NIIP indicator in assessing the creditworthiness of a country, which explains and maintaining the credibility of Japan's financial markets, despite the external debts of over 220% of GDP. Gross foreign debt of the state increased 5.5% in 2011, reaching 329.038 billion yen (about 4.200 billion US dollars), ie $ 33,000 / capita. Judging by the Maastricht European criteria which limit public debt to 60% of GDP, Japan would be in a catastrophic state debt to 229.1% of GDP.

In the historical evolution highest exposure of the Japan in foreign markets, nearly 300,000 billion yen (3.700 billion dollars) was recorded in 2009 in the midst global financial crisis was the moment when certain loans provided by Japan proved almost providential.

Japan's economy has advanced by 2% in 2012, supported mainly by robust private consumption (2.3%), government spending (2.6%) and public investment (12.6%), while net exports had a negative impact on growth (-0.9 pp). Unemployment remained at low levels of 4.3% (among the lowest among OECD countries), the experts saying that this level will be maintained over the entire forecast period.

Table 2.2. Evolution of the main economic indicators of Japan in 2009-2013

INDICATOR	2009	2010	2011	2012	2013
GDP (bln. $)	4850	5040	5500	5900	5960
GDP per capita calculated by the PPP (in $)	31,322	29,625	31,029	30,764	31,425
Inflation rate	-1.34%	-0.72%	-0.28%	-0.03%	1.61%
Unemployment rate	5.05%	5.05%	4.58%	4.35%	4.41%

Source: Table made by the author, according to data from www.tradingeconomics.com, www.inflation.eu and www.wto.org

The economic boom sustained by the 17 trillion yen (3.6% of GDP) allocated for expenditure on rebuilding the country in 2012, is at the top of government spendings OECD experts anticipating in December 2012 a drastic reduction in their coming years. Although the tax increase projected for the next 25 years and reduce expenses and taxable income will cover in part costs, costs of reconstruction emphasizes current difficult fiscal situation. The budget deficit of around 10% of GDP during 2012-2013, increased further debt.

Nippon Parliament approved at the beginning of August 2012 doubling by 2015, of the consumption tax (VAT) in order to reduce the budget deficit and ensure the social protection system. The document provides for raising VAT from 5% to 8% in April 2014 and to 10% in October 2015. The government claims that the VAT increase will generate additional annual revenues of 13.500 trillion yen (170 billion dollars). Japan's public debt was equaled in 2012-8890 billion, equivalent to 219% of GDP.

Worsening of trade balance continued in 2012, when it recorded the largest trade deficit in history, of 9,400 billion yen (about 118 billion US dollars), 170% higher than in 2011 amounted to $ 54.3 billion

even above the previous record deficit of 2.610 trillion yen reached in 1980 during the second oil crisis.

The main causes of accumulating a deficit so consistent are territorial disputes with China, sovereign debt crisis of U.E countries and boost fuel imports. Japanese export difficulties were exacerbated by the appreciation of the yen unprecedented that Japanese products more expensive and reduced the amount of income earned abroad.

The value of Japanese exports, a key driver of Japanese economic growth has declined slightly last year compared to 2011 with 0.1% (amounting to 874 billion), the second consecutive year of decline. For the first time in the history of Japan's trade balance in relations with the European Union recorded a deficit (139.7 billion yen stood at $ -1.6 billion) due to decrease by 15% of the Japanese exports. Also, Japan marked a record deficit of nearly $ 18 billion in relations with China, 10.8% amid falling exports due to territorial disputes around the islands in the East China Sea. Instead, the value of imports increased by 5.4% to 992 billion, driven by explosive growth, with 34% of the energy imports, which reached 272 billion dollars, while the majority of Japan's nuclear reactors remained shut after Fukushima accident.

One of the most important negative aspects for the Japanese economy, especially the industrial sector is the dependence on imports of raw materials and fuels, as the country has very few natural resources. Also, the agricultural sector is not very strong, but has significant subsidies and crop yield is among the best in the world. An aging population and decreasing domestic consumption also contribute negativelly.

Japanese domestic market, which vegetates for years for various reasons such as population aging and stagnating wages, is unable to sustain growth. Seeing and increasing inventories and declining profits, companies slashed investment. Victims of massive layoffs or salary reductions, the Japanese are increasingly inclined more to reduce their consumption levels, which further aggravate the economic situation.

Due to their economic strength, but also geography, a Japanese-Chinese alliance is increasingly taken into account. Many analysts raise a potential economic and strategic axis Beijing - Tokyo that would create a true economic empire and Asia would become the most important economic area in the world.

Japan can be considered a power both regional and international, because of economic, military, and educational policies. Currently, Japan is a country of which world great powers take into account, and also a state that has a voice at regional and international levels.

Although it will feel the impact of a major political shift internally and externally, by 2025, Japan will keep their major competitive role on the world stage. Reducing the number of active population and the increasing number of elderly will force authorities to be more flexible and tolerant in terms of policy on immigration and to invest in health care and social and economic restructuring will have to focus on the products incorporating high technology, which alone can ensure export. These latter measures will be imposed due to decrease the percentage of people employed in agriculture, probably below 2%, which will require additional imports to meet the demand.

2.3. European Union

European Union taken as the main structure of supranational integration is the entity closest to the equal status of the US. Basically, the EU economy is the sum of national economies that still reluctant in the face of total integration that concern and the political side, losing often competing with the US economy, Japan or China. Regarded as a whole, Europe has the capacity, technology, financial resources and population of a great power, but lacks consensus to follow this path.

Total EU economy is slightly larger than that of the US, with a nominal GDP of $ 16.58 trillion ($ 16.58 billion) and a GDP of 16.09 trillion calculated in PPP $, has a workforce 3rd level overall, after

exports and imports ranks first in the world ranking the first trading power in the world, it is the largest commercial market in the world, but income per capita is lower than in the US due to the integration of poorer states in the East. It must not forget, however, that the figures which it places on the leading places are just arithmetic totals assemblies coming from the Member States, and they make sense as long as there is a consensus among members. It also lacks emotional and idealistic commitment that the US had when they founded. Despite the efforts and strategies as was Lisbon 2010 EU fails to regain dynamism, competitiveness (diminished by oversizing considered successful economic branches that have become bad) and the position they once held in the global economy. Other problems facing the EU in recent years are: lack of effectiveness of the socio-economic model European sovereign debt crisis, relations between states and public debt to GDP and the budget deficit and GDP, both at high levels.

In late 2009 and early 2010, some eurozone countries have begun to experience difficulties in finance debt. Uncertain market conditions made the normal operations characteristic of state loans become expensive and ultimately impossible. At that time, Member States reacted quickly and introduced measures to restore confidence, meant to help finance debt countries had temporarily having trouble borrowing money on financial markets. After substantial growth in 2008-2009, the government budget deficit in the euro area average remained unchanged in 2010 and at 6.3% of GDP. In the same period, public debt continued to grow, reaching an average of 84.1% of GDP in the euro area as a whole.

The economic crisis has shown that many European countries are facing fundamental issues and trends that are unsustainable in the long term. It also made us understand better how EU economies are interdependent. After the housing crisis of 2007 and the 2008 financial crisis, Europe was faced with another big problem, namely sovereign debt crisis, which challenged the unique currency euro.
Sovereign debt is represented by bonds issued by a state in foreign currency to finance growth that country and is generally an investment more risky when it comes from a country in developing an investment safer when it comes from a developed country. Issuing government bonds stability is an important factor when assessing investment risk in sovereign debt and sovereign credit ratings help investors to measure the risk. An unfavorable change in exchange rates and an optimistic assessment of the results of projects funded make it very hard paying the debt. Creditor's only recourse is to renegotiate the terms of the loan, but can not measure the total assets of the government.

The last 5 years have been characterized by a significant increase in public debt, both in the European Union countries considered to be developing economies and in countries with developed economies. One of the causes of these increases was a failure of public policy to reform the government sector at the right time by: reducing public spending inefficient, labor productivity growth in the public sector, early treatment of problems caused by an aging population, increasing pressure on public systems pension and efficiency of state-owned companies. In 2011 the public sector in many countries much more deeply felt the coming of another crisis, while the private sector in many countries knew an exit from recession that was long overdue.

Greece, a member of the euro area was the first state which went into crisis budget deficits after 2009 recorded a deficit of 12.7% of GDP.

The news has rattled financial markets and European exchanges, Greece's budget deficit is alarmingly high given that, as a member of the eurozone, must maintain the deficit within 3% of GDP, according to the criteria of the Maastricht Treaty. Not only that, but the Greek government deficit masked a very long time, trying to keep it within the limit of 3%, which further angered authorities European Commission and the other Member States of the euro area, especially Germany.

The Greek crisis and tensions of possible state bankruptcy strongly affected the euro area, influencing developments in the euro against the US dollar, but the effects were seen on all financial and stock markets, including the emerging ones. Greece's budget crisis, which escaped the rein on public finances, is, according to economists from around the world, the first major test for the eurozone from its appearance in 1999 with the launch of the single currency.

The year 2010 meant for Greece, the maximum aggravation of the consequences of the worst recession since the Second World War, which left behind problems such as high unemployment, public debt and large budget deficits. For Greece, 2010 also meant a year of severe austerity measures necessary for effective strengthening of the tax system and reduce the budget deficit and high public debt levels. In 2010, Greece was supported in the recovery by emergency aid granted by the EU and IMF. Unlike Ireland, which initially refused foreign aid, Athens authorities have accepted international support to avoid economic collapse. The aid, granted in May 2010 totaled 110 billion euros.

However, in 2011, Greece's economic situation was far from being stable, with a negative rate of GDP growth (from -3.5 in 2010 to -6.9% in 2011) and a rate worryingly high unemployment (17.7% versus 12.6% in 2010), with devastating consequences for public finances. As a result of this, the Greek authorities have adopted a new austerity program, adjustment program medium-term fiscal 2011-2015, which brought the restructuring of state institutions and companies new taxes, cut spending by the administrative sector public.

Greece's budget deficit declined in the first five months of 2013, the country remaining on track for achieving the fiscal targets set in exchange for financial assistance. In January-May 2013, the central government's budget deficit, which excludes spending by local authorities and social assistance, fell to 980 million euros (1.30 billion dollars) from 2.3 billion euros in the period similar in 2012, according to the Ministry of Finance in Athens. Revenues decreased in the period January-May 2013 by 8% to 19.15 billion euros from 19.6 billion euros. Budget expenditures were down 11.3% to 23 billion euros from 30.5 billion euros in the first five months of 2012.

In March 2012, the unemployment rate was 22.2%. According to ELSTAT (Greek National Statistics Institute), a record number of 1.3 million Greeks were out of work in March, while 3.3 million were registered as employed. Unemployment in Greece nearly tripled from the beginning of the crisis in 2009, and remains the highest in the eurozone, where the average unemployment rate was 12.2% in April 2012. The unemployment rate, 58.4% is recorded among young people (aged between 15 and 24 years).

Despite two support programs involving the European Union, European Central Bank, International Monetary Fund and private creditors, Greece has made 2013 the sixth year of recession, and hopes to get a respite of two years, 2016 in order to reduce the budget deficit below 3% of GDP from 10.9% of GDP at the end of 2011. In the updated fiscal plan for the period 2013-2016 Athens authorities expect a primary surplus of 3 2% in 2016 versus 4.5% previously announced.

Problems caused by high budget deficit had other countries like Portugal, Ireland and Spain. These difficulties have been caused by years of too low interest rates that led to overheating and accelerating inflation. Unlike other European countries overwhelmed by financial problems, Ireland is one exemplary story. In 2012 it managed to avoid the recession that took hold of the eurozone. Labor costs dropped heavily, making the country more competitive. Ireland's image has improved in the eyes of foreign companies, and process using low taxes.

According to the Dutch Ministry of Labour, Richard Bruton, Ireland has achieved all financial targets set, and this occurred even in an economic context underperforming, and is about to end its dependence on the International Monetary Fund and the European Union for support public finance. However, there is no certainty that it will be a happy end. Ireland's dependence on foreign firms creates economic and fiscal vulnerabilities. Thus, if the global economy will have a bad year, Ireland will be hit hard, given that exports exceed its economy.

On the opposite side of these countries with negative developments is that the Polish economy can be seen as a miracle. Poland is the only EU country that managed to avoid the recession. Moreover, she had a growth that reached in 2011, to 3.9 percent. Warsaw authorities have obtained, at the height of the crisis, a loan of 30 billion dollars from the IMF. But the Poles have not touched one dollar of the loan, which was used as a safety belt. Polish companies were encouraged to keep their positions

on the domestic market, and this market of over 40 million consumers, failed to provide stability Polish companies resources they have done outperform their contestants in the region.

Another radical measure was taken by the government in Warsaw to increase absorption. Thus, the Polish government preferred to settle the European project from its own funds and then recover the money from the European Commission. This happened not only to public institutions or administrative entities, but also to private companies. Thus, the government in Warsaw has advanced payments totaling seven billion euros in European projects account. Of these, 800 million have reached the managers of private companies that have been so encouraged to carry out the projects and write new ones. Thus, while the whole of Europe is facing a crisis of working capital, funds paid by the Polish Government have provided the resources necessary for the country's economy.

The biggest EU economy and the country that has contributed the most to helping countries with problems caused by the crisis is Germany. Once for two consecutive years (2010 and 2011) Germany has maintained a high rate of economic growth in 2012, due to deteriorating of global economic climate and the interaction of external factors by nature disruptive - deep recession manifested among countries on the periphery southern Union (EU), in conjunction with the slowdown seen in the growth rate of emerging markets and the increasing uncertainty related to the sovereign debt crisis in the euro zone - economic growth has been below potential, marking "tempering" the momentum of the German economy. According to assessments of international experts, despite restoring economic context externally started from the second quarter of 2013 with a stimulating effect on the export business, coupled with strong fundamentals underlying the German economy - a high degree of competitiveness and market robust labor - reduced performance recorded in the first months can not be offset during the current year, which resulted adjustment "shrinking" of initial forecasts. However, Germany will continue to be "economic engine and stability anchor" of the Union, and for 2014 the forecast highlights a number of favorable conditions that will generate a positive impact on the overall activity of the German economy.

In full agreement, national and international economic experts opines that another factor with negative impact on the evolution of Germany GDP in 2012 was the major reduction in the pace of domestic demand for goods and services (0.2% versus 2.2 % in 2011), under the influence of a mixed set of unfavorable phenomena, which acted both on its consumer component, especially on the investment.

As a result of the intensification of the sovereign debt crisis in the Eurozone and therefore of increasing uncertainty, there has been a relative deterioration in the index of trust in the national economic environment, generating secure behavior among consumers and a slight increase savings rate. As a result, private consumption slowed to 0.6% (compared to 1.7% in 2011), but the elements of domestic demand, has held the largest contribution to national economic growth in 2012. Among the factors behind the appreciation of real incomes and created the prerequisites for maintaining a high level of household consumption expenditures include: stabilization of the labor market and wage conditions imposed to mitigate inflationary pressures and a low interest rate monetary policy.

As shown in data recently published by the Federal Ministry of Economics and Technology, while maintaining a slow pace of economic growth, respectively, of domestic demand reduced overall euro zone but also emerging countries, development of foreign trade of Germany "engine" of traditional economic development of the country was unfavorable in 2012. Thus, amid the uncertain global economy in 2012, the volume of German exports of goods and services has fallen by only 3.7% pace (compared with 7.8% growth rate achieved marked in 2011) though as they value volume increased to about 1363 billion euro (against 1,300 billion in 2011).

Also, given the weak domestic demand coupled with diminishing German industrial production, very heavily dependent on import, the import volume of goods and services showed a major reduction rate (1.8% compared with 7.4% in 2011), marking, however, a volume value of 1211 billion (compared to about 1170 billion euros in 2011). However, exports of goods and services contributed 51.1% to the national GDP structure, while imports held a share of 45.8%, which gives Germany one of the

highest degrees of openness global economic hierarchy and the highest in the member countries of the G-7 (97.3% against 95.3 in 2011).

According to preliminary estimates prepared by the World Trade Organization (WTO) in 2012, Germany has retained third place in the hierarchy of world exporters of goods (after China and the US), accounting for 7.7% of world exports, and the export of commercial services, Germany has placed also ranked third among the world (after the US and UK), accounting for 5.9% of world trade. Regarding the structure of exports, within them, in 2012, were predominant manufacturing products with high added value: automobiles and parts for motor vehicles (17.3%), industrial machinery (14.9%), chemicals (9.5%), computers and electronic and optical equipment (7.8%).

Regarding importation of goods, the report by the WTO show that Germany maintained the third position worldwide importer (after the USA and China, accounting for 6.3% of world total), and in the hierarchy of the main importers of services trade ranked second behind the US with a share of 6.9% of the world total. As for exports, the main trade partner countries for imports were Euro Zone countries (supply of about 37.6% of imports federal) and extra-community among countries with the most significant share in imports of German goods and services include China (8.5%), USA (5.6%) and Russian Federation (4.7%).

The euro area economy emerged from the longest recession mainly due to rises in Germany and France, amid the first prolonged period of quiet on financial markets since the outbreak of the sovereign debt crisis. In the first three months of 2013, euro zone GDP fell by 0.3% compared to the last quarter of 2012. Compared to the first quarter, the strongest increases in GDP in the EU were registered in Germany, Czech Republic, Finland (0.7% each), Lithuania and the UK (0.6%), opposite hovering Cyprus (-1.4%), Italy and the Netherlands (-0.2%). Quarterly comparable data are not available for many countries, including Greece. Thus, in the second quarter compared to the corresponding period in 2012, the EU countries with the most robust rates of economic growth are Latvia (4.3%), Lithuania (4.1%), Estonia and the United Kingdom (1.4% each) and Romania with 1.2%. Romania ranks among the five largest growths in EU countries. It recorded a growth of 0.3% in the second quarter versus the first three months of the year, GDP rising by 1.2% on the same period last year. The steepest contractions were recorded in Cyprus (-5.2%), Greece (-4.6%), Italy and Portugal (2% each).

The eurozone emerged from recession in the second quarter of 2013 with growth of 0.3% over the first three months of the year, after a period of a year and a half of economic contraction, the longest of the single currency.

Table 2.3. Economic indicators for the European Union (28 countries)

INDICATOR	2009	2010	2011	2012	2013
The real GDP growth	**-4.5%**	**2.0%**	**1.6%**	**-0.4%**	**0.1%**
Inflation rate	**1%**	**2.1%**	**3.1%**	**2.6%**	**1.5%**
Unemployment rate	**8.9%**	**9.6%**	**9.6%**	**10.4%**	**10.8%**

Source: Graphic made by the author based on data from epp.eurostat.ec.europa.eu

Amid a gap that separates largely horizon of expectations of the Brussels institutions of the popular vote, in other words, the complexity of a bureaucracy increasingly loaded with its efficiency, it is expected the European Union to see his slow ascent to that level cohesion and political integration, economic and military might to impose their interests on the international arena and ideals. It remains to be seen to what extent officials plans will become a reality.

3. Conclusion

At the moment we can say that we live in a multipolar world, but we do not know if it will be strictly based on power relationships or, conversely, if you talk about a multilateral world in which all countries are subject to rules and cooperate international institutions. The US is still the largest economy globally, but emerging BRIC group of countries, gaining economic power, which is a very clear trend. Economic and financial crisis has accentuated this trend, and of onset in 2008-2009 BRIC countries were "locomotives of the world economy" save the planet from a deep recession.

Globalization phenomenon of economic, social and political inevitably leads to the creation of prerequisites and circumstances of progress and economic development, and the reconfiguration of the international economic order. In this process, an important role is played by emerging powers and particularly the BRIC group - the four economies, taken together, represent a tremendous economic force, with a diversified and highly dynamic potential, if we refer to recent years.

Currently the emerging powers are offering new models of economic growth, each bringing some contribution to the formation of a multipolar system and creates a greater diversity premise rise of emerging economies, which may BRICS development model.

For the moment the US dollar remains the most important currency, but this rule will decrease in the future. Its closest competitor is the euro if the eurozone will be able to successfully resolve the sovereign debt crisis. BRICS countries want to end the domination of the dollar in the future by creating a joint development bank and an own coins.

The US economy was severely affected by the economic and financial crisis, and even now does not give clear signs of recovery. Even if in 2013 the developed economies began to record higher growth amid problems faced by emerging countries, however, its forecast for economic growth in 2014, the IMF stressed that the American economy is affected by budget cuts significant, likely to degrade.

So far, Europe has relied on its role of soft power, the ability to achieve international objectives without resorting to brute economic force. But the sovereign debt crisis still threatens the euro area, and therefore unity and alliance zone leaders must come up with a plan of coordinated fiscal and monetary measures that reatabilească economic balance.

Considered by some experts eternal rival, China and Japan are actually co-pilots of East Asian economy. Japan was not just wealth generator in Asia, triggering domino economic boom in the region, but was and is one of the most active international powers. Economic fatigue currently facing Japan have regressed force, placing it third in the international economies.

China is a power pole steadily increasing over the past 30 years, from sixth position in 2001, surpassed the all France in 2005, Britain in 2006, Germany in 2007 and Japan in 2010, becoming the second largest economy world and now threatens the supremacy of the United States. This ascent is without precedent and managed to amaze everyone. Economic analysts are competing in making predictions about when China will become the biggest economic power in the world. Even if the Asian giant slowed GDP growth in 2013, officials in Beijing did not give assurances that the state is facing economic problems, and this relaxation period will not affect their grand plans.

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The Impact of the Internet on Teenager's Behaviour: A Case Study in Oman

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Abstract

Recently, the emergence of advanced technology has impacted on all aspects of our lives; it has had both positive and negative consequences. As can be seen currently, the evolving technology can have a strong impact on people's lives, and especially if they are teenagers, as they are vulnerable to change, and it can affect them in different ways. Since they can be exposed to different types of victimization online, much research has been done in this area in order to find out about behavioural internet usage among teenagers. This study aims to explore to what extent the internet can affect the behaviour of Omani teenagers (e.g. through harassment, sensual and inappropriate content, racist/violent material), to discover the reasons why Omani teenagers engage in these negative online activities and to recommend strategies designed to minimize participation in these activities amongst teenagers. The data was collected from school students in the Sultanate of Oman, the sample size being 500 students of both genders. The research was designed to aid in the understanding of this phenomenon of bad effects produced on the youth through certain online activities and the high-risk consequences on their behaviour, and to stress the importance of minimizing these affects. The research gaps in this area include the status of teenagers in Oman and the influence of the internet on their behaviour**.** The paper concludes by highlighting the main negative online behaviours among teenagers, discussing the results of engaging Omani teenagers in such behaviours and commenting on some effective solutions for curbing these high risk behaviours.

Keywords: Teenagers, Internet, Online behaviour, negative behaviour, Oman

1. Introduction

There are several effects of globalization behaviour, and one of these is the impact that the internet, has had, and especially on teenage behaviour. The widespread use of the internet is the cause of high online risks which can lead to the teenagers victimization [Mitchell et al., 2007]. Recently, researchers have found that online victimization is associated with adult-content abuse, interpersonal abuse, bullying and many other misuses. As the number of young people online increases, the risk in them becoming involved in unsavoury activities does likewise, so that an appropriate and safe internet usage should be determined for them. A recent study shows that about 97% of teenagers aged between 12 and 18 years old are using the internet [Madden et al., 2013]. This growth in teenage internet use is leading to an ever-increasing risk in engaging online. Thus, understanding negative and risky internet behaviour is a very important step [Mitchell et al., 2011].

There are now in Oman great effort to solve such problems, raise awareness, and propose solutions to reduce the risks, and discuss ways in which to build human capacity to protect children/teenagers while using the internet. The Information Technology Authority (ITA), through the National Center for Computer Security (NCCS), has implemented several initiatives in the field of protecting children/teenagers on the internet. They aim to provide a safe internet environment for children/teenagers along with all other members of society [Observer, 2013].

In our research we discuss the effects of the internet on teenagers' behaviour, the negative online practice of many teenagers and how to minimize teenagers' risky internet usage. The study will focus on the

behaviour aspects since this is the most sensitive aspect in the Omani society. The data gathered through a questionnaire distributed among school students was to obtain their opinions, knowledge and recommendations in addition to eliciting their actual online experience.

The rest of the paper is structured as follows: Section 2 sums up the related literature on how the internet affects teenagers and, specifically, how it affects their behaviour, discussing some potential reasons for young people engaging in such activities and how to reduce the risks that this poses for their ethical behaviour. Section 3 describes the research methodology adopted in this study, followed by Section 4: Findings and data analysis. Section 5 analyses and discusses the teenagers' online usage results and the paper ends with the conclusion and limitations in Section 6.

2. Literature Review and Related Research

The use of the internet is increasing annually. The majority of people log in from their houses, followed by their work places, schools and net cafes [Ho et al., 2012]. These facts identify how the internet is becoming the most important tool in people's lives. Most facts about teenagers' behaviour online highlight the very real dangers of exchanging adult-content, experiencing harassment and bullying, and engaging in undesirable relationships with other genders , all of which will surely affect vulnerable teenagers [Martin, 2010].

What is important is that the risk expands to the teenagers themselves, as they spend increasingly long hours on-line, sending emails, using social media, downloading music, videos and games, shopping, and many other activities [Martin, 2010]. Being online for all these activities affects their performance, social life and their health as well. A study conducted in the US in 2013 revealed critical facts about teenage internet usage. It found that 95% of teenagers go online. About 74% between the ages of 12 and 17 access the internet from smart phones as well as other mobile devices. Internet usage has increased among people due to its mobile connection. Negative internet could be anything from theft, information damage, copyright infractions, digital privacy, intellectual property, and distribution of illegal content, anti-competitive attacks, disinformation, and various forms of fraud. According to the FBI; "Cyber terrorism is a form of computer-related crime committed using internet technology" [Singh and Siddiqui, 2011]. With reference to this issue, we present the following hypothesis:
H1*: Online activities can negatively influence a teenager's academic performance, social life and their health as well.*

2.1 The extent to which the internet affects the behaviour of young people

As the electronic environment changes, protective adaption changes equally. Thus, as young people shift from chat rooms to Facebook, the internet platform provides new controls and security [Jones et al., 2012]. Online activity exposes young people to many criminal, unethical activities including dealing with sensual content and the use of others' identities [Dowell et al., 2009]. With reference to this issue, we present the following hypothesis:
H2: *Online activity exposes young people to many criminal, unethical activities including sexual content and the use of others' identities [Dowell et al., 2009]*.

More important, it might also lead to Internet addiction that, in turn, will change the developing brain structure of teenagers, leading to poor academic achievements, involvement in dangerous activities, unhealthily nutritional habits, poor personal relationships and self-injurious activities [Kuss et al., 2013]. The following four categories classify the online negative activities that can influence adolescents [Livingstone and Haddon, 2008] :

1) *Content risks, including*: being confronted with sensual/violent/racist/hate material, pornography, challenging content (e.g. suicide, anorexia, drugs, etc.). Many teenagers pointed out that they search

for inappropriate content, talk about sensitive topics, read about and see internet postings on these issues [Livingstone and Haddon, 2008].

The violence is not limited to a single group, religion, culture, or background. Many teenagers create groups to discover more about other people's beliefs, religions and behaviours [Dowell et al., 2009]. This in turn might expose them to racial issues. Researchers suggest that clinical assessments on young people should include questions about online content regarding suicide situations. Also, the internet might affect them when they search for harmful content as they will be exposed to violent images and content, and there is a danger that they will act on what they have seen. Internet addiction increases the risk of self-harm, depression and suicide. Encouraging suicide online is a criminal offence. The harm extends to the use of drugs too, and researchers have found that young people use instant messaging to discuss drug issues [Barratt, 2012].

Sometimes risky internet behaviour can expose users to pornography, which is pictures of undressed people or people in sensitive postures, without seeking or expecting such pictures, when they are searching online, opening websites or pop-up links [Mitchell et al., 2007]. Some teenagers can become involved in online harassment by sending unethical photos of people to others without their knowledge [Jonsson et al., 2014].

2) *Contact risks*: *including* contact with foreigners, cyber-bullying, online harassment, etc. The internet provides teenagers with much information, but it can also expose them to greater risks and dangers. They can face dangerous people online, a variety of sensitive material, and they could become victims of harassment and bullying [Mitchell et al., 2007]. Online harassment is attacking or offensive online content that is inflicted on teenagers and seen by others [Mitchell et al., 2007]. Nearly a third, (29.5%) of the boys and 27.8% of the girls reported that they had posted rude comments online [Dowell et al., 2009]. Other types of harassment carried out by teenagers are embarrassing others by making jokes, and harassing foreigners.

Online harassment (playing jokes, making rude comments, intentionally embarrassing someone online, or bullying) are all types of bad activity conducted by teenage students that can present a really serious risk to teenagers.

The phenomenon of cyber-bulling is what researchers look for, as it is not an individual problem but involves the whole society [Thorsten Quandt, 2012]. Cyber-bullying is defined as intentional aggression used through the internet or any electronic media to harm others [Morrow and Downey, 2013]. Cyber-bullying is carried out by teenagers to make them feel more powerful by strengthening their own social position and minimizing that of their opponents in the discussion group [Festl and Quandt, 2013].
Involvement in cyber-bullying via the internet can be carried out anonymously by teenagers. It can take many forms such as flaming, harassment, cyber-stalking, denigration, imitation, exclusion, and trickery [K. Alex Burton1 et al., 2013]. The male students are more likely to be bullying others. Many teenagers said that they feel angry, unhappy, and depressed after being bullied online [Mishna et al., 2010].

H3: *Cyber-bullying is practiced by teenagers to make them feel more powerful or to strengthen their own social position [Festl and Quandt, 2013]*.

3) *Commercial risks*: advertising/commercial misuse, illegal downloading, gambling, etc.. Transferring music from the internet into users' computers is unauthorized for copyright reasons and researchers consider illegal music downloading online to be theft [Jambon and Smetana, 2012].

4) *Privacy risks*: giving/posting personal information, attacks on privacy, and hacking. Many young students post their personal information, especially onto social media websites. Research shows that 31% of boys and 27% of girls admitted that they had done so [Livingstone and Haddon, 2008]. The posting of personal information and personal pictures can lead to many risks such as harassment, cyber-bullying, privacy attack and unwanted sensual solicitations [Livingstone and

Haddon, 2008]. According to the FBI, "cyber terrorism" could be any means of threatening others. Another form is hacking. Nowadays hackers are able to penetrate even fairly well-protected systems, which poses a great threat to the security of individuals and nations alike, and increases the risk to young people and children [Singh and Siddiqui, 2011]. Identity theft: this is an easy and anonymous way to carry out illegal acts without being exposed to any risk of getting caught [Singh and Siddiqui, 2011].

Thus, a fourth hypothesis is presented as follows: H4: *Omani teenagers can be impacted by many negative activities.*

2.2 The involvement of teenagers in negative behaviours on the internet

Young people are connected with others through the use of the internet and other media devices. These media become the tools for practising bullying behaviour [Huang and Chou, 2010]. The rise of teenagers going online via smartphone (mobile devices) Wi-Fi connections seems to pose the potential problem of internet misuse [Kuss et al., 2013]. Teenagers who post their personal information or pictures, involve themselves in inappropriate behaviours and have contact with strangers are most likely to be at risk [Sengupta and Chaudhuri, 2011]. There are many factors pushing teenagers to become involved in negative behaviour on the Internet. Nowadays social networking websites are considered to be one of the main sources of teenage harassment online [Sengupta and Chaudhuri, 2011].
The anonymity factor plays a role in increasing such negative internet behaviour, as young people can hide themselves behind screens to carry out bullying acts and, in turn, the bullied victims will then take revenge in cyberspace [Huang and Chou, 2010]. When teenagers were asked about why they hurt others, they replied that it was because it was made possible by the anonymity of the space.

The internet tis a tool might be misused by teenagers themselves as it give them the ability to broadcast illegal products such as drugs, either directly via social networking sites and online auctions or indirectly through pop-ups, to catch teens [Forsyth, 2012]. Moreover, teenagers who have the material resources and the knowledge of how to use the internet are more likely to engage in such negative behaviour [Moule Jr et al., 2013]. The life style that the teenagers live affects their internet behaviour, which may lead to a greater likelihood of their exposure to online pornography [Moule Jr et al., 2013]. Teenagers who participate in street crime have a greater chance of practising negative behaviour online, in their use of the internet in dealing with others [Moule Jr et al., 2013], and teenagers who harass others at school are more likely to be perpetrators of cyber-bullying [Mishna et al., 2012]. The widespread use of advanced technology gives teenagers the chance to access pornography [Miller, 2013].

Studies found that teenagers with married parents are less likely to be online, while it is more common for teenagers with divorced parents. The reason appears to be that they have greater unsupervised internet access and therefore face higher risks such as contact with strangers and people looking for unwelcome social relationships [Sengupta and Chaudhuri, 2011]. When teenagers use the internet secretly, away from parents' attention, there is a 60% increase in the likelihood of their being cyber-bullied [Sengupta and Chaudhuri, 2011]. With reference to this issue, we present the following hypothesis:
H5*: Omani teenagers with married parents are less likely to be bullied, while it is more likely for teenagers with divorced parents.*

From the teenager's perspective, a common reason for becoming involved in negative online behaviour is to humiliate friends, and spending a long time on the internet in their free time can exacerbate this behaviour [Mishna et al., 2012]. The availability of time in a teenager's life increases the risk of their using the internet negatively. Another reason for going online was found to be the sharing of feelings because that they had never disclosed offline. Many parents are not aware of the likely effects the internet can have on their children [Álvarez et al., 2013]. Even the teenagers themselves may not be aware of the risks posed by internet utilization. Regarding online harassment, bullied victims reported that they felt sad, nervous, afraid and unable to focus at school, and that it had exposed them to social difficulties. They might have been encouraged to use drugs and alcohol, play truant from school, procure eating disorders,

and take weapons to school [Mishna et al., 2012]. With reference to this issue, we present the following hypothesis:
H6: *Many parents are not aware of the risks that their children are exposed to through using the internet [Álvarez et al., 2013]*.

Experiencing feelings of anxiety and depression can lead to more negative behaviour [Hedman et al., 2013], while teenagers who cyber-bully might engage in rule-breaking and have problems with aggression [Mishna et al., 2012]. Studies found that when young people use the internet intensively in private they are much more likely to misuse it [Mishna et al., 2012]. Often young people misuse the internet because they have been rejected by friends and have adjustment problems [Mishna et al., 2012]. Also, perhaps they have experienced violence or harassment by school staff [Mishna et al., 2012].

2.3 How to control the negative online behaviour among young people

Young people's usage of the internet has caused concern for both educators and the media [Jones et al., 2012]. There are calls for restrictions on internet use by teenagers [Sengupta and Chaudhuri, 2011], and setting rules and regulations for computer use by teenagers will restrict its usage [Robinson et al., 2010], and that monitoring teenagers' computer use will lead to a reduction in their exposure to inappropriate internet behaviour [Sengupta and Chaudhuri, 2011].

Many responses have indicated that to filter and/or block illegal and unethical sites will be the best solution for protecting today's youth [Robinson et al., 2010]. Some of the content, and especially that of social networking sites, needs to be monitored and corrected regarding its unstructured and unsupervised peer content [Geeraerts, 2012], and parents have an important role to play in minimizing the risk the internet can present to their teenagers. Drawing up regulations for internet use in the home, being responsible about the amount of time spent online, selecting the appropriate location of the computer and monitoring the content accessed could go a long way towards minimizing these risks [Álvarez et al., 2013].

Parents also have a role in raising their children's awareness about the dangers of giving personal information to strangers online and the sites that they should not visit, and staying close to them in order to monitor their doings [Álvarez et al., 2013]. They can monitor their search history in the browser software [Robinson et al., 2010]. Parents also should give advice to their children about internet safety and responsibility. Whereas many teenagers can access the internet anytime and anywhere, this connection needs to be monitored and controlled as well [Kuss et al., 2013]. The authorities should use their power to prosecute the people who misuse the internet to harm teenagers. About 70% of the latter said that they did receive advice from a teacher or other adults in their schools about appropriate internet usage. With reference to this issue, we present the following hypothesis:
H7: *The society can play a role in reducing the negative effect of internet usage.*

2.4 Internet usage in Oman

Oman possesses technology development due to investment in the telecommunication industry [Oman - Telecoms, 2013]. Statistics show a rapid increase in internet usage in Arab countries: they now count for about 3.7 percent of world users. The total number of Arab internet users is 90,000,455 according to Internet World Stats.

Last year Omani internet users reached 2,101,302 users. According to the World Bank, in 2012-2013[EAST, 2013] there were 60 users in Oman per 100 people [Oman - Telecoms, 2013]. About 68% of the population is now using the internet in the Sultanate of Oman. Statistics that only focus on social media sites separately show us that 120,840 Omanis use Facebook, while 6550 use Twitter and 169,000 use LinkedIn.

3. Research Methodology

In our research a questionnaire was chosen as the data collection instrument. The questionnaire was prepared, then printed and distributed among school students. The sample size of this study was 500 students.
The school students had to fulfil the following criteria to be included in the sample:

- Be over 12 years old (either male or female)
- Have access to a computer, smartphone or any other device to go online
- Have access to the internet
- Be able to participate in the study

The questionnaire was designed to elicit the valid opinions and views from students, avoiding bias. It was decided to use this instrument to reach as many respondents as possible, to offer them anonymity, and give the students enough time to respond easily. The questionnaire was distributed amongst the Omani students was in Arabic language and contained open-ended and closed questions.

4. Findings and Data Analysis

4.1. The extent to which the internet affects young people's behaviour

The size of the sample was 500 students; comprising about 50% male and 50% female students aged between 12 and 18 years old. The study showed that just 5% of the students went online from 1 to 3 hours daily, 25% used the internet for 3 to 5 hours, about 50 % stayed connected for 5 to 7 hours, and 20% were online for more than 7 hours a day, as is shown in Figure 1 below.

82.5% of the students think that going online affects their academic performance, social life and their health as well, whereas 17.5% of them think it does not. Therefore, hypothesis [H1] which assumed that *'online activities can negatively influence teenagers' academic performance, social life and their health'* is accepted.

Hypothesis [H4] '*Omani teenagers can be impacted by many negative activities'* is also accepted. There are many negative online activities experienced by students; illegal downloading (music, programs or other content) was at the top of these activities (85% of the students admitted to doing this). While searching for inappropriate content and forming relationships with strangers came second with a percentage of 82.5%. About 55.5% of the students admitted that they used adult-content exchange, while 36% of the students had used hacking and 25% confessed that they had harassed others online (see Figure 2). Therefore hypothesis [2] that assumed'-*online activity exposes young people to many criminal, unethical activities including dealing with sexual content and using other people's identity*- was accepted.

There are a significant number of findings which illustrate that 70% of the students have harassed others online, for enjoyment and a feeling of power, while just 30% have not. This confirms the hypothesis [H3] that *cyber-bullying is practiced by teenagers for enjoyment and to give them a feeling of power, strengthening their own social position.* However, the conception of the majority of students about the engagement of young Omanis in negative online activities is that social media is one of the main 'enablers' of negative online activities amongst the youth, free time, feel bored, it being seen as a negative social-influence, and lack of entertainment activities or clubs to spend their time.

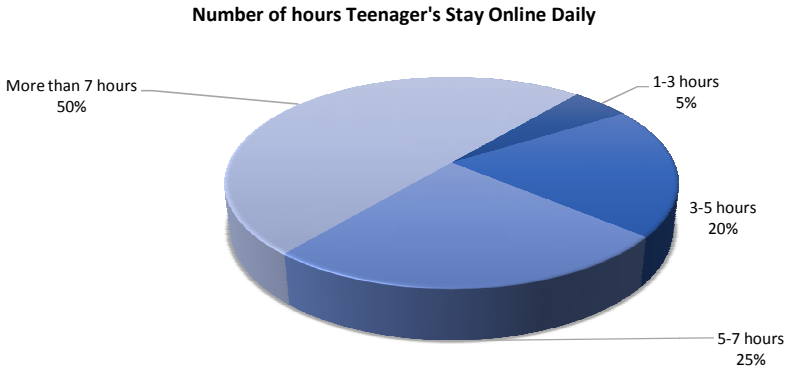

Figure (1): Number of hours students stay online daily.

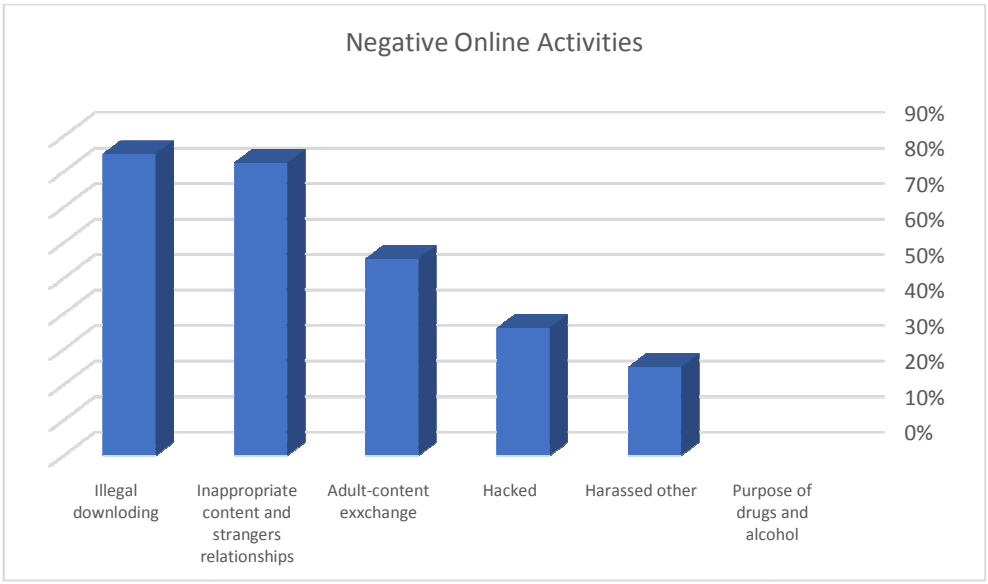

Figure 2: The study results concerning the practice of negative online activities

4.2. The involvement of teenagers in negative internet behaviour

Regarding whether the parents specify and monitor time for their children to be online or not, 88.5 % of the students said 'no' (these students have 87.5% of their parents married). However, only 11.5% of them said 'yes'. Concerning the recommendations of the students on how to minimize the involvement of children in negative activities while they are online, most of them recommended blocking inappropriate websites, while many of them recommended that teenagers spent their online time engaging in educational activities and clubs rather than being online just for chatting, although some of them suggested that parents should monitor their children's internet usage and control the length of time they spent online. From these results it can be observed that the hypothesis [H5] that *Omani teenagers with married parents are less likely to be bullied, while this happens more frequently to teenagers with divorced parents*- was rejected. However, the hypothesis [H6] that *many parents are not aware of the risks that the internet might pose on their children* was accepted.

4.3. Controlling negative online behaviour among Omani youth

One question was about the role of society (citizens, law enforcement, schools, and parents) in minimizing negative internet activities that influence teenage behaviour. All the students agreed that there were three main actions to be taken in order to minimize the effect of the internet on their behaviour: schools should give them lectures to make them aware of the consequence of misusing the internet, point out the serious risks that might affect their behaviour, and teach them how to use the internet appropriately. Approximately 70% of the students indicated that parents should warn their children about online risk activities and monitor them. Concerning law enforcement, they proposed setting up laws to restrict internet access and prevent users from misusing the internet. It is notable that the hypothesis [H7] that *society can play a role in reducing the negative effects of internet usage* was accepted.

5. Discussion

As the findings show, the answers explore many hidden areas in teenager's online usage. Concerning internet access, the results vary considerably among Omani youth. The majority of the teenagers admitted that they use the internet for 5 to 7 hours a day, while many of them use it for 3 to 5 hours and some of them are on it for more than 7 hours. Actually, the negative online behaviour is not limited to those who are connected for long hours. Almost all of them have harassed others. Of the teenagers who said that they harassed others online, more than half were boys. As mentioned above, there was no obvious relationship between hours spent online and the practice of negative online activities. Intentionally or unintentionally, more than half the teenagers downloaded content from the internet illegally, and as downloading music is considered to be stealing copyrights and is a crime by law, it would appear that many of them do not pay much attention to their infringement (Singh and Siddiqui, 2010). The surveyed Omani students believed that the most serious negative online behaviour is using the internet for the purpose of buying and selling drugs and alcohol among teenagers, and this is because it is not just a form of electronic harm but extends to the encouragement of serious illegal practices. The accessibility of social networking sites facilitates considerably discussions about drugs among youth [Barratt, 2012].

The second highest online negative risky activity was communicating with strangers. As the danger of contacting with foreigners worries parents more because of giving personal information from young people, thus facilitate foreigners attack [Geeraerts, 2012]. The pornography search rose among both male and female, this is why all of the students report blocking the illegal and pornography sites as one solution to reduce the negative online behaviours among young people. It got the highest frequency reported solutions to solve this problem.

Hacking is practiced more by boys than girls, who like to explore and discover new things, helped by the availability of advanced software that facilitates hacking and the breaching of other people's computers.
The exchange of sexual material also rose among both males and females, but is more frequent among boys than girls. Here again all of the students agreed that pornography sites should be blocked to get rid of such online misuse, and that internet usage should be monitored by the parents [Sengupta and Chaudhuri, 2011]. Many of the students reported that such content appears in pop-ups or links that lead to these unethical photos or videos [Mitchell et al., 2007].

After that, the online harassment reported by boys more than girls. Many of them figure out that they did harass others. As studies show, the harassers increase by boys more than girls [Mishna et al., 2010].

Most of the students know about the risks and sequences of engaging in negative online behaviour, and they provide valued recommendations to solve this phenomenon. To begin with, they report convincing causes that lead young people to misuse the internet. The high frequency reported reason was the feeling bored and having free time [Mishna et al., 2012]. The lack of entertainment activities for youth and sports clubs make them feeling bored so much they switch to spending their time on the internet, which increases the probability of using it negatively [Mishna et al., 2012; Robinson et al., 2010]. The negative social influence was the second highest reported reason for teenagers engaging in such negative attitude.

The availability of internet access and resources like money or devices increase the likelihood of being exposed to unwanted material.

The lack of parent monitoring and internet security obviously has a great influence on youth online behaviour. There should be strong security that limits their internet access and connection as well as monitoring by parents and advice to raise awareness about using the internet and dealing with any online risks that may face them [Álvarez et al., 2013]; [Robinson et al., 2010]. Many students report a lack of awareness of the dangers of utilizing the internet and the consequences of engaging in bad online behaviour. In Oman, there should be comprehensive cooperation to raise awareness among young people about correct internet use.

Also, there are laws and regulations set by the Information Technology Authority (ITA) which assign great importance to the security of children on the internet in Oman. They collaborate with the regional and international organizations in this field.
They set laws against electronic crimes, doubling penalties in cases where the targeted victims are children. Also, a National Centre for Computer Security Authority has been established to protect young people online, educate children, teachers and parents in the means of protection to avoid young people presenting a security risk.

6. Conclusion

This study provides a better understanding of the impact of the internet on Omani teenager's behaviour. Since little research has been done in this area, this research will give Omanis a clear picture of the risks and impact associated with the use of the internet by teenagers. The results show that many teenagers download internet content without being aware that it is illegal, harass others, hack other people's computers, and search for sexual content online, and all these activates will affect their lives in a negative way. Thus, educators, law enforcement, parents, local clubs and the government should play an effective role in providing sufficient information for young people in the use of the internet and warn them about the bad effects of using it indiscriminately.

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Data Security: Work Area Controls for Land Registration System at Director General Department of Land and Mines in Malaysia

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Abstract:

There is a lack of awareness towards managing and protecting digital data in the Land Registration System (LRS) under the Ministry of XYZ. The data which has been carelessly managed can be classified as a very important data in Malaysia since cover all concerning. It so forth the data about land in Malaysia, like the name of land owner, land size, type of land and others. All these data had been stored in one server called LRS Database Server which functions like a data warehouse for each land district in Malaysia. However, the digital data security control that being implemented for the system is not fully execute, as a result the volatile information is exposed to irresponsible people. This study focuses on the security awareness and it implementation towards Land Registration System (LRS) data warehouse in land district office and as well as land state office in PQR. . In addition, this study identified the weak point of security at the data warehouse. Therefore, recommended solutions to solve the problem are stated.

Keywords: *Data, Security, Information Security, Computer Security*

Introduction

The Land Registration System (LRS) project was developed by ABC Sdn. Bhd. under Director General Department of Land and Mines (DGDLM) supervision. LRS has been proclaimed as a successful project because of its effectiveness and efficiency which every district and state users use the system in their daily work effectively. Furthermore, it is the first computerised land system in the country and it has improved the time taken in completing tasks such as data storage and retrieval as compare to the manual system before.

The hardware that is being used to store the LRS database server was supplied by SUN with SOLARIS operating system. ORACLE 12 is being use as their database. It is a high-end storage server and capable of running 24 hours per day continuously (DGDLM, 2008).

Even though the LRS can be categorised as the most crucial system in Malaysia during the days, but there is lack of awareness towards managing and protecting information in the LRS data under the Ministry of XYZ. The data which has been carelessly managed can be classified as a very important data in the country since cover all concerning (DGDLM, 2007). It so forth the data about land in the country, like the name of land owner, land size, type of land and others. All these data have been stored in one server called LRS Database Server which functions like a data warehouse for each land district in the country. However, the digital data security control that is being implemented for the system is not fully executed; as a result the volatile information is exposed to irresponsible people.

Literature Review

Information security, trust and culture the system security nowadays only focuses on the design of save and secure information system in operation. The complex information system security usually focuses something like the operating system, database, communication channels and user interface

secure. Sometimes many organizations do not aspect that information system security is very important in order to protect their privacy data. One of the major for organizational issues is to face the human factor in IT security because now day the system already become very vulnerable where employees, either deliberately or inadvertently, disclose such passwords to others, according to Jill (2003).

Work Area Controls

ICT archiving and particularly computer mediated communication mean that employees in the workplace can be monitored to unprecedented levels which show the web sites accessed, email traffic, email content or the use of video and audio facilities (Paul Jackson, Lisa Harris & Peter M. Eckersley,2003).

Desk policy implemented

The definition of a policy is "any course of action followed primarily because it is expedient or advantages in a material sense". When a company institutes a policy that promotes clean desks, overall it affects staff and employees across the board in a positive way.

Control A.7.3.1 of the standard requires the organization to implement a clear desk and clear screen policy to reduce the risk of unauthorized access to, or loss of, or damage to, information (Calder & Watkins, 2003). A clear desk policy is one of the easiest policies to adopt. It is important to ensure that appropriate facilities are available in the office in which computer media and paper can be stored and locked away, including in lockable pedestals, filing cabinets and cupboards.

Furthermore, according to Calder and Watkins (2003), personal computers, computer terminals and printers should be switch off when not in use and should be protected by locks, passwords and the like when they are not in use. Every personnel should be required to use a password for their personal computer or laptop which can prevent the data from being stolen.

Work practices controls are procedures for safe and proper work that are used to reduce the duration, frequency or intensity of exposure to hazard (Coombs, 2008). Notice there is some flexibility in the sample policy. When a policy is first adopted to encourage clean desks, it may be viewed as an extra burden in an already busy office, especially to those who work with layers of clutter and paper on their desk. The mindset of many of these individuals is that their messy desk doesn't affect anyone but them, but studies show that people with a messy desk waste 15 percent of their time looking for things (Sundblad, 2006).

Restricted access policy

Today there is no clear classification of modus operandi for illegal interference in computers, systems and networks functioning (Vehov, 1996). According to Golubev (2004), illegal interference in computers can be divided into 3 main groups:

The first group is ways of direct access to information. It covers damaging, deletion, deterioration, alteration, suppression or copying of computer data, and also serious hindering without right of computer, system or network functioning by inputting corresponding commands from the computer where information is stored. Direct access may be made by both persons working with data (related to this work), and persons intentionally penetrating in restricted areas or premises, where information is processed. It is necessary to note that today mentioned ways are the least spread in view of decentralization of information processing. In other words it is easier to intercept computer information during its transfer via telecommunication channels or computer networks, than in case of direct penetrating in premises. Now and then in order to seize information left by the user, offender looks around workplaces of programmers for drafts. On this purpose criminal may examine and/or restore erased software.

The second group includes ways of indirect (remote) access to information. Access without right to certain computer or information is made via computer networks from another computer, located at certain distance. Ways of indirect (remote) access are:

1. Connecting to telecommunication cables of authorized user (i.e. phone line) and obtaining access to his system.

2. Penetrating in other information systems by automated picking out of phone numbers of subscribers with further connection to their computers (picking out is carried out till the criminal receives the answer of the modem on the other side of phone line).

It is necessary to note that attempt of unauthorized access may be detected easily. That's why similar hack is carried out from several workplaces: at specified time several (more than 10) PCs perform attempt of unauthorized access. System security may prevent several "attacks" and others get desirable illegal access. One of the penetrated computers blocks network logging system that fixes all access attempts. In a result other penetrated computers may not be detected and allocated. Some of them start to hack certain sub network, other carry out fake operations in order to hinder functioning of the enterprise, institution, authority and cover up crime (Golubev & Urchenko, 1998).

3. Penetrating in computer network with help of passwords, pretending to be an authorized user. Using this method violators crack password on purpose to access other's computer. There is a number of specially developed software for these purposes. They may be purchased on the"shadow" computer market. Having got the right password (it takes less than 24 hours for choosing 8-digit password), illegal user obtains access to computer information and may use it whatever he likes: copy, delete, deteriorate, modify or suppress computer data, perform operations like wire transfers, forgery of payment orders, etc. as the authorized user.

The third group is made up by mixed methods that may be committed both by direct and indirect (remote) access. They are:

1. Secret insertions of commands in programs that allow performing new unplanned functions, making this program run able (program copies files, but simultaneously it deletes data on financial activity of enterprise);

2. Alteration of programs by way of secret placing of command sets that should snap into action under specified conditions in some time. E.g. as soon as the program illegally transfers money funds to so call false account, it will self-destruct and delete all the data on the committed operation.

3. Access to data bases and files of the authorized user through weak places in security systems. There arises an opportunity to read and examine information stored in the system, copy it, appeal for it in case of necessity. Thus one may appeal to data base of the competitor company and have an opportunity not only to analyze its financial state, but also obtain evident advantages in competition struggle;

4. Using bugs in programs and flaws. The program is "breaking" and malefactor inputs some amount of certain commands that help to perform new unplanned functions, making this program run able. Thus, one may transfer money to false accounts, obtain info on real estate, identities, etc.

Research Objective

The research objectives are as follows:

(i) to identify the information security control that being implemented in state and district.
(ii) to investigate the security awareness level of the personnel towards the information that being kept.
(iii) to analyze how far the security control being use and does it really help in protecting the information.

Methodology

This research strong emphasis is on descriptive research. The researcher conducted exploratory studies at the beginning of the research project to explore the topic being investigated. The specifics

of the problem and the variables involved were largely unclear at the beginning of the project. As Zikmund's (2002) observed, the project was started with a general statement that "there are information security controls in order to protect organization data." This opinion was formed upon the researcher's knowledge and practical experience working in the industry in this area.

This statement was further elaborated using the research methodology proposed by Booth, et al. (2003) to carry out the initial literature study and gather a better understanding of the dimensions of the problem. This exploratory study resulted in a set of approximately 40 questions seeking to answer the problems associated with the information security control focusing on LRS system.

The second phase consisted of the descriptive research, which was an extensive literature analysis seeking the answers to the approximately 40 problems identified during the exploratory research phase. This involved finding answers to very specific *who*, *what*, *when*, *where* and *how* questions. A framework of information security control was formed during this stage; variables were identified; and qualitative methods were defined. Below are the methods that being used for the research:

- Literature Review
- In-Depth Interviews
- Direct Observation
- Written Documents

Partial Framework

Findings

From the interviews and observations that had been conducted, the information security control that being implemented for LRS system at PTG and PTD was identified. There are a few issues that can be recognized as lack of information security controls towards the LRS system operation. The LRS operation include from customers' service counters to server room which store the LRS database server with valuable data about land in Selangor. The lack of information security controls can be recognized as a major inference towards the LRS database.

Work Area Controls

It was found that LRS system had implemented work area controls towards their operation floor.

Desk policy

It was found that LRS system activities involve counter transactions only. As a result, the management had found the importance to create a policy at the counter. The desk policy that being implemented at the counters was the counters desk must be clean and the stationary must be arranged accordingly. Besides, all the classified document should be place in the right location like a vault that being provided. It was called a clean desk policy. Based on the interviewed and observation, the counter personnel had followed the policy well. Both PTG and PTD site are following the desk policy and applied it accordingly. The implementation of desk policy had help out the PTG and PTD in protecting the important data stored in LRS database server by ensuring that all the classify document save in the vault.

Restricted access policy

Furthermore, it was found that there was a restricted access policy being applied to public people who needs to make a transaction using LRS system. The process just appear to be in front of the counter only, public people do not have a permission to go behind the counter. The execution of the policy is well implemented because the access door towards the LRS counter always close and there is a sign which showed only personnel can access the door. Both PTG and PTD site are following the restricted access policy and applied it accordingly. The implementation of restricted policy had ensured that the classified information could not be access by the public.

Workstation username and password policy

It was found that, in order to ensure only authorized personnel that can access the LRS system, the IT personnel had created username and password for each workstation that operate the LRS system whether in PTG or PTD. It will prevent the unauthorized user from accessing the system. There are a lot of departments in PTG and PTD which have many personnel work in the same roof. That is why the implementation of workstation username and password is very crucial not only to prevent access from public people but from their own staff also being prioritize. The implementation of username and password policy as one of the securities measured that had been taken in order to ensure the LRS data being protected.

Recommendation

Improvement Towards Physical Security

There is always solution to a problem. The problems of physical security at LRS server room in PTD and PTG. Based on an article written by Karen Duane Johnson (2008), she had included a comment by Christopher D. Marsden, chief technology officer and founder of Digitus Biometrics, as follows, “Biometric products assure categorically who that individual is as opposed to the use of cards, keys and key fobs. All we really knew before biometrics was that an item belonging to a certain person gained access to an area. In the next five to seven years biometrics will continue to be an ever important area of access control, as it is available now."

It is highly recommended that the server room which stores the LRS database server should be highly protected from being accessed by unauthorized user who might have hidden agenda. As an example, they can change the land owner’s name to someone else’s; they also can resize the land area and many other things that can be modified. The NRE Ministry should implement the finger print access towards all PTD and PTG server room in Malaysia. View Systems executive, Charlie Nelson states, "I think the benefits of this new application cannot be weighed. There are over 100,000 people on the most wanted list. I think this system provides a greater security measures because fingerprints don't lie." By using fingerprints system, only authorized personnel can gain access to the server room.

There were a few cases appear where the ownership and size of the land had been changed but it had been detected and a police report had been made according to Jabatan Penasihat Undang-Undang Negeri Perak. The data might be changed directly from the LRS server itself and it probably involves the insider. Besides the fingerprints system, the server room should be equipped with CCTV in order to monitor the personnel who have access to the server room. If some of the data had been changed suspiciously, we can look at the audit trail inside the LRS server and can make a match with the CCTV time frame if the personnel had made a modification towards the data.

Improving Security Policy Implementation

JKPTG had provided a security policy that must be followed by their IT officers. But some of them still do not realize how important for them to follow the security policy. As a solution to this problem, the management should give a talk about the security policy and describe how important for them to follow the policy. They also should be informed about the security breech that had happened before and the penalty waiting for them if they break the rules and the policy. It is difficult to make people follow the rules, but as an officer that who is responsible for the LRS database, they do not have any option except to follow the policy. Integrity should be observed at all time. That is why the

implementation of physical security will help a lot in securing the safety. For an example, even if an IT officer sticks the server password to the monitor, the password will be secured as long as the fingerprint system is working because unauthorized user could not have access to the room.

Solving the Backup Policy Implementation Problem

DGDLM had provided a backup policy for being followed by IT officer in district and state, but the same situation happens mirroring the password policy situation before. It is all about human awareness. Even though the management had provided training and had given them a direct order but the officers still could not adhere the policy. That is the nature of human being; everybody is prone to make mistakes. The information stored in LRS database can be classified as a very important data. From the statement above, the backup procedure is really important. Hence, the backup of the data should be done automatically by machine rather than relying on human being.

As a solution towards this matter, the implementation of data replication center should be the solution to the problem. Just look at the historic event that occurred in America before. The September 11th 2001 event had been recorded as one of the tragic catastrophe in this millennium. Thousands of people found dead. According to the statistic that being provided by Tom Templeton and Tom Lumley, there were 430 companies housed in WTC. Just imagine, can the organization survive after all their data had burned into ash? If the company had implemented data replication center in their organization, the company will survive for their organization data had been backed up.

Ministry of Natural Resources and Environment should realize how important the data or information that is stored in the LRS database, like the land number information, the size of the land, the owner of the land, type of land and others being stored in it. All the data is backed up by using a backup tape only. From my point of view, the important land information should have other alternative backup system and not only rely on the one way of backup system and also should not rely too much on human in order to make a backup towards the data.

The ministry should develop Data Replication Center which is able to store or backup all data from LRS database from each district and state. Just imagine, if one of the land district offices is involved in fire, all the server and backup tape will be destroyed. As well for sure the data is totally gone. How can the data be retrieved? It may take a few years to retrieve the data manually. A survey throughout the district needs to be conducted to identify every single land owner and record the necessary information. It is not only a crazy task to do but also a disaster to the ministry especially to the land district officer. According to Ahmad A. Abu-Musa (2004), he had conducted an empirical study on the Egyptian banking industry. He had found that backup copies should be placed in off-site storage and the sensitive data should be encrypted.

This is why Data Replication Center is necessary. It is almost a perfect solution for the disaster stated above. In Malaysia, all courts that have run e-SKHD (Revenue Collection and Deposit System) system have the database server and application server stored in each of their server room and once in two weeks the data in the database server will be copied to ABC Court Complex and then all the data from district and state including from ABC Court Complex are sent to Data Replication Center in Town XYZ. They use a dedicated line called PaduNet to transmit the data. This is the sample of what NRE Ministry should implement toward the district and state office including the headquarters in Putrajaya.

Data Replication Center (DRC) is a place to store the data or the place of mirroring data from original operation site. DRC is developed to secure the data in the operation site if disasters happen and the DRC will be located at a remote site. All the backup process procedure will be automated and will be controlled by replication server and the backup process will be executed according to the schedule and policy provided by the organization. Therefore, each state and district will have one replicate server to store data from LRS database and the data will then be transferred to storage warehouse located at the remote site. By implementing DRC in state and district, it will solve the data backup problem since all the backup procedure will be in automated mode.

Conclusion

There were a few weaknesses found at PTG and PTD regarding the information security control for LRS system. They can improve it by involving themselves with the current technology available in the market. In addition, the IT personnel should hire a consultant to give advice in order to improve the security control for LRS system. As stated in the findings, there had implemented the control policy but there was lack in the process of executing it. Some of the IT personnel are not aware about the important of securing the LRS data. As a result, they will not apply the policy in the daily task.

As for solution, the JKPTG should start educating their personnel in term of data security, the importance of the data and how to protect it from falling into irresponsible person. Besides, the values of integrity should be emphasized at all times. Furthermore, in developing new system in future, the front-end analysis and the design of the database should be prepared as perfectly as it can be in order to avoid data redundancy or data error and to ensure the integrity of the data.

Furthermore, by exposing or sending the IT personnel to seminar or IT workshop about security devices and control will enhance their knowledge and ideas. With the new information and knowledge, they can look after the loop hole at the LRS system and can make an improvement towards the information security control that had taken before.

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Does Business Success Enhance With Firm's Age? Case of Croatian Food Manufacturing Industry

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Abstract

Although different aspects of firm's success have occupied researchers over the years, most researches that analysed this issue refer to the developed countries and, to a much lesser extent, to the developing countries, such as Croatia. However, in general there is a small number of researches examining the influence of firm's age on its success. In order to give contribution to this subject and enrich the understanding of firms' performance as firms get older, the authors conducted an analysis on a sample of 956 firms operating in the Croatian food manufacturing industry during the 2005-2014 period. The results of the dynamic panel analysis showed that firm performance deteriorates with age. As firms get older, benefits of their accumulated knowledge in all crucial aspects of the business (technology, supply channels, customers relations, human capital and financing costs) become overcome with their inertia, inflexibility and osseous by accumulated rules, routines and organizational structure. All control variables (size, liquidity, solvency, except gearing) proved to be statistically significant and in line with theoretical consideration.

Keywords: business success, firm's age, performance, food manufacturing industry, Croatia

1. Introduction

The question of whether larger (and/or older) firms are more profitable than their smaller counterparts have been in interest of numerous researchers for decades. Large amounts of theoretical as well as empirical research in different disciplines (economics, strategic management, finance) have been conducted in order to demystify this relationship. However, while some authors found a positive influence of firm size on its performance, the others found this relationship to be negative or non-existent. With regards to the firm age, the interest in this variable began to grow parallel with the studies that included firm age as an explanatory factor in investigations of determinants of firm performance i.e. business success. Although some theoretical explanations regarding the higher/lower level of profitability achieved by older firms are offered, due to the scarcity of empirical researches, no clear cut exist. One of the possible reasons for paucity of studies on this topic could be found in the absence of relevant data about the year of firm incorporation. Therefore, in order to exploit the benefits of Amadeus database and to give our contribution to the existing literature on this subject, in this research a role of firm age on business success is investigated on a panel of firms operating in the Croatian food manufacturing industry in the 2005-2014 period.

According to The Institute of Economics, food manufacturing industry has achieved the largest share in the gross domestic product and total employment, when compared to other manufacturing sectors in Croatia in 2014 (Ekonomski institut, 2015). More accurately, Croatian food industry has a long tradition and recognizable brands, and makes 28.2% of total production and 20% of total employment of manufacturing industry. The share of food industry in GDP in 2012 amounted to 3.2%. At the same time, the share of food production in GDP of the manufacturing industry accounted for 21.8%. Furthermore, the food industry in 2014 accounted for 8.8% of the total exports of manufacturing industry, and 7.7% in the total exports of the Republic of Croatia. When compared to the previous quarter, a production activity of this industry at EU-28 has increased by 0.43% in the last quarter of 2014 (Ekonomski institut, 2015). All these numbers clearly indicate the importance and significance as well as high potential that the Croatian food industry has, which as such should be recognized as strategic industrial sector of the Croatian economy.

The rest of the paper is organised as follows. An overview of the previous studies and their findings relating to the content being analysed is provided in section 2. Section 3 presents data, research

methodology and variable description, while section 4 gives insight into the sample description and econometric model including the empirical results. Section 5 presents concluding remarks.

2. Literature review

While some theoretical models considered the firm size as linearly related to firm age (Greiner, 1972), the others postulated specific predictions regarding the influence of firm age on its performance. Coad et al. (2013) summarized these predictions in three categories: selection effects, learning-by-doing effects, and inertia effects, depending on whether firm performance (expressed as a firm productivity) remains the same, increases or decreases over time. In empirical sense, firm age has been researched in different context. Starting with the influential work of Gibrat (1931) and finding that smaller, younger firms are more likely to grow faster than larger, older firms (in terms of the number of employees or amount of sales), a large number of researches have tried to explore the relationship between firm size and growth rate (see for example, Babirye et al., 2014; Bentzen et al., 2012; Palestrini, 2007; Evans,1987), as well as the relationship between firm age and growth rate (e.g. Barba Navaretti et al. 2014; Carr, 2010). While former relationships have usually turned out to be negative, no clear–cut has been made between firm age and survival (e.g. Bartelsman et al., 2005; Farinas and Moreno, 2000). Recently, some researchers were exploring a moderating effect of firm size or age on the relationship of analysed variables of interests like for example, relationship between institutional quality and export performance (LiPuma, 2013), relationship between organizational innovation, learning and performance (Hui et al., 2013) or relationship between R&D investment and firm performance (Fortune and Shelton, 2014), etc. Apart from the studies that were analysing a moderating effect of age in different industries/countries simultaneously, there were also studies that were concentrated on one specific industry (e.g. Ismail et al., 2014). A certain number of researchers have also examined differences in firm performance (profitability and/or productivity) at different stage of age.

Since the main focus of this research is oriented toward investigation of the nature of the relationship between firm age and its profitability, a brief presentation of recent empirical studies from this path of research follows. In order to observe whether older firms are more profitable because of their size or there is an age effect that can be revealed while controlling for firm size, Coad et al. (2013) explicitly included size and age variables in regression equation. With the application of different methodology (OLS, LAD, VAR) on the panel of Spanish manufacturing firms operating between 1998 and 2006, the authors found the evidence supporting both, improvements of firms with age (i.e. it was shown that the older firms were experiencing rising levels of profits, productivity, larger size, etc.) and deteriorations of firms performance with age (the results also revealed the lower profitability when others variables were controlled for; lower expected growth rates of profit, sales and productivity). On a sample of 1,020 Indian firms, Majumdar (1997) investigated whether the size and age of firms impacted firms' profitability and productivity. According to this author the age-performance relationship is environment-specific and dependent on a number of institutional factors, and hence cannot be analysed outside the institutional framework within which firms operate. The results of the conducted analysis showed that the older firms were more productive and less profitable, while the larger firms were more profitable and less productive. With the application of the maximum likelihood ordered logit estimates with robust standard errors, on a sample of 58,211 manufacturing and services firms observed over the period 2004-2012, Bruni et al. (2014) found a significantly negative sign of age variable on EBITDA to sales ratio.

Some researchers, in line with our study, focused their attention on only one particular industry. Bhayani's research covered the all listed cement firms operating in India during the period from 2001 to 2008 (Bhayani, 2010). With the utilization of the backward regression analysis, the results showed that the age of the firm (positive sign), together with some other internal and external variables (liquidity, operating profit ratio, interest rate and inflation rate), played a vital role in the determination of the firm profitability in Indian cement industry. Opposite to this study, on a sample of 57 business group companies of Indian nonmetallic mineral products industries, for the10-years period, Gaur (2011) examined the influence of different variables, among which the age variable as well, on operating profit and return on net worth, however, the age variable didn't prove to be statistically significant. Summarizing the results of the presented studies it becomes clear that the empirical researches regarding the relationship between the firm age and profitability remains

equivocal. Although a progress has been made in investigation of firm age on its performance, as noted by Coad et al. (2013), there are still many opportunities remaining for improving our understanding of how firm performance/behaviour changes as firms grow older.

3. Data, Research Methodology and Variables

The data for the research were collected from the AMADEUS database compiled by Bureau van Dijk. Since AMADEUS provides information at the 4-digit (NACE Rev. 2) level, the sample was created by including all firms recorded in any 4-digit NACE Rev. 2 food processing industry (categories between NACE-1011 and NACE-1099) for the period from 2005 to 2014. This industry was chosen due to its significant contribution to total manufacturing industry in terms of total production (28.2%), total employment (20%), and value of industrial production sold (17.6%), as well as due overall data availability.

AMADEUS has the advantage that it comprises firms of all possible size. This is an important issue since 95.3% of all firms operating in the EU food and drink industry are micro and small sized firms (FoodDrinkEurope, 2014). Therefore, unlike previous studies that were restricted to publicly quoted firms or that have used some minimum firm size criteria while constructing the research sample, the present study encompasses micro and small sized firms together with the medium-sized, large and very-large companies. Given that the total number of analysed firms was changing over the years (as a result of the entering of new firms in the market, mergers, acquisitions and liquidations), we were dealing with unbalanced panel (number of times-series observations was different across firms). After imposed restriction according to which only those companies that were active three consecutive years can constitute the sample, the total number of firms included in the analysis amounted to 956.

Descriptive statistics for all variables used in the analysis is shown in Table 1. The industry average is provided by mean along with the variables' minimum and maximum for period covered by analysis, while standard deviation indicates the interindustry variation of the variables value within the 2005-2014 period.

Table 1: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
EBITDA Margin	5,928	8.862337	19.65476	-100	99.163
Age	8,565	13.10426	13.12341	1	123
Size	7,749	5.418349	2.40829	-5.94707	13.13784
Liquidity	7,598	1.821401	4.766754	0	96.375
Solvency	7,438	31.58373	34.19685	-99.513	100
Gearing	5,988	98.45579	166.3018	0	998.285

Source: Authors` calculations

Many of the economic relationships are dynamic in their nature and therefore, in order to evaluate the influence of firm age on its business success, we introduce a dynamic component into the model (1). Since lagged dependent variable also appears as an explanatory factor in the model, it correlates with the error term and strict exogeneity of the regressors no longer holds. Estimating model (1) via OLS would yields biased and inconsistent results. In order to overcome this problem and to obtain consistent estimator of δ, the authors used generalized methods of moments (GMM) panel estimator developed for dynamic panel models by Arellano and Bond (1991) and Arellano and Bover (1995). Discussion and various estimation methods for dynamic panel data are given by Baltagi (2005). Two-step estimator is employed on the following model:

$$\pi_{it} = \alpha + \delta\pi_{i,t-1} + \gamma Age_{it} + \sum_{c=1}^{C} \beta_c X_{it}^c + \varepsilon_{it} \qquad \varepsilon_{it} = \nu_i + u_{it} \qquad (1)$$

where π_{it} is the profitability of firm i at time t, with i=1, . . ., N, t=1, . .., T; α is a constant term, $\pi_{i,t-1}$ is the one-period lagged profitability, δ is the speed of adjustment to equilibrium, Age stands for firm

age, γ is the parameter of the variable of our interest - firm age, β_c is the vector of coefficients to be estimated, X_{it}^{c} is a set of the control variables, ε_{it} is the disturbance, with ν_i the unobserved firm-specific effect and u_{it} the idiosyncratic error.

All variables used in the analysis are chosen on the basis of relevant theory and empirical literature. The description of the chosen variables (i.e. EBITDA Margin, Age, Size, Liquidity, Solvency and Gearing) together with their expected influence on the firms' profitability is given in the following sections.

As a *dependent variable* (measure of profitability), we used *EBITDA Margin* which is calculated as a ratio of company's Earnings Before Interest, Taxes, Depreciation and Amortization, on one side, and its operating revenue, on the other side.

Age is used as a main *explanatory* variable in model (1). Since the focus of the present paper is put toward this variable, it is of interest to analyse and confront different theoretical aspects of the relationship between firm age and its performance. In theoretical discussion on age-performance relationship, the arguments can be found for both, positive and negative relationship. Argument for positive influence of age on performance lies in firm experience, since older firms can benefit from accumulated knowledge in all crucial aspects of the business (better technology, well-developed supply channels, well established customers relations, easier access to resources, better human capital and lower financing costs). As older firms have more experience, abilities and skills, and since they have enjoyed the benefits of learning, they consequently can enjoy superior performance. Although previously described arguments are quite convincing, so are those that stream to explain a negative influence of firm age on performance. As firms become older, they often try to codify decision making procedures, what makes them very bureaucratic, reduces organizational flexibility and ability for prompt changes. Rigid rules and procedures can be very large obstacle for organizational changes and innovation which are crucial in the modern globalized and very competitive business environment. Also, with the age firms might pursuit the strategy of "quiet life" and consequently avoiding risks (large R&D investments), large restructuring, conflicts with employees, etc. Avoidance of organizational changes and R&D investments in long term results in losing the competitive advantages and decreased performance. In line with this reasoning, a negative influence of this variable on profitability is anticipated. Age of the firm is expressed by the number of years that firm operates in the market.

Control variables. In order to control for different firms' characteristics, a set of control variables is introduced in the analysis. Each of the control variables captures specific aspect of firms' activity. Thus for example, *Size* variable had task to control for firm size, since size of a firm can serve as a source of economies and diseconomies of scale (Besanko and Braeutigam, 2011), therefore both, positive or negative sign of this variable may appear. *Liquidity* represents firm's ability to settle short-term liabilities resulting mainly from operating costs. Current liquidity is often calculated as ratio of current assets and current liabilities. Firm should maintain required level of current assets in order to cover current liabilities and according to theoretical consideration the optimal ratio of this variable should equal 2. Alternative measure of liquidity, the quick liquidity (Current Assets-Stocks/Current Liabilities), which is used in this research, should be at least 1. Liquidity below ideal values indicates that firm is not liquid and consequently cannot settle its current liabilities. Illiquidity is often consequence of poor operations and can be related with lower firm performance. On the other hand if firm overinvests current assets it can also negatively affect business success due to higher financing costs in overinvested current assets. Having in mind previously described characteristics of liquidity, this variable can have both, positive or negative influence on firm performance. *Solvency* describes firm's financial health and capacity to repay long-term liabilities. In line with theoretical aspects, shareholders' funds should cover at least 50% of total assets. If shareholders' funds fall significantly below 50%, firms' risk of default/bankruptcy rises, what is often reflected in higher financing costs and lower performance. Therefore, it is to expect that the higher solvency should result in higher performance, i.e. a positive sign of solvency variable is to be anticipated. Finally, the *Gearing ratio* measures the structure of financing sources, i.e. ratio of long term borrowings and shareholders' funds. Firm growth often requires financing by long term debt which increases gearing and firm risk. Namely, highly leveraged firms are perceived as more risky since in period of economic downturn firm must repay its debts regardless of negative trends in sales and cash flows.

Without long term debt firms could not achieve required level of investments and therefore certain level of gearing is necessary. Therefore, financial managers in firms should achieve optimal level of gearing, while having in mind that too high level of gearing might significantly increase insolvency/bankruptcy risk and financing costs. On the basis of previous discussion we expect that gearing negatively affects firm performance.

Summary of the variables and corresponding measurements is presented in Table 2.

Table 2: Measurement of Variables

Variables	Measurements
Dependent	
EBITDA Margin	(Earnings Before Interest, Taxes, Depreciation and Amortization) / Operating revenue
Independent	
Age	Number of years that firm operates in the market
Size	Logarithm of total assets
Liquidity	(Current assets - Stocks) / Current liabilities
Solvency	(Shareholders funds / Total assets) * 100
Gearing	((Non current liabilities + Loans) / Shareholders funds) * 100

4. Results and discussion

Pairwise correlation matrix is shown in Table 3, while Table 4 presents the results of the dynamic panel analysis estimated using two-step General Method of Moments (GMM) as proposed by Arellano-Bond. Most of the correlation coefficients demonstrate weak correlation between variables. The highest value of the coefficient is obtained between Solvency and Gearing variable and amounts to -0.5087, which is still far below the acceptable level and possibility that problem of multicollinearity occurs.

Table 3: Pairwise correlation

Variable	EBITDA Margin	Age	Size	Liquidity	Solvency	Gearing
EBITDA Margin	1					
Age	0.0244	1				
Size	0.0898	0.4813	1			
Liquidity	0.1496	0.0228	-0.0388	1		
Solvency	0.2305	0.2108	0.1144	0.3469	1	
Gearing	0.0143	-0.0507	0.1523	-0.1281	-0.5087	1

Source: Authors` calculations

For consistent estimation, GMM estimator requires that the error is serially uncorrelated. First-order and second-order serial correlation in the first-differenced residuals is tested using m_1 and m_2 Arellano and Bond test statistics. The GMM system estimator is consistent if there is no second-order serial correlation in residuals (m_2 statistic). This means that the presence of a first-order autocorrelation in the differenced residuals does not imply that the estimates are inconsistent (Anderson and Hsiao, 1981). Another important test in dynamic panel analysis is Sargan test. This test checks for overall validity of instruments. If a null hypothesis is accepted, meaning that overidentifying restrictions (all chosen instruments) are valid, the dynamic panel model is adequately specified.

Table 4: Parameter estimates of dynamic panel model

Variables	EBITDA Margin	
	Coef.	**P>|z|**
EBITDA Margin$_{(t-1)}$	0.35018	0.000
Age	-1.25855	0.000
Size	6.80065	0.000
Liquidity	-0.41186	0.017
Solvency	0.19775	0.000
Gearing	-0.0021	0.398
Cons	-22.6728	0.001
No. of observations	3,157	
Sargan test (p-value)	0.5641	
Arellano -Bond *(m_1)*(p-value)	0.0000	
Arellano -Bond *(m_2)* (p-value)	0.4149	

Source: Authors` calculations

With regard to the statistical tests, empirical results obtained for the model (1) show no presence of second-order autocorrelation. Likewise, Sargan test shows no evidence of over-identifying restrictions. This suggests that the dynamic panel model is adequately specified. Furthermore, table 4 reveals that lagged profitability variable (EBITDA Margin$_{t-1}$) has statistically significant influence on current firms' profitability which confirms the dynamic character of the model specification. Regarding the main variable of our interest (Age), it can be perceived that, after controlling for other influences, firm age has statistically significant negative influence of firm's performance. This finding indicates that for the firms operating in Croatian food manufacturing industry, one can expect deterioration of firm performance as time goes by. This finding is opposite to that of Bhayani (2010), but in line with those of Majumdar (1997), Coad et al. (2013) and Bruni et al. (2014), and can be interpreted in a way that due to bureaucratic ossification older firms become inert, without required flexibility to adapt to new business circumstances and therefore they are likely to be outperformed by younger, more flexible firms.

It should be noted that selected control variables (except *Gearing*) have statistically significant influence on firm performance i.e. business success. The sign of the coefficients of all control variables are in line with our expectations. More precisely, positive sign of *Size* variable indicates that firms may exploit economies of scale and scope, and therefore benefit as becoming larger. Also, firms with higher *Solvency* perform better, pointing that they are perceived less risky and therefore can operate with lower financing costs. The results also indicate that firms with lower *Liquidity* achieve better performance, i.e. strategy of minimizing working capital can increase the firm performance. Finally, although the negative sign of the coefficient of *Gearing* variable indicates that increased leverage reduces performance, this variable is not statistically significant. In general, apart from the fact that the coefficient signs of the explanatory variables are in line with the expectations, they are also comparable with findings from previous studies (Pervan, 2013; Vijayakumar, 2011; Obert and Fatoki, 2010; Feeny et al. 2005).

5. Conclusion

The aim of this research was to determine the extent and nature of the relationships (if any) between firm age and business success. The analysis is conducted on firms operating in Croatian food processing industry for the period from 2005 to 2014. The total number of firms included in the analysis amounted to 956. Given that the total number of analysed firms was changing over the years (as a result of entering of new firms, the mergers, acquisitions and liquidations), an unbalanced panel is formed. Food processing industry was chosen due to its significant contribution to total manufacturing industry in terms of total production (28.2%), total employment (20%), and value of industrial production sold (17,6%) as well as due overall data availability.

The results of the conducted dynamic panel analysis reveal that age of firms plays important explanatory factor in determination of business success. Precisely, on a sample of Croatian food processing industry, firm age turns out to be statistically significant with negative coefficient sign, thus suggesting deterioration of firm performance with age. As firms grow older, they become very bureaucratic, with reduced organizational flexibility and ability for prompt changes. Also, firms might pursuit the strategy of "quiet life" and consequently avoid risks, large restructuring, conflicts with employees, etc. As regards the control variables that have task to capture different firms' characteristics, the results of the conducted analysis indicate a positive and significant influence of firm size and solvency on business success, as well as significant and negative influence of liquidity. Gearing variable didn't prove to be statistically significant.

Overall, the present study enriches our understanding of firm age and performance in Croatian food manufacturing industry and highlights the importance that some other variables, aside from age, may have on business success. From a manager policy perspective, the obtained results provide guidelines in formulation of adequate business strategies and points to factors that managers must take into account in order to achieve better firm performance. Further researches may be oriented toward investigation of presence/existence of non-linear age-performance relationship, with its application on a broader research sample together with the inclusion of additional explanatory/control variables.

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Importance of Innovation in the Context of Changes Arising from Economic Globalization

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Abstract

This article present the results of the research conducted in the direction of the role of innovation in the current economic globalization. In today's highly dynamic and competitive business environment, firms are exposed to strict challenges with meeting the ever-increasing market and customer needs and expectations. In order to ensure the competiveness and success of the organization managers need to accept innovation as a key element for the organization. The aim of this paper is to highlight the importance of innovation in today's economy. The importance and the need for innovation result from its contribution to enhancing the productivity, competitiveness, economic performance and social objectives. Few managers have a wider vision which includes innovation, allowing a better performance of the activities. Companies need radical changes not only for products or services, but also for their business strategies. Unfortunately there is still no common understanding (and correct) of the term innovation among managers. Furthermore, not all managers are aware of the need for innovation. Under these conditions, increasing the adaptive processes of firms (through innovation) to meet the needs and performance requirements is difficult to accomplish in the absence of a systematic framework. We have analyzed the concept of innovation and its evolution in the scientific literature over time, its importance for EU member states and in the end of the paper we have identify some new research direction regarding innovation.

Keywords: innovation, innovation process, importance of innovation, economic globalization.

Introduction

Innovation is now a very used term in the business environment, but is not a new concept, it exist since the early twentieth century, when Austrian scientist J. Schumpeter analyzed innovation from economical point of view. He defined innovation as all changes in order to implement and use the new types of products, means of production and transport, markets and forms of organization of production. In his researches Schumpeter indicate innovation as the main source of profit for an organization. He said that, in essence, profit is the result of developing new combinations and without development there is not profit and vice versa, without profit there is no development, as in Purcarea (2011).

Even if in essence innovation seems to be a simple concept, the variety of studies regarding innovation since 1934, have proven the complexity of innovation, thus the literature offer a variety of definitions for innovation, each researcher trying to capture better and more accurate the process of innovation. In this research we consider innovation defined, according to the OECD (2005) - Organization for Economic Co-operation and Development - as the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations.

In the current era, characterized by economic globalization - which requires trade liberalization and lowering costs in communications - the developed countries must compete with countries that have a

workforce poorly paid, although well-educated – innovation have an important place. And if we add also the progress of science and technology we can observe that innovative organizations benefit more from opportunities and competitive advantages.

The innovation process is one of the most important factors behind the growth and prosperity of the global economy today but this is poorly understood. Over the last century, industry leaders have learned to master the production process to such an extent that today it is not a significant competitive advantage. The new challenge is to master the process of innovation – capitalizing change, creating new competitive advantages by offering better products by using better processes, providing better service or offering entirely new solutions.

2. Evolution of Innovation Importance in Scientific Literature

In the current context, characterized by economic globalization, innovation is one of the most important tools for organizations all over the world. This importance is felled also in the academic and research environment, this can be highlighted by the number of articles published in the scientific literature in the last years. In this sense we performed a search in the most important scientific database in the world, ISI Web of Knowledge, by the word "innovation".

The results of the search indicate a number of over 340 000 articles that have the word innovation in their topics. For a better understanding of the interest for innovation in the scientific area we grouped the article by years of publishing illustrated in figure 1.

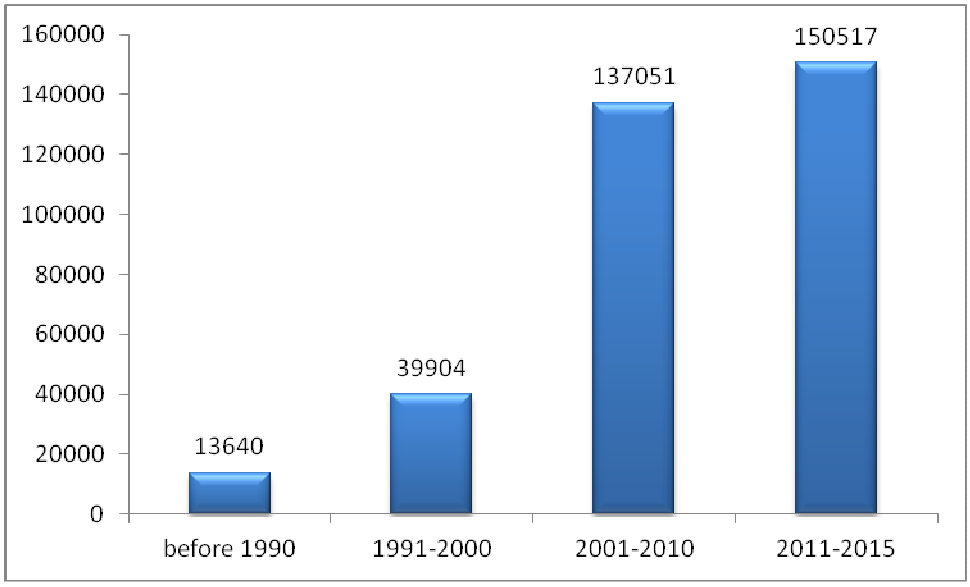

Fig 1. Evolution of published articles regarding innovation in ISI Web of Knowledge database (processing of the authors)

As it can be seen in figure 1, the numbers of article where innovation is mentioned has increased very much in the last years. Before 1990, in the ISI Web of Knowledge database, were mentioned 13 640 articles, in the following 10 years between 1991 and 2000 the number of articles has increased to almost 40 000 articles. In the next period of ten years, between 2001 and 2010, we can observe a huge increase of articles dealing with innovation, form almost 40000 articles to over 137 000 articles. The interest for innovation is increasing, thus in the last five years, from 2011 to 2015 over 150 000

articles have been published, more than the number of articles published in a period of 10 years previous to 2011.

More than that we can compare the total number of 167 888 articles published before 2010 (without articles published in 2010) with the number of articles published after 2010 (including articles published in 2010) which is 169 195 articles. We can observe that in the last five years the articles involving innovation have already surpassed the total amount of articles published before 2010.

This high interest for innovation in the last years can be explained by the current specific features of the business environment. These features tend to be more pronounced with the intensifying global competition and the tendency of customization of client requirements, thus leading to compressing the time period between consumer perception of certain needs and the launch a new product to satisfy these needs. Thus the one of the important characteristic for the competitiveness of an organization is the ability to react quickly to changes in the business environment, especially in areas where the rate of technological change is high and production cycles are short.

Even if in the current economic context, innovation is one of the most used terms, our past studies (Maier, 2013; Maier, 2014; Maier, 2015) reveal that it is still not well understood especially due to its complexity and the multitude of specific characteristics of each activity sector. Most of the managers expect for a universal tool, technique or even a spell that once is applied it transform a noninnovative organization in an innovative one. But such a tool does not exist, not because nobody thought about it or nobody tried to developed one, but in our opinion because with the current knowledge it is not possible to have one. There are multiple attempts to develop several frameworks for managing innovation, including our studies in Maier (2014; 2015), but in most cases the final results is a general innovation identifier that can offer the manager a sense of the state of innovation in his organization and some direction to follow in order to become a innovator.

This unpredictable character of innovation led to a wealth of failed innovation projects over time. However the lack of innovative projects is not a solution, this was felled even by large companies that were once precursors and creators of all markets, but they have failed to remain competitive when major changes occurred, particularly the technological changes. Organizations tend to developed themselves and to get used with what they do (basic skills) suck that they get stuck there, and when the environment changes (ex. Changing customer requirements, changing regulations) they are unable to adapt quickly and easily (Vlachaki, 2010).

3. Importance of Innovation for the EU Member States.

Innovation in today economic context is important not only for companies but also for the prosperity of the countries. To highlight the importance of innovation in a globalized economy and its connection to the prosperity of the countries we have analyzed the study performed by European Commission regarding the innovation performance of each member state of European Union. The results of the study were published in 2015, and according to the overall innovation performance each member state can be classified in four categories: Innovation leaders; Innovation flowers; Moderate innovators and Modest innovators.

The average annual growth of innovation performance in the EU was 1.6% in 2008-2012, many countries improving their innovation system in this period. In figure 2 we can observe the innovation performance for every state of the European Union.

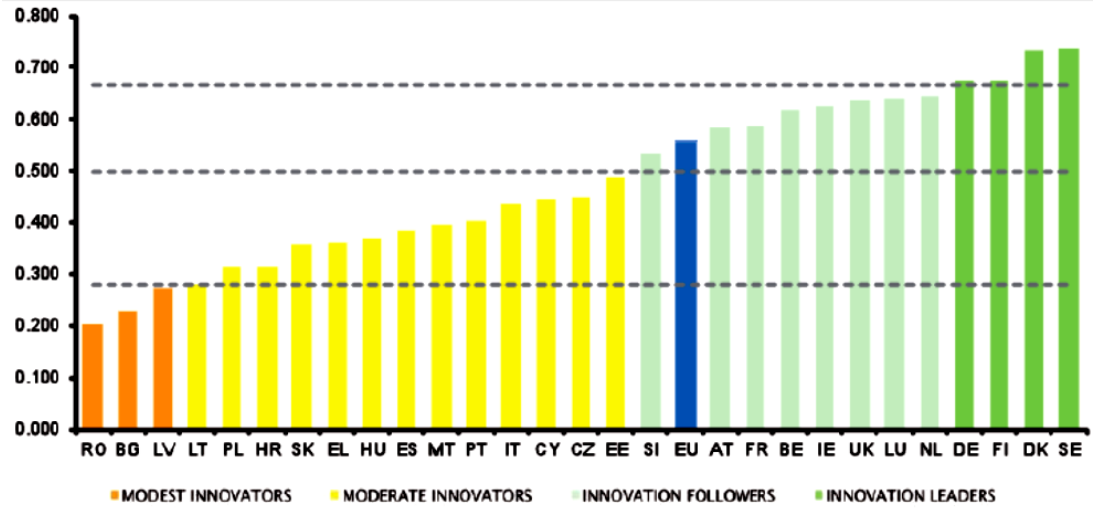

Figure 2. EU Member State's innovation performance (*, 2015)**

As it is shown in figure 2, Sweden ranks first from EU members regarding innovation performance. The other states that are grouped in "Innovation leaders" category are Germany, Finland and Denmark; these countries have innovation performances well above the EU average. The second category "Innovation followers", are countries with innovation performances above or close to that of the EU average. In this category are included: Austria, Belgium, France, Ireland, Luxembourg, Netherlands, Slovenia and the UK.

Another group of countries have the innovation performances below that of the EU average, this group are "Moderate innovators" and are formed by Croatia, Cyprus, Czech Republic, Estonia, Greece, Hungary, Italy, Lithuania, Malta, Poland, Portugal, Slovakia and Spain. The last category is formed by Bulgaria, Latvia and Romania, with innovative performance well below that of the EU average and they are "Modest innovators".

This classification of EU member states, from innovation performance point of view somewhat respect the economic power of the countries. It can be observe that well developed countries have a high innovation performance than the less developed one. The aim of this article is not to present the factors that led to a greater innovation performance, or to identify the causes why developed countries have better innovation systems. By using this classification we want just to highlight the connection between innovation performance and the degree of development of a country. In the same manner if we narrow down to the organizational level we can consider that for a company to be more competitive, more profitable and to have the power to develop, innovation is a characteristic that must be nurture.

4. New Direction Regarding Innovation

If until three decades ago, almost every objective of an organization where approach from the economic efficiency point of view, nowadays the intense development of the human activities oblige companies to take into consideration other aspects related to their activity. There is a great interest for innovation both in the academic area and among practitioners. This interest is more pronounced in today's globalized economy and in this case new solution for a better understanding of innovation or for obtaining better results from innovation is needed. For an organization which has difficulties to survive or for every organization the adoption of an innovative culture is not an easy process, thus a new approach related to the innovation tend to develop. In 2003 Henry W. Chesbrough introduced the term of open innovation. He observes that many of the organization started to rethink the way they manage innovation. Until then the predominant idea was that every organization should manage

and control the innovation process from the first step to the last one and that in order to be successful every organization must control and work alone for innovative projects, mentioned in Olaru (2015).

The new approach proposed by Chesbrough describe a process in which the company wants to acquire external collaborations ideas or new technologies to exploit their assets and establish alternate routes to market during the innovation cycle. Therefore, the boundaries between enterprise and the environment become less restrictive and allow two-way interactions, inwardly and outward.

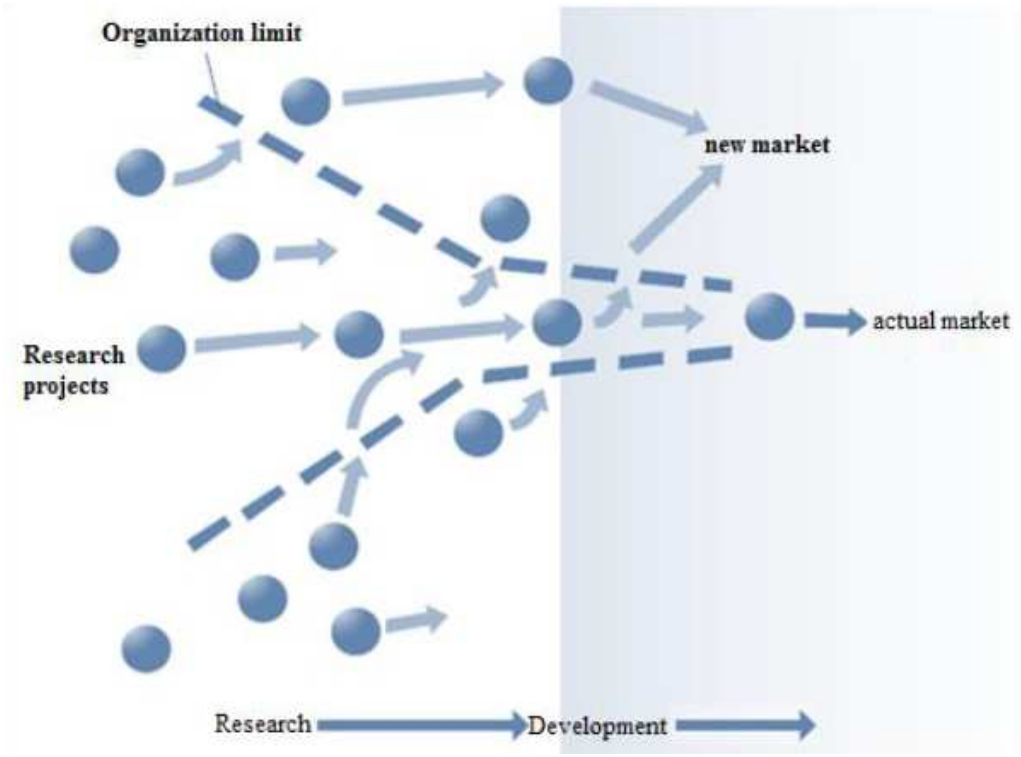

Fig 3. Characteristics of open innovation (processed by the author after Chesbrough, 2003)

The main principles of open innovation can be resumed to:

- Not all intelligent people work within the organization. However, the company should try to find them and work with them inside or outside its border.
- A better business model is preferable to the detriment of the primacy of the market.
- Internal innovation efforts are needed to harness external innovation efforts.
- The key to success is not generating as many ideas as possible, but efficient use of internal and external ideas;
- An undertaking should not block its intellectual properties. Instead, it should consider selling or buying intellectual assets whenever it is beneficial to his model

By applying the above principles some advantages can be obtained, such as:

- Finding new and innovative ideas;
- Development of new and innovative products and services;
- Risk-sharing and cost reduction and R & D;
- New markets;
- Increasing reputation;
- Shortening the time to enter the market.

Open innovation is now one of the most debated topics in management literature. However, there are still many unanswered questions in innovation. In particular, two issues need further investigation, namely, understanding the relevance of open innovation and how companies implement open innovation in practice.

Open innovation paradigm is implemented over a process that is conducted in three phases comprising the steps: unfreezing, movement and institutionalization. In some research study as Chiaroni (2011) and Huizingh (2011) is mentioned that moreover, it turns out that the changes that open innovation has been implemented involving four large, ie networks, organizational structures, processes evaluation and knowledge management systems. It should, therefore, managerial and organizational levers designed as an innovative organizations.

5. Conclusions

The current economic environment, strongly hit by the economic crisis, obliges organizations to face increasingly heavier conditions. A fierce competition, brief market niches, and frequent changes in product demand characterize the new economic environment, a globalized one. The organizations will have to face more and more frequently and unpredictable changes on the globalized market. In order to be competitive and to be able to capitalize any opportunity, the organizations will have to develop new ways of management, which has to adapt and to be able to predict, as quickly as possible, the apparition of various changes. . A key consideration for companies is their ability to adapt and innovate. The purpose of innovation is mostly to survive, to grow, to make a profit, but what matters for innovation is how it affects the chances of survival, profit and growth opportunities.

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***, (2013), CEN/TS 16555-1 Innovation management – Part 1: Innovation management system

Information Quality of Enterprise Systems in Healthcare: An Empirical Study

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Abstract

Organizations depend heavily on information systems and their outputs to achieve organizational goals and facilitate main business processes. Quality of system's outputs "information quality" is considered an important ingredient of information system's outputs as it determines the degree to which information is used in organizations. Quality of the system itself is also a critical factor that determines the level of information quality and system features that consequently affect the system utilization and benefits gained by the system users. This study focuses on user perspectives and how users perceive the characteristics of information quality. The study aims at providing a more incorporative framework and measurements to information quality of information systems. It also aims at measuring the perceived impact of information quality on user evaluation and performance. Consisting with previous studies, the study provides some useful conclusions that can be used by managers to structure their information system strategies to best benefit their organizations. The study gained evidence supporting strong relationships between information quality and user evaluation of the information systems. The results indicated that information quality and systems quality are significant determinants of utilization and usefulness, obtained when using information systems.

Keywords: Information Systems, System Quality, User Evaluation, Information Quality

1. Introduction

Increased organizational dependence on information systems and their outputs drive management attention towards improving information systems' quality and output quality of the systems. Recent studies have showed that improved information systems quality is a serious concern facing both business managers and information technology professionals. Quality in information systems field is a multidimensional measure, it is important to determine what aspects of information systems are critical to both organizations and individual and how individuals perceive better benefits when using information systems (Gorla, Somers& Wong, 2010).

Information quality depends on user perceptions of the value of the IS output. Thus, most of its measures are perceptual, including accuracy, precision, currency, output timeliness, reliability, completeness, conciseness, format, relevance, understandability, report usefulness, etc. DeLone, & McLean, (2003) characterized system quality, as the degree to which a system possesses desired characteristics, and measured it using four factors: convenience of information, system flexibility, system integration, and response time. Since system quality measures the information processing system itself, the background characteristics of the system under study need to be outlined before developing any measurements.

The quality of information, provided by an information system, is a very important factor in leading people to believe in the usefulness of that information system. When people feel that an information system is useful to them, the chances that they will utilize that system will be higher. If the information provided an information system is vague, erroneous, or incomplete, it will arouse doubts in the user's mind about the reliability of that particular information system and possible harmful opportunistic behaviours and thus, reducing intention to use. On the contrary, an information system that provides high content quality will increase intention of users to engage in the services provided. This study is a part of a large project focuses on user evaluation of hospital information systems and how users perceive the characteristics of information quality of these systems. The study aims at

providing a more incorporative framework and measurements to information quality. It also aims at measuring the perceived impact of information quality on user evaluation in healthcare organizations.

2. Literature review

2.1. Information Quality

Information Quality (IQ) is considered an important ingredient of IS outputs as it determines the degree to which information is used in organizations (Pitt & Kavan, 1999). As a result, IQ research activities have increased significantly to meet the needs of organizations attempting either to measure or provide a rigorous framework for IQ (DeLone, & McLean, 2003). In view of that, there have been many different frameworks of IQ. However, even though these classifications differ in detail and in the names of the IQ measures, there are substantial overlaps among them. Furthermore, despite a decade of active research and practice, the field lacks comprehensive methodologies for its assessment and improvement.

Typically, the IQ assessment framework means classifying the IQ factors so that they are testable and provides an extensive template for applications in a specific domain. In this sense, an IQ model assessment means a multidimensional structure consisting of theoretical concepts, terms and relations that identify the main characteristics of information (Slone, 2006; Besik, 2006). Information characteristics have been viewed as important determinants of IQ, which include accuracy, precision, currency, output timeliness, completeness, format, and relevance. Others, however, have highlighted the domain and purpose of the interest to the information users as main characteristics of IQ or the degree to which information satisfies user requirements or is suitable for a specific process. Therefore, IQ in total refers to its user's requirements (Wang & Strong, 1996).

2.2. Measures of information quality

The IQ literature reflects the existence of a number of views on what constitutes the attributes of information. A significant number of empirical studies have been conducted to develop a framework to measure IQ. Starting from the many characteristics identified by (Bailey & Pearson, 1983) such as accuracy, precision, currency, timeliness, completeness, conciseness, format and relevance. Najjar (2002) later identified five IQ characteristics of accuracy, timeliness, conciseness, convenience and relevance. Sometimes, measures of IQ focus on the output produced by a system and/or the value, usefulness or relative importance attributed to it by the user. In this sense, Huang, Lee, & Wang (1999) conducted a series of studies on IQ and used accuracy, relevancy and accessibility to measure IQ.

Among several studies, researchers sometimes mixed these IQ measures based on the purpose or scope of the study. Miller, (2007) used terms of usefulness, accuracy, timeliness and relevancy to measure IQ, while Alka, (2001) used clarity, relevancy, accuracy and timeliness in her research. In a similar vein, Bovee (2004) used relevancy, accessibility, accuracy and interpretability. Eventually, from the user perspective, a framework was developed to capture the underlying IQ in four grouped classifications

- Intrinsic, consisting of believability, accuracy and objectivity.
- Contextual, consisting of relevancy, timeliness and completeness.
- Representational consisting of interpretability and ease of understanding.
- Accessible, consisting of accessibility and access security.

The above framework was repeatedly used in a substantial amount of prior research and was based on several studies that aimed to identify the most relevant characterises of measuring IQ. To conclude, prior research provided a thorough classification of IQ measures, notwithstanding discrepancies in the definitions of most measures due to the contextual nature of both quality and IQ. However, the literature lacks a comprehensive framework that researchers and organizations can apply. Thus, by analysing these classifications, it seems possible to formulate a basic model for this study. The most commonly and widely accepted identified IQ characteristics are presented in (Wu & Wang, 2006). This study therefore consolidates these commonly used characteristics to build an IQ framework that

includes relevancy, accuracy, timeliness (currency), appropriate amount (completeness) and accessibility, as discussed below:

2.2.1. Relevancy

A key component of IQ is whether or not the information addresses the user's needs. If not, a user will find the information inadequate. Thus, relevancy refers to the degree to which the information is appropriate for the users' tasks (Solomon, Terry, & Magid, 2003). Relevancy refers to the extent to which information is applicable and helpful in performing the task at hand. Relevancy therefore links the information to the users' needs besides task requirements. Solomon, Terry, & Magid, (2003) stated that with access to information, which can be interpreted, one needs to know if it is relevant to the domain and purpose of interest to the user. Therefore, relevancy is a critical element for IQ, making information understandable and interpretable to users and helping them use all the information that is essential to their task and to avoid any irrelevant information.

2.2.2. Accuracy

Accuracy is defined as the correctness of the output information provided by a system. Researchers have discussed this concept as the main part of IQ. For example, they proposed that accuracy is the extent to which information is correct and reliable, which others call "free of error" (Alloway, 2007). Generally, it is believed that accuracy of information is a critical issue for users as they utilize information for various purposes. Therefore, if the information is accurate, performance will be more efficient with fewer mistakes, meaning that accuracy affects work outcomes by reducing the errors caused by inaccurate information and leading to higher quality performance.

2.2.3. Timeliness (currency)

Timeliness pertains to the degree to which information is perceived to be current Bovee, 2004). Therefore, timeliness is an important component of IQ, because it gives the information currency increasing information value for users and reflecting the age of the information. Timeliness refers to currency and validity. Currency refers to the age of the recorded value, while validity refers to the length of time the value remained valid. Therefore, information must be updated continuously to fit the users' needs. However, others contended that information does not wear out. Nevertheless, as it ages, it bears less and less correspondence to the real or conceptual thing(s) it is associated with. Thus, the time from the collection of a value to its recording and the speed with which the source of the value changes over time are critical considerations for IQ Solomon, Terry, & Magid, 2003; Alloway, 2007; Floropoulos, Spathis, Halvatzis, & Tsipouridou, 2010).

Generally, timeliness is always related to updating aspects and it captures how often data changes or how often new data is created in the system (Calisir & Calisir, 2004). The updating process can increase the importance and value of information and make the information appropriate for user needs and tasks.

2.2.4. Appropriate amount (completeness)

Completeness refers to the comprehensiveness of the output information provided by a system. Information must be provided in an appropriate amount; too large volumes of information may make it difficult for users to access. In this regard, information needs to be sufficiently complete according to the users' domain, purposes and interests. This would help users complete their tasks on time and avoid any delay in delivering the outcomes, leading to more improved performance (Floropoulos et al, 2010).

2.2.5. Accessibility

Accessible information can be obtained when needed. Accessibility depends on the user and even the specific circumstances of that user. Basically, accessibility emphasizes that information must be accessible, but secure for all users. If the information is accessible to users and convenient when needed, users will be able to accomplish their tasks with a high degree of satisfaction achieving maximum potential usage of a system, leading consequently to more system impact on performance (Miller, 2007).

3. Research Methods

This study focuses on IQ and SQ measures and their perceived impacts on user evaluation and performance. The study was conducted in enterprises utilizing Enterprise Resource Planning Systems (ERP) with the aim of testing the impacts played by above mentioned factors and subsequent measures on user evaluation of the systems utilized. The study factors and their proposed relationships are illustrated in figure 1.

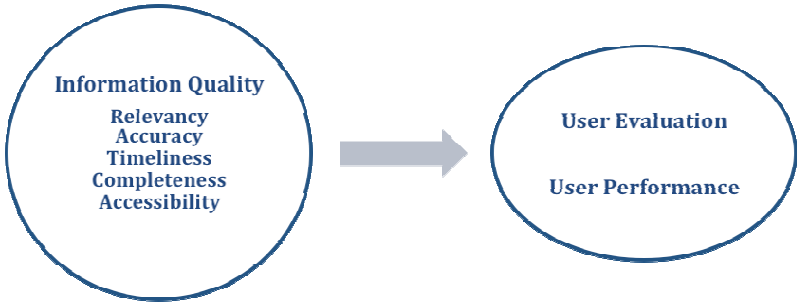

Figure 1. The Study Model

3.1. Hypotheses

In light of the above discussion and the review of the literature regarding both SQ and IQ, the current study tests a set of hypotheses as follows

Information quality will be positively related to user evaluation of information systems.

Information quality will be positively related to perceived user performance.

3.2. Sample, Procedure and Instruments

The population of this study was enterprise systems users in two hospitals. The inclusion criterion of sample selection is users who had experience using the hospital information systems in their work. A total of 203 users from deferent departments were surveyed. The method used to gather information in this research was through questionnaires composed of measures. The questionnaires were gleaned and compiled from previous validated instruments. However, some modifications were made to wording to suit the context of the health enterprise systems. Items were adapted from previous literature of system quality and information quality (DeLone & McLean, 2003). Most items were rated on a Likert-7 point scale of 1-7 (1 = strongly disagree, 4 = neutral and 7 = strongly agree). The data gathered questionnaires were checked to ensure their suitability and completeness. 6 questionnaires were excluded from further analysis due to incompleteness. A total number of 197 questioners were analyzed using SPSS software. Factors analysis and regression analysis were used to test the study model and examine the relationship between the study factors as explained in the nest section.

4. Discussion and Findings

4.1. The impact of information quality on user evaluation

The impact of IQ on user evaluation of the system impacts was measured by accuracy, relevancy, timeliness, completeness and accessibility. The results of the analysis indicate that IQ affects user evaluation positively; the whole model was significant and positive ($F = 227$, $df = 2, 384$, $R = .609$, $P < .01$), reflecting strongly significant and positive impacts of the IQ on perceived user performance and evaluation of the system, explaining 37.1% of the variance in user performance ($R^2 = .371$, $\beta = .606$).

Table 1. Regression analysis for IQ and user evaluation

Factor	*B*	*S.E*	*β*	R	R^2	*F*	*t*	*Sig*
Constant	.364	.278					1.312	.190
IQ	1.147	.076	.609	.609	.371	227	15.061	.001
The results of stepwise regression								
Factor	R	R^2	Adjusted R^2	*β*			S.E	Sig
Completeness	.557	.310	.308	.341			.949	.001
Accuracy	.597	.356	.353	.213			.918	.002
Timeliness	.618	.383	.378	.197			.900	.001

The result was further explored using stepwise regression to identify the most important factors of IQ that affect user evaluation from the user's perspective. As shown in the Table 2, based on the β value (β = .341), completeness or the volume of the information was the most important measure of IQ that contributes significantly to user performance. Therefore, users pay high attention to the quantity of the information or the degree of completeness of the information. Similarly, accuracy was found to be an effective factor that affects user evaluation of the systems. The last factor in the model was timeliness, or getting the information in a timely manner. This factor also contributes significantly to user evaluation and perceived performance and adds a unique value to the whole model, (β = .197). Getting updated information from the systems on time helps users improve their performance. It also helps improve performance efficiency and effectiveness, because it saves the user's time. In respect to the other factors of relevancy and accessibility, these were excluded from the model, as they did not make any significant contributions to user evaluation. This might be due to the normal accessibility to the system and information by users, so they do not see any significant differences in this point.

5. Conclusions

This study investigated the impact of information quality on user evaluation of information systems. The study provided a framework solicited from prior research in different information system environments with the aim of building a more inclusive measurement model to both information and system quality. Consisting with previous studies, the study provides some useful conclusions that can be used by managers to structure IS strategies to best benefit their organizations. For example, enhancing information quality can subsequently improve individual performance and result in improved user evaluation as discussed below:

Information quality (IQ) measures are very important as they determine the degree to which information is used. This in turn affects perceived user performance, which sit at the core of the D & M model. Consistent with previous studies in various types of information systems, the results of the current study indicated that the impact of IQ on user evaluation was significant and positive. However, the relationship was not as strong as SQ in term of predicting the variance in user evaluation (DeLone & McLean). Overall, this study proved the importance of IQ as an essential factor influencing positively user evaluation within health information system's environment. These finding support the findings in previous studies and confirmed again the importance of D & M model in predicting user performance.

All IQ measures were analysed to determine the significance of each of the measures and determine which made a significant contributions in predicting user performance. Amongst these measures, completeness, accuracy and timeliness were deemed to be the most important attributes of IQ needed to support users when using the systems to perform tasks. System users give high attention to information completeness as it contributes significantly to their performance. They reported that the completeness of the information available through the systems helps them achieve their performance goals and improves the quality of the work performed. Accuracy also was found to be very important for users, and contributes uniquely to improve user evaluation. It leads to more accurate work with

less mistakes and errors as users rely on the systems to get accurate information needed to perform their tasks and achieve job goals.

To conclude, IQ is associated with high user impacts and evaluation. IQ should be improved in several to increase benefits for users. For example, "by aligning IT strategy with business strategy, using data mining techniques to improve business intelligence, and using data warehousing techniques to aid business decision making. By linking IT strategy with business strategy, information outputs can be designed to provide information that enhances organizational effectiveness (Gorla, Somers, & Wong, 2010, p222). Similarly, data warehousing and data mining techniques provide relevant information (implicit and explicit) to decision makers, which will improve decision making".

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National Targets for Romanian Education in the Context of EU Strategy 2020

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Abstract

Since we find ourselves at the middle of the term set for fulfilling targets established for all Member States of the European Union (EU), in the context of the Europe 2020 Strategy, we intend to analyse the current degree of achievement of targets set by Romania in the field of education. We will analyse the actions in the strategic documents relevant for higher education, regarding the 26.7% growth in the share of 30 to 34 year old persons who have attained tertiary education. We shall consider the realism of this target, taking into account the methodology used for determining it and the importance of demographic factors that influence directly and indirectly its achievement. We will also analyse the connection to targets related to the objective of increasing the employment rate. The analysis carried out will substantiate the existence or non-existence of preconditions for reaching the targets assumed by Romania in the field of education, in the remaining interval until 2020.

Keywords: member states, indicators for education, statistical, graduates

Introduction

In order to define the actions required to implement the Europe 2020 Strategy, the European Commission has set a number of five objectives to be reached, by 2020, at European level. These objectives concern employment rate, the financial support for research and development, reducing the effects of climate change, the sustainable use of energy, reducing the rate of early school leaving and increasing the share of tertiary education graduates, as well as measures to counter poverty and social exclusion. In turn, each EU Member State has set its own targets for achieving these objectives, based on economic and institutional realities at national level.

Monitoring the targets for indicators assumed by Romania for the five objectives is achieved through the National Reform Programme (NRP). This constitutes the framework for defining the structural reforms and the development priorities that should guide Romania's evolution until 2020. NRP is updated annually in order to incorporate the priorities set by the Annual Growth Survey, the Employment Guidelines, the Broad Economic Policy Guidelines and other commitments undertaken by Member States within the European Semester (http://ec.europa.eu/europe2020/pdf/csr2015/nrp2015_romania_ro.pdf).
The European Commission, in turn, monitors the progress in achieving national objectives of the Europe 2020 Strategy and includes it in a Country Report, compiled annually. (http://ec.europa.eu/europe2020/pdf/csr2016/cr2016_romania_ro.pdf).

Romania is situated below the EU target of 40% increase in the share of 30 to 34 year old persons who have attained tertiary education with an assumed national target of only 26.7%.

In order to achieve these objectives, Romania has undertaken to implement several measures, estimating the necessary financial resources over three distinct intervals, i.e. 2011-2013, 2014-2015, 2016-2020. The Ministry of National Education and Scientific Research (MNESR) is the Romanian institution responsible for monitoring the measures taken to achieve these two targets in the field of education.

To achieve the goal of increasing to 26.7% the share of 30 to 34 year old persons who have attained tertiary education, Romania has established a series of measures, setting apart those that entail programmes and projects funded from structural and cohesion funds allocated to Romania for 2007-2013, and 2014-2020 respectively. The Ministry responsible has established that structural funds could finance: The 2025 Vision for Tertiary Education project, the finalization of the National Qualifications Framework, the creation of the Single Academic Registry (a database of all students in Romania), a national survey to monitor the insertion of tertiary education graduates into the labour market, supporting doctoral schools and doctoral and postdoctoral scholarships and improving university management. An allocation of approximately 100 million lei was estimated necessary for the achievement of these measures. Other types of measures taken into consideration were: increasing enrolment numbers for undergraduate studies for 2010-2013 by up to 20% and maintaining the result until 2020, reducing the number of study programmes in 2013-2015 and increasing the number of students as well as the operationalization of the National Agency for Student Loans. Their implementation was estimated to be achieved by attracting additional resources from taxes, through an operational tax system for students. (http://www.mae.ro/sites/default/files/file/Europa2021/Memorandum_tinte_nationale.pdf).

The objectives Romania assumed in the field of education are interdependent with that of increasing to 70% the employment rate of the population aged 20 – 64. The synchronization of measures envisaged for achieving these objectives is also necessary. For example, the finalization and operationalization of the National Qualifications Framework in Romania is an essential measure both for increasing the employment rate and for increasing the percentage of tertiary education graduates. Carrying out studies on the correlation between the qualifications provided by the education system and the requirements of the labour market, developing projections of labour market developments and anticipating the needs for skills are measures that take into account both fields, education and employment. (Lucian-Liviu Albu, Petre Caraiani, Mioara Iordan, Perspectivele pieței muncii din România în contextul Strategiei Europa 2020, http://www.cnp.ro/inovatie/docs/seminar-studii-25-06-2012/Rezumat%20studiu%20Piata%20muncii.pdf)

This paper aims to analyse the strategic planning documents, as well as reports and assessments regarding the objectives assumed by Romania in relation to the Europe 2020 Strategy, to analyse the interdependence of actions needed to achieve the objectives, particularly in education, and the factors influencing this. The document analysis is accompanied by statistical data processing and interpretations of results which substantiate the prognosis calculations regarding the achievement of indicators in the field of education by Romania.

Analysis of Relevant Indicators for Education

It is apparent that two of the three definitions of the type of economic growth used in the Europe 2020 Strategy (smart growth and inclusive growth) have education in general and tertiary education in particular as an important determinant. Moreover, of the 7 major initiatives that support the Europe 2020 Strategy, three are related to education / research (Innovation Union, Youth on the Move, Agenda for New Skills and Jobs). It follows that education is one of the fundamental pillars of the Europe 2020 Strategy, not in the sense of mere statistical data, but in that of education which generates knowledge, skills, employability, productivity and ultimately prosperity and which, through its quality and competitiveness, is de facto integrated in the European Higher Education Area (EHEA).

We shall present below the EU image of the three indicators relevant for education, included in the Europe 2020 Strategy.

According to Eurostat, in terms of the percentage of 18 to 24 year old persons who reached a maximum lower secondary level of education (gymnasium/8 school years) and have not participated in any further form of education or training in the total population of the same age, Romania is part of a group of countries which already in 2014 had an overall ratio well above the EU average (11.1%). Along with

Italy, Romania has had an extremely slow pace of improvement in this indicator over the past 10 years. In 2014 compared to 2005, early school leaving was reduced by only 1.5%. If this rhythm were kept constant, the target of 11.3% set for 2020 would seem very difficult to achieve According to the same Eurostat data, in terms of the share of 30 to 34 year old persons who have attained tertiary education, Romania belongs to the group of countries with levels below 30%, along with the Czech Republic, Slovakia and Italy. What makes Romania stand out in this group is the fast pace of growth of this indicator, which tripled in 2014 as compared to 2000. (http://ec.europa.eu/eurostat/web/education-and-training/data/main-tables).

"The substantiation paper for the setting up of national benchmarks for the Europe 2020 Strategy objectives - in the field of education" provided by MNESR states that developments during 2010-2020 regarding the share of 30 to 34 year old persons who have attained tertiary education was based on the evolution of the indicator in the period before 2010 and on the following factors:

Table 1: Values (time series) of influential measures

	2002	2003	2004	2005	2006	2007	2008	2009
Value GDP per capita (in EUP PPS *)	29,4	31,3	34,1	35,0	38,4	41,6	…….	…….
Real growth rate of GDP (%)	5,1	5,2	8,5	4,2	7,9	6,3	7,3	-7,1
Annual public and private expenditure in universities (% of GDP)	0,8	0,6	0,6	1,1	…….	….....	…….	…….
Annual public and private expenditure per student. (EUP PPS*/ GDP per capita)	…….	…….	…….	2375,7 /30,2	…....	……	…….	…….

*EUP PPS - common currency which eliminates differences in price levels across countries, allowing to compare the volume of GDP between countries)

Source: The substantiation paper for the setting up of national benchmarks for the Europe 2020 Strategy objectives - in the field of education, Ministry of National Education and Scientific Research.

However, the forecast issued five years ago had not been elaborated based on regression equations, having the above-mentioned factors as variables, both because of the inconsistency of data series and because of assumptions that should have been formulated about the influencing factors. Moreover, it is not in the least clear what the significance of the determining coefficients of the regression equation would have been and how relevant they would have been. In fact, the forecast system has little sensitivity to such factors but it is strongly influenced by the evolution in the number of graduates and by their age distribution. For example, a 21 years old graduate of 2008 will be found in the 30-34 years old population of 2017 if he should not emigrate in the meantime.

Fully aware of the risks of multifactorial prognosis, it was resorted to analyses of data series on graduates and population, formulating various assumptions on slope coefficients of trend curves. Based on these assumptions, the authors of the substantiation of targets for this indicator have developed three forecast scenarios for the evolution of the Indicator, which are shown in the table below.

Table 2: Forecast scenarios for the share of 30 to 34 year old persons who have attained tertiary education (%)

Scenario	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*
Optimistic	17,88	19,10	20,51	21,95	23,33	24,57	25,69	26,85	27,92	28,99	29,93
Realistic	17,61	18,41	19,40	20,25	21,30	22,17	23,22	24,06	24,92	25,93	26,74
Pessimistic	17,33	17,89	18,49	19,02	19,65	20,21	20,95	21,73	22,57	23,51	24,60

Note: Forecast issued in 2010. The coloured columns indicate points where the slopes modify. Column 2020 refers to potential targets to reach.
Source: The substantiation paper for the setting up of national benchmarks for the Europe 2020 Strategy objectives - in the field of education, Ministry of National Education and Scientific Research.

Decision makers assumed the value of 26.74% as a target corresponding to the realistic scenario. Romania's progress on this indicator is monitored against this value.
At present, data on the actual evolution of the indicator up to 2014 is available, therefore we can compare this development with the forecast to assess the degree of compliance.

Table 3: The actual development of the indicator "Share of 30 to 34 year old persons who have attained tertiary education" as compared with the forecast (%)

	2010	**2011**	**2012**	**2013**	**2014**
Value according to forecast	17,61	18,41	19,40	20,25	21,30
Value published by EUROSTAT	18,30	20,30	21,70	22,90	25,00
Difference (EUROSTAT- Forecast)	0,69	1,89	2,30	2,65	3,70

Source: The substantiation paper for the setting up of national benchmarks for the Europe 2020 Strategy objectives - in the field of education, Ministry of National Education and Scientific Research.

The substantiation paper states that there are differences in methodology, arguing that EUROSTAT takes into account the population with tertiary education, which would create a disadvantage for Romania whose reports include only to the population with university education. The argument is unsubstantiated, since the EUROSTAT methodology takes into account only ISCED levels 5 and 6, which correspond to academic degrees. Post-secondary graduates, although included in the tertiary education, are classified as ISCED 4. Tertiary education consists of post-secondary (ISCED 4) and higher education (ISCED 5-6). The National Institute of Statistics reports to EUROSTAT correctly, according to the methodology, therefore there is no impediment to comparability. The above table shows that, so far, the analysed indicator has had a significantly more favourable evolution than the forecast, which enables us to believe that the level assumed by Romania for 2020 will be exceeded. A more refined analysis of the evolution of the Indicator requires taking into consideration the age distribution of graduates with a bachelor degree, which is why only ISCED 5A and 5B graduates were selected from the Eurostat statistics whose sum corresponds to the NIS reports referring to graduates with a bachelor degree. Eurostat data, ISCED 5A and 5B (cumulative) show that the age range of graduation from undergraduate programs is very large, which means that enrolments in tertiary education were also made at ages much higher than the widely recognized official age (18-19 years). The share of graduates aged between 21 and 25 showed a downward trend from 74% in 2000 to 55% in 2011. Since 2012, the age structure of graduates with a

bachelor degree begins to show a recovery trend. This means that the pool for late enrolment has begun to drain. This trend, which influenced the decrease in enrolments in tertiary education, overlaps with the downward trend in the number of high school graduates with a baccalaureate diploma attending university studies (http://ec.europa.eu/eurostat/web/education-and-training/data/main-tables). Under these circumstances, it is expected that increasingly fewer students will enrol in the Romanian higher education.

The age structure of graduates with a bachelor degree allows for precise calculations to determine the number of people who have attained tertiary education who should be included in any given year in the 30-34 age group. The calculation is illustrated in the diagram below.

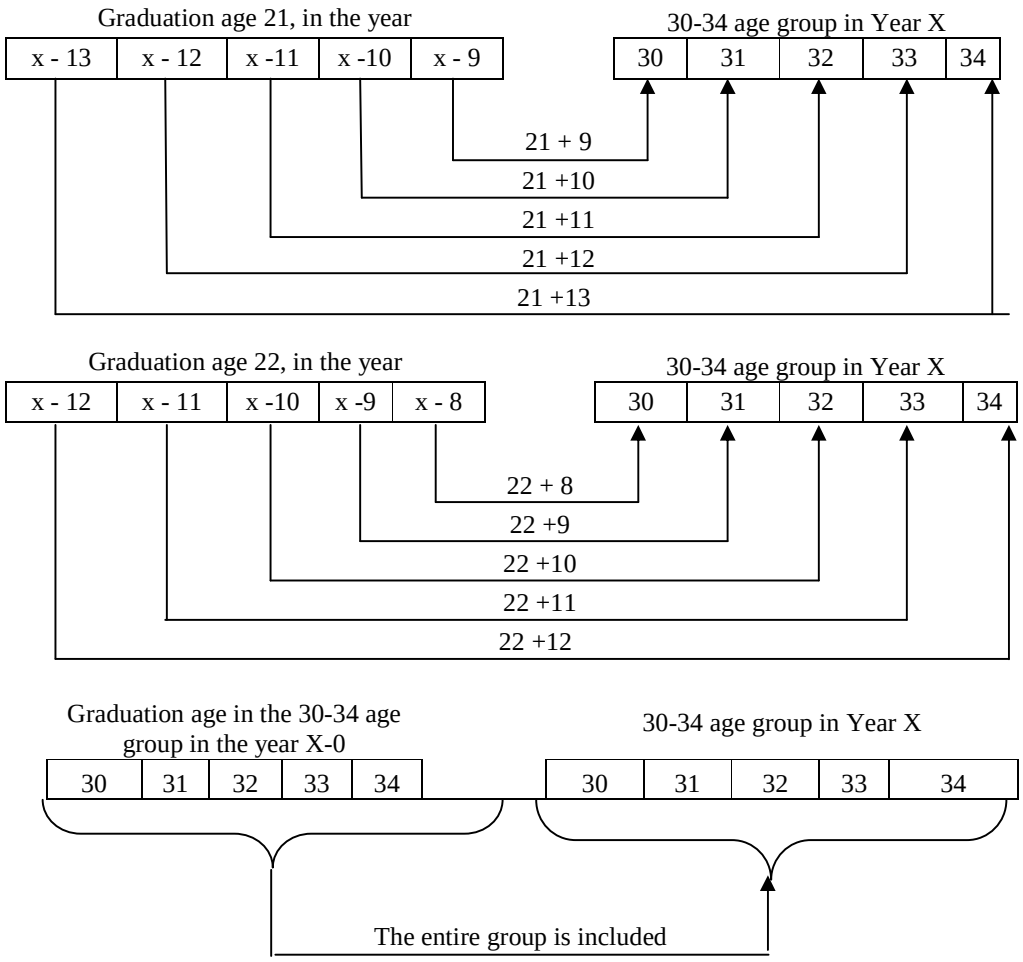

Fig 1. How to determine the number of people who have attained tertiary education who should be included in any given year in the 30-34 age group?

According to these calculations, the number of graduates which ought to be reflected in the 30-34 years old population in the years 2010-2014 is presented in the table below.

Table 4: The number of graduates which ought to be reflected in the 30-34 years old population in the years 2010-2014

	2010	2011	2012	2013	2014
Number of graduates with a bachelor degree aged 30-34	463.904	503.935	535.804	557.129	573.972
Population aged 30-34	1.534.159	1.531.331	1.514.330	1.456.827	1.392.326

Source: For population – EUROSTAT, for graduates - calculation of EUROSTAT data

Knowing the number of graduates with a bachelor degree that should have been included in the 30-34 years old population and the population of this age group, the value of the Indicator "Share of 30 to 34 year old persons who have attained tertiary education" which should have been statistically obtained could be calculated.

Table 5: Calculated value (%) of the Indicator and the value obtained through statistical research

	2010	2011	2012	2013	2014
Calculated value	30,2	32,9	35,4	38,2	41,2
Value obtained through statistical research	18,3	20,3	21,7	22,9	25,0

Source: Calculations based on data in Table 7.5. EUROSTAT for the statistically obtained value

The explanation of the difference resides in the emigration of people who have attained tertiary education in the period between the year of their graduation and the year the statistical research is carried out in order to highlight the status of the Indicator included in the Europe 2020 Strategy. Therefore, in the absence of the phenomenon of emigration of people who have attained tertiary education, Romania would have exceeded since 2014 the 40% target set in the Europe 2020 Strategy for the EU-28 average. This finding highlights the fact that Romania's efforts to school the young population to a tertiary level are largely annihilated by the emigration of highly skilled young people to EU countries. In other words, Romania spends considerable amounts of public and private resources for superior level schooling but the benefits of these financial efforts are externalized. In this context, Romania "subsidizes" the higher qualification of the European workforce.
In order to get an accurate picture of losses concerning the population who attained tertiary education, the absolute values must be highlighted. The results are shown in the table below, illustrating the young persons who had attained tertiary education and emigrated in the period between graduation and 2010-2014.

Table 6: The young persons who had attained tertiary education and emigrated in the period between graduation and 2010-2014 (no. of persons)

	2010	2011	2012	2013	2014
Graduates who should have been found in the population aged 30-34	463.904	503.935	535.804	557.129	573.972
Graduates who can be found in the population aged 30-34	281.000	310.300	325.500	329.900	343.600
Emigrations in the period between graduation and the mentioned years	182.904	193.635	210.304	227.229	230.372

Source: Calculations based on data published by EUROSTAT

Since 1997 (the first year taken into account in determining the number of graduates who should have been found in the population aged 30-34) until 2014, about 230 thousand people who had attained tertiary education left the country (the number of deaths has an insignificant influence for this age group).
According to the above, it follows that one of the key factors influencing the progress of the indicator "Share of 30 to 34 year old persons who have attained tertiary education" is emigration. Unfortunately, this factor was not taken into account for the substantiation of the target Romania assumed for 2020. If this factor had been taken into account, it would, in turn, have influenced the substantiation of enrolment numbers and, as a consequence, the public funding of tertiary education. However, the consequence can be the maintenance of an oversized tertiary education system, whose quality cannot be precisely assessed and whose responsiveness to the socio-economic needs of Romania is still not the desired one.
In forecast, the evolution of the Indicator if the emigration of young people with tertiary education had not occurred, would have been the one illustrated in the table below.

Table 7: Evolution of "Share of 30 to 34 year old persons who have attained tertiary education "during 2015-2020 (thousands persons)

	2015	2016	2017	2018	2019	2020
Number of graduates who should have been found in the population aged 30-34	584	612	606	606	590	560
Population aged 30-34	1.336	1.305	1.303	1.334	1.382	1.405
Share of 30 to 34 year old persons who have attained tertiary education in the total 30 to 34 year old population (%)	43,7	46,9	46,5	45,4	42,7	39,8

Source: Calculations based on data published by EUROSTAT. For population, the EUROSTAT forecast was used (the low fertility scenario)

The analysed indicator continues to grow until 2016, when it peaks at 46.9%. This level is achieved both due to the increasing number of tertiary education graduates and as a result of the decrease in population aged 30-34. Starting in 2017 the number of graduates with a bachelor diploma that reach the age of 30-34 begins to decline (the decrease in the number of enrolments in tertiary education starts to propagate), and the population in the 30-34 age group begins to increase slightly (according to the EUROSTAT forecast) (http://ec.europa.eu/eurostat/web/education-and-training/data/main-tables). The combined effect of these two trends is the relatively rapid decrease in the levels of the analysed indicator, which reaches 39.8% in 2020. If the trends remain valid, the achievable levels of the Indicator will depend on the levels of the emigration. Since there are no statistics on the emigration of people with tertiary education after graduation, a number of assumptions to define scenarios have to be formulated. For forecasting purposes, two scenarios shall be adopted. In Scenario 1, the volume of emigration of young people with tertiary education (cumulatively, starting with the year of graduation), which amounts to 230 thousand people, will decrease by an annual average of 10 thousand people as a result of sliding the calculation period to the right. This means that the strong migration of 2001 will sensibly reduce its influence, and the one started in 2007 will have an increasingly reduced but still quite consistent effect. A second assumption envisages that annual emigration on the forecast interval will be virtually zero. Regarding Scenario 2, the first assumption in Scenario 1 is maintained, but it is assumed that the annual average emigration over the forecast interval will amount to 5000 persons with tertiary education.

Values calculated over the forecast interval of the Indicator "Share of 30 to 34 year old persons who have attained tertiary education" are presented in the following table.

Table 8: Evolution of the indicator "Share of 30 to 34 year old persons who have attained tertiary education" for the period 2015- 2020

	2015	2016	2017	2018	2019	2020
Number of graduates who should have been found in the population aged 30-34 (thousand pers.)	584	612	606	606	590	560
Population aged 30-34 according to the EUROSTAT low fertility hypothesis (thousand pers.)	1.336	1.305	1.303	1.334	1.382	1.405
Emigration according to Scenario 1 (thousand pers.)	220	210	200	190	180	170
Emigration according to Scenario 2 (thousand pers.)	225	215	205	195	185	175
Value of the Indicator (%): Scenario 1	27,2	30,8	31,2	31,2	29,6	**27,8**
Value of the Indicator (%): Scenario 2	26,8	30,4	30,8	30,8	29,3	**26,7**

According to the above forecast, it is expected that in the next five years the analysed indicator reach values above the target assumed by Romania in the Europe 2020 Strategy. This growth, visible since 2014, is due to the massive enrolments in the 2005/2006 - 2009/2010 academic years. Starting in 2019 the indicator value will begin to decline.

Undoubtedly, there is a correlation between education attainment and employability (employment). People with low educational level are the most vulnerable, i.e. the population who does not go beyond lower-secondary education. Regarding the indicator on the employment rate of the population aged 20-64, Romania has an employment rate of 65.7%, the target for 2020 being 70%. The population with secondary (high school) and post-secondary (post-high school) levels of education have higher employment levels, but these levels vary widely from country to country. Although the population with tertiary education has the highest employment level, in the case of emerging countries this should be looked at more closely because it can hide phenomena related to internal and external mobility. Highly qualified workforce, when in excess, can migrate internally to jobs that could otherwise be filled by people with secondary qualifications, and also abroad, in which case they may accept lower qualification jobs. For emerging countries, among which Romania, negative migration flows act as regulators of employment rates (not only for people with tertiary education), but can also induce destructurations. For example, the emigration of doctors causes major disturbances in the functioning of the public health system in Romania.

The Demographic Evolution of Romania and its Implications on Achieving Targets Assumed under the Europe 2020 Strategy

According to Eurostat sources, during 1990-2015, Romania's population decreased by 3.35 million. The main causes of this demographic decline were the declining birth rate and the negative balance of external migration flows (immigration - emigration). Between 1990-2014, Romania's population decreased by 923 thousands inhabitants. The difference of 2.4 million, to the total loss of 3.35 million, is due to the net negative balance of external migration flows (http://ec.europa.eu/eurostat/web/population-demography-migration-projections/population-projections-data). Moreover, the decline in economic activity and the lower living standard have transformed Romania into a country of emigration. EU accession has brought, among other things, the free movement of persons, which facilitated migration in Europe. The main share of Romanian emigration is represented by the economically active population, aged 20-59 (79.4% in

2013), within which the young population aged 20-39 represents 68.0%). (INS, Anuarul Statistic al României 2015 - data series, http://www.insse.ro/cms/files/arhiva_buletine2015/bsl_11.pdf).

A synthetic image of the evolutions during 1990-2015 of the pre-university school-age population is shown in the following table.

Table 9: Losses of school age population on age groups up to and after the year of relative stabilization of evolution

Age group	***Losses up to stabilization year as compared to 1990 (%)***	***School-age population (thousand persons)***						***Losses up to 2015 as compared to stabilization year (%)***
		1990	***1995***	***2000***	***2005***	***2010***	***2015***	
0-4	*29,3*	***1.811,4***	***1.280,7***	*1.144,7*	*1.090,9*	*1.051,7*	***953,3***	***25,5***
5-9	*26,3*	***1.720,3***	***Major migration flows***	***1.268,5***	*1.129,8*	*1.056,6*	***1.052,6***	***14,6***
10-14	*44,5*	***1.976,8***			***x***	***1.097,7***	***1.052,5***	***4,1***
15-19	*40,4*	***1.894,6***				***1.128,7***	***1.092,4***	***3,2***

Source: Calculated based on EUROSTAT

The table above highlights the levels of school-age population which were the baseline in 1990, the losses due to major migration flows (the shocks in 1991, 2001 and 2007), the sliding across generations and the levels of relative stabilization reached in 2015.

It is apparent that the levels of school-age population at which the process became relatively stable in 2015 are almost a half of those in 1990. If in the following period there should be no new resurgence of migration flows, the school-age population corresponding to primary and secondary educational levels will mostly remain below the influence of the birth rate. The demographic process has settled at a significantly lower level. The consequence is the rescaling of primary and secondary education. If in 1990 the system included 1.8 - 1.9 million students, the current numbers barely rise above a million. The concentration of the education system is no longer a policy option, but an imperative of demographic realities.

The 20-24 age group, corresponding to tertiary education, hadn't witnessed until 2005 large losses as compared to the 1990 baseline. In 2000, the loss compared to the entire 10-14 year old population of 1990 was of only 14 thousand people, and by 2005 the loss of 5-9 years old population as compared to the baseline was of around 50 thousand people. The large numbers of students in 1990 and the relatively small losses along the way until 2005 generated a benefit for the tertiary education, as a support to its expansion, in terms of large populations aged 20-24. The first significant drop in population in this age group is only visible in 2010 and it is due to the massive emigration in 2007 and the following years, a consequence of Romania's accession to the EU. After 2010, the decline in population in the 20-24 age group is increasing due to the propagation of the decline in population aged 0-4 started in 1991, through migration and lower birth rate.

Repeating through successive generations the propagation mechanism of the evolution of the 0-4 age group, while adding the 20-24 age group corresponding to tertiary education, it becomes apparent that the population aged 20-24 will evolve over the coming decades in a descending manner, albeit starting from a baseline lower than in 1990 by almost 800 thousand persons, as can be seen from the table below.

Table 10: The loss of population aged 20-24 due to the propagation effect of the decline in 0-4 years old population (thousand pers.)

Age group	*1990*	*1995*	*2000*	*2005*	*2010*	*2015*
0-4	***1.811,4***	***1.280,7***	*1144,7*	*1.090,9*	*1.051,7*	*953,3*
5-9	*1.720,3*		***1.268,5***	*1.129,8*	*1.056,6*	*1.052,6*
10-14	*1.976,8*			***?***	*1.097,7*	*1.052,5*
15-19	*1.894,6*				***1.128,7***	*1.092,4*
20-24	*1.908,4*					***1.191,7***

Source: Calculated based on EUROSTAT

In summary, in the 25 years examined, young population aged 0-24 has decreased by 4 million, which means it currently represents a mere 26.9% of the country's population while in 1990 its share was 40.1%. In decades to come, this decline in the young population will impact the active population from an economical perspective and, therefore, the country's economic potential.

The contraction of pre-university education system is not a subjective political option, but an imperative of demographic realities. Thus, the population in the 0-19 age group was reduced by 3.3 million during 1990-2015 and, for the 2015-2040 period, the foreseen reduction is of almost 0.7 million people. The pre-university education levels have been facing for years a situation in which school-age population is only a half of the one in 1990.

The shock wave of the radical decrease in school population for the 0-4, 5-9, 10-14 and 15-19 age groups has propagated, since 2010, to the 20-24 years old population corresponding to tertiary education. According to Eurostat forecast, the population in the 20-64 age group will decrease by 2 million in 2040 as compared to 2015 (http://ec.europa.eu/eurostat/web/population-demography-migration-projections/population-projections-data). In this scenario, numbers such as the 907,353 students enrolled in tertiary education in the academic year 2007/2008 will no longer be possible. Even figures such as the 433,234 people enrolled in the 2013/2014 academic year will remain a memory. Fierce competition on the market for tertiary education will force universities to reform and improve the quality of educational services provided.

Conclusive Remarks

"The share of 30 to 34 year old persons who have attained tertiary education" is not a stand apart indicator, which can be separated from the context in which it was defined – the Europe 2020 Strategy. Tertiary education is a factor which supports smart, sustainable and inclusive economic growth. In order to fulfil this role, tertiary education must be high-quality, competitive in a global market and adapted to

the socio-economic needs. Unless these conditions are met, the Indicator remains a simple statistical report, lacking relevance, which simply counts the number of university diplomas among the 30-34 years old population.

The levels of the analysed Indicator were substantially influenced by the emigration of young people with tertiary education. If it had not been for this emigration, Romania would have exceeded, ever since 2014, the 40% target set by the Europe 2020 Strategy for the EU-28 average to be achieved by 2020. In other words, Romania's efforts to school young people to a higher level are largely annihilated by this emigration, the result being that costs of training are internalized while its benefits are externalized. This phenomenon must be taken into account in formulating funding policies.

During the 2015-2020 period, according to forecasts, the Indicator assumed in the Europe 2020 Strategy will be higher than the assumed target of 26.7%. After 2020, the Indicator will assume a downward trend leading to values lower than the target, due to lower number of registrations in tertiary education. The only route to recovery is a significant improvement in the quality of tertiary education and an increasingly active participation in the international students' market.

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Study Concerning the Per-Household Revenue and the Food Expenses in Giurgiu County - Romania

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Abstract:

The paper is written based on a survey conducted in 2015 in the Macro-Region 3, specifically in Giurgiu county, one of the seven counties of the South-Muntenia Region. The level of population's revenue, together with the level of per household expenses on food and beverages are very important indicators of the way the economic stability is being assured on regional and national level. This paper has the main purpose to analyse the level of food expenses in the Giurgu county, correlated with the per-household revenue that those interrogated replied having. I used the method of the questionnaire of research in 12 villages and Giurgiu municipality. The results led to the conclusion that Giurgiu households have a lower income then average national level, but they also spend less money on food then the national average. Also, the largest part of the expenses made go on services, with urban households spending slightly more on services then the rural households.

Keywords: Giurgiu, expenses, food expenditure, revenue,

Introduction

This paper is based on the results of a survey conducted in June-July 2015, on 272 people from Giurgiu county. The area of research was Giurgiu county, one of the seven counties of the South-Muntenia region, part of the Macro-Region 3 of Romania.

The target population was represented by all the persons from the general population in urban and rural areas, over 18 years of age, with the observance of the official proportions of the target population in terms of respondents' gender.

The study was conducted in the idea that the population of Giurgiu county is consuming more cereals, roots and tubers than the national average, due to lower incomes per households. Also I was assuming that a big part of the per-household revenue (or the income per household) is being spent on food and beverages.

The main purpose of a national economy is for the population to have at least the necessary amount of money to ensure its own consumption, but also a great percentage of the population should be able to save part of their revenue, after spending their salary on all the strictly necessary items and services. According to M. S. Stănculescu, Romania did not concentrate too much on the problem of poverty and inequality of its population until 1994 (Stănculescu, 2009). This lack of interest concerning this matter may be due to a long lasting relationship of equilibrium between revenue and expenditure in Romania, demonstrated by Stoian in 2008 (Stoian, 2008) and also by Hye and Jalil in 2010 (Hye, Jalil, 2010)

Unfortunately, in Giurgiu county, as well as in all the counties in Romania that are preponderantly rural, very few families are able to put money aside from their incomes and when that happens the amount is quite small.

Materials and Methods

In the investigation we used the questionnaire of research method, the questionnaire being structured by using the panel technique (funnelling) (Septimiu Chelcea, 2007). Before framing the questionnaire I created a number of assumptions that were either confirmed or denied during the investigation.
The study used a probabilistic, multi-layered sampling model. Following the stratifications made the survey was conducted in 12 rural settlements (182 questionnaires) and Giurgiu municipality (90 questionnaires). The 12 settlements selected were: Gogoşari, Gostinu, Toporu, Stăneşti, Vedea, Oinacu, Clejani, Ogrezeni, Băneasa, Frăteşti, Ghimpaţi, Roata de Jos. For the respondents selection inside the localities I used the random path method.

The results of the survey conducted in Giurgiu county were introduced and then processed using IBM SPSS Statistics, version 20. With this program there were carried out a series of correlations between different variables extracted from the questionnaire, including the correlation between the income levels and the consumption of cereals, tubers and roots.

Data on the development of revenue and expenditure at the national, macro-regional and regional levels were gathered and processed from the INS database -Tempo Online.

Results and Discussions

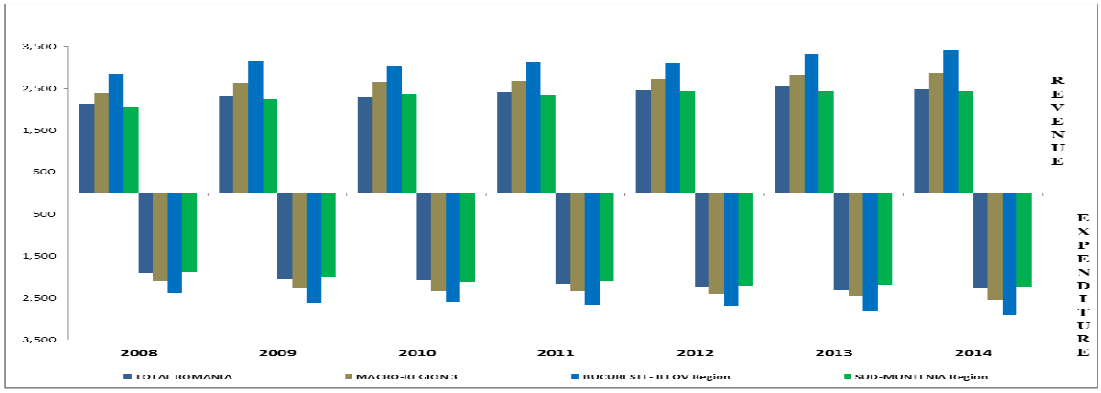
Monthly average incomes and expenses per household:

The monthly average incomes achieved in Macro-Region 3 are located generally for the analyzed period, between 2,394.66 RON in 2008 and 2,875.24 RON in 2014. Compared to the monthly average incomes at the country level, households from Macro-Region 3 earned in 2014 eg with 374.52 RON, respectively with 14.98% more. At regional level, South-Muntenia Region households earned on average in the analyzed period, between 2,059.45 RON in 2008 and 2,442.60 RON in 2014. As a difference to the incomes in the Macro - Region, on average, households in South - MUNTENIA Region won in 2014 with 43.64 RON respectively with 15.05% less than the Macro – Region's average. However, in the Bucureşti - Ilfov Region revenues were with 544.93 RON, respectively with 18.95% higher than the Macro – Region's average.

The monthly average expenses in the Macro-Region 3 ranged between 2,102.02 RON in 2008 and 2,535.96 RON in 2014. In 2014 they were with 11.75% and 266.71 RON higher than the national average. In South-Muntenia Region the spending were on average of 1,889.46 RON in 2008 and 2,240.33 RON in 2014. In 2014 they were with 11.66% lower than the Macro – Region's average. Instead, in the Bucureştit-Ilfov Region spending were in the analyzed period by more than 11% higher than the macro-regional level, for example being in 2014 with 11.75% higher.

It is noted that the monthly average per-household revenue increased gradually at both the Macro – Region's level and the component regions level. But the expenditures have the same growth rate. For example, in the Macro-Region 3, the per-household incomes in 2014 were with 20.07% higher than in 2008, while the expenses also rose by 20.64%, the difference between these two growth rates being of 0.57 percentage points. In the South-Muntenia region incomes increased in 2014 compared to 2008 with 18.60%, while expenses increased by 18.57%. The income growth was with only 0.03 percentage points higher than the increase in expenses.

In the Bucureşti-Ilfov Region, despite revenue being much higher than the average incomes in South-Muntenia Region, the expenses are higher also. If in 2008 a household in the Bucureşti-Ilfov Region earned with 38.17% more than a household in the South-Muntenia Region and spent with 26.38% more, in 2014 the incomes came to be with 40.02% higher, while spending increased also, being with 29.82% higher than the average expenditure of a household in the South-Muntenia Region. We can notice however that the revenues of a household from Bucharest-Ilfov rose by 20.20% during the reviewed period, while expenditure increased by 21.79%, with 1.59 percentage points more than the revenues.



Source: Original, after data provided by INS – TEMPO Online

Graph 1.: Monthly average revenue and expenditure per household (lei RON)

Moreover, we can see from Table 1 that in general in the country, revenues are with over 10% greater than expenses. The percentage difference between revenues and expenditures is higher in the Macro-Region 3 due to higher revenue of the Bucharest-Ilfov inhabitants. It is noted that in this last region mentioned the revenue per household is with over 16% higher than the expenditures. In the South-Muntenia Region, however, the difference between revenues and expenditures is generally below the country level average and even below the Macro – Region's average.

Table 1.: Difference percentages between Revenue and Expenditure

	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
	MU: %						
Romania	11.30	13.12	11.70	10.69	10.27	10.43	10.20
Macro- Region 3	13.92	16.00	14.26	14.58	13.08	14.53	13.38
Bucureşti – Ilfov Region	19.16	20.31	16.99	17.46	16.17	18.10	17.60
South-Muntenia Region	9.00	11.81	11.75	11.81	10.23	11.02	9.03

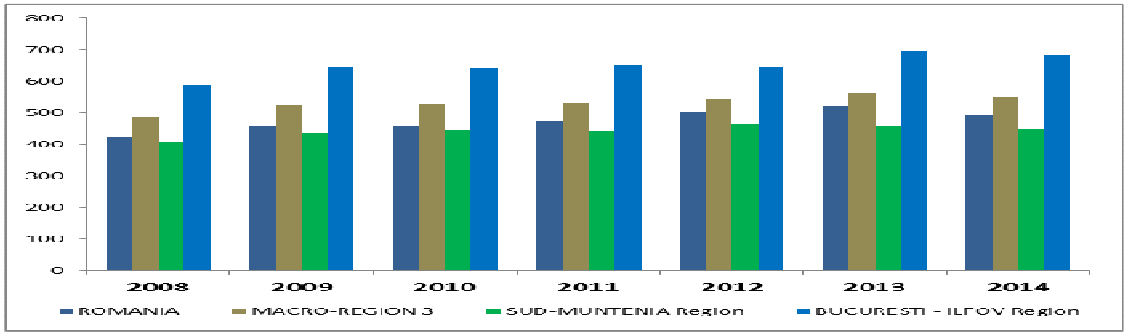
Source: Original, after data provided by INS – TEMPO Online

Expenses for food and beverages:

Of the total expenditure of a household, the most important expenses are those related to food. Therefore this indicator provides information on the share of food expenditures of total expenditures. In the Macro-Region 3 it is noted that these expenses are higher than country's average. The biggest difference was recorded in 2010 when they were by 16.10% higher than the national average. As a share of the total expenses that a household has food and drinks expenses in the Macro-Region 3 ranged between 23.10% in 2008 and 21.75% in 2009 and 2014. Although the amount steadily increased as value, the proportion of food expenses out of total expenditure decreased during the analyzed period.

In South-Muntenia Region, spending on food accounted for between 21.66% in 2008 and 19.92% in 2014, out of the total expenditure per household. In this case there is a downward trend, the share of food expenditure in total expenditure declining by 8.29% in 2014 compared to 2008. However,

households in South-Muntenia Region are spending less on food than there are spending on average households nationally. The biggest difference was recorded in 2013 when a household from South-Muntenia spent on food by 11.81% less than the average household in the country. As for the Macro-Region 3, less is spent, the maximum difference being in 2014, when the expenses per household were by 19.09% smaller than in the South-Muntenia Region.

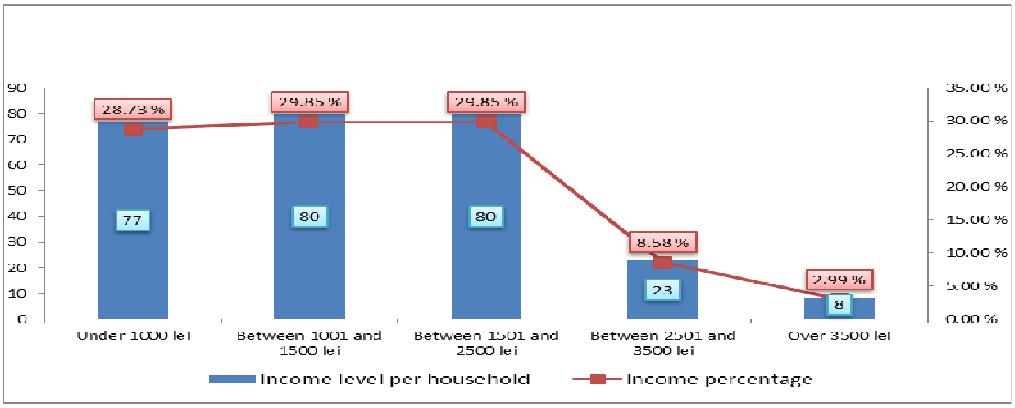


Source: Original, after data provided by INS – TEMPO Online

Graph 2.: Expenses for food and beverages consumed (lei RON)

The assumptions based on which I started compiling this inquiry related to the food security of the Giurgiu county's population were in number of 9 and the ones related to the households incomes and spendings are:
Assumption 6: It is assumed that there is an inverse correlation between the revenues and the consumption of cereals, roots and tubers, meaning that the higher the household income is, the lower the consumption of cereals, roots and tubers is.
Assumption 9: Over 35% of the household expenditures are allocated to food expenses.

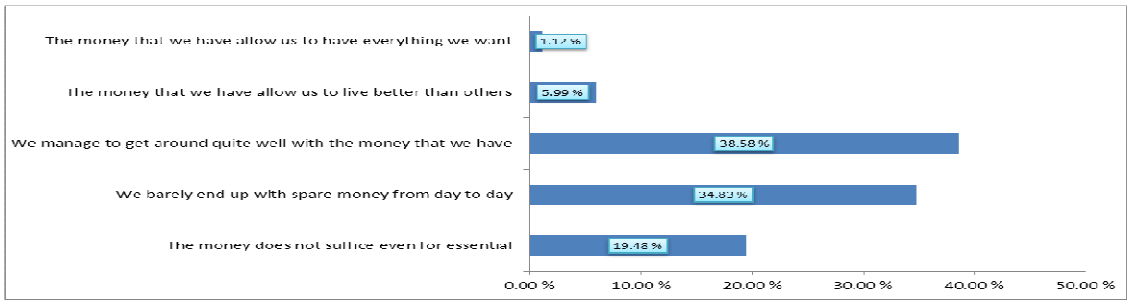
Of the 268 people who responded to the question about the household income, only 31 people or 11.57% answered that household incomes exceed 2,500 RON. We notice that the great majority of the respondents, over 55% of total respondents have a per-household revenue of under 1,500 RON.



Source: Original

Graph 3.: Income level per household

Moreover, much of the population hardly copes with the amounts of money they held at the household level, only a percentage of 1.12% of the respondents believing that they can afford to buy everything they want with the revenue of the household.



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Graph 4.: Income level framing mode

To find an answer to Assumption 6, I realized a correlation table in SPSS between the obtained revenue per household and the daily consumption of potatoes, carrots and cereals. From the table we can see that there is a strong correlation between the household income and the consumption of potatoes, which is inversely correlated (r = -0.142 and P-value = 0.024 <0.05). Also, between eating carrots and root vegetables and the household income is a strong, inverse correlation (r = -0.200 and P-value = 0.001 <0.05). These inverse correlations signify that the more the household income increases, the consumption of potatoes, carrots and root vegetables decreases, which partially confirms the Assumption 6.

But as regarding the consumption of cereals we can say that there is also a strong inverse correlation between the consumption of cereals and revenues per household (r = -0.116), but this time there are insufficient data to consider this correlation as being significant (p-value = 0.063 > 0.05).

So we come to the conclusion that ***the assumption 6 is partially confirmed, only in the case of the potatoes, carrots and root vegetables consumption and not in the case of cereals and other cereal products.*** To consider the correlation between the consumption of cereals and the household incomes as a significant one, more data are needed.

Table 2.: Correlation table between Income per household and Potatoes daily consumption, Carrots and other root vegetables daily consumption, Cereals and other cereal products daily consumption

Correlations					
		The monthly net income per household	Potatoes	Carrots and other root vegetables	Cereals and other cereal products
The monthly net income per household	Pearson Correlation	1	-.142*	-.200**	-.116
	Sig. (2-tailed)		.024	.001	.063
	N	268	256	256	258
Potatoes	Pearson Correlation	-.142*	1	.633**	.047
	Sig. (2-tailed)	.024		.000	.458
	N	256	260	250	250
Carrots and other root vegetables	Pearson Correlation	-.200**	.633**	1	.217**
	Sig. (2-tailed)	.001	.000		.001
	N	256	250	260	250
Cereals and other cereal products	Pearson Correlation	-.116	.047	.217**	1
	Sig. (2-tailed)	.063	.458	.001	
	N	258	250	250	261

Source: Original

> Nationally, in 2007-2013, the highest share of monthly expenditure was for the food expenses. In addition, between 2007 and 2013 occurred an increase in the share of this type of expenditures, from 35.8% to 36.2%, by 0.4 p.p. more. (Burcea D., Dona I., 2015)

The assumption made was that in Giurgiu county the food expenditure share is close to the value at national level

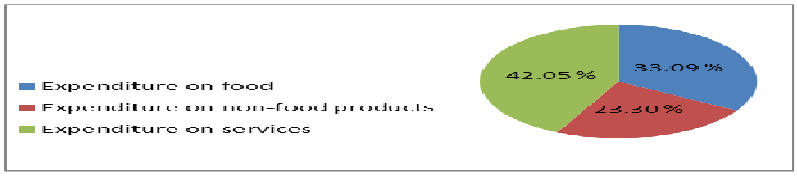
From graph 5 we can say that on average, the surveyed households spend 33.09% on food, below the average food expenditure per country. The largest share is related to services, 42.05%.

Broken down by residence, there is a percentage by 2.78 p.p. greater (8.69%) for spending on food in urban areas than in rural ones. Besides, the lowest food expenditure share was 10% of total expenditure for 11 respondents (4% of total respondents), all from the rural areas.

In both cases expenses on services are predominant, but the value is greater still for the urban households.

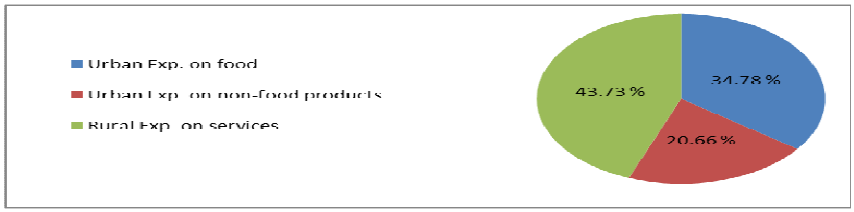
From the data obtained it can be concluded that in urban areas in Giurgiu county the food expenditure are by 8.69% larger than in the countryside, which is normal because in rural areas much of the consumption is met from their own farms. But at the same time urban residents are spending on services such as cable TV, internet, telephone, electricity, gas, maintenance, transport, health, education, hospitality, etc., by 6.37% more than those in rural areas. This difference is understandable, in light of the absence of certain charges in rural areas. In general, households in the Romanian villages and in Giurgiu county don't have certain expenditure such as: housing administration and maintenance expenses, local transportation and in some cases, internet, gas and HORECA (Hotels, Restaurants, Coffee Shops)

Thus ***the Assumption 9*** which states that household food expenditure represents the largest share of the total expenditure, with values above 35%, ***is ruled out***.



Source: Original

Graph 5.: Average share of consumption expenditure from total household queried



Source: Original

Graph 6.: Average share of consumption expenditure in urban areas

Source: Original

Graph 7.: Average share of consumption expenditure in rural areas

Conclusions

The monthly average per-household revenue for Romania were in 2014 around 2,500 RON, while the monthly average expenditure were in 2014 approximately 2,270 RON. The share of food expenses out of total expenditure was in 2014 of 36.2%. The average household revenues of the surveyed population in Giurgiu county are between 1,501 RON and 2,500 RON, with an average expenditure on food of 33.09%. Against this fact, a great percentage of those questioned think that they can manage with their per-household revenues.

In South-Muntenia Region the incomes don't exceed with much the expenses, being in 2014 by only 9.03% bigger than the spending.

We can conclude that the average income per household is lower in Giurgiu county than at national level, but at the same time, the share of food expenditure out of total expenditure is smaller, due to the fact that most of the population lives in villages and a great part of their food consumption is from their own household.

Also, against expectations, Giurgiu citizens spend more on services, the population in towns spending with 2.62 p.p. more than those living in rural areas.

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The Biotech Industry – A Challenge of Intelligent Business

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Abstract

In the context of present economy, the sustainability of the biotech business is being questioned. Therefore, this paper aims to identify three key aspects: the consumer's perspective upon GM products, the perspective of the multinational companies involved in the biotech industry and the impact of the economic crisis in the sustainability of their business, profits and costs.
The purpose of this study is to point out if the GMO business adds value to an economy affected by the crisis and if all this industry's challenges are leading towards a more intelligent economy.
The methods used in this research consist of the following: a database of the multinational companies from the biotech industry and their revenue; a business model for these companies, and an exploratory research based on a questionnaire to show the consumer's perspective upon GMO's.
The paper shows the results and interpretation of the questionnaire, the advantages of the proposed business model for the biotech companies, as well as their revenue results from the database.
In conclusion, GMO based products contribute to high progress in business towards an intelligent economy. The biotech industry managed to keep being sustainable in spite all contradictions.

Keywords: business, model ,biotechnology, genetically modified products, innovation, sustainability

Introduction

The impact of business sustainability in the biotechnology industry has started in the late 2008, when like the rest of the global economy, this industry had to face a lot of challenges concerning the viability of its business and financing model. In this context, the purpose of this study is to point out if the biotech business adds value to present economic challenges and leading towards a more intelligent economy.The second objective of the research it to identify, the perspective of the multinational companies involved in the biotech industry and the sustainability of their business, profits and costs. The present research also aims to identify the consumer's perspective upon GM products.

Therefore, the research is structured into three main parts as following: identifying the economic context of the biotech business, this industry's overview; a case study presenting the impact of economic crisis on biotech companies' business sustainability and the results of an exploratory study on a sample of availability concerning GMO's.

The research methodology consists of the above mentioned Case Study that contains identified and interpreted results of core financial indicators and business models belonging to three strong multinational companies involved in the biotech industry such as Monsanto, Syngenta and Bayer Crop Science. Last but not least, the research methodology is completed by a questionnaire based research and statistical data retrieved from the scientific materials.

1.The Economic Context of the Biotech Business: Industry

Many countries from all over the world have long been dedicating resources to supporting the growth of local biotechnology industries, investing billions of dollars and offering generous tax abatements demanding in return to witness the significant societal and economic benefits of biotechnology product development and merchandising.

Whereas in times of relative economic sustainability there may be support to dedicate resources for future returns, in the face of an economic crisis difficult resource-allocation decisions must be made,

and it is questionable how committed governments and their constituents will be for investing in biotechnology development initiatives. Given nowadays economic scenario the governments have to decide if biotechnology support levels are maintained, increased or withdrawn, and if supportive mechanisms are redesigned to change focus on local investment by strong foreign firms vs. domestic entrepreneurial growth. The biotechnology industry has always faced dynamic challenges. From bans on genetically modified crops, GMO product labeling and questions about the very patentability of biotechnology products, the commercialization of biotechnology has always been in the loop. However, strong companies and their business models have persevered over time, managing to overcome the challenges of the biotech and GMO industry, leading towards a more intelligent economy. The success of biotech companies is based on business strategies that focus on innovation, research and development and presence on foreign markets. The companies involved in this business mix these key elements in the effort to put the crisis behind them.

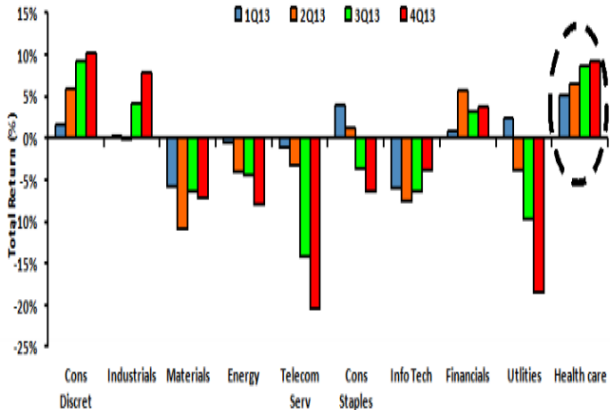

Fig 1: Return on investment from the healthcare sector

Source: J.P. Morgan, 2014 Global Biotech Outlook, https://www.jpmorgan.com/global/insights/healthcare accessed at 01.02.2016

Standard & Poor's Financial Services LLC (S&P) is an American financial services company that publishes financial research and analysis on stocks and bonds. Therefore in the S&P 500 subsectors analyzed in the four quarters of 2013, the top 3 performing sectors were Discretionary, Healthcare (which includes the biotech industry) and Industrial, while Telecom and Utilities finished with a single-digit return. According to S&P, Healthcare has outperformed the broader markets over the past 3 years. Notably in the figure, there are still two sectors that are more expensive than Healthcare: Telecom and Utilities. Healthcare outperformed the S&P 500 throughout 2013, with the relative outperformance increasing every quarter (see Figure 1).

2. Case Study – The Impact of Present Economy on Biotech Companies Business Sustainability

This case study aims to identify and interpret the results of the core financial indicators and business models of three strong multinational companies involved in the biotech industry such as Monsanto, Syngenta and Bayer Crop Science and the impact of present economy in the sustainability of their business. Monsanto Co. (headquartered in USA) provides agricultural products for farmers. Its seeds, biotechnology trait products, and herbicides provide farmers with solutions that improve productivity and produce better foods for consumers and better feed for animals. The company operates its business through two segments: Seeds & Genomics and Agricultural Productivity. The Seeds & Genomics segment produces seed brands, including DEKALB, Asgrow, Deltapine, Seminis, and De Ruiter and develops biotechnology traits that assist farmers in controlling insects and weeds. The Agricultural Productivity segment manufactures Roundup and Harness brand herbicides and other herbicides. It also provides other seed companies with genetic material and biotechnology traits for their seed brands. In 2015 Monsanto ranked #34 in the Forbes Top of World's Most Innovative

Companies. Monsanto's business model focuses on productivity: increasing the tons of crop that can be produced per hour of labor and/or per acre of land.

It is the company's belief that increasing yield potential is about a total system working together in partnership with the grower to drive yield in a sustainable way by combining solutions such as: biotechnology, plant breeding, biological, crop protection and agronomic practices.

Fig 2: Combined Solutions for increasing yield potential

Source: Research and Development Pipeline Brochure – Monsanto; http://www.monsanto.com/products/documents/pipeline-brochures/2014-rd-pipeline-brochure.pdf

According to Monsanto's innovations in the biotech field, the business adds value to an economy affected by the crisis by creating technological revolutions such as seed chippers, that enable researchers to know what characteristics plants will have before the seed is even planted. This helps the company to get the best seeds to farmers faster. Advances in plant breeding are helping increase the rate of improvement in key plant characteristics, such as grain yield and disease tolerance. Also, investments in agricultural solutions are designing new methods to unlock yield potential in the case of corn, soybean, cotton, canola, sugarcane, wheat, vegetables. Also, the company produces Integrated Farming Systems that combine advanced seed genetics, on-farm agronomic practices and IT innovations to drive yield. Farmers evaluate many types of information each season, and can take advantage of state-of-the-art technology for recommendations.

Bayer AG (headquartered in Germany) is engaged in the development, manufacture and distribution of products in the areas of health care, nutrition and high-tech materials. It operates through the Healthcare, Crop Science and Material Science subgroups, which are supported by three service companies. The CropScience subgroup consists of two operating segments: Crop Protection / BioScience and Environmental Science. The Crop Protection segment includes herbicides, fungicides, insecticides and seed treatment units, while BioScience focuses on seeds and plant traits. The Environmental segment offers non-agricultural pest and weed control products. The MaterialScience subgroup develops, manufactures and distributes high-performance products in the areas of polyurethanes, polycarbonates, coating and adhesive raw materials, and functional films.

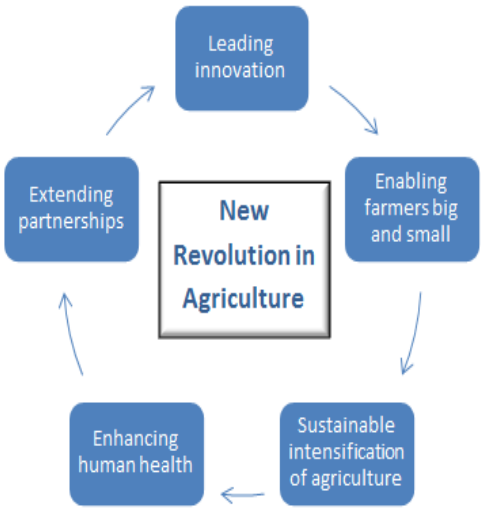

Fig 3: Point plan revolution in agriculture

Source: own research based on http://www.cropscience.bayer.com/Commitment/New-Revolution-in-Agriculture.aspx

Bayer's Crop Science business model focuses on a five-point-plan to bring about a New Revolution in Agriculture.

Leading innovation, enabling farmers big and small, driving a sustainable intensification of agriculture, enhancing human health, extending partnerships; having the belief that a significant and sustainable increase in agricultural production worldwide is urgently needed. Syngenta AG (headquartered in Switzerland) is engaged in the manufacture, development, and distribution of crop protection products and seeds. It operates through the following geographical segments: Europe, Africa and Middle East; North America; Latin America; Asia Pacific; and Lawn and Garden. The four geographic regions comprise the integrated crop protection and seeds business. The Crop Protection business includes herbicides, insecticides, fungicides, and seed treatments. The Seeds business operates in the high value commercial sector of field crops and vegetables. In 2015 Syngenta AG ranked #95 in the Forbes Top of World's Most Innovative Companies. The company's business strategy is complemented by a strong sense of purpose. The long-term success of their business is inextricably linked with the world's efforts to feed its fast-growing population: both depend on sustainable transformation of farming productivity that can be obtained through The Good Growth Plan launched by the company, which consists of:

- increasing the average productivity of the world's major crops by 20 percent without using more land, water or inputs;
- enhancing biodiversity on 5 million hectares of farmland;
- improving the fertility of 10 million hectares of farmland on the brink of degradation;
- reaching 20 million smallholders and enabling them to increase productivity by 50 percent; training 20 million farm workers on labor safety, especially in developing countries;
- triving for fair labor conditions throughout our entire supply chain network.

Research, development and innovation are at the heart of Syngenta's strategy and The Good Growth Plan. Starting with 2013, Syngenta invested $1.38 billion in R&D combining their innovation in genetic and chemical solutions.

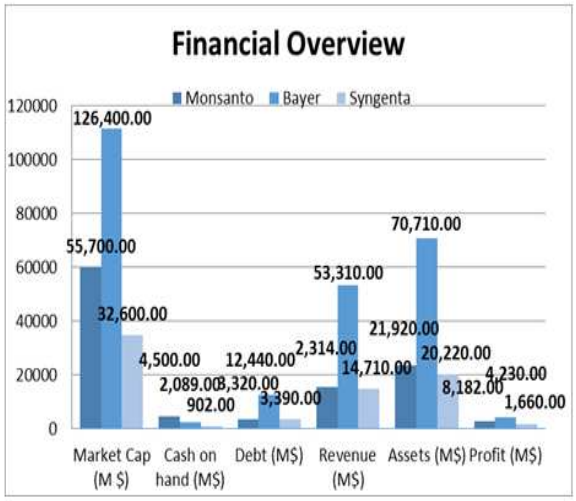

Fig 4: Financial overview 2015 Biotech Multinational companies

Source: own research based on Interactive Data, LionShares, Thomson Reuters Fundamentals and Worldscope via FactSet Research Systems; Bloomberg; Forbes.

The economic performance of these three companies analysed in the case study as of May 2015, can be observed in the above graph. By comparing the values in million US$ of financial indicators such as: market capitalization, cash on hand, debt, revenue, assets and profit between Monsanto, Bayer and Syngenta several conclusions can be drawn. The total value of all outstanding shares of one company is represented by the market capitalization. This financial indicator is calculated by multiplying the shares outstanding by the price per share. Generally speaking, a higher market capitalization indicates a more valuable company.

Comparing the market capital of the three companies, Bayer takes the lead in 2015 with 126,400.00 million US$ followed by Monsanto 55,700.00 million US$ and Syngenta 32,650.00 million US$. This financial indicator represents the highest value of all detailed indicators for Bayer. In terms of profit, Bayer takes the lead again with 4,230.00 M$, followed by Monsanto 2,700.00 M$ and Syngenta 1,660.00 M$. After analyzing the financial indicators and business models of these three major players in the biotech industry, the purpose of this study has been reached and it is pointing out that the industry challenges are leading towards a more intelligent economy.

3. Exploratory Study on a Sample of Availability Concerning Genetically Modified Organisms

Genetically modified (GM) crops offer a variety of potential benefits including higher yields, resistance to diseases and pests, specific characteristics desirable to consumers, and characteristics that reduce production costs. However, decisions about introducing GM varieties must be made in the context of possible unintended consequences including threats to food safety and human health, potential gene flow and other threats to biodiversity, and development of resistance in targeted weeds, pests, and diseases.Acceptance of new food technologies, especially of genetically modified (GM) foods, has recently attracted much attention in research. It has been related to trust and confidence in science, government and biotechnology companies and to socio-demographic factors. Psychological studies of public perception of GM foods have focused on issues as the role of health beliefs, moral and ethical convictions and trust. Although such work provides information on the content of these attitudes, it touches very little on their origins.While scientists define GM by their production method rather than by certain qualities of the end product,GM opponents treat these types of foods as different from conventional foods. Several studies have noted a relation between educational

discipline and GM attitudes with students of the natural sciences having more positive GM attitudes than people from other educational fields.

People's acceptance of GM foods has been shown to depend on their general attitudes towards genetic engineering. Many studies showed that the general attitude towards the application of GM in food production is negative.Therefore, GM products are in general less well accepted than their conventional counterparts.But general attitudes are not the sole predictors of people's attitude towards GM. Some studies provide evidence that although people have a general negative attitude towards GM, evaluations are product specific and not unconditionally associated with the technology overall. For example, some consumers find GM more acceptable when it involves plants, compared to when it involves animals. Others find genetic modification more acceptable when it is used to reduce the use of pesticides than when it isused to reduce prices. A questionnaire based research was developed during 1.03.2015 – 1.04.2015 among 50 persons of Romanian nationality aged above 18 years old which were familiarized with the genetically modified organism notion. The central objective of the research has succeeded to identify the perception that consumers have about the ″new technologies" applied to food, especially the contradictions and challenges that genetically modified organisms can bring. The secondary objectives of the research consisted in the consumer's attitude concerning genetically modified organisms, their knowledge concerning these products based on GMO's, the level of satisfaction obtained by consuming a GM organism based product, the consumption of certain food identified with genetically modified soy content put on sale in the supermarkets from Bucharest, the safety problems concerning GM food, the advantages and also the characteristics of GMO products which mostly influence consumers. The exploratory study has shown the following results as also presented in the figure below:

- increased interest of the consumers for the products made through modern biotechnology
- bioremediation, medicine and genetic testing are encouraged.
- interestingly, some applications of biotechnology are more easily accepted than others, depending on the benefits perceived by consumers according to the available information.

- customers were not very satisfied from consumption of products containing genetically modified soy, which leads to the following conclusion: the assortment of such products should be improved in the future.

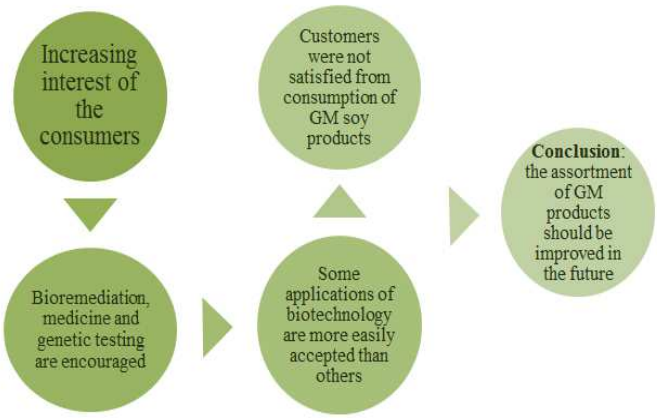

Fig 5: Questionnaire results concerning the consumer's perspective upon GM food
Source: Own research

The distrust of most consumers that do not accept the application of modern biotechnology to food production has led to the proposal of new directives and laws to ensure better food labeling and traceability of genetically modified products or of products that contain genetically modified ingredients. If proper labeling is made, consumers are better informed and can choose between foods that are genetically modified and non- GM.

Conclusions

Several important conclusions have resulted from the present research. This paper aimed and managed to identify the following aspects: the biotech business adds value to an economy affected by the crisis, the business models of the multinational companies involved in the biotech industry, the sustainability of their business, profits and costs and the consumer's perspective upon GM products.

- ✓ Strong companies and their business models have persevered over time, managing to overcome the challenges of the biotech and GMO industry, leading towards a more intelligent economy.
- ✓ Given nowadays economic scenario the governments have to decide if biotechnology support levels are maintained, increased or withdrawn, and if supportive mechanisms are redesigned to change focus on local investment by strong foreign firms vs. domestic entrepreneurial growth.
- ✓ Standard & Poor's Financial Services LLC (S&P), an American financial services company that publishes financial research and analysis on stocks and bonds. Therefore in the S&P 500 subsectors analyzed in the four quarters of 2013, the top 3 performing sectors were Discretionary, Healthcare (which includes the biotech industry) and Industrial.
- ✓ The successful business models of the biotech companies analyzed in the case studies are based on innovation, research and development, combining solutions in a sustainable way, enhancing human health, extending partnerships; having the belief that a significant and sustainable increase in agricultural production worldwide is urgently needed.
- ✓ By comparing the values in million US$ of financial indicators such as: market capitalization, cash on hand, debt, revenue, assets and profit between Monsanto, Bayer and Syngenta – three major players in the biotech industry, it is shown that the biotech industry managed to survive the economic crisis and keep this business sustainable in spite all contradictions.
- ✓ Acceptance of new food technologies, especially of genetically modified (GM) foods, has recently attracted much attention in research. It has been related to trust and confidence in science, government and biotechnology companies and to socio-demographic factors. Studies of public perception of GM foods have focused on issues as the role of health beliefs, moral and ethical convictions and trust.
- ✓ The central objective of the questionnaire based research has succeeded to identify the perception that consumers have about the ″new technologies" applied to food, especially the contradictions and challenges that genetically modified organisms can bring.

In conclusion, GMO based products contribute to high progress in business towards an intelligent economy. The biotech industry managed to keep this business sustainable in spite all contradictions.

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The Issue of Representation of Knowledge in Expert Systems for the Granting of Bank Loans in Romania

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Abstract

The main feature of the procedural methods for knowledge representation is given by the type of operations covered by a procedure. Procedures are triggered by the need to know a specific aspect to which they relate. They can call or can be called from other procedures. Procedural representation of knowledge is achieved in terms of some symbols identifying the procedures or even computer programs, being the way they are used to solving problems. In this paper we want to show the effectiveness of procedural methods in designing expert systems for granting bank loans in Romania.

Keywords: VP-Expert, procedural representation, meta-knowledge, knowledge-base, artificial intelligence

Introduction

Consider any field of knowledge D, an area that is subject to abstraction in an expert system. In these circumstances, the issue of representation of knowledge about the D functions was to identify a relationship R to make the connection in the D with abstracted objects and their representations in model M who synthesizes, in a language of knowledge representation the structure of domain D. [4,9] In essence, knowledge representation about a field consists of building a language model abstract representation and defining a system of relationships between D and R, that would ensure equivalence.

Classification System

The classification system is designed give a finite set of classifications of pieces of knowledge. Classification is the process of systematization of knowledge applied over the crowd parts to determine the groups called classes based on similarities, called classification criteria. Classification process includes two steps:

[1] conceptual classification - the properties of the objects are analyzed in terms of relevance in relation to the objectives utility system to be grouped then the classification criteria;
[2] object classification - the pieces of knowledge acquired from outside are actually placed in classes according to the classification of criterias

Classification must be:

[3] comprehensive, fully cover the set of pieces of knowledge;
[4] goal-oriented to the application's utility system.

A criterion which can not decide if it satisfies the condition of uniqueness of the classification is a criterion for the group. [12] The organization allows a orientations and groupings of pieces of knowledge not by criteria semantic classification system, but by functional criteria resulting from the analysis of different ways of taking the knowledge base of some pieces of knowledge needed to perform processes in resolvent system. [3, 17]

In determining the organizational system for the knowledge base of an application we have to take into account criteria such as:

- access to pieces of knowledge and access to components;
- methods of making inferential processes;

- existing relationships orders;
- knowledge protection against unauthorized maneuvers;
- ensuring the consistency of knowledge base.

Methods of Knowledge Representation

The main methods of representing knowledge in methods of representing knowledge about artificial intelligence systems are:

- representation by predicate of knowledge;
- representation by semantic networks;
- representation in production systems;
- representation by frames;
- representation of the scenarios;
- representation by hyper-networks.

Here there are some exmples designed in VP Expert for systems for granting bank loans to customers (Fig.1) and the calculation of the discount rate (Fig.2).

```
actions display " Sistem expert pentru acordarea creditlui"
find nume;
find garantii;
count garantii,nr;
whileknown garantii;
 pop garantii, gar;
find punct
punctaj=(punctaj + punct)
reset punct
end   punctajt=(punctaj *1,5/nr);
display " Societatea {nume} are punctajul {punctaj}";
ask nume: " Introduceti numele";
ask garantii: "Introduceti garantiile";
choices garantiile: active, bunuri, creante, gajuri, depozite;
plural: garantii;
rule 1:
 If gar=active or gar=creante then
    punct=3;
rule 2:
 If gar=bunuri or gar=gajuri then
    punct=2;
rule 3:
  If gar=depozite then
    punct=4;
```

Fig.1 VP Expert - System for granting bank loans

Meta-knowledge system is a system of representation of knowledge about knowledge and about representations about them. There the following fundamental types of parts metacognition: [10,15, 19]

- Meta-knowledge representation of objects, describing the schemes used pieces of knowledge, representation type is object;
- Meta-knowledge representation of functions, describing the functional templates for parts of procedural knowledge;
- Meta-knowledge representation of relationships, describing the representation schemes pieces of knowledge regarding relationships between any piece of knowledge;
- Meta-knowledge representation of rules of inference and of representation models for describing the rules;
- Meta-knowledge representation of reasoning strategies.

```
ACTIONS DISPLAY "Calculul ratei de actualizare"
 FIND a
DISPLAY "rata de actualizare este {a}";
RULE 1
IF intreprindere=neindatorata AND i<>? AND r1<>? AND r2<>? AND r3<>? AND r4<>? AND
r5<>? AND r6<>?
THEN a=(i+r1+r2+r3+r4+r5+r6)
ASK tipi:"introduceti tipul intreprinderii";
CHOICES tipi:neindatorata,indatorata
ASK i:"introduceti rata anuala deflatata a dobanzii obligatiunilor de stat(%)";
CHOICES i:3,4,5,6;
ASK r1:"introduceti riscul pentru talia intreprinderii(%)";
CHOICES r1:0,1,2,3,4,5;
ASK r2:"introduceti riscul pierderii managerilor cheie(%)";
CHOICES r2:0,1,2,3,4,5;
ASK r3:"introduceti riscul pentru structura productiei(%)";
CHOICES r3:0,1,2,3,4,5;
ASK r4:"introduceti riscul pentru dependenta de clienti(%)";
CHOICES r4:0,1,2,3,4,5;
ASK r5:"introduceti riscul aferent previziunilor(%)";
CHOICES r5:0,1,2,3,4,5;
ASK nationalitate:"nationalitatea investitorului";
CHOICES nationalitate:roman, strain;
ASK r6:"introduceti riscul de tara in cazul investitor nationalitate straina(%)";
CHOICES r6:1,2,3,4,5;
```

Fig.2 VP Expert - The calculation of the discount rate

Procedural Representation

Procedural representation it's used for the complex algorithmic processes of knowledge and orientation towards a particular type of problem. [14] For example, analysis of the dynamics of complex economic systems. An important stage is the analysis of structures and extraction of these feedback loops, loops summarizing the implementation and use of policy and decision strategies.[18]

As the structure is represented by elements (objects called nodes) and relationships (objects that represent the connections between them), for problem solving are necessary the qualification nodes, eliminating the knots that do not belong to a feedback loop and feedback loops to determine their consistency check.

The execution procedure refreshes the context and the lists who contain the number and types of nodes. Further, in order to apply the procedure "Drive-LIST-LOOP ', the deletion of paragraphs initial and final independent are necessary, because an attempt to start or pass the algorithm verification can lead to blocking procedure. For this purpose we can use the procedure "remove NOD-INT", which is presented in the Fig.3.

```
for (i=0;i<NVINIT;i++) {
for (k=0;k<RL[V.VINIT[i]-i];k++) {
R[V.VINIT[i]-1]=0;
fin=1;
while (fin!=0) {
        fin=0;
                for(i=0;i<T.NR_F;i++) {
                        if )RL[i]==0) {
                                for (j=0;j<T.NR_F;j++) {
                                        if (RL[j]!=0) {
                                                for (k=0;k<RL[j];k++) {
                                                        if (R[j][k]==i+1) {
                                                                for (I=k;I<RL[j]-1;I++) {
                                                                        R[j][I]=r[j][I+1];
                                                                        RTL[j][I]=RTL[j][I+1];
                                                                        RL[j]=RL[j]-1;
                                                                fin=1;
                }
                else {
                        for (k=0,ii=0;(k<T.NR_F)&&(ii=0);k++)
                                for ((kk=0;kk<RL[k];kk++)
                                        if (R[k][kk]==i+1) ii=1;
                                if (ii==0) {
                                        for (k=0;k<RL[i];k++) {
                                                R[i][k]=0;
                                                RTL[i][k]=0;
                                        RL[i]=0;
                                                fin=1;
```

Fig.3 „Drive-List-Loop" Procedure

Procedural representation can be used in combination with other methods of representation. A frequent use of a procedural representation facilitate the description of actions.

Conclusions

The main advantage lies in procedural methods and in applying heuristic rules. Sometimes, chosen area of responsibility is particularly important and the system response it is in real time, so it is much better than other methods of knowledge representation. A significant disadvantage of this method is quite pronounced because of rigidity of knowledge pieces in making inferences, other than the default procedures.

This is due to the close dependence of knowledge and procedure type of problem to be solved. As the complexity of the issues represented increases its dependence on context and procedural methods it is increasing and the number and complexity of knowledge increases considerably.

For more flexibility in knowledge representation, based on the experience of the analyst and the complexity of the field on which are implemented procedural methods of knowledge representation can be constructed procedures organized hierarchical levels of complexity, which rests on a broad basis and as far as possible, non-redundant basic procedures, which underpin the superior construction.

The increasing of complexity fields of competence of expert systems is due, on the one hand due to increased systems complexity and on the other hand due to the depth of knowledge in the field. It is necessary to solve problems at the intersection of several disciplines and the knowledge needed to be stored and managed in databases is increasing.

Development trends of artificial intelligence based systems for solving complex problems (or cross) reveals a shift of effort from one to several agents competitiveness; to solving the same problem. These trends relying on the design and implementation of a management system to facilitate their efficient operation.

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THE DIAGNOSIS OF THE MAINTENANCE MANAGEMENT IN INDUSTRIAL COMPANIES

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Abstract

There was developed various maintenance a systems, such as reactive preventive, proactive or aggressive systems and many more. However it turns that many companies do not know what their weaknesses are. and subsequently what are the areas they should have to focus. Out of the systems theory to improve each complex system it is necessary to improve its single components. The presented paper bases on the literature review and field research in the industrial companies. It determines crucial areas of each maintenance system and introduces the complex way to identify its state. Furthermore it advises the process of improvement.

Keywords: maintenance system, management, rationalization, analysis, diagnosys

Introduction

There are various maintenance management systems in the industrial companies. Based on the literature review were identified requirements on the maintenance system. The requirements are the main topics of the previous article (Kamaryt, Kleinová, 2014). The article served also as a base for further research which was aimed to settle down the crucial areas of the effective maintenance system. There were described various maintenance concepts, such as

Literature review

In addition to the requirements there have been developed several maintenance approaches and concepts which aim to decrease the vulnerability to brake-down and lower the risk of failure. There were described many maintenance concepts. Bateman described three basic types of maintenance programs, including reactive, preventive and predictive maintenance, see (Bateman, 1995).

- Reactive maintenance which allows to minimize the amount maintenance manpower and money spent to keep equipment running (Vanzile, 1992), but on the other hand may result in serious machine damages. (Bateman, 1995), (Gallimore, Penlesky, 1988).
- The proactive maintenance strategy refers to all activities that prevent equipment failures from occurring (Swanson 2001). The preventive maintenance reduces probability of equipment failures but often results in higher man power and higher lead time do to the need to interrupt production at scheduled intervals to perform the work.(Gits, 1992)
- Maintenance strategies include Total Productive Maintenance (TPM) which seek to improve overall equipment effectiveness by reducing or eliminating the six major losses (equipment

failures, set-up and adjustment times, idling and minor stoppages, reduced speed, defects in process and reduced yield) (Macaulay, 1988) (Nakajima, 1988), (Weil, 1998)

- Another existing maintenance concepts are described e.g. in literatures like Reliability Centred Maintenance (Moubray, 1997), (Weil, 1998), Business Centred Maintenance (Kelly, 1997), Integrated Logistic Support and Logistic Support Analysis (Blanchard, 1997). These maintenance strategies often require increased commitments to training, resources and integration, they also promise to improve performance. (Swanson 2001)

These models are often very time-consuming to implement or only valid for a special class of equipment. Nevertheless even those ineffective systems in industrial practice often offer interesting and useful ideas. (Kamaryt, Kleinová, 2014). All these models include various areas of the enterprise and lays down different importance on different areas. (Waeyenbergh, Pintelon, 2007). Together with the result of the literature study, it became clear, that there is no universal guideline which areas of the enterprise must be include in the functional maintenance system and which are the crucial ones. The presented article follows previous contribution and determines key areas of every effective maintenance system.

The overall approach

The research combines various methods. In the foreground is the MCA analysis. The MCA analysis is the most used method to compare the transcendent criteria. To perform the analysis successfully it is necessary to use additional method allowing the identification, assessment and sort given data. It was used Likert scale, Saaty method and paper and pen reviews.

MCA analysis

The main part of the research is the MCA analysis. MCA is the analysis which allow to compare heterogeneous criteria and assess the by defined scale. The main principles of the MCA method are defined and concluded in the literatures (Nijkamp, P., van Delft, A., 1977). Within presented study it has been used the analogy to the MCA method and it has been defined following solution procedure, see figure 1.

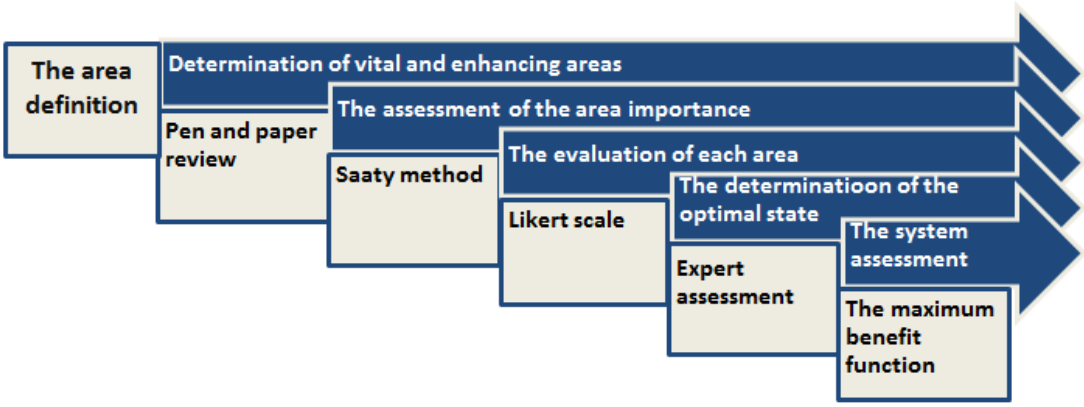

Fig 1: Solution procedure

Research Methods

The figure 2 clearly shows the vital areas of each functional and effective maintenance system. Firstly was defined the key areas. The key areas base on available literature and meetings with managers of the maintenance, logistics, production and other crucial departments of leading industrial

companies. After that according to the available expert literature was the areas split using paper and pen review in to two categories, see fig. 2.

- The vital areas – are the areas which are the necessary condition (Machine evidence and classification, spare parts management and human resources). The vital areas are coloured blue.

- The enhancing areas – are the areas which affect the efficiency of the whole system (maintenance methods, maintenance planning, metric of effectiveness, company standards and connectivity of all areas). The enhancing areas are marked yellow. Furthermore the areas which are crucial for achieving world class maintenance level are marked red.

Paper and pen method

The assessment of areas was performed mainly by the pen and paper review. The structured interview is the technique which allows collect and sort data. The experts were asked to the questions from each area. Based on the answers were defined overall score in each area. The pen and paper review has been was selected mainly because of higher response rate, impossibility to omit the question, qualified moderator and last but not least the certainty of the results. The method description is in the publication (Neumann, W., L., (2007),)

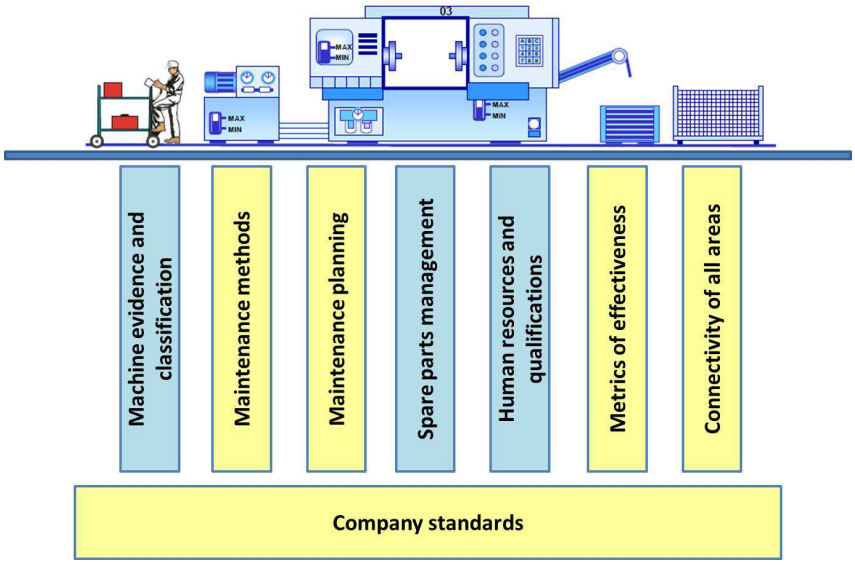

Fig 2: Main areas

The certain degree of implementation within each area is crucial for effective system. But it has been identified that the influence of areas on the final result is different. To identify the amount of influence it has been used Saaty method.

Saaty method

Saaty method (Saaty, 1988) is a structured technique for analysing complex decisions, based on mathematics and social research. Defined areas has been compared with following result, see table 1.

Table 1: The comparison of the areas

Area	Normalized weight
Machine evidence and classification	5%
Maintenance methods	21%
Maintenance planning	9%
Spare parts management	2%
Human resources and qualifications	3%
Metrics of effectiveness	4%
Company standards	35%
Connectivity of all areas	21%

Based on the Saaty method it has been defined three most important areas (company standards, connectivity of all areas and maintenance methods) affecting the level of system effectiveness, see figure 1. The result just underlines the principles of the lean management. Where the main requirement of each system is to have solid foundation where can be the system built – company standards (35%).

Likert scale

The Likert scale is the method which allows measuring the importance of words and the opinion to the given situation. The core of the method is the evaluation of given question by the scale. The scale has one crucial rule – it must have odd number of equally graduated degrees. The main principles and theory basis for the Likert scale is stated in the publication (Neumann, W., L., 2007).

Results and criteria function

The main goal of the diagnosis of the maintenance system is precise identification the efficiency of the whole maintenance. The evaluation is done through criteria function, see the formula 1 below.

$$F = \sum_{i=1}^{n} b_i * v_i$$

The criteria function is maximization. The theoretical minimum is zero point. The theoretical maximum is 80 points.

$$F_{max} = 80\ points = 100\%$$
$$F_{min} = 0\ point = 0\%$$

Bases on the statistical evaluation, paper and pen review was designed the areas on the criteria function. It has been found that the areas are very closely following the border of the normal distribution with standard deviation 25. As well as other natural processes also the companies and its maintenance management systems are subjected to the normal distribution. According to the mathematical theory 68,3% (2 standard deviations) of all companies have some kind of average maintenance system. Other 32,7% are companies below and above the average ones. On the one side the companies which do not deal with maintenance at all and on the other side the companies which

have very good maintenance system. The border has been settled down by the normal distribution – with a single deviation on both sides from median.

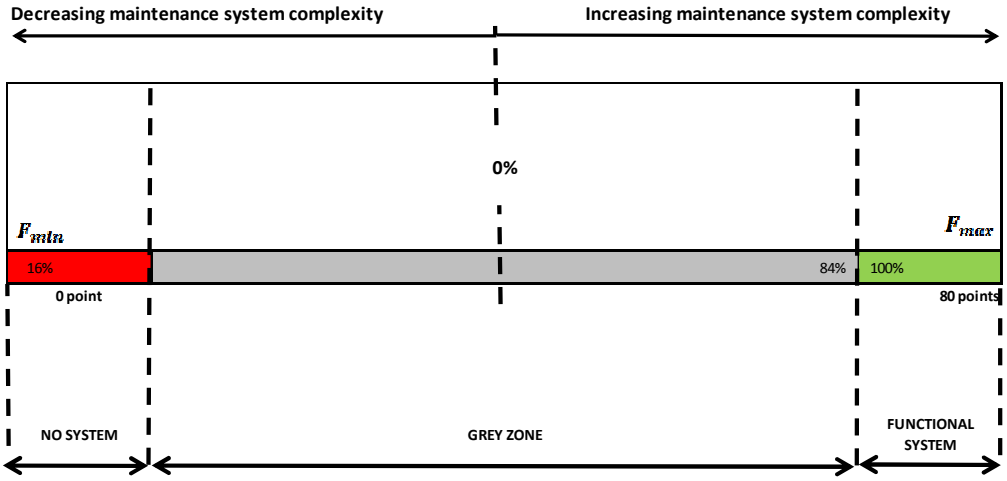

Fig 3: Results – graphical interpretation

The area between 0 and 16% (No system area) indicates that the maintenance is on a very low level. It is necessary to radically improve whole system, resp. to establish completely new maintenance system. The area between 16% and 64% (The grey zone area) indicates that the company maintenance system is on a acceptable level but its efficiency needs to be improved. There are several failures which need to be eliminated. The primary focus should be on the low-scored areas. Finally the green area between 84 and 100% (Functional system area) tells the company managers that the company maintenance system is in a very good condition. There is no need to drastically change any area. However it is vital to follow standards.

The orange bar in the figure 3 and figure 4 shows an example of the automotive company having certain system. It is a typical example of the company struggling with the lack of qualified workers, standards and its pretty developed areas unfortunately can not be directly linked because of different data structure or sort.

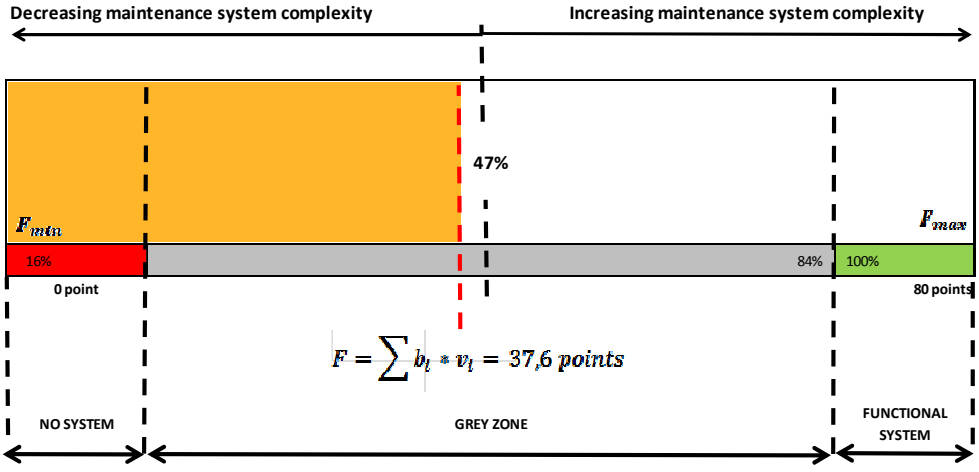

Fig 4: The example of final score

The primary focus should be aimed in to the two most vital areas – on the company standards and the connectivity of all areas together Because these two areas have significant impact on the overall score (see saaty evaluation). Then the focus should be on the area of the human resources. For the detailed analysis within each area see figure 4.

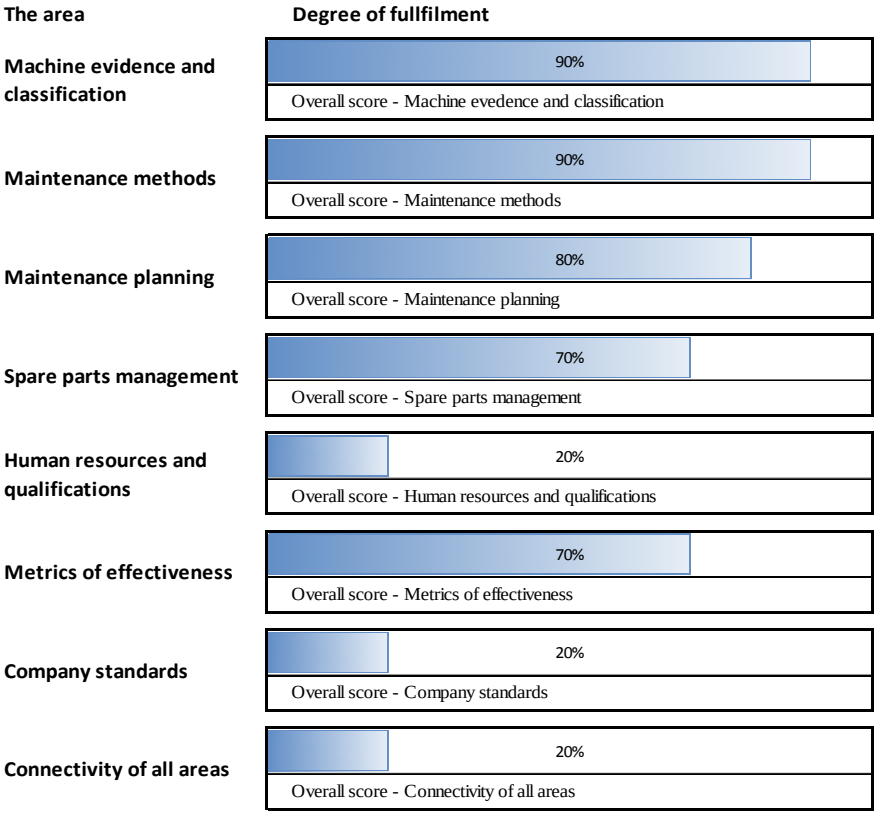

Fig 5: The final score of each area

Conclusion

Many companies want to know their weaknesses therefore are also seeking to the complex simple understandable method how to assess their maintenance management system. The article introduces precisely it furthermore it subsequently advises the company managers what should they do and what are the corrective actions. Between main benefits surely belongs complexity simplicity and low expensiveness. Unfortunately in case of inexperienced moderator can be de results slightly distorted - because of the use of social research method such as Saaty method, Likert scale.

Further research will be focused on the usage of more robust evaluation methods and definition of precise procedure of maintenance process improvement.

Acknowledgment

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Determinants of Concern about Data Protection in Cloud Computing: Construction and Proposal of a Conceptual Model

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Abstract

The cloud is a virtualized concentration of computing resources. A technology with tremendous momentum in terms of evolution and dissemination that's changing the way we process and store data. This technology allows many types of services and is increasingly becoming the infrastructure that enables and supports the next innovations and technologies. Despite its vast and growing adoption, the cloud does provide some challenges, mainly regarding data privacy and security. By reviewing literature, we hope to produce valid interpretations and relations between key concepts in order to better understand the end consumer. Specifically, the main objective is to identify and quantify the key perceptions, knowledge and/or beliefs that will influence the consumer's level of concern regarding the misuse/protection of their data. In order to achieve this, we'll propose a conceptual model, supported by a set of hypothesis and in accordance with the literature review. Despite being a work in progress, this paper can already point out some interesting conclusions on how the user apparently perceives variables regarding trust, privacy and security, benefits and limitations as well as its knowledge/usage of this technology. In the future, in order to proceed with this work, we'll use a quantitative methodology, supported by a cross-sectional inquiry with recourse to structures questionnaires. Because studies of this kind are scarce, we hope and expect to produce new and interesting knowledge for both academic and management fields. To further help with that, we'll present some suggestions to future studies at the end of this paper.

Keywords: Cloud computing; Privacy and security; Concern; Conceptual model

1.0 Introduction

The idea of cloud computing was born in the 60's with Joseph Carl Robnett Licklider's conceptualization of Intergalactic Computer Network, which first appeared in a memorandum sent to his colleagues (Licklider, 1963). A little later, in 1969, Licklider is responsible for enabling the development of the ARPANET project, which basically gave shape to his vision in which all the people in the world would be interconnected and able to access programs and information in any place at any time.

From the year 2000 onwards there's a big push of cloud technology because companies realized that their largest purchases in IT "were often left idle and only fully utilized during peak demand" (Halpbert, 2011, p. 2), leading them to wonder on a better solution in which to better harness that latent processing power. As such, it was only a matter of time and technological evolution until the top tech companies picked up and propelled this technology to the point where now the cloud is a metaphor for the internet and is the abstraction of a complex infrastructure. This technology differs and overlaps the traditional paradigm of computing, due to its scalability, abstraction, economies of scale and dynamically configurable services (Foster, Zhao Raicu, Lu, 2008).

To get a sense of the evolution and size of this technology from a business and economic standpoint, in 2008, Gartner predicted that cloud computing could become as influential as "electronic commerce" (Gartner, 2008), and later it predicted that by 2015 the expenses with IT would ascend to $3,8 trillion mainly because of the cloud.

Also, according to a study conducted by Evans Data Corporation, quoted and discussed in an article from Forbes, by Columbus (2015), the cloud already dominates IT and will increasingly continue to do so as new technological developments arrive, such as the Internet of Things (IoT), which is seen as the next big "explosion" in the technological area. Interestingly enough, this type of connectivity generates huge amounts of data and cloud computing provides the back-end solution for processing and computation of these huge data streams" (Chao, 2011, p. 1).

However, despite its benefits, cloud computing technology struggles with security and privacy issues and, in fact, in an interview given to and presented in the work of Martinez (2013), the Director of EuroCloud, Andreas Weiss, points out the enormous importance of data security and privacy.

According to the Vice-President of the European Commission and responsible for the European Digital Agenda, Neelie Kroes (2014), "the next phase of the internet will be data-centric and driven and directed by connectivity. Cloud computing, big data, the internet of things ... to make the leap of faith into this new world, reliability and trust are prerequisites. But when the Chancellor's phone is sacred, that trust can never be taken as a given by billions around the world, this trust is now lost".

Since the cloud is increasingly becoming the base infrastructure of IT, it’s extremely important to understand it better as well and how consumers react to it.

It’s important to mention the lack of similar studies. Also, the studies are usually purely technical in nature, tend to focus on the business side of the technology and also tend to perform a simple descriptive analysis.

Given these shortcomings, it becomes relevant to proceed with a different application in a different context. With that in mind, we hope to conduct a non-technical study on the end consumer, going instead after the perceptions and values that might influence its concerns towards data privacy and security. Specifically, the final objective is to identify and measure what factors influences the users' concern with the misuse of its data in the cloud environment. In order to do so we’ll start by constructing and proposing a conceptual model, supported by a set of hypothesis, which is what we’ll present in this paper. In the future, in another paper, we’ll try to confirm our model and hypothesis with an empirical study. This study will be based on a quantitative, data analysis, methodology, supported by a cross-sectional inquiry

With this, the importance and relevance of the study becomes apparent, and we hope that this research will add some knowledge on an academic level, for users and administrators.

Regarding this paper’s structure, starting with the review of literature, we will first define cloud computing, followed by the identification of this technology’s main benefits and risks. Afterwards, as we dive into the concerns with data protection, we’ll present the hypothesis as well as the literature in which they were based. Finally, we’ll end with the proposed model.

In the last part of the paper, we present our conclusions for this study, it’s implications and also suggestions for future work.

2.0 Literature review

2.1 Cloud computing

Cloud computing is defined as “a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, services) that can be rapidly provisioned and released with minimal management effort or service provider interaction” (Mell & Grance, 2011, p. 2).

In simpler terms, an explanation of the cloud can be given as a set of computer resources that are always available for use and that are made available and quickly accessible via the internet by a service provider. The service provider creates a pool of resources and then it automatically and quickly configures and reconfigures them in order to supply them to consumer use in a measured way and in accordance to user demand. This measured supply of only the necessary amount of resources insures that there are always resources available for other users (Kok, 2010).

Regarding the benefits and challenges of the cloud, with a literature review of the work of Armbrust et al., (2010), Halpert (2011), Kundra (2011), Mather, Kumaraswamy and Latif (2009), Barnatt (2010), Macias and Thomas (2011), Badger, Grance, Patt-Corner and Voas (2012) and Takai (2012), we were able to identify the main ones which can be observed below.

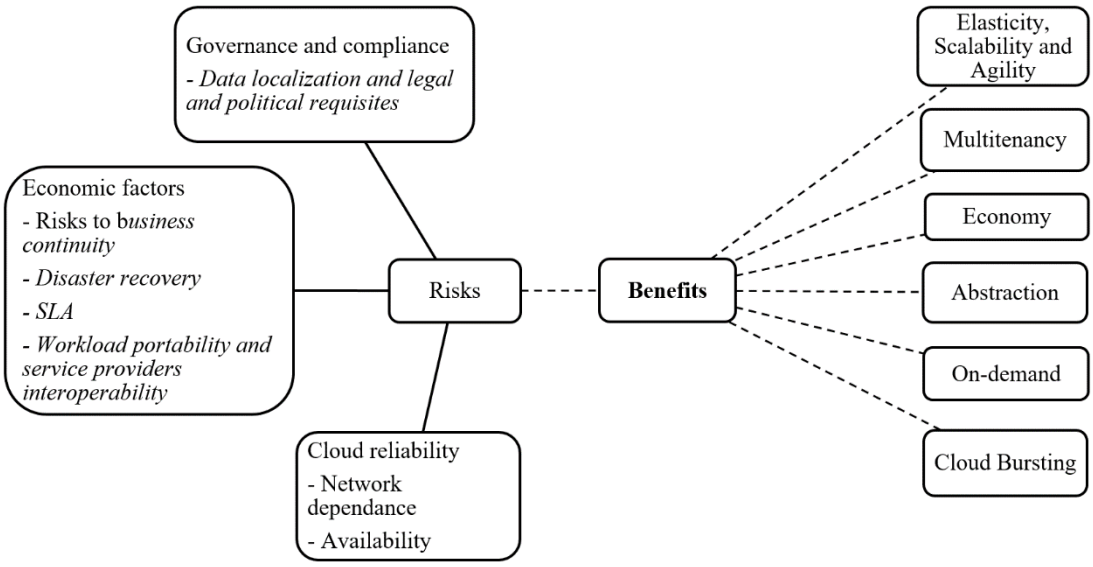

Fig 1. : Cloud benefits and risks

2.2 Concerns with data protection

We now need to review the literature regarding the factors that correlate with concerns with data security, which basically refers to security and privacy, and, though privacy stems and can't exists without security, they're different things, so we'll present them separately.

Normally, security "refers to the degree of protection against loss, damage, danger, and criminal activity" (Changchit, 2014, p. 314). At the same time, "security is both a feeling and a reality, and they are not the same thing", in the sense that there is the actual reality of whether or not a user's data is secured and the psychological side of whether or not the persons feels that his data his secure, which are both independent (Schneier, 2008).

For example, in the case of E-commerce, Yesisey, & Ozok Salvendy (2005) defines safety as the level of security that users feel while they shop online.

This should mean that the perception of security is fickle, it changes with the user's psychological state, awareness, knowledge or experiences.

Flavian and Guinalíu (2006) argue this, defending that security perceived by the user is nothing but mere subjective probability, a situation in which users believe that according to their confident expectations, their personal information (data) will not be displayed, stored, or manipulated by an unauthorized party during its transit and storage.

As to what the main security threats/problems are, Cloud Security Alliance (2013), Jansen and Grance (2011), and also Kwofie (2013), Muijnck-Hughes (2011), Shimba (2010) and Kok (2010) summarize the following: a) data breach; b) data loss; c) account and services high jacking; d) unsecure APIs; e) malicious person (supplier-side); f) abuse of cloud services; g) insufficient diligence; h) resource pooling issues; i) DoS;

Following security, the concept of privacy "varies widely among (and sometimes within) countries, cultures and jurisdictions. It is shaped by public expectations and legal interpretations" (Mather et al. 2009, p. 146), which makes a rigid definition difficult.

That said, there is a definition that appears to have become generally accepted which states that privacy refers to "the rights and obligations of individuals and organizations, with respect to the collection, use, retention and disclosure and disposal of personal information" (AICPA, 2005, p. 2), over a life cycle where accountability and transparency is expected on the part of the organization that provides the service.

In addition, the Organization for Economic Cooperation and Development (OECD), defines privacy as the "the status accorded to data which has been agreed upon between the person or organization furnishing the data and the organization receiving it and which describes the degree of protection which will be provided" (OECD, 2005).

After these brief concepts, in order to go forward with the study on the determinants of data protection concerns we need a research question, which is: "regarding cloud computing technologies, is there any relationship between the perceptions of security, privacy, knowledge, trust and frequency of use, which would allow for a prediction or justification of the consumer's concern level towards the protection of his data?"

Throughout the literature review it's been made clear the importance of cloud technology and consumer behavior.

Along with the review of literature that will still be presented and the research question phrased above, we've formulated a number of hypothesis that will support the conceptual model that is proposed, where we combine the problem and the goal, in a prediction of expected results (Reis, 2010).

Since this study isn't a replica, in whole or in part, of a pre-existing study or model, the assumptions and hypothesis shown from here on out will be based on the review of literature. This means that we'll be the ones doing the interpretation and association of concepts in order to propose both the model and hypothesis.

The first hypothesis is built with the Technology Acceptance Model (TAM) in mind, which can be seen in the image bellow.

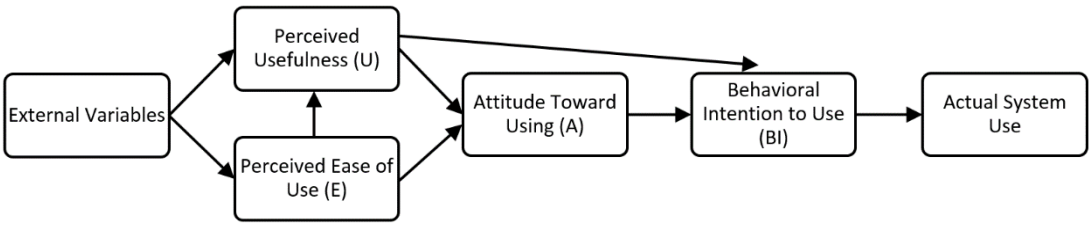

Fig 2.: Technology Acceptance Model

Source: Davis, Bagozzi and Warshaw, 1989, p. 985

Now, one model can't fit into every situation, as there are no absolute measurements nor constructs that can be applied in every situation (Segars & Grover, 1993), which is why there are some other models and even variations or evolutions of TAM. One of the more well-known variants is the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh, Morris, Davis and Davis (2003). Even though UTAUT has some similarities that can also be mentioned in this work, because TAM is the one that come closest to our overall objectives and framework, with more clearly relatable or "translatable" variables, it's the model we end up choosing above all others, even UTAUT.

That model and its variables along with the work of Lee, Kozar and Larsen (2003), Rogers (1983), Agarwal and Karahanna (2000) and Webster and Martocchio (1992) which study possible external variables to referenced model, will lead us to the 1st hypothesis. Other variables taken in account were "degree of perceived complexity of use of an innovation" (Lee et al. 2003, p. 761), "psychological traits that reflect the willingness/desire to the user using a new technology" (Lee et al. 2003, p. 761), "level of ability/cognitive technologies use spontaneity" (Lee et al. 2003, p. 761), as well as "frequency of use and amount of use" (Hubona & Geitz, 1997).

Since the TAM basically translates the influence of external variables on user's perceptions (and their mutual influence), which in turn influences the user's attitude and behavioral intentions in order to predict actual system use, taking into account the studies of other possible variables, in the mentioned studies, we can argue that "frequency of usage" and "knowledge" might themselves be influencing factors. As such we present below the first hypothesis.

H1: there's a significant and negative relationship between the knowledge/frequency of use of a cloud computing system and the concern with misuse/data protection.

According to the TAM, one of the main variables is "perceived utility", which is influenced by both the second most important variable "perceived usability" and "external variables".

Also, according to the summary elaborated by Lee et al. (2003, p. 761), "comparative advantage" to another solution is a valid variable for the model TAM.

With these 3 variables in mind, we'll argue that the perceived advantages of the cloud will also have a direct influence on concern over data protection, since their influence on attitude and intent towards technology has been study. If the advantages of the cloud are in fact perceived as advantages, useful and facilitators, there may be a significant relationship with the degree of concern towards data protection. As such we present the second hypothesis.

H2: there's a significant and positive relationship between the importance of the benefits of cloud computing services and the concern with misuse/data protection.

On the other hand, it's expected that the more importance is given to any of the cloud's limitations, the greater the concern for data protection will be. Thus, the third hypothesis is as follows bellow.

H3: the concern with cloud computing services limitations is significantly and positively related to the concern with misuse/data protection.

According to the literature, "trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" (Rousseau et al. 1998, p. 395). It's like a relationship that extends in time and depends on the continuous experience of the person with the "object". It's an extension of the concept of security, which also has a psychological component (Rousseau et al. 1998, p. 395) and, according to Shimba (2010) the level of trust in service's security depends on how and how much the vendor can appeal to the feelings of consumers.

Also, trust can be perceived as a two-layer concept, comprising hard trust, which is more rigid and tangible and rational (i.e. validity, coding and security of processes - security oriented) and soft trust which fits in a more intangible dimension (i.e. loyalty to a brand and ease of use – psychologically oriented) (Wang & Lin, 2008).

In fact, some authors even argue that the level of security doesn't affect the user's trust by itself (Pearson, 2012; Nissenbaum, 1999), rather, people who already intend to use a service might have increased trust in the provider if more security assurances are given (Giff, 2000).

Having said that, we intend to confirm that an increase of trust translates into a decrease in concern about data protection, which translates into the hypothesis bellow.

H4: there's a significant and negative relationship between the level of trust in a cloud computing system and service providers with the concern with misuse/data protection.

Next we'll try to observe and measure the opposite of trust, meaning, the perceived risk or threat from several parties involved. Perceived risk stems from trust, or lack thereof and it's a major barrier to technology adoption, especially regarding online technologies. This perception can be defined as a combination of uncertainty and expectation of losses associated with a specific behavior and therefore it's an inhibitor of that behavior (Lourenço and Fortes, 2013).

Also, different entities can produce different perceptions and threat levels and like Lourenço and Fortes (2013) and Mitchell (1999) argue, not only is "perceived risk" able to dictate adoption/use, or not, of technologies but it's also a psychological variable in nature that attempts to measure concern levels.

As such, we present the 5th hypothesis, which is constituted by 4 different sub-hypotheses.

H5: a higher degree of threat to privacy to privacy from specific entities is significantly related with a higher amount of concern with the misuse/ protection of personal data.

H5a: a higher degree of threat to privacy by the Government is significantly related to a higher concern with the misuse/ protection of personal data.

H5b: a higher degree of threat to privacy on the part of private companies is significantly related to a higher concern with the misuse/protection of personal data.

H5c: a higher degree of threat to privacy on the part of advertising is significantly related to a higher concern with the misuse/protection of personal data.

H5d: a higher degree of threat to privacy from hackers is significantly related to a higher concern with the misuse/protection of personal data.

For the five last hypothesis we'll be taking into account the fact that the literature keeps pointing to psychological factors which according to TAM, and even UTAUT, have an influence in what we're trying to measure. With this in mind, we'll be indicating specific situations that we'd argue that should have a psychological footprint and a direct impact on data protection concerns.

Firstly, we'll approach an everyday business practice which is the trading/selling of data. This is something that we believe should influence the user's concerns and we translate that in the hypothesis bellow.

H6: the feeling that results from the sale of personal data by service providers is significantly and positively related with the concern with misuse/data protection.

According to Badger et al. (2012), compliance and governance are a major challenge. The consumer's data is stored all around the world and each country has different sets of regulation and legislation, which means that our data has no global or standard rights regarding its protections, it's all extremely fragment and out of the consumers control. Which means that not only is protection rights an issue, but also, the equality of those rights when compared to data stores in different countries.

With that in mind we want to know whether or not the consumer really does perceive this issue, if that's a problem to them and if it will influence their concern about data protection.

This idea can be seen in the hypothesis bellow.

H7: there's a significant and positive relationship between the importance of personal data protection rights and the concern with misuse/data protection.

Since Ajzen (1991) and Mathieson (1991) define perceived control as set of individual perceptions of how easy or difficult it is to manifest a specific behavior which are capable of influencing the use of a technology, we'll try to observe it's influence with hypothesis presented next.

H8: more control over the cloud computing system implies a lesser concern with misuse/protection of personal data.

Next, we'll be trying a variation of "frequency of use" mentioned in the 1st hypothesis, turning it into "amount of time using" cloud services. This idea is formatted in the hypothesis 9.

H9: the amount of time using cloud computing services is significantly and negatively related with the concern with misuse/protection of personal data.

Lastly, we'll introduce an idea related the current state of technology from a consumer's standpoint in relation to the need to disclose personal data in order to access and use some services. Whether or not disclosing data is an 100% necessity, but, that is the trend, so, how does the user perceive such a thing. Whether or not they agree it's a problem and whether or not it influences the concern with data protection is what we'll be trying to find out with the text hypothesis.

H10: the level of agreement with dissemination of information being a problem is significantly and positively related with the concern with misuse/protection of personal data.

Finally, we present in the following figure the proposed conceptual model, respecting a formal structure of relations laid down between variables.

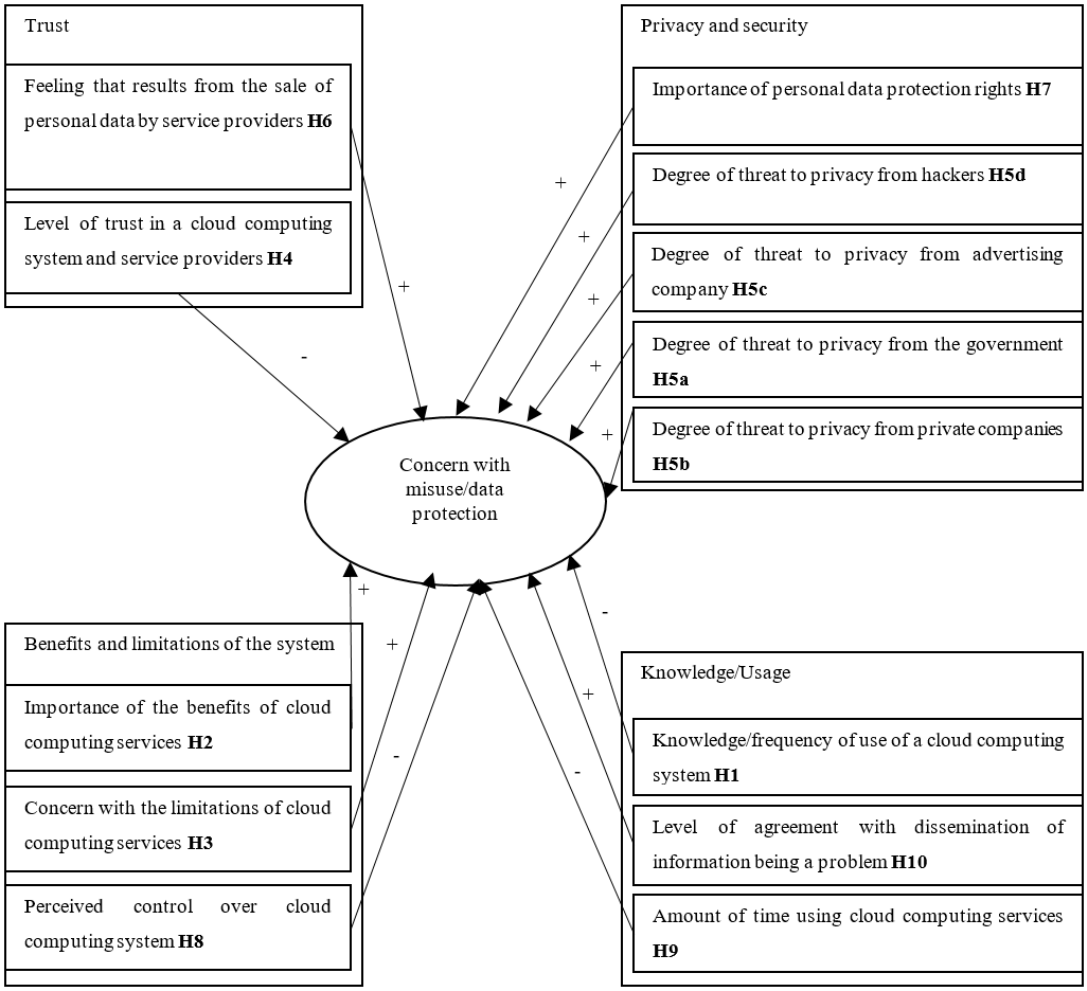

Fig 3.: Determining factors of concern about data protection

3.0 Conclusions

The progressive and accelerated development of cloud technology is creating a need for a better understanding of it, in particular, of the factors that influence its adoption and use. In this case specifically, the concern about data protection.

This technology is increasingly taking on a bigger role in our day-to-day life, our routines, as it gives us innumerable and unimaginable new solutions as time passes.

Still, we must keep in mind the more abstract side of this new era. On the one hand, technology will continue to evolve and expand while on the other, consumers will continue to be the focus and biggest drivers of this evolution.

After the literature review it becomes apparent that cloud adoption is likely determined not so much by the knowledge of the benefits and limitations of the technology, but rather by a set of psychological factors on the consumer's part. What does seem to exert influence are the consumer's perceptions of the technology's usefulness and ease of use as well as trust towards technology it and/or service provider. It's these perceptions and even values, ideologies and user experiences that should influence the consumer's concerns towards data protection and his adoption of the cloud. This means that what's expected to happen is that the consumer will make a two judgment calls while deciding whether or not to use the cloud. First, he'll make a practical judgment call regarding the

technology/service usefulness and ease of use while the second judgment call will pertain to the trust in the service provider and the technology itself. This happens because, as seen, the variables and concepts that should have some influence have a clear psychological nature and are based in more intangible factors.

It is in this context that this study is inserted, in an area with very little research that demands more studies.

With this in mind, this work should become a contribute to the study and modelling of consumer's concerns with data protection. With prudence, we hope that the proposed conceptual model and its operationalization through hypothesis will let us know what determinants influence the consumer's concerns. With them, the conditions to analyze and validate the studied variables should be created, likely by recourse to questionnaire.

As for suggestions for future research, we propose the empirical validation of the proposed model in accordance with the chosen instrument. Also, we suggest creating measurement scales for the model associated variables.

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The Role of Universities in the Transfer of Innovations in the Creative Industry in the Czech Republic

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Abstract

The growth of the world and European economies is today often conditioned by the creative industry development at the level of individual countries, regions, municipalities. The problem of the creative and cultural industries development becomes a priority area of the National Research, Development and Innovation Policy of the Czech Republic for the upcoming ten years. The objective of the study is to present the outcomes of the analysis of centers for transfer of technologies of selected EU and Czech universities. The analysis focused on the issue of art creative projects in the area of graphics, product and industrial design. The consequent objective is also to suggest solutions for commercialization of creative ideas of art students or art university graduates` in the Czech Republic through the outcomes of the analysis. Contemporary, creativity, creative economies and creative industry become an opportunity for enhancing the competitiveness of individual the EU countries regions. The topic, as well as researches and analyses, stem from the current experience when successfully evaluated creative ideas of art university students, eg. during international competitions, are with great difficulties implemented into practice, and commercialized.

Keywords: creative class, sustainable entrepreneurship, creative centre, regional development, university graduates, culture inovation, transfer creative inovation

Introduction

In the past years, the economic results of numerous countries have showed that the creative economy and creative industry issue becomes a significant factor of economies of many countries. The issue became also the subject of the European Commission discussions and the 2010 document called "The Green Paper - Unlocking the potential of cultural and creative industries" and which supports activities of mapping and consequent development of the cultural and creative industries through structural funds. The Czech Republic joined activities supporting mapping, development as well as rising awareness in these areas (Cikánek et al., 2013). The support of the development of creative industry activities is narrowly linked to the increasing of competitiveness of businesses in the creative industry. Similarly, in other fields with business competitiveness enhancing, it is a question whether to bring "art" or implement innovations, ie. *"to make innovations an everyday business"* (Košturiak, Cháľ 2008, p. 37). Universities become a frequent source of innovations. Universities are inspiring environments, with creative people with inventions and ideas and it could be said that such place is ideal for innovations and their implementation, so-called transfer into the world of practice, also in the creative industries. The objective of the study is to analyze the conditions for the transfer of so-called creative innovations at Czech universities, and to contemplate on the question of "What is the role of Czech universities in the transfer of creative innovations. Scientific terminology is embedded based on the monitoring of scientific published and electronic sources, and partial analyses are then presented relating to creative innovations and transfers of such. A discussion is listed in the conclusion of the means and forms of the transfer cultural creative innovation. The significance of the support and development of the Czech creative industries is amplified also in the approved document called The National Research, Development and Innovation Policy of the Czech Republic in 2016-2020. The document among other things mentions also that the upcoming years, the emphasis will be put on the support of applied research and its link to the private sector. The support will be directed to the key fields such as biotechnology and nanotechnology, digital economics, automotive and air industry and rail transport, as well as traditional fields such as mechanical engineering, electrical engineering, steel industry, foundry and power industry. The attention will be paid also to the cultural and creative industries.

1. Contemporary Situation

What is happening in the markets

Thanks to digitalization and social networking, consumers face a considerable amount of information based on which they make decisions, eg. about a purchase. Customers in the contemporary information turbulent environment become disloyal. Once they obtain a better offer, they do not hesitate to change the purchaser. Information technologies assist customers to become value co-creators, ie. to participate in eg. a development process through a new product testing, or through proposing a color creative design. They find this interesting and it also makes sense. Numerous customers appreciate uniqueness and originality on the market connected with usefulness, and they are open to paying a higher price. Originality often means also an innovation of a product functionality and of its design solution (www.amara.com/alessi). Therefore, the art field is currently frequently linked to the terms of innovation and originality.

What is happening in sectors

The situation in segments with technological development, and in market needs has changed. The term competition has broadened in its content. Numerous factors enter the competition battle and they are uneasy to predict, eg. technological heterogeneity, the power of customers, deregulation of prices and others. Overcapacity is to be found in many segments, and at the same time, the lack of natural resources starts to manifest itself. The recourse to this dissonance may be seen in the search for alternative ways or more economical utilization of natural resources with the use of new technologies which are the accelerator of new ideas and products. The innovation process does not depend solely on raw materials and technologies but is primarily connected to the development of people. The essence of the competition success comprises of the ability to transform information into knowledge and the ability to transform knowledge into a competitive advantage. The necessity to work with the ever-increasing competitiveness of businesses is underlined, as well as the increasing speed of innovation cycles.

The ability to transform information into knowledge is the property only of few talented individuals and their creativity and persistence usually bring extraordinary ideas and "put things in motion". Businesses, who wish to innovate and compete, exhibit great demand of talented individuals (Šviráková, 2013).

The role of universities in the process of innovation

Universities and the research and development centers and workplaces play an immense role in the process of innovation and competitiveness development in the economic as well as the social system. Since their establishment, universities represent the concentration of educational and development activities which in many cases bring creative and innovative solutions. Universities are the soil guaranteeing an independent research and liberal knowledge with its rational and ethical dimension, its morals and consciousness, shared by an independent community of teachers and students. The fundamental principles of universities mission are anchored in the document for European universities (signed on 18 September 1988 at the University of Bologna). One of the key principles is oriented to the fulfillment of educational, research and development activities in accordance with the current status of science and with the needs of the society. These activities should enhance creativity in science, creative and educational activities. A no less significant role of universities lies also in the realization of cooperation with the world of practice in order to establish favorable conditions for graduates, and also, in order to build cooperation on innovations and creative solutions transfer into the practice. (National R&D Policy 2016).

2. Theoretical Basis

Creative and cultural industries

The document, approved by the Czech government, sets new priorities of the national policy in science, research and innovations in 2016 – 2020 also for the cultural and creative industries. In 2002 Florida (Florida, 2002) stated in his articles that the most prominent sources of a country are its people and their individual creativity, talent and skills. And particularly segments based on these sources are considered

as the most significant movers of innovation processes of the particular country. These segments are since the 1980s called the creative industries (Žáková, Kraus, 2014). Benefits of these industries for national economies may be observed in the creative segments bearing innovative ideas. The creative industries inspire other businesses and entities to innovation activities. The application of new technologies accelerates innovation processes of the producers of new technologies. Creative industry entities closely cooperate with other segments by means of creative inputs, eg. ideas for new products, services, marketing support for innovations and new products.

The creative economy according to Howkins, (2001 p. 8), contain scientific, research and artistic activities under the intellectual property rights protection. According to Howkins, the creative economy is based on four areas, on the copyright, patents, trademarks and designs. Among the partial industry segments of the creative economy also the following may be counted: research and development, software, radio and television, design, music, film, toys, advertising and architecture, handicrafts, video games, fashion industry and arts.

The terms of creative and cultural industries are defined in distinctive ways by numerous authors. Eg. The OSN defines the creative industries as industries orientated at outputs stemming from the intellectual property rights. The cultural industries generate outputs within the traditional art, literature and/or cultural heritage.

Space for innovations

It could be said that we are surrounded by successful innovation on every step and numerous of them are not based on any complex technical problem, but on a simple idea, which brought something new that captured one`s attention and got its supporters (Košturiak, Chál, 2008). Innovations can be spoken about in two areas. The first area concerns the subject of innovation, ie. what is to be innovated, eg. how to innovate a product, services, how to create new markets and business systems. The other area is related to innovation abilities of businesses, ie. how to develop innovation skills, what areas of the business are to be innovated in order to ensure a permanent growth of the company. Managers of businesses approach innovations from different perspectives. Some want their companies to "keep alive and operate", others want the business to flourish. The first strategy promotes economizing, eg. saving materials (saving has never brought wealth), incessant improvements (is the condition for the existence, not for the growth) or copying successful projects, this does not lead to the growth.

Under the second strategy of "achieving flourishing development", businesses should concentrate their efforts on logistics, product development, and onto strategic innovations eg. acquisition of a new know-how, acquisition of new products to extend product lines, acquisition of a new market or distributional channel. These areas may be of a great innovation potential and their development relates to inventiveness and creativity of employees. Strategic innovations cannot be carried out without the human potential development and support which is characterized by four areas: intellectual, physical, emotional and moral potential. (Košturiak, Cháľ, 2008). Emotional and moral potentials represent values for building creativity and performance of businesses and thus for establishing conditions for innovations.

Culture and creativity as an innovation source

Application of research and development outcomes, of ideas and creativity of individuals in the practice is the prerequisite for continual innovation activities and for enhancing the competitiveness of the national economies. Qualified employees, professionals and educated and creative people are the strategic sources of innovations, with the concentration of whom so-called creative ecosystems are founded. They are environments with a high accumulated knowledge and favorable conditions for the creativity development (Žáková, Kraus, 2014).

Creativity is defined as a capability to connect existing knowledge, to generate new ideas and transform them into a useful whole. Creativity is concerned a strategic intangible inexhaustible material. (Arfaya Peters, 2010). The pre-requisite for enhancing the competitiveness of localities, regions or countries, is the ability of the society to maximally utilize their creativity potential. According to the UNCTAD study (2010), we distinguish 4 basic types of creativity: Cultural, scientific, economical and technological.

The study primarily discusses the cultural creativity which includes imagination and the ability to generate original ideas and ways for the interpretation of the world. These are mostly expressed by text, music, image. The cultural creativity is often related to the scientific creativity which includes curiosity and will to experiment and form new links of existing knowledge to solutions of a specific problem. The typical area of linking cultural and scientific creativities is eg. design.

Innovation and culture overlap to a certain extent and the creative industries occur directly on their borderline (Hautamaki, 2010, p. 16). The cultural creativity may be characterized as an ability of people (artists) to creatively think and express regardless of the conventional rules. These people thus develop new ideas, ways leading to new products and services. The cultural creativity does not only relate to cultural products but also leads to the development of information and communication technologies as part of book, music or newspaper sales via the Internet. Film technology, the ways of its distribution thus get innovated in terms of the cell phone applications, product design, computer games improvement, etc.

The importance of creative industries for the economy is depicted by the Fig. 1. Here, innovations are represented by educated and creative people through scientific and cultural output. (Žáková, Kraus, 2014 p.5)

3. Analysis Areas

Methodology, objective, research problem

The research problem, dealt with in the study, builds on the experiences showing that successful creative student projects, eg. design proposals, are highly valued at international competitions (Trilobit, Red Dot, 2015´), however, their transfer into the practice is sporadic, almost null. In 2008 up to 2014, 314 industrial property applications had been submitted on behalf of the TBU in Zlín (Czech Republic). Out of the total 150 of the registered designs, especially product designs, almost none was in the form of a license transferred into production and practical use. The analysis stems from the assumption that the transfer of innovations within the cultural and creative industries is not at European and Czech universities realized by means of traditional technology transfer centers. The aim of the study is to verify the presumed fact relating to the transfer of creative innovations, to identify ways, or new subjects leading to the real transfer of creative innovations.

The methodology follows on the primary research which was carried out in the form of available information collection through websites of monitored institutions. Criteria had been established according to which the information was analyzed.

4. The Analysis of Technology Transfer Centers in the EU and in the Czech Republic in Relation to Artistic outputs in Product, Industrial and Graphic Design

The analysis of selected universities in the EU

The analysis was processed with the use of materials from 2010 written during the project called the "Effective Transfer of Research and Development Outputs in Production and their Subsequent Utilization" (EF-TRANS). The analysis of the system of commercialization of research and development outcomes in selected EU countries (Finland, Sweden, Denmark, the Netherlands and Norway) was one of the partial reports of the project. They were the countries with a very high innovation potential. The analysis was carried out by the research team of the Technology Center of the Academy of Sciences of the Czech Republic. The analysis also included particular prestigious universities and their processes leading to innovation transfer. These universities were also the subject of the below-described research. The results of the analysis withing the EF-TRANS project were used as the base for the analysis of commercialization of outcomes in relation to artistic outputs, particularly as a part of innovation solutions in product, industrial and graphic design.

The main criteria of the analysis became those which in their content complied with the research subject of the project of IGA TBU: the existence of the art faculty/institute/studio, the focus of the technology transfer center, whether the content of activities relates to design, project focus (if stated)

Finland

Aalto university school of science and technology. The university has a faculty of arts: The school of Arts, Design and Architecture, http://arts.aalto.fi/en/**.** The Faculty claims to deal with research, to cooperate with the commercial sphere, research teams and areas of research are described. The specific projects are not listed. They offer services for these researches.

University of Oulu, http://www.oulu.fi/english/departments, there is no school of arts, only the faculty of urbanism and architecture

Sweden

Stockholm University http://www.su.se/english/ - no art faculty. There exists a so-called innovation office which ensures cooperation with the commercial sector in the form of consultancy, also serves as an incubator; in addition, the university runs several specialized research centers, there is no mention of new product designs, etc.

Gothenburg University http://www.gu.se/. There are two faculties of arts: Faculty of Fine, Applied and Performing Arts, http://konst.gu.se/english and Faculty od Arts http://www.gu.se/. The faculties focus on the following research areas: Faculty of Arts: Cultural Sciences; Historical Studies; Languages and Literatures; Literature, History of Ideas and Religion; Philosophy, Linguistics and Theory of Science; Swedish**. Faculty of Fine, Applied and Performing Arts**: Design; Crafts; Digital Representation; Photography; Independent Filmmaking; Fine Art; Musical Performance and Interpretation; Performance in Theatre and Music Drama; Literary Composition Poetry and Prose; Music Education; and Arts Education

Denmark

Technical University of Denmark http://www.dtu.dk/english. The university has no art institute. The primary research focus and cooperation with the commercial sector lies purely in technical and natural sciences and technologies, and corresponds to the main specialization of the faculties.

Norway

University of Oslo, http://www.uio.no/english/. The research focus of their centers agrees to the faculty specialization, the Faculty of the Social Sciences has the Center for Technology, Innovation and Culture, nevertheless, there are no projects related to design etc. They are rather scientific projects in the theory of culture.

Oslo National Academy of the Arts http://www.khio.no/en/. There are 6 arts departments (the Academy of Opera, Dance, Theatre, Design, Art and Craft). Research activities, cooperation with the world of practice are not specifically presented here.

University of Bergen, http://www.uib.no/en. No school of arts, the Faculty of Humanities, the Faculty of Mathematics and Natural Sciences, the Faculty of Medicine have their own research centers specializing in solving projects associated with the study fields and scientific research.

Bergen University od Art and Design http://www.khib.no/english/. The only university of arts in Bergen with specialization in arts and design. Research activities focus on the research of arts, they have their own research board. The Department of design university declares a Design incubator on their website (no detailed information). The university disposes of their own space for presentation of interesting research or artistic activities called Room 8. Projects focuses are listed on the website where information on research activities and projects in arts and design are provided.

Analysis of technology transfer centers in relation to the transfer of creative innovations in the Czech Republic

Masaryk University – The Technology Transfer Center. The structure form at university: integrated into the organization structure of MU, one of their workplaces. The contact via http://www.ctt.muni.cz**.** The analysis with the established criteria found that the presented projects were usually solved especially in cooperation with a particular business, which at the same time participated in the development. In their contents, the projects focus on the development of new technologies. An incidental product or device design is solved as mere complimentary parts of projects.

Czech Technical University in Prague – Inovacentrum. The Technology Transfer Office is attached to the CTU structure as one of its other constituent parts, contact via: https://www.cvut.cz/inovacentrum**.** The TTO presents a project called INOVAJET, which is the business incubator of CTU, which provides a comprehensive support to starting innovative businesses including a consultancy over their business plan. They organize educational activities, provide office spaces, support participation in competitions for start-ups, offer accounting and legal guidance, assist in building the network of contacts, corporate culture and identity. The help lasts for 18 months and is divided into the following stages: Warm up, Focus, and Accelerate & Develop.

The University of South Bohemia in České Budějovice – the Academic Center for the Transfer of Technology at the University of South Bohemia. The center has two offices, The Office of the Transfer of Technologies of the USB is a part of the rectorate of the USB, the other part is incorporated under the Biology Center ASCR (http://www.jctt.cz/). The projects are focused particularly on fishing, agriculture (preparation for cereal seed treatment, a recipe for a jam with stevia, development of gluten-free bread mixtures). The Center does not conduct an independent research, it serves as a mediator between the scientific research and the commercial sphere. There is no faculty of arts at the USB, therefore, activities focused on the transfer of technologies are compliant with the specialization of faculties.

Technical University of Liberec – The Institute for Nanomaterials, Advanced Technologies and Innovation (CxI). The Institute is a part of the university structure as one of the all-university workplaces, (http://cxi.tul.cz/). Conducted projects focus on the research of nanotechnologies in nanostructure analysis and their measurement, nanomaterials in natural science, nanotechnologies in IT, machinery construction and industrial technologies. The projects are primarily orientated to nanotechnologies and mechatronics. There is a department of arts and architecture at the TUL, however, the activities associated with the transfer of creative innovations or cooperation with practice are not presented.

Charles University in Prague – The Center for Knowledge and Technology Transfer. The Center for Knowledge and Technology Transfer of Charles University is one of so-called other university units, it is governed by the rector. (https://www.cuni.cz/UK-765.html?poid=1382369926888381) **.** Project focuses are not specifically given. The Center publishes the so-called Catalogue of Innovation Opportunities which is innovated annually. The Catalogue is a portfolio associating products, specific offers of contract research and other forms of investment opportunities from all departments of Charles University in Prague. We annually file new innovative technologies and the portfolio is updated regularly. CPPT considers individual contact with a business to be the most efficient form of cooperation, when we identify the specific fields of interest. CU has no faculty of arts and it does not specify any details of the realized transfers. Palacký University in Olomouc – the Science and Technology Park

The Park is a university institute under UP in Olomouc (http://www.vtpup.cz/). The University has no department or faculty of arts, the focus projects cannot be identified, the Park serves especially as a

platform for counseling, for communication with businesses, and for submitting project applications. What is interesting is the structure of activities of UP Business Club and others, which basically copies activities of coworking centers.

Technical University of Ostrava – the Innovation Support Center. The Center is incorporated into the university structure among so-called other units. The following departments belong to the Center: Commercialization, Business Incubator, Popularization of Science and Technology (http://cpi.vsb.cz/cpi/uvodni-stranka-cpi/)**.** The department of commercialization administers an offer and demand website which publicizes offers of workplaces for cooperation with the commercial sphere, and the demand of the application sphere http://agent.vsb.cz/o-nas/. The projects are in their content coherent to the specialization of individual faculties, ie. in energy utilization, metallurgy or engineering. The Center serves as a service and support element creating a platform for the support of research and development. The University has no faculty of arts. The philosophy of the offer and demand portal brings a great positive feature which may increase mutual informativeness between the academia and application sphere.

Institute of Chemical Technology in Prague – not found, no faculty of ATS.

The University of Economics in Prague – not found, no faculty of ATS, too. The University is a partner in the project called Centers for Technology Transfers – under the TC ASCR. The CeTT organizes tutoring sessions for the particular target groups.

Brno University of Technology – the Center for Technology Transfer. The Center is incorporated into the BUT structure as a university workplace (https://www.vutbr.cz/ctt/). It works as a mediator between the academia and application sphere, between scientists and businesses. The conducted projects lead to a wide scale of technologies (medicinal issues, thermal flow, microscope prototypes, the chemical composition of loam, automotive and traffic engineering). Even though the BUT facilitates also a faculty of arts, no artistic impact can be traced to the technology transfer. According to the presented conducted projects on the website of the Center, it is a long-term cooperation of businesses with development workplaces where impulses come from the application sphere. The proposal of the solution of cooperation offer for the application sphere may be evaluated as positive. The Center operates as a mediator and service support for cooperation.

The University of West Bohemia, Plzeň – New Technologies Research Center. The Center is incorporated into the university structure as a university workplace, contact via http://ntc.zcu.cz/kontakt/ **.** Projects focus on material and laser technologies, stress analyses, flow and heat transfer, modeling and monitoring human body, interdisciplinary activities**.** Although UWB has a department of arts, in the presentation of the activities of the Center, no activity associated eg. with design etc. was proved. Ladislav Sutnar Faculty of Design and Art does not deal with technology transfer on their website (nor with any similar research).

The University of Pardubice – the Center for Technology and Knowledge Transfer. The Center is incorporated into the university structure as a university workplace, (https://vav.upce.cz/domu)**.** The Center established in 2012, has been being developed under the project, and its activities in technology transfer have not been presented yet. The University has the Faculty of Restoration, however, its research is focused on the development of new restoration procedures and technologies. It can be said by the account of offered technologies that a plausible transfer will be specialized in the development of plastic working, traffic engineering, electrotechnics, building industry, water management, etc.)

The analysis of school and faculties of arts in the Czech Republic

The Academy of Arts, Architecture and Design in Prague (the Department of Design, Applied Arts and Graphics). The websites of individual departments inform about students` successes. Frequently, the proposals and designs awarded in various competitions are created in cooperation with businesses who initiate the particular project.

Ladislav Sutnar Faculty of Design and Art of UWB in Plzeň. The websites inform about exhibiting activities and successes of students in competitions. No mention of a cooperation with the commercial sphere has been found, nor about solving projects with innovation potential within the frame of the specialization of the faculty. (http://www.fdu.zcu.cz/cz)

The Faculty of Arts and Architecture of the TUL Liberec. The essential information on cooperation with businesses is missing on the website, as well as on project solutions, etc. (http://www.fua.tul.cz/)

The Faculty of Fine Arts of BUT Brno. The website contains elementary information on realized projects and exhibitions, however, there is no mention of student successes, nor of cooperation with the practice. (http://www.ffa.vutbr.cz/).

4. Outcomes and the Analysis Findings

EU: Centers for technology transfers at universities in the EU countries deal primarily with research and development associated with specializations of individual faculties. If there is an arts faculty at a university, it usually devotes its activities to research, however, these areas are not included in technology transfer. Research is solved in cooperation with the commercial sphere as well as internationally. It may generally be said that centers for technology transfers focus especially on the research of technologies, health care, environment, energetics, agriculture, etc.

Based on the research we may assume that the so-called cultural creativity concentration is organized partially in an independent way on the academic grounds (eg. Inkubator Bergen) or utterly independently on academic activities (commercial coworking centers or different forms of hubs).

Czech Republic: CTTs at Czech universities operate mostly as mediators between academic teams and application sphere teams. They offer a number of services in areas of project application processing, intellectual property solutions (registration of patents, industrial designs, licenses, etc.). They offer educational activities in intellectual property and knowledge management, etc. Numerous centers run also business incubators and thus assist with the realization of new ideas. In the case when cooperation with application sphere ends up by technology transfer, it is often focused on areas which are compliant with the research focus of individual faculties. In the case of the solution of an innovation project, eg. solution of a product design, this is processed presumably as a complementary part of the entire project, not as its fundamental objective. At faculties of arts or independent art universities, the creative innovations transfer is not dealt with systematically. When they work with creative projects with creative innovations, it is always in cooperation with a specific submitter, business. Most frequently it is a collaboration on particular creative projects, companies encounter in their everyday business.

The creative innovations transfer activities do not have any systematic solutions from the side of the analyzed Czech universities. No center has been proved to exist which would support the concentration of the cultural creativity (as was explained above).

Conclusion

Based on the analyses, it can be concluded that establishing of creative centers must be supported for the transfer of creative or cultural innovations. This would create space for concentration and interconnection of creative and scientific innovations. Such a connection is rather difficult to implement within individual faculties and departments (as becomes evident from the analysis) as well as universities. A problematic issue arises: who should establish, finance and operate the creative space. In 2015, more than 40 coworking centers and hubs existed in the Czech Republic, however, almost all of them have concerns about their long-term sustainability and economic prosperity. The risk is high particularly for smaller municipalities where the creative potential is insufficient, and thus, numerous centers become mere premises lessors. The activities supportive of centralization of creative and scientific innovations remains primarily at universities. They should initiate, deepen and expand knowledge. Universities with their knowledge base should become progressive coordinators and engines for creative, cultural, scientific and technological innovations

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Road Map of Service Quality to E-Government Service Quality

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Abstract

Governments can offer more services to citizens and businesses by utilizing advancement in ICT. Increasingly citizens find it easy and cost effective to reach government services online. On the other hand, as governments thrive in providing citizens services via electronic channels they also need to consider those quality factors that impact citizen's willingness to use the services. This paper investigates available literature for frameworks and models in the area of e-services, e-service quality, and e-government service quality taking into account the classical SERVQUAL model. The paper provides a roadmap of key quality attributes that are substantial to consider when offering e-government services.

Keywords: e-government, e-government services, quality models, quality attributes, service quality, dimensions.

1. Introduction

The advancement in e-service quality forced government to adopt changes and enhance their facilities by providing e-services in government domains. The preliminary study by (AlBalushi and Ali, 2015b) found that Content, performance, security, personalization and citizen Involvement were the major key trends used from 2000-2014. The services offered by the government require more satisfaction in terms of service quality. In larger aspect the area of service quality comprises of no of definitions, models and measurement instruments. Different authors presented and quantify service quality domains with aim to quantify the e service quality in large and provides the best possible ways to enhance the quality of service.

While in early development of e- government services, the prime focus of authors was on technical flaws and design aspects of services, but the innovation and advancement is services tends the user believe towards the satisfaction of services provided by the e-government websites.

The services provided by the e-government websites plays an enormous role in capacity building of user confidence and trust. The reliability of information and attraction towards the services engages the citizen emotionally and allows him to utilize the e-government services frequently. Therefore, the public institutions are required to place citizen requirements in priority to facilitate the aroma of satisfaction for enhancing citizen interest in availing e-government services.

The objective of this research is identifying the core dimensions of e service quality that helps to quantify the weak areas of e service quality in perspective of citizen involvement in e-government services. This aims to provide quality of service up to that satisfactory level which assured citizen to have reliable, secured and prompt services.

2.0 Literature Review

2.1 Frameworks and Models for Service Quality

Evaluating the service quality and their attributes is becoming the most emerging research area for enhancing e-service quality. The concept of evaluating service quality is presented by (Parasuraman et al., 1985) in SERVQUAL framework. SERVQUAL is well recognized and trustworthy framework for the

evaluation of service quality in traditional retail industry. The framework considers different parameters (word of mouth, personal need, past experience, expected service, perceived service, service delivery, external communication to customers, translation of perception in service quality , management perception of consumer expectation) for the evaluation of service quality(Parasuraman et al., 1985).(Parasuraman et al., 1988a) revised SERVQUAL and quantified the service quality with five Key dimensions (reliability, assurance, tangibles, empathy and responsiveness). Several authors((Long and McMellon, 2004, Cristobal et al., 2007, Rotchanakitumnuai, 2008, Alanezi et al., 2010, Sharma et al., 2013, Papadomichelaki and Mentzas, 2011) founds SERVQUAL as a key framework for the evaluation of service quality in different domains. The requirement and vastness of different service quality domains needs mediation of determinants provided by the SERVQUAL accordingly (Lee and Lin, 2005).

The environment of e services is entirely different from the traditional services. The parameters available for the evaluation of service quality are strictly bound to identify the gaps between the delivered service quality and the service quality received by the user. The scope of the framework is limited only to the traditional services where, user is directly interacting with the service provider. Therefore, the limitations of SERVQUAL don't allow it to use for the evaluation of any other services except those where user is directly interact with service provider. The dimensions of SERVQUAL have both tangible and intangible items.

The tangible dimension of SERVQUAL required equipment, staff, physical presence of staff etc,(Parasuraman et al., 1985, Parasuraman et al., 1988b) for the evaluation of service quality which is quite indifferent from the aspects of e service quality where staff, equipment don't present to have any impact on the measurement of e service quality. Therefore, it can be assumed that, the tangible dimension of SERVQUAL make it more specific for retail industry and cannot be trusted for the evaluation of e service quality.(Lee and Lin, 2005, Yoo and Donthu, 2001, Santos, 2003, Ladhari, 2009, Achchuthan et al., 2014, Hussain, 2014) used intangible dimension instead of tangible dimension in context of e service quality.

Another important dimension of SERVQUAL is empathy which refers to the caring and individual attention for customer along with assurance dimension delivers the confidence which plays an enormous role to increase credibility, sense of security/privacy and trust in customers. Whereas, reliability dimension along with responsiveness dimension encourages the customer to use the services confidently in stipulated time (Parasuraman et al., 1985, Parasuraman et al., 1988b). The above discussion concludes the fact that the available dimensions of SERVQUAL are more citizens centric but the presence of tangible elements in SERVQUAL has limited the scope and allows it to use only in physical retail environment rather than other domains of service quality. Thus, the limitation of SERVQUAL and the advancement in information technology allows building new framework in different domain of service quality.

The next section of the paper contains discussion about the framework and models available for e service quality.

2.2 Frameworks and Models for E-Service Quality

Most of the retailers and services provider facilitates their users with e services. One of the major growing concerns in the service industry is to maintain the better quality services. The quality of service depends upon the service acquired by the user/customer. So, there is need to identify the parameters or dimensions to quantify the e service quality. Different researchers identified and discussed different dimensions to quantify e services quality. The service quality of e commerce website is quantified in SITEQUAL(Yoo and Donthu, 2001). (Barnes and Vidgen, 2002, Loiacono et al., 2002) also measures the website service quality by utilizing the general dimensions in the e commerce domain, the dimensions utilized were mainly focus to evaluate the impact and intent to re-use the website. In context of service quality in e commerce websites,(Loiacono and McCoy, 2004) reformulate the SERVQUAL and identified dimensions(tangible, assurance, reliability, purchasing process, responsiveness) to quantify

the confidence of customers along the human behavior of providing service quality. Although (Parasuraman et al., 2005) identified multiple item scale E-S-QUAL with dimensions to evaluate the routine and no routine operations. The dimensions available for routine operations (fulfillment, efficiency, system availability, and privacy) focus on the traditional attributes of maintaining service quality whereas, the dimensions for non-routine operations (responsiveness, compensation and contact) focuses only those services that should be provided after sale. While, (Cristobal et al., 2007)identified four dimensions (web design, customer service, assurance, order management) to measure the perceived quality of a website (PeSQ) in context of e retail environment. The dimension web design of PeSQ refers to the availability of information whereas, customer service and assurance refers to the service quality and loyalty, while the dimension order management is the physical dimension which deals with the availability/booking/delivery of the equipment. Thus, the argument supports that PeSQ model is valid for the measurement of perceived service quality of websites.

The eSQ model is presented by (Ladhari, 2010) with different dimensions (website design, reliability/fulfillment, responsiveness, security/privacy, ease of use/usability, information quality/benefits) for the evaluation of e-service quality of websites. The two of the five key dimensions (responsiveness and reliability) are of traditional retail service quality model (SERVQUAL). An advantage of eSQ model is not specific to any service industry and can be utilized with additional attributes for any specific service industry(Ladhari, 2010).

The self-service technologies are advancing these days,(Lin and Hsieh, 2011) presented SSTQUAL for the evaluation of self-service technology with different dimensions (functionality, enjoyment, security\privacy, assurance, design, convenience, customization), has limited orientation and the obtained results depends upon on those organizations which equipped with self-service facilities. Although, (Ding et al., 2011) presented eSELFQUAL dimensions (perceived control, service convenience, service fulfillment, customer service) for the evaluation of customer satisfaction and loyalty in organization.

Besides (Surjadjaja et al., 2003) also presented a model for the measurement of e service quality operations. The operations of e service quality model is divided in three groups' service marketing, service delivery and service design with twenty service quality dimensions. The dimensions presented in model has focused on the operations of service quality rather than finding a specific aspect of service quality also the large number of determinants diverts the orientation of research and provided the scattered observation about e service quality. Although, (Fassnacht and Koese, 2006)model for e service quality comprises of three high quality dimensions (delivery quality, environment quality, outcome quality) with nine sub dimensions. The model is well defined in terms of seeking information about the provided e service quality but lacks in various means such as user experience about the service quality, customization and usability. While, (Sohn and Tadisina, 2008) identifies the dimensions (availability, speed of delivery, customized communication, trust, reliability, appropriate webpage contents, ease of use, multi-functional websites) of e service quality. The determinants of (Sohn and Tadisina, 2008) model focused on the customer satisfaction with the service provided by the financial institution rather than user specific needs whereas, the security/privacy is also found as a least concern matter in this research which should be the priority for the evaluation e service quality models.

The next section of the paper contains discussion about the framework and models available for e-government service quality model.

2.3 Frameworks and Models for E-Government Service Quality

The advancements in information technology offer government to embrace changes and provide e services in government domains. In larger perspective the e service quality in government domain requires more attention to enhance the satisfaction level of user/citizen. In last decade, several authors conducted various researches to determine effective quality dimensions and measuring methods that influence the quality of e-services in e-government. The satisfaction level of user/citizen can only be evaluated by quantifying the e service quality dimensions. The risk assessment of e-government service

quality is studied by (Rotchanakitumnuai, 2008) in E-GOVSQUAL-RISK model. Another research by (AlBalushi and Ali, 2015a) identifies the evaluation of E-government service quality by using three different models; Value Measurement Model, Success or Maturity Model and eService Quality Model. The dimensions (service quality design, website quality design, and technical support, customer support quality) of E-GOVSQUAL-RISK model were utilized to found the extent of risks available for the e-government website where, the technical support dimension along with the customer support refers to the availability of technical help provided by the e-government portals.

The technical aspect of e-government portals were evaluated by (Magoutas and Mentzas, 2010)in SALT framework. While,(Papadomichelaki and Mentzas, 2011) utilized SERVQUAL as a standard and presented e-government service quality scale named e-GovQual with different dimensions (efficiency, trust, reliability, citizen Support) for the evaluation of e-government service quality. The dimensions (trust, reliability and efficiency) of e-GovQual refers to the ability to deliver the promised service in accurate way with in stipulated time, whereas the dimension citizen support refers to the availability of prompt help for enhancing user/citizen reliance on e-government service. While, (Shanshan, 2014)also presented dimensions (usability, information quality, security, responsiveness) in E-GovQual model based on the analysis of available literature for the evaluation of e-government service quality. The dimensions responsiveness and security of E-GovQual are also the part of SERVQUAL which refers to the high degree of secured services along with keenness to assist user/citizen whereas, the remaining dimensions (usability, information quality) of E-GovQual has limited scope to find the user/citizen contentment in context of e-government service quality.

In context of trust measurement in e-government,(Zaidi et al., 2014) presented the EGSTPA framework with dimensions (system quality, information quality, service quality, usefulness, citizen satisfaction, citizen trust and perceived e-government service quality) focused on the e service quality provided by the tax service providers and has restricted scope to evaluate the e-government services. The dimensions system quality and service quality of EGSTPA framework are rewording and reformulation of tangible dimension, whereas the dimensions perceived quality and customer satisfaction are extracted from empathy and assurance dimensions of SERVQUAL, which ensures that customer satisfaction can only be achieved on the basis of perceived quality of service.

(Alanezi et al., 2010)evaluated e-government service quality with different dimensions (website design, reliability, responsiveness, security/privacy, personalization, information, and ease of use) to enhance the awareness amongst the e service managers about the service quality received by the user/citizen. The scale comprises of several dimensions including reliability, responsiveness and security that are used to evaluate the user/citizen confidence in terms of providing secure service in guaranteed time whereas, other dimensions utilized in (Alanezi et al., 2010) model are reformulation and rewording and of the dimensions of SERVQUAL framework. In context of evaluation of e-government services in Oman, (Sharma et al., 2013) utilizes key dimensions of SERVQUAL to find out the perception of e services provided by government websites. The dimensions (reliability, responsiveness, efficiency, security) evaluated the secured e-government services. The research lacks apart, while considering the factor that the study is conducted only in a particular region of country instead of taking samples from different parts of country. The different attributes used (Sharma et al., 2013) has limited acceptability as they can be used only to identify the user/citizen experience about the services instead of seeking user perception about usability and degree of satisfaction received by the user.

In the context of revenue services,(Stiglingh, 2014) identified a E-SQUAL based scale with different lower level attributes (fulfillment, convenience, efficiency, system availability, reliability, assurance, empathy, responsiveness, security, incentive). The dimensions (fulfillment, convenience) refers to the degree of user handiness of successful submission of details over e government website whereas, the dimensions (efficiency, system availability, reliability, assurance) refers to the user/citizen confidence obtained by the promised services within stipulated time. Apart from the above mentioned dimensions, (Stiglingh, 2014)also suggested some other attributes (security, incentive, empathy, response) which has similarity with dimensions of SERVQUAL.

3.0 Discussion and Conclusion

The growing number of research activities in domain of e-government service quality allows researchers to identify new dimensions in order to provide better service quality to users/citizens. In this paper the authors studied all relevant quality dimensions in the area of services quality, e-service quality, and e-government service quality. SERVQUAL was used as a benchmark for being the classical and most comprehensive service quality model for which most of the available quality models in were studied for any expansions, amendment, or application to a particular domain. It was evident that SERVQUAL model remains the most comprehensive model in terms of key quality dimensions although these dimensions might slightly very as per the applied domain but they still revolve around the key dimensions proposed by SERVQUAL.

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Development of North-West Region by Accessing Funds through the Measure 313 of the National Rural Development Programme (NRDP) Case Study: Bihor County, Romania

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Abstract

This paper presents the status of theimplementation of Measure 313 - Encouragement of tourism activities related to National Rural Development Programme (2007 to 2013) both at the national leveland at the level of the North-West region of Satu Mare, with a focusonBihor County.

Measure 313 was a highly successful onewithin theNRDP, as financing requests exceeded 87% of the budgetary allocation. Also the approved projects in the N Wregion, during the analyzed period, accounted for 26.6% of all projects approved nationwide.

The impact of using EU funds for Measure 313 is emphasized in the county of Bihor by increasing the number of rural locations in 2008-2015. In 2015, the number of rural tourism increased by 88.31% compared to 2008, as rural tourism is an activity with potential for development in Bihor county due tothe beautiful natural environment.

Keywords: NW region, Bihor County, accommodationunits, Measure 313

Introduction

The EU integration was one of the key priorities of Romania's foreign policy. As a substantial part of this strategy, Romania had to gradually adopt an agricultural policy and an institutional framework fully compatible with the Common Agricultural Policy (CAP) of the European Union. The two pillars of the Common Agricultural Policy of the European Union are supporting the market, incomes and the rural development, and their funding is through EGAF and EAFDR.

Following the creation of theNational Rural Development Programmeduring the pre-accessionand post-accession it have been noticed that a sector with great potential for development is the tourism sector supported both by SAPARD (2000-2006) and by the NRDP2007-2013. The measure which supported the development of tourism and accommodation units was 313 "Encouraging tourism activities", under the NRDP 2007-2013.

Material and Method

The paper presents an analysis of the implementation of Measure 313 – Encouraging tourism activities, related to the priority Axis III in Romania during 2007-2013, at national level in general, and the North-West region and Bihor County in particular.

The main indicators used were: financing requests granted; national level signed contracts; payments done; cancelled contracts, number of finalized contracts during period 2008 – 2014 (NRDP 2007-2013), etc.

The main method used in realizing this analysis was the quantitative method of comparison in time (2008-2014), which can be applied by calculating the dynamic rhythm of the analyzed phenomenon in the given time frame.

Data regarding the situation of tourist accommodation units in the 2007-2015 period where analyzed and processed after they were provided by the online platform of the National Institute of Statistics (NIS)

Results and Discussions

“Tourism in Romania owes much of its development to the European funds implemented by the European Agency. Continuing the success of the SAPARD program, for "Encouraging tourism activities" (313) were contracted 1533 projects worth over 216 million euros. For projects financed by this Measure were paid about 97 million euros. In the investments made by the recipients of Measure 313 there is greater weight of theleisure portion related to tourism services, which denotes an accelerated maturation of the wayto approach this sector” .(http://portal.afir.info/informatii_generale_pndr_pndr_2007_2013?amp;lang=RO)

According to NRDP 2007-2013, Measure313 "Encouraging tourism activities" is part of Axis III - "Improving the quality of life in rural areas and diversification of the rural economy" and has the overall objective of increasing tourism activities in rural areas to help increase employment and income alternatives and increasing the attractiveness of rural areas. (Source – Applicant'sguide- 6th version from March 2012, page 5).

“An important aspect of the Romanian rural tourism is represented by agro-tourism, which is usually practiced by small farm owners/rural households as a secondary activity and primarily involves women. Therefore, the support of rural tourism, in particular agro-tourism and also related leisure activities, are not only supporting diversification activities but also helps to create opportunities to better integrate women in the labour market”.(source - http://old.madr.ro/pages/dezvoltare_rurala/nrdp-consolidated-version-june-2010.pdf)

The specific objectives include:

1. creationand maintaining of jobs through tourism activities, particularly for youth and women;

2. value added growth in tourist activities;

3. creation, improvement and diversification of tourism infrastructure and services;

4. Increasingthe number of tourists and the duration of visits.(Source – Applicant's guide- 6th version from March 2012, page 5)

The structures for the reception of tourists will be in accordance with the classification rules set out in national legislation (Order of the Minister of Regional Development and Tourism no. 1051/2011 approving the Methodological Norms on the issue of classification certificates, licenses and patents for tourism amended and completions).

For new investments, modernization and extension of rural tourist accommodation structures other than agro-tourism, the comfort level and quality of services proposed by the project must achieve a minimum quality standard 3 stars / daisies.

The investments in agro-tourism have to meet the definition given in this sheet, and the comfort level and quality of services proposed by the project must achieve a minimum quality standard for one daisy. (Source – Applicant's guide- 6th version from march 2012, page 9)

A condition in accessing European funds for the development of tourist, acomponent of Measure 313, was to maintain the criteria for classifying the tourist accommodation in rural areas while taking into account the exact definition of touristic pension and agro-touristic pensions as presented in the literature:

The Tourist pension - structures of tourists reception, with a capacity of up to 20 rooms, with a total of maximum of 60 people, working in the homes of citizens or in independent buildings, which provide in special places tourist accommodation and conditions of food preparation.

Agro-touristic pensions - tourism accommodation structures with a capacity of accommodation for up to 8 rooms, operating in the homes of citizens or in independent buildings, which provide in special places tourist accommodation and conditions of preparation the food, as well as the possibility of participating in household activities or handicraft.(Source: http://statistici.insse.ro/shop/)

After analyzing the official data related to the implementation of Measure 313 nationwide within the NRDP 2007-2013, based on information provided by both AFIR and the official information that are part of the NRDP annual progress reports for the years 2008 to 2014 found to have been submitted for financing a total of 3703 applications of which 1752 were contracted, which represents 47% of all requests.Another finding was that the amount of financing applications submitted in the 7 submission sessions held in the analyzed period exceeded the amount allocated to this measure with 87,88% (303.33 million euros).

Table 1: Accomplishment indicators related to Measure 313 "Encouraging tourism activities" within the period 2008 – 2014, based upon the data provided by the Agency of Rural Investments Financing

Accomplishment indicators	No	Value (mil. Euro)	Average value (mil. Euro)	Degree of utilization of allocations
Financing requests in accordance submitted	3.703	569,89	0,15	187,88%
Total Financing Requests submitted	2.584	392,09	0,15	129,26%
Financing requests selected trough the Selection report	2.581	391,60	0,15	129,10%
Financing requested selected trough the Appeal report	3	0,49	0,16	0,16%
Contracts concluded amended with those cancelled	1.752	247,15	0,14	81,48%
Cancelled contracts	543	90,35	0,17	n/a

The value of financing contracts that were canceled during the analyzed period reached 543, representing 21% of total financing applications selected. The termination of financing was done at the request of beneficiaries because of the impossibility of co-investments due to economic conditions in the analyzed period and because of thenon-compliance with contractual terms.

At the end of 2014, a total of 202 financing contracts were completed, 2014 being the year with the most completed projects, as the period 2012-2014show an upward trend.

Table 2: The total number of projects and their value finalized trough Measure 313 "Encouraging tourism activities" based upon the data provided by the Agency of Rural Investments Financing

Year	Number	%	Public contracted value (mil. euro)
2009	0	0,0	0,00
2010	3	1,5	0,32
2011	9	4,5	1,27
2012	34	16,8	5,77
2013	64	31,7	10,30
2014	92	45,5	13,26
Total	**202**	**100**	30,92

The analysis performed on the stage of implementation of Measure 313 revealed that North West - Satu Mare was the region with the most projects approved in the whole country, with a total of 466 projects out of 1752 projects, which represented26 60% of all approved projects. North West region is made up of Bihor County, Bistrita-Nasaud County, Cluj County, Maramures County, Satu Mare County andSalaj County.

Table 3: Status of projects related to Measure 313 nationwide, those in the region NW, being based on the annual progress reports

Reference year Sessions submitting projects	Total projects submitted nationwide	Total projects approved nationwide	Total contracted projects in the region NW Satu Mare	Total contracted projects nationwide	% approved projects in the region NW Satu Mare / national
2008	273	222	48	100	48,00
2009	538	412	62	234	26,50
2010	589	445	90	255	35,29
2011	297	213	42	172	24,42
2012	2006	1292	224	992	22,58
Total	3703	2584	466	1752	26,60

The counties from the North-West region are counties with touristicpotential especially agro-touristic one due tothe natural treasures of these areas, to which we must ad customs and traditions that still retain and attract especiallyduring the holidays, but also during the full year, many tourists both from Romania and abroad.Thus isevident that Measure 313 offered an opportunityfor regional development of the area by accessing EU funds for the development of tourism and especially agro-tourism.

Bihor county has a high touristic potential due the variety of the landscape, where we can mention some tourist attractions like the Wind Cave, Scarisoara Cave, Apuseni National Park. Beside the landscape, Bihor County is rich in habits and tradition where the tourist can take part.

In the analyzed period, based on official information, in Bihor county were submitted for evaluation 186 funding applications for Measure 313, of which 110 projects were selected for funding, representing 23.6% of all projects approved by the entire region. Of the 110 projects selected, a total of 105 projects were contracted, which is also highlighted by the evolution of the number of tourist accommodation structures.

Table 4: Applications situation for funding in Bihor county in 2008-2014, processed information based on the document "Information on the status of accessing European funds for agricultural policy" developed by OFFRC Bihor

Accomplishment indicators	No.
Submitted projects	186
Selected projects	110
Contracted projects	105
Payment applications corresponding the financing contracts	58

Bihor county, a county known throughout Romania thanks to the thermal waters in the Baile Felix area, anarea that has developed a lot in the recent years, but also because of the caves in the county, that are very popular, and the mountain areas, has become a very popular tourist attraction, exploited both by existing owners of guesthouses, who sought to modernize their accommodation spaces, and bysmall businesses in the area, especially those working in the tourism field.

Between 2008-2015, the number of rural tourism accommodation units increased significantly, Bihor county is one of counties active in the North-West region in terms of European funds under Measure 313.

Table 5: Types of tourist accommodation units in N-W region, data processing according to NSI

Types of tourist accommodation units	**Year 2007**	**Year 2008**	**Year 2009**	**Year 2010**	**Year 2011**	**Year 2012**	**Year 2013**	**Year 2014**	**Year 2015**	%
Total	364	392	441	450	410	487	472	445	516	100,00
Villas	74	62	**64**	49	57	61	49	47	52	10,08
Bungalows	20	27	**27**	27	29	29	38	29	50	9,69
Campgrounds	12	11	**11**	8	**7**	7	8	6	11	2,13
Touristic pensions	58	67	**80**	100	111	138	146	137	157	30,43
Agro-touristic pensions	**200**	**225**	**259**	266	206	252	231	226	246	47,67

The Table. 5 analysis shows thatin 2015, in the North – West region,67% of all accommodation units (villas, bungalows, campsites, touristic pensions and agro-touristic pensions)wererepresented byagro-touristic pensions with a total of 246 units. If in 2007, the number of rural tourism was 200, in 2015 it increased by 20%, which shows an increased interest in this type of tourism.

On the other hand,we have identified a decrease in the number of rural tourism units in 2011 due to the economic crisis which has affected small entrepreneurs some of whom were forced to abandon the accreditation of tourist reception as required by law.

As can be seen in the NW region Satu Mare most units are agro-touristic pensions type.

It can be noticed that during 2007-2010 the number of accommodations has increased due to the support provided by Measure 313, but in 2011 the number of tourist units decreased due to crisis followed by anothergrowth in the coming year.

Fig. 1: the situation of accommodations in 2008-2015 in the N-W region, based on information from NSI

In the NW area, the Bihor county level observed a steady increase in the number of tourist accommodation structures broken down by type of accommodation units in the period 2007-2015, without noticing a decrease in the number of units in 2011 as noted previously in this region.

Table 6: Types of tourist accommodation structures in the county of Bihor, after data processing NSI

Types of tourist accommodation units	Year 2007	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012	Year 2013	Year 2014	Year 2015	2015 %
Total	44	39	53	60	73	90	77	96	116	100,00
Villas	20	12	12	12	21	20	10	19	20	17,24
Touristchalets	5	5	6	7	4	4	4	4	4	3,45
Campgrounds	8	7	7	6	4	4	4	4	4	3,45
Touristic pensions	6	6	9	4	7	7	6	6	11	9,48
Agro-touristic pensions	5	9	19	31	37	55	53	63	77	66,38

The number of rural tourism in the county of Bihor represents 66.38% of total tourist accommodation units in 2015, up 93.51% compared with the number of rural tourism recorded in 2007. This shows a development of agro-tourism in the area analyzed, which is emphasized bythe large number of funding applications corresponding to Measure 313 and by the grant applications selected for funding in this field.

In regards ofcontracted projects, funded by Measure 313,theBihor county had a contract amount of 24,610,199 euros, with anamount of 15,903,589 euros of public aid. (Source - "Information on the status of accessing European funds for agricultural policy" developed by OFFRC Bihor).

In 2007, from the total of 364 accommodation units of the N-V Satu Mare, 44 units were in the county of Bihor, representing 12.08% of total accommodation units like those presented and analyzed.

In terms of the number of agro-touristic pensions,the year2015 finds Bihor county witha total of 77 units out of 246 units in the region, which represents 31.30% of the total and touristic pensions.

Table 7 : Comparative analysis by types of tourist accommodation structures, the North West and Bihor county, based on NSI data

Types of tourist accommodation units	Year 2015 N-W Region	Yeat 2015 Bihor County	2015%
Total	516	116	22,48
Villas	52	20	38,46
Touristchalets	50	4	8,00
Campgrounds	11	4	36,36
Touristic pensions	157	11	7,01
Agro-touristic pensions	246	77	31,30

Conclusions

The Measure 313 "Encouraging tourism activities", with a financial allocation of 303,33 mil. Euro for the period 2007-2013 in Romania, was a measure that attracted a high amount of interest from the potential beneficiaries, the amount requested by applications submitted for evaluation and selection during 2008-2012 exceedingby 87% the amount allocated;

North West region Satu Mare was the region with the most development projects approved out ofthe 8 regions with 26.6% of total approved projects;

The investments in rural locations (modernization / construction) and recreational structures were investments with the highest share of total investments funded by Measure 313 in the analyzed period;

Bihor County was one of the counties active in funding applications for Measure 313 with a total of 186 projects submitted, out of which a total of 105 were contracted projects;

Between 2008-2015, the number of agro-touristic pensions in Bihor county had an upward trend from 9 pensions in 2008 to 77 agrotouristicpensionsin 2015, with a significant increase of 88.31%;

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Codes of Conduct in Top 100 Czech Companies

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Abstract

The paper looks into whether or how top Czech companies employ codes of conduct. More specifically, whether or not 100 top Czech companies ranked by Bisnode – EVA (Economic Value Added) TOP 100 ranking – have an easily accessible code of conduct on their company websites. The incidence of codes of conduct on the companies' websites is determined and the found codes of conduct are studied and assessed according to their characteristics by means of text analysis. The basic questions ask whether it is easy to find the code of conduct on the company website, if it is original, what its layout looks like, how long and detailed it is, whether it is divided into chapters and easy-to-use, or what interesting features it has. The code of conduct can be an instrumental gauge, which should help the authors assess the position of business ethics in top Czech companies.

Keywords: Code of Conduct, Business Ethics, company website, top Czech companies

Introduction

The current world shows signs of a paradigm shift. There are happening unparalleled changes like the advancement of new technologies, in particular ICT. Globalization generates new challenging problems, different groups of people meet and do business with each other. People of different backgrounds often lack any common set of rules to follow in order to understand each other and be able to cohabit and work together.

In this environment, the importance of finding a commonly acceptable set of rules is high on the agenda. In business environment, one of the most important way how to fill the vacuum is to implement company codes of conduct and make them available to all stakeholders and the public. The code of conduct may take different forms. It can either be a short list of essential requirements related to the job in question, or it may be an elaborate document describing in detail how one should behave when they encounter a problem issue at work. High-quality codes of conduct set rules and ideals of the company and promote its vision and philosophy. To date, few authors have done research in this area in the Czech Republic. Canik (2007) comments a Study of Code of Conduct Application. This research was done by Transparency International and the University of Economics in 2005 and 2006. It looked into the incidence of codes of conduct in Czech companies and institutions. It also studied the relation between the company size and origin and its having an original code of conduct. Last but not least, this research aimed to find out the length of the company codes of conducts and whether they were public or meant only for the employees.

This paper looks into whether or how top Czech companies employ codes of conduct. The basic questions ask whether it is easy to find the code of conduct on the company website, if it is original, what its layout looks like, how long and detailed it is, whether it is divided into chapters and easy-to-use, or what interesting features it has.

Methodology

This research was done in April and May 2015 as a part of subject named Business Ethics at the Faculty of Informatics and management, University of Hradec Kralove, Czech Republic. Twenty

students who attended this subject were asked to study company websites of 100 top Czech companies ranked by Bisnode – 2012 EVA (Economic Value Added) TOP 100 ranking, which was the most recent ranking they were able to find of the Internet (Stepanova, 2013). Each student was to study five company websites. They should look for a code of conduct and answer several questions. The most important one was whether 100 top Czech companies ranked by Bisnode – EVA TOP 100 ranking – have a code of conduct on their company websites. If so, whether it is easily accessible, how long it is, what it looks like, whether it is easy to understand, and what is interesting about it. Then, the gathered information from all seminar works was collected and assessed in order to evaluate results.

This study was done as a follow-up to research done in 2014 (Kacetl and Semradova, 2015). The 2014 pilot study used the 2013 EVA TOP 100 ranking and had two main directions. First, it studied the websites of twenty companies. These companies were selected at random – they only had to have their code of conduct on their company website. Second, the pilot study analyzed codes of conduct (if there were any) of the top 20 companies according to the 2013 EVA TOP 100 ranking. The available codes of conduct were thoroughly studied in order to find answers to several questions. Among other things, the pilot study determined that the incidence of a publicly available code of conduct on the websites of the above mentioned companies was 80%.

The mentioned ranking by Bisnode uses the indicator EVA (Economic Value Added), which provides information whether companies appreciate or depreciate financial means of both shareholders and creditors. The higher the absolute EVA is, the greater competitive advantage the company in question has. EVA is a unique evaluating tool, which is capable of assessing the efficiency of the company. Bisnode provides digital business information in Europe that helps companies make the right business decisions, minimize business risk and increase sales.

The survey

The survey was done by students, which had both advantages and drawbacks. Among the advantages belongs the fact that students are usually used to searching information on the Internet. Twenty students, or survey workers, studied 100 websites. As a result, each survey worker was to study only five different websites, which means they could study them carefully and in detail. Moreover, the survey was done very quickly and there was even time to contact some companies. It happened only in case the survey workers did not find any code of conduct on a particular company website. In such cases the survey workers were to send an email enquiring about the existence and whereabouts of any company code of conduct to company representatives, whose contacts where published on the website.

On the other hand, there were some disadvantages, too. Although all survey workers were given the same template of seminar work, the collected papers sometimes differed from the expected format. In such cases it was necessary to look for some information again. Another problem results from the fact that it is subjective to evaluate whether it is easy to find some information on a website. Some students may orientate themselves on websites much easier than others, or they may be only lucky to quickly find the information they look for.

The survey also proved that some information is difficult or impossible to find out. Namely, it was sometimes impossible to determine if a particular code of conduct is original or adopted. In other cases, the same code of conduct – created by a parent company – was used by several subsidiaries. The survey worker also pointed out that some of the companies ranked among the 100 top Czech companies – among others OBI, Samsung, Hyundai – have their headquarters and owners outside the Czech Republic, which makes the adjective Czech rather strange to use. On the other hand, Bisnode take into account all companies active in the Czech Republic. All in all, the survey pointed at several new questions it would be necessary and useful to ask.

Results

The basic survey questions were as follows:

- How many top Czech companies have their code of conduct easily accessible on their company websites?
- Is it easy to find the code of conduct on the company website?
- Is the code of conduct original or adopted?
- How long and detailed is the code of conduct?
- Is it easy-to-understand?
- What interesting features does the code of conduct have?

The collected data concerning the above mentioned questions suggest the following results. Concerning the first question (How many top Czech companies have their code of conduct easily accessible on their company websites?), according to the survey, 60% of the 100 top Czech companies have a code of conduct on their company websites. In the remaining 40% of cases survey workers were unable to find any code of conduct on the company website and the company did not react to their further enquiry. This does not necessarily mean that these companies do not have any code of conduct or another type of business ethics policy. Generally speaking, the most successful Czech companies have codes of conduct published on their company websites.

The second question (Is it easy to find the code of conduct on the company website?) might be rather difficult to measure precisely as it is subjective to assess if it is easy or not to find a code of conduct on a particular company website. Nonetheless, according to the survey workers, in 36% of cases it was easy to find the company code of conduct on the corresponding website. According to the survey, 24% of companies have difficult to find codes of conduct and the remaining companies (40%) may not have any code of conduct at all. At least, the survey workers did not find them. As a result, about one third of the surveyed companies have easily accessible codes of conduct.

The third question (Is the code of conduct original or adopted?) proved be difficult to answer as it is unfortunately almost impossible to find out whether or not particular codes of conduct on company webpages are original. The answers given by survey workers were based either on their personal opinion, or they responded that they did not know.

Collected responses to another question (How long and detailed is the code of conduct?) were used to assess the length of codes of conduct. The pilot study done in 2014 determined that the length of codes of conduct can divided into 5 categories (see Table 1). These categories were based on the number of pages, including pictures and other features and the page layout of codes of conduct. Therefore, in some cases a two-page document with pictures and other similar may be, if the number of words is taken into account, shorter than a one-page document. Another important factor is the fact that several companies share the same code of conduct as they belong to the same parent company. This happens in several cases, for example Continental HT Tyres (3rd place in the 2012 EVA TOP 100 ranking) and Continental vyroba pneumatik (5th), or RWE Distribucni sluzby (50th), RWE GasNet (52nd) and RWE Energie (99th).

Table 1: The length of codes of conduct

Category – No. of pages	No. of codes of conduct
1 page	17
2-10 pages	20
11-20 pages	9
21-30 pages	5
31 or more pages	9

Table 1 shows that more than a third of all 100 companies (37%) have codes of conduct up to 10 pages – 17% have only one-page documents, another 20% use a bit longer ones. If we take into account that another 40% of companies did not have, according to the survey, any code of conduct, it is clear that most companies do not have elaborate codes of conduct. On the other hand, almost one quarter of all companies (23%) have codes of conduct longer than 10 pages and 9% of them have a code of conduct longer than 30 pages, which makes it a really detailed document.

The answers to the following question (Is it easy-to-understand?) were also quite difficult to assess as it is rather subjective to decide on this issue. Nonetheless, if one focuses on languages of codes of conduct, one find out that it is not a rule that a Czech company (or at least a company active in the Czech Republic and having Czech-speaking employees) has a Czech code of conduct. In some cases the surveyed companies have only English (Linde – 22nd place, CABOT – 55th, ITT Holdings – 97th) or German (OBI – 86th) codes of conduct, which is not a good practice as all employees should be able to understand their company code of conduct.

The findings based on responses to the last question (What interesting features does the code of conduct have?) showed that several companies have elaborate codes of conduct. Some of them are not in Czech, though. The examples of well-written Czech codes of conduct can be found on the websites of ČEZ PRODEJ (6th place), Phillip Morris ČR (7th), Zentiva (37th), which was adopted from the parent company sanofi Aventis, Vodafone (62nd). Other thoroughly made codes of conduct are written in English – Linde (22nd), CABOT (55th), ITT Holdings Czech Republic (97th), or Samsung Electronics Czech and Slovak (98th). Very interesting is the code of conduct of British American Tabasco (58th), which looks like a presentation with 25 images. The above mentioned codes of conduct could serve as examples of good practice.

Conclusion

Codes of conduct should help promote fair practices in business, honesty and respect for others as well as the law. They improve the quality of work, as well as health and safety. They treat various conflicts, corruption, and much more. Codes of conduct also help the public to assess the company, help prevent unethical and unfair behavior as well as discrimination at workplace. They upgrade the image of the company, make it trustworthy and they also act as the basis for a remedy in case of faults.

The authors of this contribution will continue in studying codes of conduct. The study drew attention to some interesting facts that can be studied in the following years. It shows that there is still much to improve in this area in top Czech companies even though most successful Czech companies have codes of conduct placed on their company websites. Nevertheless, only one third of top Czech companies have easily accessible codes of conduct. The length of these documents suggests that companies do not care much as 37% of companies have short codes of conduct and another 40% of companies may not have any code of conduct at all. On the other hand, 23% of companies have at least 10-page-long codes of conduct and 9% have long and detailed codes of conduct. Some codes of conduct are only in foreign languages like English or German, though. This is a problem as all employees should understand their company code of conduct. Fortunately, there are several companies with really high quality codes of conduct. These companies may act as examples of good practice.

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Open Innovation in Big Companies: An Empirical Study

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Abstract

Innovation is recognized by academics and professionals as essential to enhance the competitiveness of organizations and foster their growth. Traditionally, innovation is seen as going mostly just within the company. However, the increasing availability and mobility of knowledge labour, the development of Internet and venture capital markets, as well as the easier to widen the scope to possible external knowledge providers, have weakened the effectiveness of traditional innovation systems (Chesbrough, 2003). Thus, open innovation concept is presented with the essential premise of opening organizational boundaries. The underlying idea is based on the assumption that in a world where knowledge is distributed, companies should not rely solely on its own research and development, but open up their boarders to external knowledge. Therefore, the aim of this study is analyse innovation strategies and practices developed by medium and large companies in order to understand how they enhance innovation within the company or other partners or companies they work for, and what are their perspective on crowdsourcing phenomenon as a practice to potentiate the introduction of innovation in companies. An empirical study was conducted following the Grounded Theory method to collect and analyse empirical data. The results show that companies are starting using some external knowledge in their innovation process though they still have some bias in introducing strategies that uses the global network. At the end of the paper the results are discussed and some future research directions presented.

Keywords: Open innovation, Crowdsourcing innovation, Innovation process.

Introduction

Nowadays, companies are living in a hyper-competitive and accelerated market environment that requires short response times, more accurate responses and wider exploration of potential opportunities. Changes in the competitive panorama, along with the recent economic and market pressures, increase the need for organizations to reduce costs, improve their margins, generate new sources of revenue, and bring product offerings and/or services faster to market (Prandelli, Sawhney, and Verona, 2010).

The evolution of the Internet and of the Information and Communication Technologies has highly contributed for companies to have easier access to information, often much more information about their customers, suppliers, employees, competitors, and other decision makers. However, companies still have to analyse and explore all that information to find potential opportunities, evaluate it and make decisions in accordance (Bonabeau, 2009).

The competitive importance of innovation, and the risks and difficulties in its management are recognized by professionals and academics (Tidd, 2001; von Hippel, 2005). A key element arises from the fact that innovation is essentially the combination of different types of knowledge, particularly tacit and explicit knowledge (Nonaka, Keigo, and Ahmed, 2003; Prandelli et al., 2010; Tidd and Bessant, 2013), and this knowledge is often available outside the organization's boundary (Chesbrough, 2003).

In this sense, Chesbrough (2003) introduced the concept of open innovation as an essential premise for organizations open their borders to external knowledge. This concept is based on the assumption that in a world where knowledge is distributed, companies should not rely solely on its own research and development. Therefore, Chesbrough defines open innovation as the deliberate use of knowledge inputs and outputs in order to accelerate internal innovation, and expand use of external innovation

markets, respectively. Thus, open innovation is a paradigm that assumes that organizations can and should use external and internal ideas as well as access to the internal and external markets, as a means to achieve competitive technological advances (Chesbrough, 2006). Thus, the concept involves achieving new innovation sources outside the organization, which includes two main dimensions: the creation and capture of value to the organization (Chesbrough, 2003, 2006). Value creation is the development process from an idea to a new product or service. Open innovation increases the likelihood of creating value as it exposes the organization to additional sources of ideas and Intellectual Property (IP) that can be used for the development of new products or services.

Capturing value involves creating resources, assets, or a position that allow the organization to develop a competitive advantage. Open innovation increases this potential since the organization is open to benefit financially from ideas and IP from inside or outside the organization. In this sense, the organization is willing both to buy and to sell ideas and IP.

Open innovation processes

Chesbrough (2007) identified two types of knowledge flows between an organization and its external environment: Inside-out (or Outbound) - which corresponds to the knowledge developed by the organization and made available to other organizations; and Outside-in (or Inbound) - knowledge developed in the external environment and which is integrated and embedded in the organization.

Gassmann and Enkel (2004) identified another innovation process structure adopted by companies that follow an open innovation strategy: Coupled. The three open innovation processes structures are shown in Figure 1.

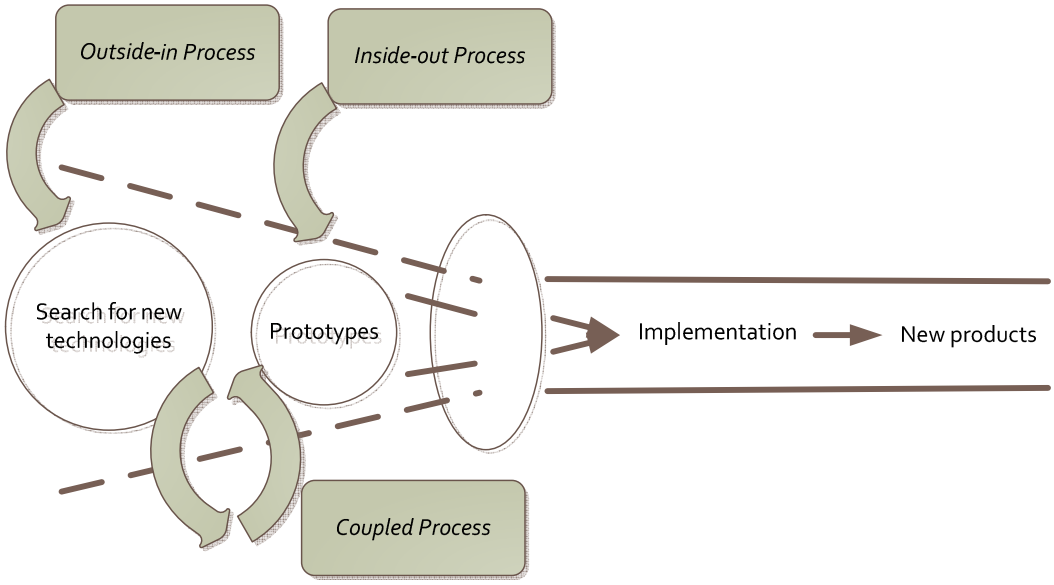

Fig. 1 – Open Innovation Processes (adapted from (Gassmann and Enkel, 2004))

Outside-in process the company's knowledge is added with external knowledge obtained by integrating knowledge of its suppliers, customers and other external actors. The external knowledge is achieved by consulting innovation forums, development of innovation initiatives with industry partners, the acquisition of IP or the investment in the creation of knowledge in collaboration with external actors (Gassmann and Enkel, 2004). In this process the organization invests in cooperation with its suppliers and customers, and in external knowledge integration. Companies that adopt this process are usually characterized as being poorly developed technologically in the industry in which they operate, and therefore intend to adopt technology from the market. However, they hold a lot of knowledge and experience in the industry, with highly modular products, and therefore also often act as mediators and/or creators of knowledge to large companies (Gassmann and Enkel, 2004). This process is composed by activities like timely integration of suppliers, technology development in collaboration with customers, external knowledge search, link between organization and supplier of

knowledge, evaluation and integration of knowledge by licensing of technology, and/or acquisition of patents.

The **Inside-out process** is characterized by the placement of ideas and technology developed internally in the market through the sale of IP and the availability of new technologies, transferring ideas and concepts to other companies.

Companies that adopt the Inside-out process are characterized by having a strong capacity of research and development, and therefore want to reduce the fixed costs of R&D by establishing standards in the market, through the transference of technology and concepts developed internally for other companies. Thus, these companies will profit by licensing IP and/or sale of technology, transferring ideas to other companies. The commercialization of ideas in different industries, and thus applying the open innovation process Inside-out, can significantly increase the company's results. Innovations between industries emerge when companies integrate or license technology that is already established in their industry, but it is new for other industries (Gassmann and Enkel, 2004). This process begins with the task of identifying the knowledge area to explore and the consequent development of internal and external opportunities for providing such knowledge in the market. Follows the activity of finding applicability for technologies in other industries and its placement on the market, and by that way, introducing new ideas, concepts and standards in the market. Then, it is performed the activity of linking the selling organization and the potential buyers. The selling organization performs, internally, the evaluation of proposals and selects the most advantageous one. Finally, is realized the activity of patent sales and/or technology licensing.

The **Coupled process** combines the Outside-in activities (get external knowledge) with the Inside-out (put ideas and internal IP on the market) through alliances and collaborations with strategic partners' networks. Organizations that adopt this type of process cooperate with other organizations in strategic networks. To cooperate successfully it is necessary to receive and share knowledge, so the interconnection between processes Outside-in and Inside-out are key elements of this success. The interconnection and union between organizations can be a strategic option achieved, for example, with alliances where the IP is shared. Cooperation refers to jointly develop knowledge through links between specific partners, such as consortia of competitors, suppliers and customers, joint ventures and alliances, and universities and research laboratories (Gassmann and Enkel, 2004).

In this regard, a study was conducted with medium and large Portuguese companies operating internationally, and that have R&D department, in order to understand what innovation practices and transfer of technology are developed by these companies, how they enhance innovation within the company or other partners or companies they work for, and what are their perspective to the crowdsourcing phenomenon as a practice to potentiate the introduction of innovation in companies.

This paper is organized as follows: in the next section are presented the methodology used to realize the empirical study, namely the sample characterization and the description of process and data analysis. The next section presents the results obtained, and the paper ends with a section of discussion of results and main conclusions of the study.

Methodology

This study was conducted according to the interpretative research paradigm, flowing the orientation and evaluation principles of Klein and Myers (1999) . The companies were analysed in order to understand the way they do their innovation processes and to induce how crowdsourcing can be used as a strategy and practice for this type of companies to enhance their innovation. Thus, the research strategy was to induce an explanatory model of knowledge of the practices and experiences of organizations that may foster innovation. Therefore, the study was conducted under the orientations of the Grounded Theory method, since it allows to induce a set of concepts and relationships between them from the empirical data collected (Charmaz, 2006; Urquhart, 2013).

Participants

The participants of this study were five big companies with headquarters in Portugal and with business aboard. The companies are classified as medium or large companies once they have, in medium, over 300 employees. It were a condition to select the company that it have a R&D

department or structure and well defined process of R&D because we want to analyse the procedures and activities developed to potentiate innovation within the company. Therefore, the participants, from each company, in this study were the head of the R&D department or the responsible of the innovation process. Two of the companies have its headquarters in the north region of Portugal and three of them have it in the centre region of Portugal.

Procedure and Data Analysis

The participants were contacted by email, where it was explained the objectives of the study and the conditions to participate in it. The companies that accepted to participate in our study signed an informed consent form where the objectives and conditions were explained. It was realized semi-structured interviews, in person, in the office of the participants, and with audio record. The average length of the interviews was 50 minutes, with the smallest took 40 minutes and the largest duration of 86 minutes. Despite the cost and time required to transcribe interviews, the arguments in the literature for the importance of performing this task were decisive, so all the interviews were transcribed by the researcher. Besides, it was not considered the possibility of using outside professionals to carry out transcription, mainly because it is considered that in the process of transcribing the investigator has already started analysing the information collected. Thus, all interviews were transcribed in full, verbatim, that is, word for word, being reviewed at the end. The transcripts of the interviews were made in Portuguese and took an average of 6 hours per interview, and with an average review time of 2 hours and 30 minutes per interview. Also, all the procedure of coding and analysis were made in Portuguese.

The data collection and analysis were deliberately interweaved, i.e., theoretical sampling, so that subsequent questions could be revised to reflect and check the emergent categories. Theoretical saturation was used to compose the sampling. The data were analysed according to Grounded Theory procedures (Charmaz, 2006; Urquhart, 2013) using NVivo 10.0 software.

To ensure the validity of the analysis and the coding process, a second researcher was consulted as auditor (an independent researcher that discuss and validate the categories) throughout the entire data analysis process to assist the primary author by challenging ideas and assisting in the construction of the categories. The main results are presented in next section.

Results

In order to analyse and understand the innovation procedures and activities developed by companies semi-structured interviews were conducted. The analysis of these interviews revealed the model represented in Figure 2, composed by the following integrative categories: Ideation, Roadmap, Project, External Knowledge, Process, Client Relationship, Partners, Knowledge Management and Intellectual Property.

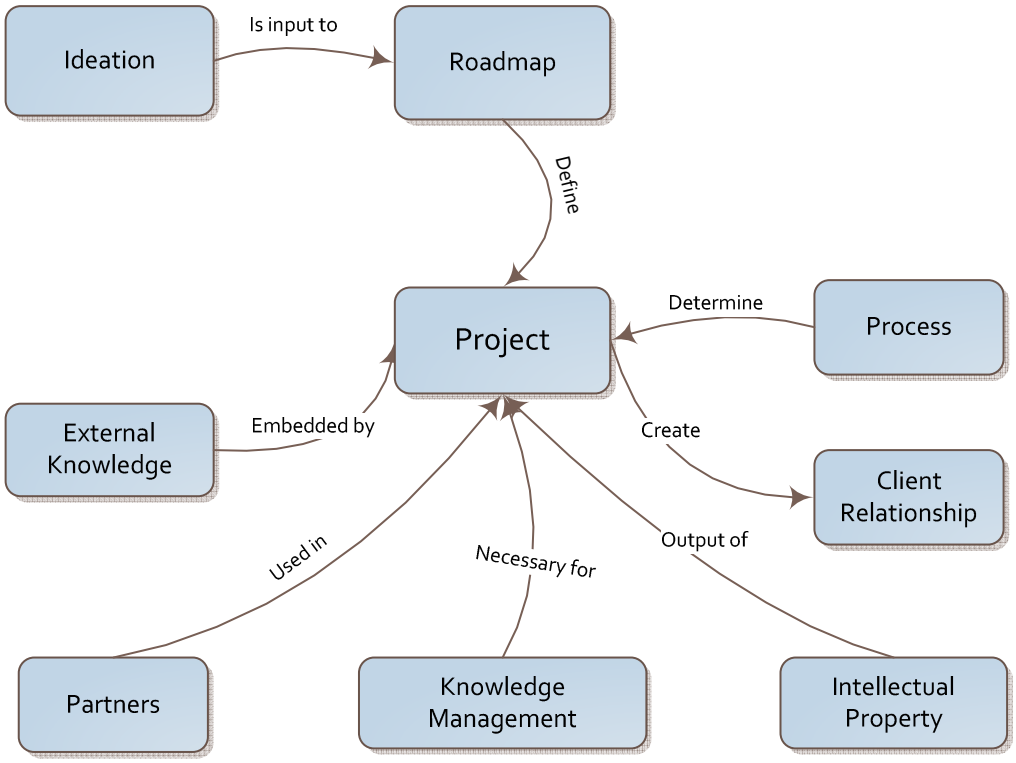

Fig. 2 – Categories and relationships schema

A more elaborate description of the results is presented is the rest of this section with participants' transcriptions to illustrate and facilitate understanding.

The **Roadmap** defines essentially the project development plan, i. e., which projects should be included in the business plan of each year. This plan includes mainly the evolution of products already marketed by companies with the introduction of small innovations, such as new features or changes to existing features. However, this plan may also consider conducting "exploratory projects" of new concepts or products. Such projects are usually developed in collaboration with universities and research centers or laboratories. In the roadmap are introduced ideas that have been considered feasible to be developed, as well as bug fixes or improvements to products that have been identified. Thus, this plan will define the projects to be developed that year, and what are the specific characteristics of each project.

The concept of **Ideation** emerge from a set of activities and actions undertaken to foster the introduction of innovations in products, the emergence of new products or new uses of products, either within the same market or to different markets. Therefore, this category is defined by the grouping the following selective codes or subcategories: Ideation Process, Strategies, and Difficulties.

The subcategory **Ideation Process** can be organized into four subsequent phases: (1) the timing of the ideas generation, which can happen in different ways, according to the strategy pursued by the company; (2) the selection and organization of a list of ideas of interest to the company's strategy; (3) assessing the viability of the selected ideas; and finally, (4) the selection of one or more ideas, which are viable of being implemented, are integrated in an exploratory innovation project or incorporated directly into a product.

The strategies used to enhance the generation of ideas and drive the organizational innovation process is organized in internal activities and actions that may involve external entities such as customers, partners, and universities or research laboratories. In internal strategies there are committees or working teams across the different departments and projects developed by the company which have a comprehensive and integrated view of the all organization's activity and which enhances the sharing

of knowledge and experiences between different projects, as stated "*…they [committees] have a more horizontal framework and more focused on the area of user experience and innovation …*", "*…these committees and divisions said, and this division is transversal, aims precisely this, when you are creating projects say «look that you are trying to use in this project has been used in that other project*» …". In this sense, it is promoted an organizational culture for innovation, carrying out actions to foster the creativity of teams, covering competitions for ideas, using platforms of ideas management, adopting a collaborative internal portal, flexibility in product development processes and with the introduction of new working methods. Examples of this are "*…although we have a structured development process, we create the necessary space for each person involved in the process can also innovate. We do not create requirements and working methods too hard to inhibit the creativity of people ... we give quite space so that people can experiment and introduce new working methods, new ideas, new approaches to problems…*", and "*…We have an idea management system, internal of the company's group ... But we also have an internal tool for collecting ideas. ... ideas management tool, but there would be more new projects ideas. When the ideas are for a concrete project, i. é., are ideas that arise, there are other tools for this purpose, but more dedicated to the management of the project itself, that is a transversal tool of the company's group…*".

With regard to **Strategies** for capturing external ideas there are activities like the development of exploration projects in collaboration with universities and research centers, and the use of committees or advisory teams that integrate the company's employees and external parties, such as clients, providers, and the regulatory authorities. Another type of external actions results from the use of the platform for communication with customers and partners, where they can suggest new features to products and launch ideas for new modules or products, as this statement exemplifies, "*…There is a platform for product management, ..., which is a portal where any customer or partner can give suggestions for product development, which are then evaluated by the product management team.…*". In the Difficulties subcategory was reported the difficulties to efficiently manage the platform of ideas and suggestions of customers and partners, as stated "*…our only difficulty is the excess of ideas, and the segmentation between what is the need for a customer and what is important to many. And then reconcile it with no explicit needs of customers who are often even more important than those which they can express. Often the customer only has the notion of their needs when we have already put it in the product and he starts using it. And then he says, «this is fantastic, it was exactly what I needed and didn't know»...*".

There were indicated other activities that are being planned to develop by companies, such as the creation of a user experience laboratory, where customers are invited to test and review the products and their features before they are launched on the market, as stated "*…we have people to do user experience tests, in specific screens and features, in which we are not sure it operation is the most easy way, and then we create labs to make that kind of assessment. We are implementing this right now, although still at a very earlier stage...*"; and the release of a innovation crowdsourcing platform targeted to university students for the development of small challenges in software development. The implementation of this initiative found some resistance inside the company, which delayed its release, as mentioned "*…first we need to have internal challenges. For now it is not being easy. The first battle is to overcome the internal barrier, which is people, directors, have to use the platform, and have to write challenges. If you do not have challenges, it won't work! This seems a small barrier, but it's too big.*".

The **Project** category is characterized by having an aim, project team, development process and a type of project. Therefore the aim of the project can be fix a bug or to improve some product feature or module or it can be an "exploratory project" that arisen from one or more ideas that were evaluated as feasible and integrated in the projects roadmap. In this last kind of project, sometimes, are involved universities or research centers or labs, for example, "*…we have a set of projects that we release every year, where sometimes we test concepts. When we more "different" ideas, we do small projects with universities to analyse and test the concept...*". In this projects, the client of the project is internal, i. é., the team or department responsible for the product management. Although the client is internal, these companies has costumer that influence the development of product in an indirect manner.

Therefore, it emerges the category of **Client Relationship**. In this concept is defined by the way contacts are established and the management of client expectations. The contacts are mainly by networking or by the presentation of product and its features to clients. The issue of managing client

expectations of the management and the need of its collaboration in the identification of product needs is referred by these companies as very relevant. These collaborations are achieved essentially by the communication channel with the customer, which involves mainly the assessment of customer satisfaction in a platform, where it is recorded customers suggestions and complaints, and the state of follow-up of each one. Examples of this are the statements, "*…is a portal where any customer or partner can give product development suggestions, which are then evaluated by the product management team .... at anytime you can see the state of your request. You can whether it is being analysed, or if it has been considered and will not be implemented, or are planned to be implemented or already in implementation or if it is expected to be implemented in a specific version...*". In some cases, clients and partners have a direct involvement in product development, as stated, "*…There are cases also where we involve ... partners and customers and they are beta-testers of products and use, before the product is released to the market, they use in real life environment versions of the product that are not yet final versions.*".

The **Process** category gathers, subsequently, the categories of Discovery and Delivery. In the **Discovery** there is the identification and selection of people that will compose the project team; the identification of a problem or innovation opportunity, and the analysis of that problem. The project team is, usually, composed by employees of the company, but it also can have outside specialist or other partners. In this matter, it was mentioned by some companies the usage of systems that helps to manage employees skills, as a mean to facilitate the task of selecting the more adequate skills and employees for each project. For example, "*…a tool ... that has the skills map ... we ask employees to go to this map and to register what is the proficiency they have, and the skill or skills they have ... when we have a project, we define which are the profiles and skills we need. We can define the profile or profiles of employees we want to that project ... setting it, this system gives me who are the employees who best map that profile and therefore, in principle, I should select these persons…*".

The identification of the problem will define the aim of the project and, therefore, results of the ideation process or of the identification of any bug or improvement in the product. The analysis of the problem involves the evaluation and decision of including or not the idea or product improvement in the product, and what is the best moment or product version to do it. The collaboration with specific costumers usually happens to support the decision of introducing modifications in products, by testing it before the release of the final version. After deciding to modify product or develop a new product, is unleashed the **Delivery** phase. In this category takes place the design and implementation of the solution and the knowledge transfer to the client and partners. The design refers to searching and gathering internal and external information, standards and regulations, best practices, and other technical or functional information that can be useful to product development. An example of this task is, "*... gather information for our work is a lot with customers ... among standardization organizations, where are others like us, and discussing standards we will see how technology is evolving, and so we will also see how our solutions are evolving, and we will updating our solutions with these technological developments, and also some things here inside, that is, we also know the customers and knowing the technology...*". In the implementation phase was highlighted project evaluation meetings, as moments to share knowledge and experiences with the project development; the active participation of the client, sometimes even in the share of development costs; and the usage of tools to support the management of product development by allowing sharing and reuse of modules and software packages, as mentioned by "*…all the development process is supported by tools. One of the things that we are investing is in creating software packages...*".

Knowledge transfer is made by implementing strategies like product training of users, client experimenting and testing the product and with the installation and operationalise of technology in client environment. There were also references to an online platform that gathers documents and reports to support customer in product usage; conducting training using e-learning platforms; and the certification of partners in specific products, as a way of training partners to deliver and support other customers of their products. Some evidences of this are, "*…are employee of partners who have been trained by [company] and necessarily have to go through a set of certification exams that allow this partners to have certain collaborative status...*", and "*…There is a documental platform that has all the information on the product ...Which all the customers or partners have access...*". Besides that, these companies also assimilate knowledge by themselves through the meetings, networking and collaborative partnerships that they develop, namely with universities and research centers.

The **Partners** category confirms the need of a strong relationship between companies and partners as a way to have easy access to specialized skills and of being updated with the last technological developments. Examples of this are, "*…we have a partnership network assembled and so far it has lived up to our expectations and has responded to our needs…*" and "*…we have a good relationship with universities, where basically we get specialized skills…*". It was also enhanced the importance of product certification of partners and the management of partners in terms of being able to easily identify the right skills of partners in each moment and for each project, as mentioned, for example, by "*…we have internal processes of technological surveillance, and of management of partnerships. We have it all. And that will then feed, when there is the definition of the project team, it comes from there some of the inputs…*".

The category of **Intellectual Property** is explained with strategies of intellectual property protection such as the settlement of confidential memorandum with partners and customers at an earlier stage the establishment of a contract; recourse to the use of product licenses; and the usage of general terms and conditions for the participation in platforms of suggestions and ideas. It was also reported the usage of patenting when there is a new concept to be implemented by software and hardware, and situations of sharing intellectual property with partners, as mentioned, for example, by "*…it has happened in some cases, and usually happens with R&D institutions, for example those projects I spoke earlier, smaller ones to explore things, then the property is shared. When we register a patent, it is usually shared by 50%...*". Finally, it was mentioned the situation of the intellectual property belonging to a particular customer for a defined period of time, "*…cases where is needed to reserve intellectual property, we do so with a timing set. That is, we define in customer contract that for example a specific functionality was developed exclusively for that customer and we cannot sell or use it in a given period of time. However, apart from some exceptions in which the customer gets significant competitive advantages being the exclusive owner of some functionality, this isn't something that is much desired by our clients because they knows that when we develop exclusively for them the cost of the project is much higher…*".

In the category of **Knowledge Management** are referred strategies of managing internal knowledge online, by using internal portals, forums and wikis to systematically gather projects and corporation information; face-to-face sessions, with project evaluation meetings and lessons learned forums; the rotation of employee through projects in order to acquire skills and potentiate information sharing in informal meetings among employees; and the production of technical documents, reports and manuals of projects and email exchange. The following statement can exemplify this category "*…closing the project with the lessons learned session, registering the positive and negative aspects, an assessment. And we have the portfolio of projects closed and stored, and that are available for a while to be reused in other future projects.... We try to somehow spread this knowledge throughout the organization with workshops or regular meetings of the development teams and regular meetings with leaders of the development teams of the different projects in development to share experience and points of view...we also have the informal meetings in coffee and lunch breaks, which also promotes the sharing of information between projects…*". In this category also appears some concern with the standardization of methodologies and with the usage of tools to support knowledge management and sharing, being mentioned the company's certification for Innovation, Research and Development, as well as the implementation of a tool, like a social network, aiming to promote socialization and sharing of experiences among employees, and the adoption of specific tools to potentiate knowledge sharing, such as of management of product development, of training in e-learning, of collaboratively develop and sharing of project documents, and of management of ideas. Some examples are stated in "*…a market tool, open source, which allows us, which is a tool where we can define issues. When I am developing a project, I will create issues that are being closed as they are solved... each project that we have, has associated with it a site in a sharepoint where all documents are placed and shared. In some cases it is shared through the company, which they have available the project documents and usually a wiki associated in which all people of the project can contribute in this wiki. For each project, the wiki works as a way to exchange and share knowledge, opinions on the project....We introduced recently this type of tools, including the user portal, developer...with the philosophy of social network. This is a tentative to people stop sending emails and start to communicate via this portal…*". Although, it was also reported some difficulties in sharing knowledge between projects, mainly related with some resistance of employee in adopt this kind of tool, as stated in "*…I think this is not easy [knowledge sharing between projects]. I think the wiki has had some membership, the sharepoint too. ... But what I notice is that there is some*

resistance to all these things. For example, the sharepoint has all sharing facilities, but in many cases what we noticed is that what most people do is close the project sites. The project area is closed just to the project team. This limits later when we need to access the information, it does not exist. Or rather, exists but is closed…". Other strategies are being planned towards the management of the internal knowledge and absorption and assimilation of external knowledge, in particular the development of an organizational culture of service, transforming the product into a service and taking advantage of current opportunities in the cloud, as well as considering the technological advances which are increasingly enhance the usage of the cloud, as stated in "*…We have seen the spread of solutions based on cloud, which extends the number of opportunities, not only in terms of geography but also in terms of business models and in terms of target audience…*". It was also referred strategies to develop product abstractly and with modules which enhances its reuse in other markets, as well as the application of existing technology in new concepts, as exemplified by the references "…other clients have said, it is interesting to audit the stores. Audit stores is an internal task, they have checklists to check with yes or no. And from internal audit it passed to maintenance tasks, because you can check the bulbs, to count how many are damaged and things like that, and it all went to the interventions …".

Finally, in the category of External Knowledge, knowledge from outside the company is embedded and absorbed in projects and businesses mainly by collaboration with external partners, by using external experts like universities, research centers and laboratories, and also with some more specific activities like the consultation of customers and specific communities through Internet calls, such as university students. There are also presented the advantages of absorption and assimilation of external knowledge through access to a diversity of people and skills, integration into networks of specialized companies and complementarity of skills between companies.

Discussion and Conclusions

The main concept enhanced in this study is the concept of **Project**, everything happens around it. However, the projects are of internal nature to the company, in the sense that are associated with the products that companies sell either in developing products already in the market or developing new products. Thus, these companies recognize special relevance to strategies to enhance creativity and capture innovative ideas that can be introduced in products they already sell or developing new products. This recognition and need is aligned with open innovation strategy, recommended by Chesbrough (2007).

The **Ideation** category explains the strategies and ideation process implemented within these companies. This category will come out contributions for planning the projects to be developed by companies, implemented in **Roadmap** category and establishing in each moment what projects should be implemented.

The other concepts that have arisen which are related to the concept of Project are the following: (1) **Process**, embodying the objective of the project by Discovery and Delivery categories. The goal of the project is often established by the resulting contributions of Ideation category; (2) **Client Relationship**, which are established by the project often indirectly once the customer contributes to the evolution of the product through the ideation process, however, they also often have a direct interest in the project both collaborating in its development as in testing and experimentation of the products in real environment; (3) **Intellectual property**, which is one of the results of the project, implemented by product licenses, patents and confidentiality agreements; (4) **Knowledge Management**, used and applied in the development of the project; (5) **Partners**, which refers mainly to companies and external experts that are often used as the project evolves; (6) **External knowledge**, which arises mainly from partners and customers and that is embedded by the project.

In this study we can enhance the concept of Ideation where are represented the strategies implemented by companies to stimulate and promote creativity and innovative ideas. The concept is implemented by four distinct and subsequent stages of the ideation process (idea generation, idea selection, viability analysis and project implementation) and in each phase there can be contribution from external entities, namely customers and partners. However these companies still being too closed to their own boundaries, using platforms and tools to promote creativity and ideas

development, but only with their employees and in the cases they involve customers and partners, they are carefully selected.

We also notice that the external partners are mainly, and almost exclusively, universities and research centers and labs. Companies enhanced that these relationships are worthwhile at any phase of the ideation process, however they often take place in specific projects, mainly when they are researching some really new technology.

It should be noted too that these companies often use their customers to test and evaluate new products and/or new features that aim to market. By this way, they can assess the relevance and interest of the introduction of products on the market to potential customers. However, this is also a practice that has been little explored and when performed customers are also carefully selected.

Aligned with the fundaments presented by Chesbrough (2007) referring the advantages of open up the companies boundaries to external knowledge as a way of speeding up the introduction of innovation in companies product and processes, there is the strategy of crowdsourcing innovation (Bonabeau, 2009; Erickson, Petrick, and Trauth, 2012; Howe, 2008; Majchrzak and Malhotra, 2013). We define crowdsourcing innovation as all crowdsourcing initiatives developed by an organization that strengthen the organization's capacity for innovation. That is, any initiative to create value and/or capture value by taking advantage of existing knowledge outside the organization and accessible from the network of individuals connected to the Internet, regardless of the type or degree of complexity of the necessary development work.

The implementation of this strategy needs more carefully research according to companies and projects characteristics, namely by deciding the way it should be implemented: in a specific project developed by the company, using a crowdsourcing innovation broker, or company developing its own platform for crowdsourcing innovation.

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Risk Assessment for Cyber-Physical Systems: An Approach for Smart Grid

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Abstract

Cyber-Physical Systems (CPS) is a combination of computation and networking systems with the physical systems that interact together in complex ways and rising uncertainty. Common examples of CPS include power generation grid, industries, water distribution, health care systems and aviation. Many governments, companies and research institutions nowadays are seeking competitiveness over this technology. Security is one of the key concerns in CPS due to their cyber-physical nature and interaction. To safeguard the CPS resources and tackle the security issues, a well-designed risk assessment approach is essential. The available risk assessment approaches in the area of cyber security may not be applied directly to the CPS since they are different in many aspects.

Keywords: Risk Assessment, Risk management, Cyber Physical Systems, Smart Grid, COSO.

1. Introduction

Cyber-Physical Systems (CPSs) are known as the new generation of mix systems consisting of computational and physical capabilities. A CPS aims to monitor the physical processes behaviours and then take actions to make the physical environment work properly and better(Stoneburner et al., 2002, Wang et al., 2010). The embedded devices in CPS are also networked to sense, manage and monitor all the physical components . The CPS has tight integrations among the computation, networking, and physical objects. It is generally used in critical national infrastructure, for example, electric power, water distribution systems, petroleum systems and so on. Current CPS is facing the issue of a huge security risk since these kinds of systems are becoming interconnected in many ways to the internet in order to increase functionalities and achieve automation (Yong et al., 2013).

This research identifies the effectiveness of the risk assessment approaches in order to secure the Cyber-Physical Systems from the cyber-attacks. The Smart Grid is chosen as a specific domain example of CPS to model problem in this research. A comprehensive list from an extensive literature review of the available known risk assessment approaches or methodologies is presented for the CPS and Smart Grid. Finally, it presents a preliminary risk assessment approach developed in the Smart Grid environment. The proposed risk assessment approach helps achieve a continuous risk analysis in Smart Grid projects by enabling an early start and flexible adoption.

2. Background

The Cyber-Physical System (CPS) is a combination of physical systems with cyber systems. In addition, new capabilities such as real-time perception and dynamic control are added through integrating networked computational resources into physical processes (Lee, 2008). Nowadays, CPSs are being applied in the chemical engineering, electric power, steel industries, and many others critical areas. Security is an area of concern for all the information technology systems which needs to be addressed (Zhang et al., 2013). The growing cyber threat environment is becoming more complex and the ability to

have an appropriate defence is becoming rather difficult (Yong et al., 2013). Thus a well-designed assessment approach for the CPS risks will help in providing an overall assessment of CPS security status and effective allocation of the resources. Risk assessment is one of the main processes in controlling and evaluating risks. It helps in supporting the higher management of the organisation in decisions related to prevention, detection and correction of critical issues and threats (Stoneburner et al., 2002)

There is also a need of a study about integrating the technical and management aspects of evaluating and monitoring the risks within a risk assessment framework. Since the results of such assessment approach have significant influences on decisions of the countermeasures and plans, it is vital that more effective risk-assessment approach should be advanced.

3. Cyber-Physical Systems and Risk Management

The technologies of the Cyber-Physical Systems (CPS) are becoming increasingly important as they guarantee to provide a comfortable, healthy, secure, and safe environment. To improve their functionalities and operations, most critical infrastructures are now being prepared with the modern CPSs(CSRA, 2013). Unlike the traditional computer and network systems, the Cyber-Physical Systems are complex systems of systems where vulnerability and risks can have new and distributed impacts. A critical damage can occur, if the physical environment is taken over by any type of malicious attacks. Using a CPS can provide more opportunities to terrorists which may destroy the critical infrastructures. Therefore, it is required to ensure that a CPS's environment is safe, secure, well-organised, and real-time (Wan et al., 2010). Subsequently, new risk assessment methodologies are needed to be applied in the CPS (CSRA, 2013).

CPS security is an emerging area and generally can be defined as the ability of the systems to allow only authorised access to its data and operational capabilities. The security objectives of CPSs are Confidentiality (Han et al., 2007), Integrity (Madden et al., 2010), Availability (Work et al., 2008) and Authenticity (Wang et al., 2010). The major attacks on CPS are eavesdropping, compromised-key attack, man-in-the-middle attack and denial-of-service attack. The cyber security is a very critical concern that is predicted to be among the fastest growing segments of the Information Technology (IT) sector (Watts, 2003).

Risk management plays a critical role in any organisation. It helps to manage the risks by supporting and safeguarding the organisations' critical assets. An effective risk management process is essential for the successful IT security program. Risk management defines the appropriate risk mitigation approaches to ensure continuous benefits of assets by choosing among different alternatives to minimise the effects of risks (Habash et al., 2013). Therefore, risk management should be treated as a significant management function (Stoneburner et al., 2002) for CPS. For any risk management, it is expected to analyse the worth of assets, the incidents that may affect the assets, the possible threats and vulnerabilities and their likelihood of occurrence. The basic steps for risk management process must be to analyse the triggering event, estimating the loss if the event occurs and estimating the possibility for the event to occur (Djemame et al., 2014).

4. Smart Grid and Risk Assessment

The term *grid* is used to describe the electricity system when it supports the operations of electricity generation, electricity transmission, electricity distribution, and electricity control. The main purpose of designing the power grid was to transport power to the end users while maintaining a centralized power flow and control structure. In order to control the power flow and demand, grids have been introduced from the integration of distributed generations in the power systems. Moreover, the new deployment of the communication network like Supervisory Control and Data Acquisition (SCADA) systems and

Advanced Metering Infrastructure (AMI) has made the control of these complex power systems more stable, reliable, flexible, and efficient(G. N. Ericsson, 2010).

The advanced ideal functionalities of the Smart Grid are self-healing capability, interaction with customer, resistance to attack, betterment in power quality, accommodation of a network of generation, and storage options, enabling electrical markets, optimising assets and efficient operation(G. N. Ericsson, 2010). Smart Grid is also expected to lower the cost and minimise the asset failure. According to(X. Fang, 2012), the Smart Grid is technically divided into three main systems, which are smart infrastructure, smart management, and smart protection systems. The National Institute of Standards and Technology (NIST) have provided a conceptual model for the new Smart Grid which can be used as a reference (X. Fang, 2012)model. The model is divided into seven domains, at the same time, it includes the devices, systems and programs that help in decision making and information exchange which are required for the application to perform.

Smart Grid risk can be defined as the probability of threats that may use the vulnerability to cause harm to a computer, network, and system. The attack will then result in operational and business consequences for the Smart Grid. Thus, the main objective of the Smart Grid's cyber security risk assessment is to identify different vulnerabilities and threat risks and then determine their impact. Ultimately the outcome of the risk assessment should be used to define the security requirements and control(Hecht et al., 2014). For this purpose, the best practice for the Smart Grid risk management process was presented by the National Rural Electric Cooperative Association(Lebanidze, 2011). The guidelines for Smart Grid Security was developed by NIST (NIST-IR 7628) (Group, 2010). However, they do not provide a general approach for assessing cyber security risks. The report on Smart Grid security by European Union Agency for Network and Information Security (ENISA) was based on NIST-IR 7628 and ISO 27002. ENISA provides a set of specific security measures which meant to establish a minimum level of cybersecurity and recommends the risk assessment should be performed during the system life cycle (ENISA, 2012).

The process of the risk management mainly includes assigning priorities to risks and establishing a proper budget to measure and implement such process which is one of the most important high management responsibilities. In this respect, it is critical to follow a risk assessment approach that will provide an assistance to the management at the first stage. Smart Grid cyber security risks can be categorised in three categories: people, process, and technology (Lebanidze, 2011).

5. Security Risk Frameworks and Standards

Technology is being used increasingly in almost all businesses. However, the information security in systems was not incorporated earlier and only recently has attracted attention. The hidden weaknesses which are the systems vulnerabilities, need to be identified and managed accordingly(Al-Ahmad, 2012). Cyber security is an information security and involves the same three core principle of Confidentiality, Integrity and Availability since these cyber threats are results of the weaknesses and vulnerabilities in the system (Lindau, 2012).

The NIST's cyber security framework for the cyber security may not constitute a fool-proof formula that includes leading practices framework. The Framework owns or operates in the organizations' critically targeted infrastructure, while in fact, the adoption proves beneficial for businesses virtually all industries(Al-Ahmad, 2012). The standards in general, are meant to provide uniformity that would ease the understanding and management of the concerned areas. The businesses find themselves in a need to adopt standards for various reasons which vary from business requirements to regulators and compliance mandates.

ISO 27001 (formally ISO / IEC 27001), an Information Security Management System (ISMS) is a specification. An ISMS in an organisation's information risk management process which includes all the

legal, physical and technical controls that include a framework of policies and procedures (Al-Ahmad, 2012)ISO 27001 is about "installation for implementing, operating, monitoring, reviewing, maintaining and improving an Information Security Management System to provide a model"(Almorsy, 2011). ISO 27001 is a top-down, risk-based approach and the technology is neutral. Whereas Information Technology Infrastructure Library (ITIL v3) deals with service strategy and service design by focusing on the definition. Their goal is a new service and the improvement of an existing one. NIST Risk Management Framework (RMF) is an information system for the selection and specification of security controls for organizational risk management. Operationally Critical Threat, Asset, and Vulnerability Assessment (known as OCTAVE) determine the level of risk and planning defences against cyber-attacks by a security framework. In OCTAVE, people within the organization get leveraged, and so, the experience and expertise is built. The first step that they pose is to build threats based on risk profiles. The process to conduct a risk assessment relevant to the organization is a continuous one(Alberts, 1999). The Committee of Sponsoring Organizations of the Tread way Commission (COSO) has published an Internal Control – Integrated framework in 1992. The joint initiative aims to provide guidance on enterprise risk management, internal control and fraud deterrence and this is through the development of frameworks(Spira and Page, 2003).

Risk frameworks require the organizational assets, inventory risks, definition, control, evaluation and risk, ending up with an estimate of a magnitude. Perhaps the most well-known risk framework OCTAVE comes in three sizes based on the organisation magnitude. OCTAVE's latest product in the series is more of a trivial texture and has a more focused approach than its predecessors. One of the benefits of OCTAVE series worksheets is to document every step in the process providing templates for each of the arrangements. These are either directly used or intended to be used for a particular organization. Different types of organisations are continuously exposed to many kinds of risks. The Committee of Sponsoring Organisations of the Tread way Commission (COSO) framework is one of the available frameworks that provide risk assessment process within its risk management processes. The COSO emphasises on the development of a framework that will fully integrate the management of risk into the organisation.

6. Proposed Approach Based on COSO

The traditional ways of dealing with risk have changed from avoidance of risk to management of risk. The newly introduced concept of "sweet spot" is being referred to the best way of dealing with risk (Klamm and Watson, 2009). The organisations, therefore, need to assess risks in the first place before deciding which action is to be taken. Basically, a need has emerged for a risk assessment design to be used by ERM (Enterprise Risk Management). COSO ERM provides such an approach as shown in figure 1. The proposed approach follows five defined stages or steps. These steps allow a risk analyst to understand the system, define relevant threats and then identify system risks along with their levels. The five steps of the proposed approach consider and follow the COSO ERM risk assessment process and they are described along with some guidelines as to how they can be applied in the context of Smart Grid. The risk assessment process includes business process requirements and assets' identification, risk identification, development of assessment criteria, assess risk and prioritising, and presenting risks. These steps are discussed in the upcoming sections.

Fig 1: COSO risk assessment process (Curtis, 2012)

6.1 Business processes requirement and assets' identification

The objective of the first step of this approach is to define the business process requirements of the system and define system assets that require protection from any security threats. The value of any asset depends on the role that it plays in the business process. The stakeholders define the business processes that need to be protected and the process owners define the assets of these processes that require protection(Curtis, 2012). The nature of these assets may vary in the Smart Grid environment but generally includes Information assets, functional assets and system assets.

6.2 Risk identification

The objective is to identify and produce a list of key risks of Smart Grid system. Risks are the outcomes of threats and vulnerabilities in the system. The risk exists if a cyber-attack is successful in a particular system(Curtis, 2012). This step is the key part of any risk assessment process. In this step, risks of different levels of the Smart Grid application or system are identified and listed.

6.3 Assessment criteria development

The goal is to develop an assessment criterion to be used in the assessment process of the defined risks**.** Developing a common set of assessment criteria is another key activity in the risk assessment process and to be deployed throughout the organisation processes(Chen et al., 2014). Any type of risk could be assessed by its impact and likelihood. Some organisations evaluate risk along with the vulnerability. A standard comparison and a common form of measurement are required across the organisation(Curtis, 2012).

6.4 Assess risks

The objective of this step is to conduct the risk assessment on the defined risks. While assessing the risks, values are assigned to them and the opportunity using the criteria which has been defined earlier(Chen et al., 2014). This can be done in two steps or stages: firstly, the risks are assessed by using qualitative techniques and then a quantitative analysis is done for the most important risks. The qualitative assessment of each risk and opportunity is based on the defined descriptive scales which are described previously.

6.5 Priorities and present risks

The final step is prioritising the risks and reporting them to the management which is done after viewing and reviewing a comprehensive portfolio. A risk profile presents the complete organisational risk portfolio. The prioritisation process is about determining the risk management priorities and it is done by comparing risk level against predetermined business targets (Curtis, 2012). This process of prioritisation will present a simple and consolidated list of defined risks in an understandable format. This process will help in sorting the risks into their priority order and basically the highest risk level to start with. The risk portfolio can be presented in different ways such as a hierarchy, risk maps, and heat maps. The flowchart of the developed approach is shown in figure 2.

Fig 2: Proposed risk assessment process for smart grid

7. Analysis and Discussion

This section focuses on analysis and discussion of the main variables in terms of the structure of the proposed approach and the other two approaches which have been discussed as the Smart Grid risk assessment examples in the previous sections. For the purpose of this study two approaches were selected and highlighted in order to provide a clear picture of the available approaches in this area. These approaches are RAPSA (Risk Analysis and Probabilistic Survivability Analysis) and Multi-elements and Multi-Dimensions risk evaluation. Both approaches are used in the Smart Grid environment and the strategy which is used in these approaches to understanding the threats to the system is from the ground level. RAPSA has been heavily discussed, adopted and implemented across several studies (Taylor et al., 2003, McGuire, 2014, Morris, 2015, Swiderski and Snyder, 2004, Taylor et al., 2002). At the same time, critical assets will be identified as they are the most vulnerable components in the power grid (Taylor et al., 2002).

7.1 Analysis of risk assessment approaches

As it has been pointed out earlier that a very few risk assessment approaches and methods are available for the CPS. There is a non-availability of proper method and approach that takes care of the whole assessment process. Most of the guidelines in the area of Smart Grid risk assessment, such as NIST, show several important steps and best practices that must be available in any risk assessment in this area. The best practices for the risk assessment approaches include asset identification, risk, threats & vulnerability identification and assessment of risks & determine priorities. Based on the best practices, Table 1 illustrates the analysis and comparison of the approaches.

Table 1: Assessing the risk assessment approaches

Approaches **Assessment process(best practices)**	**RAPSA**	**Multi-elements and multi-dimensions**	**The Proposed Approach**
Management/ Business objectives			√
Asset identification	√	√	√
Define Assessment criteria		√	√
Risk, Threats and Vulnerability Identification	√	√	√
Assess Risks	√	√	√
Determine Priorities			√

7.1.1 Asset identification

Identifying the potential assets is an essential first stage in the risk assessment process in order to develop proper responses. The RAPSA risk assessment approach (Risk Analysis and Probabilistic Survivability Assessment) is used in case of cyber-attacks at the power station. There are four main steps to perform risk assessment: System's self-assessment, threat identification, risk quantification, and risk mitigation trade-off. The system's self–assessment assures that the team understands the overall objectives and partition the system into basic services. However, there is no clear identification of the system's critical asset that needs to be protected against the cyber-attacks and which has a more business value. The multi-elements and multi-dimensions risk evaluation methods assume that the area is defined and start the process with the risk identification based on the defined risk factors in order to do analysis based on risk sources. In this approach, the process of risk assessment misses the asset identification step, and there is no clear direction for which type of assets the assessment should be done. The proposed approach in this research starts with very a basic information which is required in any risk assessment process. The first

and entailed step of asset identification and stockholder requirements defines all the critical and important assets that need to be protected along with that link with the business objectives of the organisation.

7.1.2 Risk, threats and vulnerability identification

Planning is an important aspect in the risk assessment process, and securing a Smart Grid environment fully addresses the risks and vulnerabilities(Boyer, 2009). The risk identification and classification is performed to develop appropriate security measures. This process of identification involves the assessment of critical components and weak areas in security and it is frequently implemented to monitor the compliance status of the system. The RAPSA's second step of risk assessment is the threat identification, and cyber-attack threats are estimated from the defined essential services, and then identifying the vulnerabilities. However, the method does not clearly mention how these threats and vulnerabilities can be measured or quantified. These factors can be a likelihood or probability to damage any asset of the organisation and can be quantified by threat matrix or frequency. On the other hand, the multi-elements and multi-dimensions risk evaluation approach starts with that step of risk identification and classification. The identification as mentioned is based on specific factors like policy, market and management. The proposed assessment approach has defined a clear step of risk identification which comes from different threats and vulnerabilities. It is the key part of this assessment process and produces a comprehensive list of risks that are organised by risk categories and sub categories. The risk identification can be done by considering all possible risks that are defined by the process owner or by using one of the defined techniques to identify risks as mentioned.

7.1.3 Assess risks and determine priorities

In the risk assessment process, determining and defining assessment criteria is one of the important steps in order to assess the risks. The assessing of risks enables an appropriate and proportionate targeting of security recourses and controls. The risk identification phase is followed by the assessment and prioritisation of the risks. Before being able to determine the risk's likelihood or the risk's impact, the assessment criteria needs to be formulated for each factor. In the RAPSA method, the assessment criteria are missing. The analysis of the risks comes in place with quantifying the risks for each intrusion scenario and then it uses the event/fault trees. The event/ fault trees are simple techniques which are used for modelling risks and underlying the relationships. In this stage of quantifying the risk for each intrusion or attack scenario, the historical data is used or expert opinion is asked when this data is missing to estimate the damage. This means that there are no defined criteria for the assessment. On the other hand, the multi-elements and multi-dimensions risk evaluation approach adopts a risk evaluation matrix that uses the time and regional development in consideration with the general process of risk management. The assessment process in this approach is based on the risk factors and risk probabilities clarifications. Then a formula is used to define the risk level and format of risk matrix. The values are classified based on the defined range of standards to present the size of the risk. In this approach the clear assessment criteria are used to define the risk level and that is used to define the controls for each risk.

For the proposed approach in this research, the assessment criteria are developed for each risk event and presented by scales. In order to assess the risk, an organisation is required first to define the scales for each impact, likelihood and vulnerabilities which are used in the risk matrix to calculate the values. The assessment is carried out and values are assigned to each risk by using the criteria which are defined earlier. Next, the risks are assessed by using qualitative techniques and then if required quantitative analysis is done for the most important risks. In this approach clear scales are used to evaluate the risk.

8. Conclusion

With the increasing need for the proper security of the CPS infrastructure from cyber-attacks, a large and diverse number of risk assessment methodologies have risen to help to achieve this goal. Proper guidelines and standards are needed to be used to develop an appropriate risk assessment for the CPS and

fulfil the security requirements for such critical systems. In this research, an extensive literature review was done in the area of the CPS risk assessment in order to provide the basic information regarding the available studies and efforts in this area. Furthermore, a list of the most relevant frameworks and risk assessment approaches for the CPS and mainly for Smart Grid has been analysed.This research is an important step towards the goal of having a well-designed approach for evaluating and controlling the cyber security risks in the area of CPS and Smart Grids. Future research may include further work and research to draw a complete conclusion about the implementation and testing of this approach in order to validate the results. Also, the proposed approach can be studied to fulfil the requirements of other areas of the CPSs. The proposed approach must as well be subjected to further verification to increase the quality of the assessment results.

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Economic Analysis of the Necessary Amount of Basic Food Types for the Population of the Czech Republic

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Abstract

The scientific paper presents the results of the economic analysis of the needs of basic food types for the inhabitants of the Czech Republic. The performed analysis is based on the calculation of the fulfilment of energy intake per person per day. The population was divided by sex and age to determine the energy value of food intake through the use of basic food types. The observed data can serve as a basis to determine the level of food self-sufficiency in our country and as a basis for assessing the food security of the Czech Republic.

Keywords: Food self-sufficiency, food security, energy intake, basic food types

Introduction

The paper is an analysis of basic food types needed for inhabitants of the Czech Republic since the age of three; the population is divided by gender and age with respect to the energy needs of the various population groups. Based on those assumptions and economic study there is then across the energy value calculated on the basis of basic food types needed for inhabitants of the Czech Republic by region. This information could serve as a basis for food self-sufficiency, which is part of food security. Simultaneously, this data may also serve bodies of the state and local governments in preparing for emergencies in the context of economic measures for crisis situations (e.g. studies about population protection against floods, Šafařík et al., 2015).

Research and Findings

In the research have there been adopted following assumptions in order to determine the necessity of food for each region of the Czech Republic:

- Energy value is always determined as an average caloric intake for each age group with respect to gender, age and average weight with regard to physical activity. It is therefore determined the baseline measurement of calories required for basic conversion (basal metabolic rate) plus PAL (physical activity level) = average daily energy requirement for physical activity as a multiple of basic metabolism.

- Body weight is calculated from measured heights and under optimal BMI value of 22 for men (age range 15-18 years) and value of 21 for women (age range 15-18 years); value of 24 for men (ages: 19-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59 and 60-64 and 65+) and value of 22 for women (ages 19-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59 and 60-64 and 65+).
- For men of all ages from 15 to 64 years of age including, PAL is set at a value of 1.8 (activity mostly standing and walking) for ages 65+, PAL is then at 1.2. For women of all ages from 15 years to 64 years of age including, PAL is set at a value of 1.6 (sedentary activity with occasional light activities while standing or walking) for ages 65+ PAL then at 1.2 (same for men and women)
- Children are divided by gender and age into several groups; the youngest age group is 3 years old. Children from 0-3 years of age are not included in the study. Energy value is again determined according to dietary reference values.
- All data relating to population, gender and age are the official data by the Census of people, houses and flats from 2011 - the CSO statistics.
- Population is divided into groups according to tender and age.
- Figures will be given in kJ and Kcal (for better comprehensibility).
- A healthy individual is always considered who can receive traditional diet without restrictions.
- There are not taken into account the different dietary habits based on religious, ethnic or other reasons, the individual does not consume certain types of food or he consumes them only after a specific type of treatment.
- The types of food that are used to meet the energy needs of different population groups have been established under prescribed necessities for survival of an inhabitant for 10 days (Foldyna, 2009).

To illustrate the situation in Table 1 the data is provided on the required energy and its coverage of essential food types in men with regard to their age, physical activity and weight.

Table 1: Expressing the necessary energy value of the basic types of food for men

Age	**Men**				
	Body weight in kg	Energy value in kJ/day while counting PAL	Food type	Food amount in grams	Energy value of food in J
15 – 24	67	13707 (13707)	Meat and meat products	90	870
			Milk and dairy products	240	1128
			Lipids	70	2037
	74	13707 (13707)	Bread	250	2350
			Side dish	310	3556
			Flour	200	2794
			Sugar	50	890
			Eggs	27	82
25 – 49	74	13104 (13109)	Meat and meat products	85	822
			Milk and dairy products	230	1081
			Lipids	66	1920
			Bread	240	2256
			Side dish	298	3418
			Flour	192	2682
			Sugar	48	854
			Eggs	25	76

50 – 64	72	11900 (11975)	Meat and meat products Milk and dairy products Lipids Bread Side dish Flour Sugar Eggs	80 210 60 220 270 180 40 25	774 987 1746 2068 3097 2515 712 76
≥ 65	68	7079 (7096)	Meat and meat products Milk and dairy products Lipids Bread Side dish Flour Sugar Eggs	50 130 40 125 155 100 25 14	484 611 1164 1175 1778 1397 445 42

The following graphs and maps show the value of total supplies of basic foodstuffs for the day and year for men, women and children, summed always based on individual calculations for each group into groups of men 15+, women 15+, boys 3-14 years old, girls 3 - 14 years old and children 3-14 years old in total, with total population of the Czech Republic from 3 years of age. The following Table 2 shows the population of the Czech Republic, according to the last census in 2011.

Table 2: Population of the Czech Republic according to the Census of people in 2011

	Boys 0 – 14 years old	**Girls 0 – 14 years old**	**Men 15+**	**Women 15+**
Population	763 949	724 979	4 325 915	4 586 090
Total	1 448 928		8 912 005	

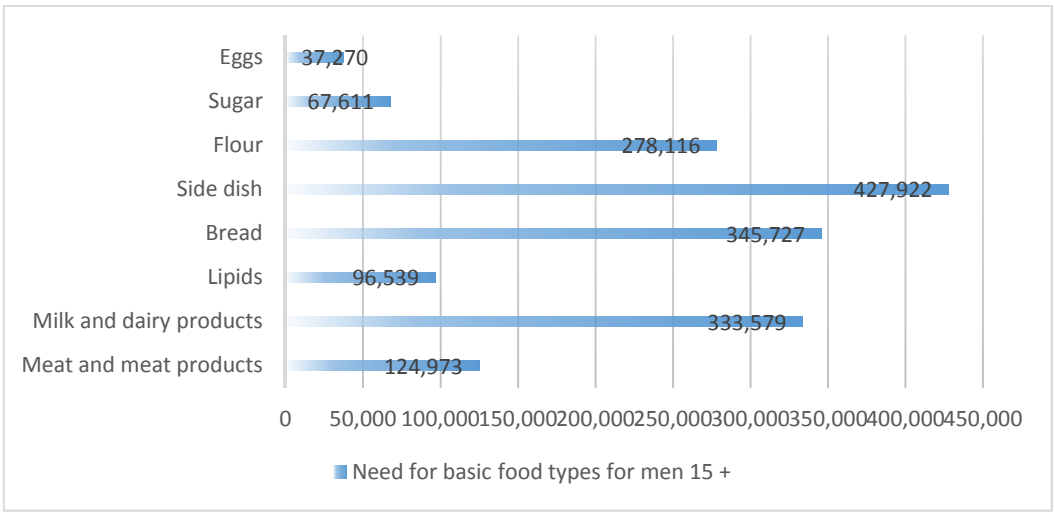

Fig. 1 :Need for basic food types for men 15+ in the Czech Republic for one year (in tonnes)

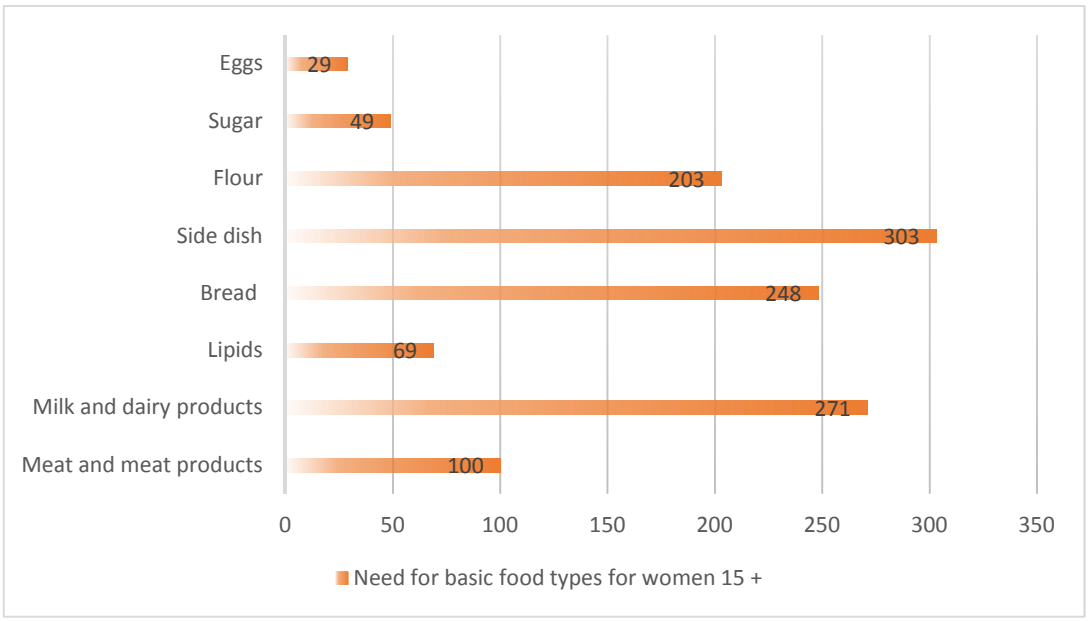

Fig. 2: Need for basic food types for women 15+ in the Czech Republic for one year (in tonnes)

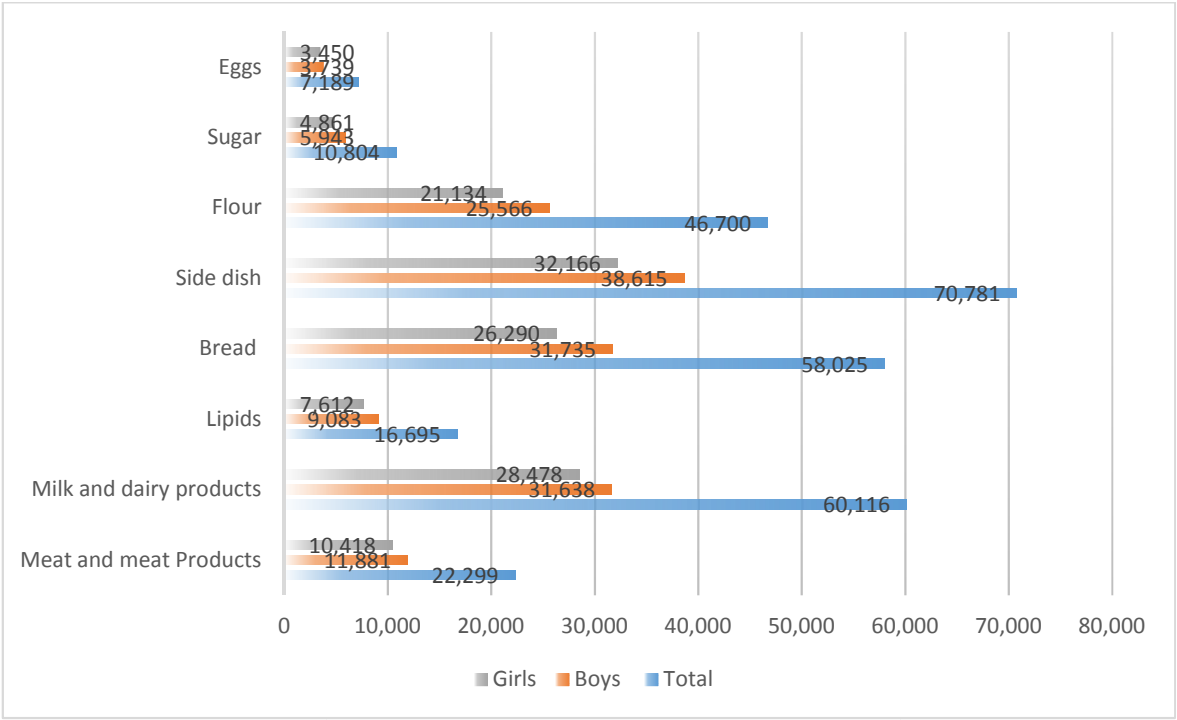

Fig. 3 : Need for basic food types for children 3 - 14 in the Czech Republic for one year (in tonnes)

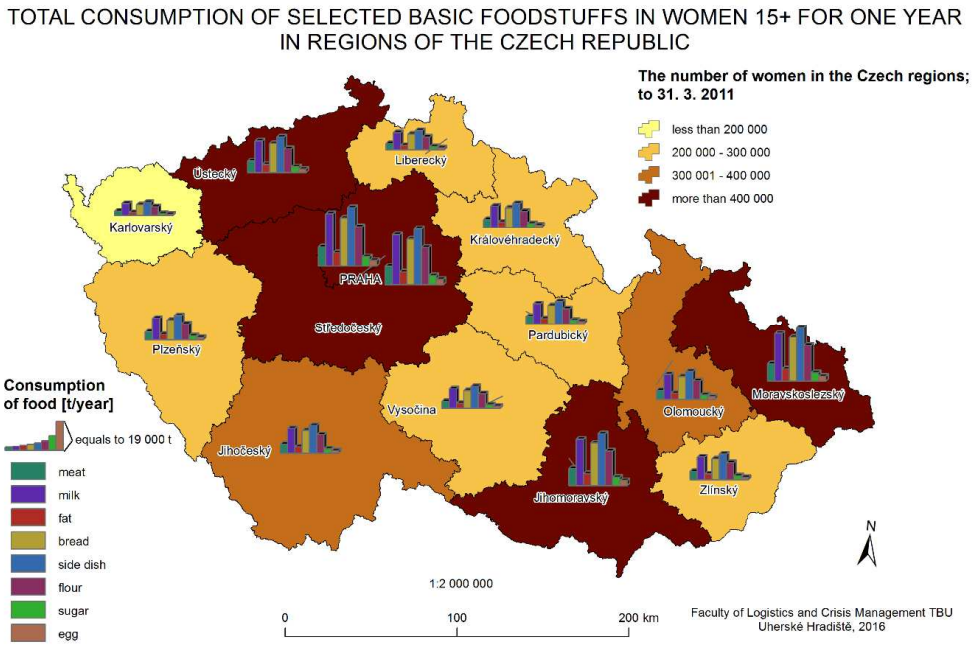

Fig. 4: Total Consumption of Selected Basic Foodstuffs in Women 15+ for one Year in Regions of the Czech Republic

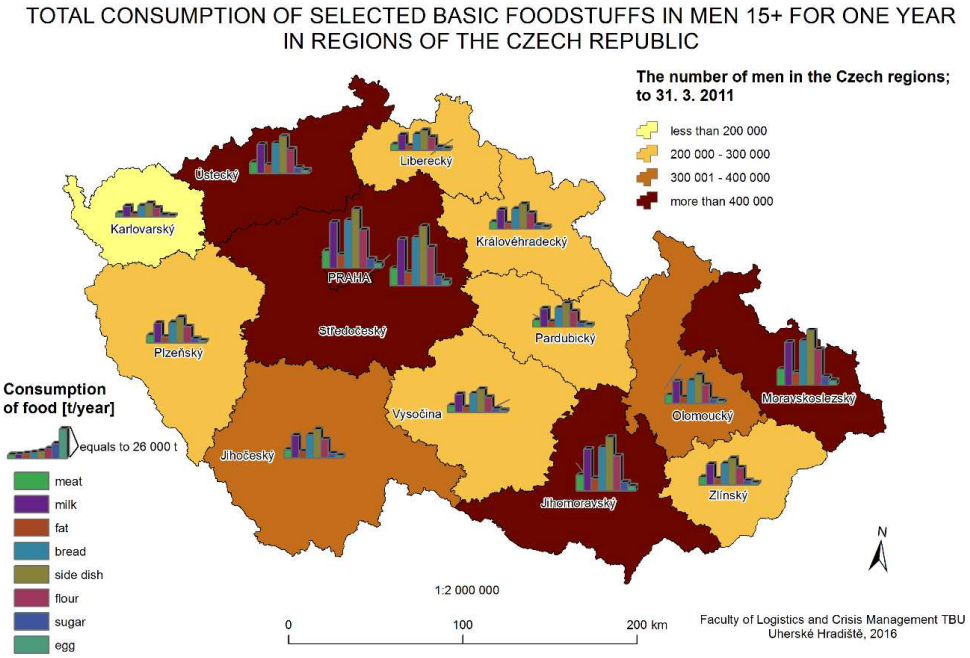

Fig. 5: Total Consumption of Selected Basic Foodstuffs in Men 15+ for one Year in Regions of the Czech Republic

Conclusion

There are following results derived from the analysis of the needs of a number of basic food types for the inhabitants in the Czech Republic on the basis of the specified energy value of food intake: energy needed for different population groups was met by eight basic food types. For different population groups, which were divided by gender and age, it was determined necessary amount of meat and meat products, milk and dairy products, lipids, bread, different types of side dish (potatoes, rice, pasta), flour, sugar and eggs. The results can be used to determine the value of food self-sufficiency in food types evaluated for the Czech Republic. In the paper there were presented some of the results of the economic study.

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Sustainable Competitive Advantage in Small and Medium Enterprises through a Qualitative Lens: Insights on Intellectual Capital

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Abstract

Sustainable competitive advantage is important when companies keep searching new ways to offer value better than their competitors, especially when the competitive environment changes. Knowing which elements of competitive advantage to deploy would help companies set effective competitive strategies from the very beginning. Intellectual capital as intangible resources is important for a sustainable competitive advantage. The main concerns of this paper are to identify the elements of sustainable competitive advantage of small and medium enterprises and how intellectual capital influences sustainable competitive advantage. Focus group approach was used to explore the perception of sustainable competitive advantage and intellectual capital of SMEs. Content analysis was analysed using a mechanical method. The findings show that cost leadership and differentiation strategies are commonly used by SMEs to achieve sustainable competitive advantage. In addition, innovation is considered vital to create value for customers. The majority of the participants agreed that human capital is the most important element of intellectual capital regardless of industry. Innovation capital is regarded more important than relational capital and structural capital.

Keywords: Sustainable Competitive Advantage, Intellectual Capital, Small and Medium Enterprises

Introduction

In a turbulent and competitive environment, having competitive advantage will help a company stay profitable and ahead of its competitors. However, competitive advantage alone does not guarantee the company will remain relevant. Companies should strive for sustainable competitive advantage to remain in the business for the long term. This can be achieved by leveraging and capitalising their internal resources and capabilities. Intellectual capital is a key driver of innovation and competitive advantage in a knowledge based economy (Taie, 2014; Guthrie and Petty, 2000) where learning and knowledge are the key parameters of sustainable competitive advantage (Hana, 2013). Most studies on competitive advantage and intellectual capital employ the quantitative approach gather general ideas or perception of large population which means that the real and hidden answers were not recorded. Furthermore, SMEs have limitations compared to large organisations such as limited resources, lack of experts, and lack of impact especially in strategic approaches, role of owner/manager and lack of formalised policies and practices (Darcy et al., 2014). A qualitative study would help explore in depth of sustainable competitive advantage, intellectual capital, and innovative intelligence among entrepreneurs. This paper investigates the sustainable competitive advantage of SMEs and the link of intellectual capital and innovative intelligence of SMEs in Malaysia through the use of focus group.

Sustainable Competitive Advantage

Competition has forced SMEs to set their competitive advantage (Kocoglu et al., 2009; Hana, 2013). They have to identify new ways to satisfy their customers and provide value better than their competitors. When customer value firms offer more than that of their competitors, they attain competitive advantage (Choplin, 2002; Ipek, 2009; Ismail, 2014). Kotler (2000) defined competitive advantage (CA) as the capability of the organisation to carry out its activities in ways other cannot imitate. By having its CA, the firm builds its base for a strategy (Daou et al., 2013). A firm that differs from its competitors and remains outstanding to their consumers would gain sustainable CA (Darcy et al., 2014; Gonzalez-Loureiro and Dorrego, 2012; Khan, 2014). CA lies in the resources and capabilities that produce products or services (Papula and Volna, 2013).

Sources of CA depend on the internal resources or assets of the organisation either tangible or intangible. Tangible assets comprise financial, physical, and technological assets while intangible assets are human, innovation, creativity, and reputation (Papula and Volna, 2013). They emphasised that the source of CA is an intangible asset comprising human capital, structural capital, relational capital, and customer capital. In contrast, according to Alawneh et al. (2009), SMEs have unique characteristics that prevent them from developing a CA compared to large organisation. Nevertheless, Papula and Volna (2013) highlighted that SMEs can more easily differentiate from their competitors because they are fast to adapt to the changing environment compared to larger organisations.

Based on resource based theory, CA can be achieved if the organization's resources are valuable, rare, hard to imitate, and non-substitutable (Barney, 1991). Porter (1980) established three generic strategies which are cost leadership, differentiation, and focus. Cost leadership strategy focuses on cost reduction by selling cheaper than competitors. Differentiation strategy is where companies differentiate their products by features, product mix, services and product complexity. Focus strategy concentrates on a market niche where the company tries to maintain its market leadership. A company can achieve its CA either by operating at a low cost, or by charging a premium price, or by doing both (Porter and Stern, 2001). A survey in Europe found that differentiation strategy is more attractive and suitable to small companies as they are more innovative (3i European Enterprise Centre, 1994).

Barney (1991) emphasised that a firm possesses sustained CA when it adopts a strategy that is, "not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy." According to Coyne (1986), sustainable competitive advantage is when the company is able to maintain the durability of its attractive attribute gap for a certain period of time. As long as competitors cannot fill the gap, the company has a sustainable competitive advantage.

Intellectual Capital

Intellectual capital (IC) has gained popularity, especially in the knowledge based economy. IC studies have focused on large organisations. Studies of IC have extended to SMEs to help them perform better. Generally, IC is knowledge, information, skill, experience, intellectual property that can be put to use to create wealth (Stewart, 1997). Bontis (1998) further elaborated that IC is about the pursuit of the effective use of knowledge (the finished product) as opposed to information (the raw material). Cohen and Kaimenakis (2007) concluded that IC comprises valuable intangible resources containing knowledge that can be used by the firm to accomplish its goals. However, these intangible resources must be complimented with effective management to provide the firm with sustainable competitive advantage. Basically, IC can be located in its people (human capital), its structures (structural capital) and its relationship with stakeholders (relational capital) (Bontis, 1998; Marr, 2008; Ling, 2012;

Human capital (HC) comprises employees' skills, commitment, competence, attitude, capabilities, talents, creativity, and knowledge as an organisation's intangible assets that can be turned into CA (Cohen and Kaimenakis, 2007; Chen et al., 2004). HC can be described as, "knowledge, skills and experience employees take with them when they leave the company' (Djurica et al., 2014).

According to Mouritsen et al. (2002), HC contains creativity, innovativeness, initiative, adaptability, flexibility, motivation, persistence, expertise, skills, experience, devotion to organisation, teamwork training, flexibility, loyalty, ability to establish and develop relations with other employees in the company and its partners, readiness to accept changes, and ability to learn.

IC by itself is of little value without the leveraging effect of the firm's supporting structural capital resource. The structural capital (SC) comprises systems, structure, corporate culture, the organisational process efficiency, databases, information and production technology (Cohen and Kaimenakis, 2007). SC is the embodiment, empowerment, and supportive infrastructure of HC (Bontis, 1998). SC provides a platform for people to be creative (Stewart, 2000). It is owned by the firm. The management's dedication and efficiency is important for the firm's sustainable competitive advantage (van Zyl, 2005). SC comprises innovation capital, organisational capital, and process capital.

Relational capital (RC) embraces all the relations the firm has established with its stakeholder groups such as customers, suppliers, the community, and the government (Bontis, 1998; Allee, 2000). Specifically, RC fosters a knowledge-producing behaviour – providing a source of ideas for change and improvement by market information processing and marketing strategies (Keskin, 2006). However, this knowledge has little benefit if not appreciated and implemented to enhance firm innovation. According to Martin-de-Castro et al. (2004), IC, especially RC is very much into social networking where the relationship with external parties such as customers, suppliers, and the government play a crucial role in the organisation. However, Mc Elroy (2003) commented that IC itself does not emphasise the value of the relationships between people in firms and between firms and other firms.

More capital has been introduced to help companies achieve better performance and acquire sustainable competitive advantage. Innovation capital (Chang and Hsieh, 2011) and technological capital (Pedro et al., 2010) have helped companies capitalise their knowledge and turn it into innovation and intellectual property.

Sustainable Competitive Advantage and Intellectual Capital

IC components especially HC play a crucial role in establishing and maintenance of CA of a company (Djurica et al., 2014). Knowledge that resides in HC, SC, and RC is a source of a company's competencies and are thus vital in building sustainable CA (Lopez et al., 2006). The interactions of IC elements can result in sustained competitive advantage (Gannon et al., 2009). Researches have highlighted that IC is the basis for the generation of sustainable competitive advantages, and this relationship has been broadly studied in the case of medium and large-sized organisations (Ugalde-Blinda et al., 2014; Gannon et al., 2009; Daou et al., 2013; Akhtar et al., 2015).

Methodology

This is a qualitative and exploratory study. Focus group can be defined as, "a small group of people selected to discuss on a particular topic which is led by a facilitator" (Reinard, 1999 as cited by Kratt, 2003). According to Stokes (2000), focus groups provide the possibility of a shift in the power balance from the researcher to entrepreneurs. Furthermore, focus groups allow participants to focus on the researcher's emphasis (Threlfall, 1999). The focus session provides useful information on participants' perception, experience, and knowledge in their own terms and language (Stewart and Shamdasani, 1990). This paper intends to capture this primary information.

The participants for this study were selected through nonrandom methods. Purposive sampling and networking were used to identify the target group and invite volunteers to participate (Latham, 2007). Personal contact was used to identify the target group and the participants. Participants were informed of the date and venue of the session. Eleven entrepreneurs agreed to attend the session which is within the conventional group size of six to 12 (Millward, 2012; Cameron, 2005).

Two prime considerations for participants are convenience and comfort. We reserved a small business room that can accommodate 15 people. The participants were seated at a big round table so that they would be able to hear and listen to others clearly. Since all the participants are entrepreneurs, they were willing to participate in a two hour session. The success of the session will depend on preparation and good people skills (Greenbaum, 2000; Wilkinson, 2003 as cited by Millward, 2012). Three facilitators and two research assistants were deployed for this purpose.

Prior to the focus group session, a list of questions was prepared. The questions included: what is the sustainable competitive advantage to your firm, what elements of CA are for the firm, which of the elements are important for sustainable competitive advantage for your company and which of the IC elements is the most important for SMEs? During the session, an audio recorder was used to tape the discussion. The entire discussion was recorded directly on tape.

There is no single way to analyse the focus group data (Wilkinson, 2003). The form of analysis will depend fundamentally on whether it is the "content" or the "interaction process" that is the "data" of interest (Millward, 2012). The discussion of content analysis is used to analyse transcription data which can be done either through mechanical or an interpretative component (Krippendorf, 1980 as cited by Millward, 2012). For this study, a mechanical aspect involving physically organising and subdividing the data into categories is adopted.

Research Design

The participants for this study were selected using nonprobability sampling method. Nonprobability sampling is subjective whereby not all members of a population have an equal chance of being selected (Cooper and Schindler, 2003; Reinard, 1999 as cited by Kratt, 2003). The participants were selected on the basis of their accessibility or by the purposive personal judgement of the researcher. For this study, nonrandom tactics used included purposive sampling and networking. The researcher contacted an entrepreneur who is a member of few entrepreneurial associations. The researcher then requested her to extend the invitation to other entrepreneurs who met the requirements of this session. Eleven entrepreneurs agreed to participate in the focus group session.

Results of the Study

The results from the focus group discussion protocol are presented. It is organised under the sustainable competitive advantage, IC, and general reflections.

Sustainable Competitive Advantage

Sustainable competitive advantage (SCA) is important for SMEs to remain relevant in the industry. Depending on the industry, the focus on the elements of SCA would differ as stated by one participant that, *"between cost leadership and product differentiation, it depends on what stage the company is which is life-cycle…"*. Furthermore, the stages and level of maturity of SMEs are other factors that influence the focus of SCA. For example, in the service industry, cost leadership is more important than product differentiation as stated by one of the participants, *"For the service industry, I think cost leadership is more important because it is reflected in our financial budget…"* Another view of one of the entrepreneurs, "*I think depending on the industry, for example for manufacturer they have to focus on product to create CA, however, in service industry basically very competitive. You can imitate your competitor, your competitor could be your benchmark but at the end of the day, you must set your own CA."*

Most participants agreed that cost leadership and product differentiation strategies are equally important and have to be included in the company's CA strategy. However, depending on cost leadership and product differentiation strategies is not sufficient to sustain and maintain their position in the industry. In this study, innovation has been proposed as an element of SCA. In order to sustain the CA, *"…innovation is what we must do to sustain"*. *"I think when we are talking about SCA, we have to focus on innovation which means you to be innovative every day, every month together with*

your employees and so the company's CA can be sustained in the market". The company has to be innovative in creating value for customers and being different than its competitors, *"SCA for us is create value and do differently"*. As innovation is important in SCA, innovation performance should be included as an organisational performance measure. *"Cost-leadership is important to my company. Product differentiation is also what we must have, we should do what our competitors are not doing and do better than them where product and process innovation are important today"*. However, one of the entrepreneurs disagreed, as for her company product differentiation strategy and innovation performance are more important than cost leadership strategy.

Intellectual Capital

In a knowledge based economy, knowledge, which is an intangible resource, is more important than tangible resources like labour and capital. IC comprises HC, SC, and RC has evolved to help the organisation to perform and better acquire SCA. As IC goes in-depth, capitals like technological capital, innovation capital, and spiritual capital have been included. The participants agreed that all IC elements are important for achieving SCA. They are not familiar with the terms and did not realise the importance to identifying and capitalising on IC as stated by one of the entrepreneurs, "*I am glad that today I learned what IC is about. We don't have a proper plan but we have a goal. What we do we just set out our goals and do whatever necessary to achieve it"*. After the explanation of IC, the entrepreneurs were given questions on IC. Some thought that spiritual capital should be included, *"…spiritual capital is important in my company. Spiritual capital is about honesty among staff. Therefore, in order for them to be honest, it is good to have spiritual capital"*. However, another participant disagreed with including spiritual capital, *"I think spiritual capital can become very religious meaning I don't need money… I don't need anything"*.

Participants had mixed views on the importance of IC. One participant stated, *"For my training company, HC is a main priority, follows by RC, innovation capital, SC and technological capital"*. For another training company, *"For me HC is very important, then SC, RC, innovation capital and technological capital"*. SC is whatever is left behind after office hour which includes a database, system etc. *"…some of the structural elements are costly; there are many ways to cut costs. We know many ways to cut costs, for example, we fully utilised google.doc. Whatever transpired between customers and employees, all information will be shared among the employees through cloud application such as google.doc.…". We share information on google.doc between our staff and customers.*

Overall, all the participants agreed that HC is the most important element of IC as stated by a participant, *"even if you have the best SC but not HC, everything will be collapsed"*. For entrepreneurs from the IT industry, *"…in my industry, innovation can be easily duplicated. I have to innovate quickly ahead of my competitors. I have to understand my customers' needs and provide innovative solutions. Therefore, I would say HC is our main priority while innovation capital is next important element. The rest are equally important"*. For another entrepreneur, *"in SMEs we have to invest either in human or relationship. For me, RC is more important than HC"*.

Conclusions

Most entrepreneurs are unaware of how they achieve their CA. They have their own strategies which were rather general and on an ad-hoc basis. It is interesting to discover that entrepreneurs prefer to adapt strategies for cost leadership and product differentiation. The entrepreneurs agreed that in order for SMEs to acquire SCA, they must adopt cost leadership, product differentiation, and innovation performance. However, depending on industry and its life-cycle, SMEs did not necessarily adopt all three dimensions of the proposed SCA but select the one that gives them most advantage.

SMEs understand the importance of IC to achieve SCA. HC is considered the most important elements of IC. Although all capitals are considered important, innovation capital ranks second after HC. Interestingly, entrepreneurs did not rank SC as high as RC which is in contrast to Bontis et al. (2002) and Chen (2004). A qualitative research design proved fruitful in obtaining a description of

practices from entrepreneurs (Stokes, 2000). The focus group session helped the researcher acquire in-depth information which would not be obtained through a quantitative approach. Even though primary information was attained from the entrepreneurs, the findings are not generalisable (Threlfall, 1999). Innovation is important to businesses as highlighted by the entrepreneurs, especially in a creative and knowledge based economy.

This study showed that most of the entrepreneurs set their strategies based on their intuition without knowing the importance of CA. Their main target is to create value so that they are ahead of their competitors. It is important for entrepreneurs to develop their strategies to capitalise on their IC effectively. In addition, the term "IC" seems new to entrepreneurs. It would be beneficial if entrepreneurs knew the benefits of IC and how it would affect and influence their CA. This study was carried out on a small number of entrepreneurs from different industries and with different background. It would be interesting to select participants from a single industry to gathering information on their SCA and IC.

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The Effect of Social Media on Self-Esteem

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Abstract

Social media has been used to communicate with people worldwide, but recently, with the advancement in technology, it has become a way of reflecting personal life online. It provides incredible tools to create personal accounts that can be easily viewed by others. This may expose people to inappropriate interference and judgment from others and, indeed, have a profound impact on their feelings and on how they evaluate themselves, but this is not the only perspective with which things can be viewed. Social media is a source of inspiration. People are gathering to share their thoughts, interests and achievements. Indeed, the manner in which social media is used differs from person to person, and can range from active to passive use, the effects of its use on individuals being positive or negative.

The objective of this research is two-fold: 1) to investigate the different categories of social media user, and 2) to explore how social media affects their self-esteem. To achieve the research objectives a multi-methods approach was employed: 1) an intensive systematic literature review was carried out, and 2) a questionnaire was distributed amongst different social media users to elicit their opinions on how the use of social media has impacted their self-esteem.

The results reveal that there are seven categories of social media users, which are: creators, conversationalists, critics, collectors, joiners, spectators and inactive users. The self-esteem of all categories of social media user was high. For this reason it can be said that the use of social media has a positive effect on self-esteem.

Keywords: social media, self-esteem, social technographical ladder

Introduction

The interactive version of the web is called Web 2.0. This is an enhanced version of the Internet that enables dynamic user-interaction and user-ability to create and publish web content without special programming. Because of these interactive capabilities of Web 2.0, tools such as Facebook, Google+, YouTube, Twitter, MySpace, LinkedIn, Wikis, podcasts, and blogs have become very popular and are becoming everyday language. Such applications are termed ‘social networks’ or ‘social media’. This phenomenon has become a major part of our lives and many people try to share their day-to-day activities on social networks, and sharing photos and videos is also popular. The rapid rise of social networks has changed the way we interact online, how we connect to people, and, of course, how we market ourselves, our products, and our services. With these tools people have a chance to share and upload information immediately, making data dissemination far more convenient and viral in nature.

Nowadays people are connected with each other more than before through social media. For huge segments of the world’s population, mobile phones, the internet and email, instant messaging, and various forms of digital social media have become deeply integrated into the fabric of daily life [Warf, 2013]. Millions of people are using social media on a regular basis around the world, so that the number of social media users changes literally by the hour [Pérez-Latrel and Tsourvakas, 2013; Westerholm, 2013].

Social media has become a way of expressing and reflecting personal life online. It provides incredible tools to create personal accounts that can be easily viewed by others. This may lead them

to be exposed to inappropriate interference and judgment from others. Undoubtedly this may have a serious impact on their feelings and on how they evaluate themselves. This is not the only side of the coin. Social media is a source of inspiration. People are gathering to share their thoughts, interest and achievements. Indeed, the use of social media differs from one person to another. It could range from active use to passive use of it. Therefore, its effect could be positive or negative on their selves. Therefore, using social media can influence the behavior of users positively or negatively

The objective of this research is two-fold: 1) to investigate the different categories of social media user, and 2) to explore how social media affects their self-esteem. To achieve the research objectives a multi-methods approach was employed: 1) an intensive systematic literature review was carried out, and 2) a questionnaire was distributed amongst different social media users to elicit their opinions on how the use of social media has impacted their self-esteem.

The paper is structured in the following way: Section 2 provides a literature; Section 3 describes the research methodology; Section 4 presents the research findings and discusses them; Section 5 provides a conclusion and suggestions for future work.

Literature Review

Social media

In many cases the definitions of 'social networks', 'social networking', 'social media' and 'social networking sites' overlap. In this section we differentiate between these different terms. First, 'social networks' are traditionally defined as groups of people who, for example, share interests and/or activities. Social networking is the act of participating or interacting with one another within these social networks, and social networking sites are the websites where the interaction happens [Cohen, 2011; DigitalLikeness, 2008]. Many websites could be classified as being "social networking sites". Examples of the most popular and well-known are Facebook, Twitter, Blogger, MySpace, Digg, Google+, Stumbleupon, LinkedIn, Second life, YouTube, and Flickr. Social networking sites deliver content through communication, collaboration/authority-building, multimedia, reviews and opinions, micro-blogging, publishing, photo sharing, entertainment and brand monitoring [Bard, 2010]. They provide to users techniques and technologies such as aggregators, audio, video, live-casting, RSS, mobile, crowd sourcing, virtual worlds, gaming, search, conversation apps and Wikis. boyd [2007] gives another definition of social networking sites as: 'web-based services that allow individuals (1) to construct a public or semi-public profile within a bounded system, (2) to articulate a list of other users with whom they share a connection, and (3) to view and traverse their list of connections and those made by others within the system'.

Social media are defined as network structures where people are connected together. Any activity they do in the network, for example: follow, forward, like, link, rate, review, reply, comment, and send, is consider a network edge [Smith, 2014].

On the other hand, Kaplan and Haenlein [2010] define 'social media' as 'a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user-generated content'. Therefore, social media are just like other media, a means of communicating and exchanging information. Social media offer the opportunity to create or disseminate facts, opinions, arguments etc. in many forms (video, audio, image, text), i.e. social media are the platform and provide the tools for self-expression in various forms. Groups of people with common interests are associated together on social media [SocialMediaToday, 2010]. Clearly the term 'social networking sites' and 'social media' are used interchangeably.

The social technographical ladder

People are using social media for different purposes and at different levels. Forrester Research Company [Li and Bernoff, 2011] has categorized the users of social media into seven categories and this is called the social technographical ladder (Forrester.com). Below is a table of the social technographical ladder [Li and Bernoff, 2011].

Table 1: the social technographical ladder (adopted from [Li and Bernoff, 2011])

Type of users	Activities
Creators	o Publish a blog o Publish your own web page o Upload videos you created o Upload audio/music you created o Write articles or stories and post them
Conversationalists	o Update status on a social networking site o Post updates on twitter
Critics	o Post ratings/reviews of products or service o Comment on someone else's blog o Contribute to online forums o Contribute to/edit articles in a wiki
Collectors	o Use RSS feeds o Vote for web sites online o Add tags to web pages or photo
Joiners	o Maintain profile on a social networking site o Visit social networking sites
Spectators	o Read blogs o Listen to podcast o Watch video from other users o Read online forums o Read customer ratings/reviews o Read tweets
In-actives	o None of the above

This research was based on the social technographical ladder which is highlighted in Table 1, to measure the impact of social media usage on one's self-esteem.

Self esteem

Self-esteem can be defined as positive self-evaluation or a broader concept of confidence. Positive self-evaluation indicates high self-esteem and negative self-evaluation indicates low self-esteem, this influencing the actions or the attitude of the person. Those who have high self-esteem follow goals actively and aggressively [Suzuki and Shunsuke, 2013].

Furthermore, self-esteem refers to the self or to specific areas of the self, for example their feelings regarding their social standing, their belongingness to a particular ethnic group, their jobs or school performance, their physical appearance, and so on [Wills-Herrera, 2014].

Self-esteem is very important in adolescence because without it or without sufficient amounts of it, the risk of a variety of adverse life outcomes will increase, including mental illness, substance abuse, aggressive and violent behavior, and early pregnancy and parenthood [Boden, 2011].

The Relationship between Social Media Use and Self-Esteem

Some earlier research found that there is a positive relationship between social media use and self-esteem when focusing on close friends and strong ties [Wilcox and Stephen, 2013] and the users had lower self-esteem when there was no interaction with social media [Jonas, 2013]. On the other hand some researchers could not identify the relationship between the use of social media and self-esteem. For instance, a study conducted with Asian international students found that the results of self-esteem correlated with academic achievement, and were not driven by excessive social media usage [Wu, 2013]. Furthermore, a study shows that certain personality traits have a strong effect on self-presentation on social media than self-esteem, because the big five personality traits (Openness, Conscientiousness, Extroversion, Agreeableness, and Emotional Stability) correspond well with

functions of social media. This conclusion was reached by observing Facebook and Twitter users based on the number of posts they did and the time they spent on these accounts [Zhang, 2015].

Another study measured the relationship between time spent engaging in social networking and individuals' self-esteem. The results indicated that individuals with lower scores on the Rosenberg Self-Esteem Scale spent more time on Facebook [Turner-August, 2015].

Another study has shed light on the behavior of online users, where it showed a possible relationship between the high usage of social media and higher levels of self-esteem [Crowell, 2015].

Research gap

The way people interact on social media differs from one person to another; consequently their self-esteem will be different. The previous studies focus on time spent on social media and its effect on self-esteem. Some of the studies focus on the type of social media used and the behavior of online users but they do not specify which types of activity the users are performing. Therefore, this study is aiming to categorize the users of social media based on the activities that they are performing most on social media. Then, the study will try to find the relationship between the different categories of social media user and their self-esteem through the following hypotheses.

Research hypotheses

In her article 'Improve your self-esteem with journaling' Fryer stated that you can increase your self-esteem by writing about positive things that are happening to you and, by concentrating on the positive, will end up by valuing yourself more [Fryer, 2016]. According to Forrester's research [Li and Bernoff, 2011], writing articles is one of the characteristics of creators social media users. Thus, it was hypothesized:

H1: Creators of social media possess high self-esteem.

Another study found that people who update their status frequently on social media received more social support from their followers [Keith Hampton, 2012]. Furthermore, Ma in his articles 'Understanding the psychology of twitter' [Ma, 2009] talked about the Maslow hierarchy of needs. He said that Twitter fails to meet people's social needs because people who tweet need to fulfill certain needs such as the need to belong and to be cared about. Once these needs are fulfilled people move to the higher level of the Maslow hierarchy of needs, which is self-esteem. Therefore, posting updates on Twitter will increase their self-esteem [Ma, 2009]. According to Forrester's research [Li and Bernoff, 2011], people who update their status on social media and post updates on Twitter are the conversationalists. Therefore, it was hypothesized:

H2: Conversationalists possess high self-esteem.

Yet another study found that commenting and discussing on online forums can promote your self-esteem. Consequently, your offline life will be positively affected [Rosenberg, 1979]. According to Forrester's research, commenting and contributing to online forums are the characteristic of critics. Therefore, it was hypothesized:
H3: Critics possess high self-esteem.

According to Forrester's research, tagging people to photos is a characteristic of social media users who are collectors. A study searched for the motivations of using tagging among people and found that people used tagging for being able to search and find people in the future, to express themselves and to comment on resources provided by others [Sa and Yuan, 2013]. Referring to collectors, commenting has a positive effect on self-esteem. Thus, it was hypothesized:
H4: Collectors possess high self-esteem.

An article by Westerholm (2013) stated that Facebook had a negative effect on self-esteem. This conclusion come from a study conducted on a group of people to measure their self-esteem while

visiting social media sites. It was found that, no matter what they were doing or how many friends they had, their self-esteem was still low [Westerholm, 2013]. Those who visit social media sites are called joiners. Thus, it was hypothesized:
H5: joiners possess low self-esteem.

Comparing your life with the life of other people through social media has negative effects on self-esteem [de Vries and Kühne, 2015]. When people read what others post and update in their profile, they feel less satisfied with their lifestyle, and consequently they will have low self-esteem [Williams, 2015]. Another study found that people have low self-esteem when exposed to other people's accounts who in contrast are posting positive updates and feeds [Tandoc Jr et al., 2015]. For instance, Instagram is based on photos that people share about their vacations or achievements. People who expose themselves to those photos think that other people are happier and more successful in their lives than they are [Winter, 2013]. People who view other's accounts and read their posts are called Spectators according to Forrester's research [Li and Bernoff, 2011]. Thus, it was hypothesized:
H6: Spectators possess low self-esteem.

Facebook has a negative effect on passive users who are not engaging in any activates such as sharing, liking and commenting [Highland, 1981]. Moreover, in a study conducted on a control group to measure their self-esteem while they used Facebook without participating in it found that those people had low self-esteem at the end of the study [Tobin et al., 2015]. The people who are not participating or carrying out any activities on social media are called 'In-actives'. Therefore, it was hypothesized:
H7: In-actives possess low self-esteem.

Research Methodology

The objectives of the study are to investigate the different types/categories of social media user and to investigate the relationship between using social media and its effect on self-esteem. To achieve this, certain steps have been taken. First of all, an intensive literature review has been carried out in order to understand the concept of self-esteem as well as to investigate the characteristics of social media, and the different types/categories of social media user. Based on this investigation a conceptual research framework was built, as shown in Figure 1 below.

Secondly, a research instrument (questionnaire) was designed and a pilot study was conducted to check the validity of the instrument. The main study was then conducted amongst the social media users in Oman to elicit information about the different types/categories of social media user based on the social technographical ladder, and their self-esteem according to the Rosenberg self-esteem scale [Rosenberg, 1979].

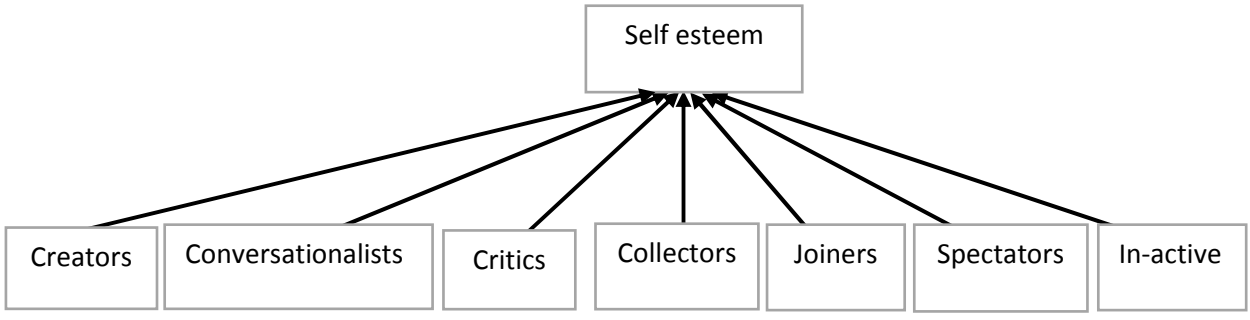

Fig 1: Research Conceptual Framework Diagram

The Rosenberg self-esteem scale

The Rosenberg self-esteem scale was developed by Morris Rosenberg [Rosenberg, 1979] to measure the self-esteem of people [Rosenberg, 1979]. It consists of a 10 item Likert scale type. It has five points scale ranging from 'strongly disagree' to 'strongly agree'. Five questions were positively worded statements and the other five were negatively worded. The self-esteem was then measured as follows:

- For Items 6, 7, 9, 11, and 12, ('Strongly agree' = 5, 'Agree' = 4, 'Neutral' = 3 , 'Disagree' = 2, 'Strongly disagree' = 1)
- For Items 8, 10, 13, 14, and 15, ('Strongly agree' = 1, 'Agree' = 2, 'Neutral' = 3, 'Disagree' = 4, 'Strongly disagree' = 5)

The score for each item was calculated. The total scores ranged from 10 to 50, and it was suggested that those who got a score of 30 and above had high self-esteem and those below that score had low self-esteem. The Rosenberg self-esteem scale was used in this study due to it's wide acceptance among researchers, for the brevity, reliability and validity of its results.

The research methodology that was adopted in this research is illustrated in Figure 2 below.

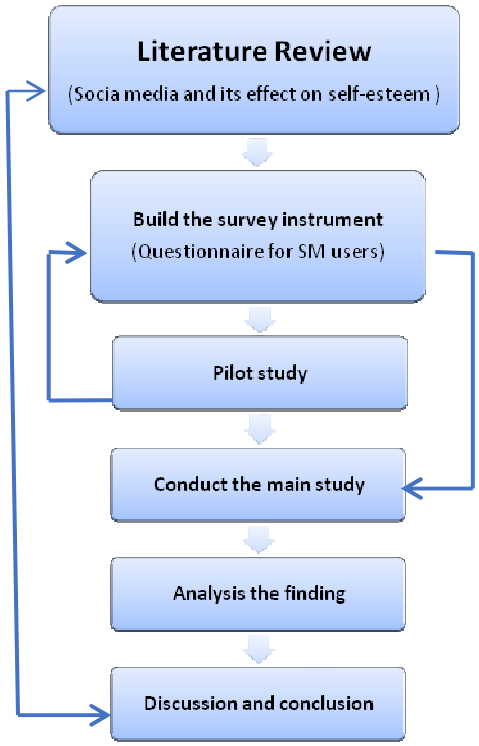

Fig.2: Research methodology diagram

The participants of the research were Omani people from different regions who were using different kinds of social media. The link of the online questionnaire was distributed via one of the social media (e.g.Whatsapp) using the snowballing method.

Data Analysis

The data were collected through the online survey. 97 social media users participated in this survey, 75.3% being female and 24.7% male. Table 2 shows general information about the participants.

Table 2: participant's demographic

		Frequency	%
Gender	Female	73	75.3
	Male	24	24.7
Age	<18	2	2.1
	18-30	73	75.3
	31-45	21	21.6
	> 45	1	1.0
Location	Al-Batinah	7	7.2
	Al-Buraimi	2	2.1
	Al-Dahera	52	53.6
	Al-Dakhileia	6	6.2
	Al-Sharqia	5	5.2
	Dhofar	8	8.2
	Muscat	17	17.5

The survey let the participants choose which category described them most accurately as a social media user. Table 3 shows the different categories of social media users.

Table 3: Social media users

Groups	*Frequency*	*(%)*
Creators	5	5%
Conversationalists	17	18%
Critics	7	7%
Collectors	8	8%
Joiners	12	12%
Spectators	39	40%
In-actives	9	9%
Total	97	100%

The statistical analysis used in this paper is ANOVA analysis. The output of the ANOVA analysis shows that there is no statistically significant difference between group means as determined by one-way ANOVA (F (0.436) = 6, p = .853).

Table 4: ANOVA Table

		Sum of Squares	df	Mean Square	F	Sig.
Self-esteem * SM users	Between (Combined) Groups	80.408	6	13.401	0.436	0.853
	Within Groups	2768.953	90	30.766		
	Total	2849.361	96			

Table 5 shows whether self-esteem is high or low for each category of social media user. All 'Creator' social media users have high self-esteem. So, too, do almost all Spectators and a significant majority of Conversationalist and Inactive users, whereas the self-esteem of Critics was more evenly balanced between high and low. However, overall over half of the users had high self-esteem.

Table 5: self-esteem (H indicates high self-esteem; L indicates low self-esteem)

Groups	*H (%)*	*L (%)*
Creators	100%	0%
Conversationalists	76%	24%
Critics	57%	43%
Collectors	63%	38%
Joiners	83%	17%
Spectators	90%	10%
In-actives	78%	22%

Discussion and Conclusion

This research aimed to investigate the different types/categories of social media user and to examine the relationship between different social media users and how social media affects their self-esteem. The research found that most participants were 'Spectator' social media users, while the least number of participants were from the 'Creator', 'Critic' and 'In-active' categories (see Table 3).

Upon analyzing the self-esteem of each category of social media user, the results revealed that all types of social media user (Creators, Conversationalists, Critics, Collectors, Joiners, Spectators and Inactives) indicated that they had high self-esteem. Therefore, the research hypotheses H1, H2, H3 and H4 were accepted, while H5, H6 and H7 were rejected.

Some of the limitations of the study reside in the number of participants. Also, the self-esteem study depends on self-reporting by individuals, so that there is a possibility that the participants are not accurate in their evaluation of themselves.

In brief, there are different categories of social media user. However, it is indicated that the use of social media has a positive effect on self-esteem, whether the users were active or passive in their use of social media.

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Health and Hygiene Risks of Water and The Impact on Public Health

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Abstract

Within the context of public health protecting in the Czech Republic, the key law is the the law no. 258/2000 Coll.: "On protection of public health and amending certain related laws, as amended". To Human health is important to ensure quality and safe drinking water. The most important and comprehensive European Union's legislation is Water Framework Directive (2000/60/EC) of the European Union, which applies to all waters. The Czech Republic's or eventually European Union's population health status is influenced by a quality of drinking water, and water used for various purposes as well. The water is polluted by various substances, including remnants of drugs. The presented professional contribution is focused precisely on this subject, including some basic legal standards.

Keywords: European Union, Czech Republic, risks, drinking water, public health

Introduction

Act no. 258/2000 Coll. On protection of public health and amending certain related laws, in its basic concepts defines, among others, the notion of public health, public health risk assessment and more.

For human health is important to ensure safe drinking water. (*Rak Jakub, Jurikova Lucie, Sevcik David 2013).* Now mentioned Law on Protection of Public Health states that drinking water is all water in its original state or after treatment, which is intended for drinking, cooking, preparing food and drinks, water used in food industry, water, which is designed to body care, cleaning objects which by design come into contact with food or human body, and for other purposes of human consumption, regardless of its origin, state and manner of its delivery. Hygienic requirements for safety and purity of drinking water (hereinafter referred to as " the quality of drinking water ") is determined by hygienic limits of microbiological, biological, physical, chemical and organoleptic characteristics, which are regulated by the implementing regulation. *(Zákon č. 258/2000 Sb., o ochraně veřejného zdraví a o změně některých souvisejících zákonů). (Strohmandl Jan, Weinbergerova Silvie, Masek Ivan, Safarik Zdenek a*nd *Miroslav Tomek. 2015). (Strohmandl Jan, Tomek Miroslav, Masek Ivan and Taraba Pavel. 2015*). In terms of the European Union represents the Water Framework Directive (2000/60/EC), dated 23 October 2000, the most significant and comprehensive legislation in the area of water. The Water Framework Directive covers all waters - inland surface water, groundwater, transitional and coastal waters. Establishes the principle of a Europe-wide integrated approach for issues related to water quality and quantity, and regarding the issues of surface water, groundwater and for the water management the Directive introduces a management principle based on the unit of the river basin - in the Czech Republic this principle is implemented since the 60s of the last century. Water is therefore considered as a coherent whole. The primary objective of this policy is to achieve a "good status". *(Směrnice. Vodní rámcová směrnice 2000/60/ES).* To protect the population need to secure clean water. If this is not possible, then deal

with emergency supply residents with water. *(Musil Miroslav, Ludek Lukas a kolektiv. 2014). (Rak Jakub, Vicar Dusan, Tomek Miroslav, Svobodova Blanka 2015).*

Health and hygiene risks of water and the impact on public health

One of the problem areas that occurred in relation to the issue of drinking water in the Czech Republic are the remnants of pharmaceuticals in drinking water. Due to the reports of a possible presence of residues of pharmaceuticals in drinking water in the Czech Republic , which appeared in the media, the National Health Institute made its first horizontal mapping of pharmaceuticals in drinking water. In this first population-based screening of human pharmaceuticals in drinking water, carried out in 2009 - 2011 in a research project of GACR. „Occurence and health risks from human pharmaceuticals residues in drinking water ", five active substances were followed: naproxen, ibuprofen, diclofenac, carbamazepine and 17α - ethinylestradiol.

The substances were selected according their consumption greatest probability of occurrence based on the foreign and domestic findings or according the public anxieties based on media reports (the most feared hormone 17α - ethinylestradiol). The survey found that at the tap of the consumer , these substances occur very rarely, moreover in trace concentrations. In more than 100 sampled water supplies in three samples of two water pipes only, two of controlled substances were found in a concentration above the limit of quantification (LQ = 0.5 ng / l): three times it was ibuprofen (0.5 to 1.2 ng / l), one of carbamazepine (4.0 ng / l). When sampling in hazardous areas , that means at 23 water treatment plants that draw raw water to the middle or lower reaches of rivers , which are laden by wastewater , in the treated water at the plant outlet at 19 sites they were found one to three substances above the limit of quantification. Most seizures were with ibuprofen (16), followed by carbamazepine (11), naproxen (8) and diclofenac (3); concentration ranged from 0.5 to 20.7 ng / l, with medians below 6 ng / l. In the distribution network , however, they were collected from a values much lower, partly due to mixing with a ground water, probably partly due to chemical oxidation with chlorine.Amount of 17α - ethinylestradiol was in all samples under the limit of quantification (i.e. less than 0.5 ng / l, respectively less than 2 ng / l). For exposure to the detected amounts there is no known health risk because so-called Margins of Exposures comparing minimum daily therapeutic dose and a daily intake from drinking water, are in the order of thousands (7.5 x 10^3) 17α - ethinylestradiol (for exposure used theoretical value at the mid of LQ), respectively. in the order of 10^6 to 10^8 for other controlled substances .Favorable findings relate primarily to the structure of sources of water used for public supply in the Czech Republic, where half the water is produced from groundwater and most of the surface water is taken from protected reservoirs on the upper reaches of rivers. *(Státní zdravotní ústav (odpovědný řešitel za SZÚ: MUDr. Kožíšek). Grantová agentura ČR / číslo projektu: 203/09/1583. Výskyt a zdravotní rizika zbytků humánních léčiv v pitných vodách).* Based on the results of analyzes from 24 countries around the world, these showed that in some areas, particularly in the deltas of major rivers, the small remnants of drugs in water under certain circumstances may occur. Their condition is currently so low, that it becomes practically unmeasurable and can not have a concrete impact to human health . A statement that the water may contain residues of drugs is thus primarily psychological significance, not health. Drug consumption in the EU is constantly rising. Daily are utilized million packs of tenthousands drug kinds. They contain about 300 different active substances. Most often these substances are antibiotics, antidepressants, drugs for diabetes, hormonal contraception dampening pain or inflammation, cytostatics, beta blockers etc. The compounds of these drugs in the human body undergo metabolism. Some of them, however, are from the body still in active status excluded. On the other hand, many people destroys drugs with expired consumption by flushing it to toilet or throwing into the trash. According to the British research ends up in the garbage up to two thirds of expired medicines, into waste water gets up to fifth. Another possible form of water pollution by drugs are seepingfrom poorly secured landfills. To a lesser extent in some locations the pollution may be caused from waste or leaks during the process of pharmaceuticals production. In addition to human pharmaceuticals may be a partial answer to the water pollution as well the drugs applied to farm or domestic animals. In the process of waste water cleaning are substancesin medicines removed only partially, and in some cases hardly at all. In this way pharmaceuticals reach the surface and sometimes underground water, some of which may be a source of drinking water.

The ratio of drug concentrations at the inlet and outlet of the sewage treatment plant enables to identify pharmaceuticals that are removed during the cleaning proces at least. Regarding to the characteristics of these substances can not be assumed that their removal will occur during standard processes for drinking water treatment (aeration, sand filtration, disinfection etc.). More effective is absorption of the substances on activated carbon and ozonation. Even these processes, however, can not remove all of the pharmaceutical substances. To the presence of pharmaceutical residues in raw drinking water, the manufacturer must respond by adding a suitable degree of water treatment technology, if there is no other source of raw water. As an example can be used a water treatment plant in Amsterdam (Holland), where the source of water is located in an estuary of the Amstel river and an effective step in this water treatment plant is the membrane filtration (*Mohou nás ohrozit léčiva v pitné vodě?).* The question of the extent of water pollution by pharmaceuticals was gradually gaining more and more international attention.The project KNAPPE realised in 2008, (Knowledge and Need Assessment on Pharmaceutical Products in Environmental Waters) has mapped the occurrence of pharmaceuticals in the aquatic environment, totally 181 agents in 24 countries. The project was to process 58,600 data details, out of which the average value of a measured environmental concentration (MEC) was determined. The highest rate of pharmaceuticals water pollution was recorded in Germany. Out from all the data contained in the KNAPPE database, the vast majority relates to surface waters. Only 11% refers to the groundwater and 2.2% alone to drinking water. For the method of assessing the extent of the share of pharmaceuticals in drinking water and their potential risk still exist different approaches.

Any assesment method is chosen,while considered a worst-case exposure scenario, for any of evaluated substances was identified health risk in the context of detected concentrations in drinking water. In rare cases, the result can be described as nearly a borderline, but mostly the gap in several orders of concentration was identified, which could be described as human health affecting. However, data based on surveys abroad, can be used in the Czech Republic only partially. The volume and structure of pharmaceutical drugs consumption, the proportion of surface and groundwater use for drinking water production and water treatment used technologies varies from country to country considerably. It is therefore necessary to continue intensively in dealing with this issue in the Czech Republic. So far it is obtained very little data, mostly out of the locations which do not serve as a source for drinking water. In autumn 2009, was realised extraordinary analysis of water in Prague, where in addition to standard and regular checks of drinking water, the samples were also subjected to extensive testing on content of pharmaceuticals.

According to the analysis conducted by an accredited laboratory of state enterprise Vltava River basin - VHL Plzen, in all collected water samples, the compound of medicinal substances was in a such small quantities, that it was impossible even to determine them exactly. Laboratory samples were available from the water treatment plant Želivka of waterworks Káraný and directly from Prague's water supply, as well. (*Mohou nás ohrozit léčiva v pitné vodě?).* One of the kinds of substances that remain in the water after cleaning,are so called “PPCPs” (pharmaceuticals and personal care products)- the active ingredients of drugs. These are artificial, to the nature environment foreign substances (xenobiotics), whose degradation is problematic. They can be found in commonly used detergents, personal care products and of course in medicines. These active ingredients remain active even after they get into the waste water and then into the water cyrcle. There even in small quantities can cause great damage. Other unpredictable effects can arise by their synergistic effects or long-term accumulation in the environment. PPCPs problem is relatively new.

The boom of the pharmaceutical industry in its current form broke out after World War II. Mass drugs and personal care products use is the result of contemporary highly - developed civilizations ,for example we can mention Ibuprofen, the active ingredient in a variety of painkillers. Ibuprofen belongs to one of the most common used substances. Annual consumption in the Czech Republic is about 200 tonnes (plus about 10 tons of pure ibuprofen from illegal drug factories). Ibuprofen provides high stability and it is very difficult to be captured in a wastewater treatment plant. In the past, there were traces of ibuprofen captured in surface and ground waters. Small amounts of ibuprofen was measured recently in the tap water. Currently, however, not the amount that would endanger human health. Another group consists of antibiotics which are decomposed by UV radiation.This method is costly and it is uncertain what effect on other substances contained in the water it would have, therefore in sewage treatment plants it is not commonly used. Antibiotics used

in human and veterinary medicine and in various stages of decomposition penetrate into water and soil. Antibiotics present in the water and sludge deposits in addition reduce the effectiveness of friendly bacteria responsible for decomposition and nutrient cycling. Antidepressants in the Czech Republic in comparison to other countries do not use so often yet.Hormonal contraceptives are a separate group of drugs. They belong to a group of EDC (endocrine disrupting compounds) - substances that can interfere with glandular activity. In this case are meant, substances with estrogenic activity. This means that they imitate the behavior of the hormone estrone. Hormones were the first recorded physiologic substances in waters draining out of sewages. *(Veronica. Ekologický institut).*

Conclusion

This was only a brief overview and an excursion to the issue of drinking water, need to secure the high-quality of drinking water for the population of the Czech Republic , but also the European Union, if we talk about this issue only in a part of Europe. In terms of legislation I mention the basic standard, which is the Act no. 258/2000 Coll. “On the protection of public health and amending and supplementing some related laws”. Implementing legislation for the law On the protection of public health and amending certain related acts can be found in other source. *(Česko. Zákon č. 258/2000 Sb., o ochraně veřejného zdraví).* Under the term water treatment is understood the pollution elimination of the raw water, so as to obtain drinking water, that is sufficiently clean and suitable for human consumption. Regulation of the World Health Organization (WHO) are worldwide generally perceived as the requirements on drinking water quality. In addition to the WHO regulation, each country or region is able to apply their own standards. European countries must abide by the EC Drinking Water Directive. Selection of water treatment methods generally relate to the nature and availability of water resource and the standards set by local authorities. *(Pitná voda. Standardní model - chemická úprava). (Tomek Miroslav, Strohmandl Jan a Jakub Rak. 2014).* Decree no. 252/2004 Coll . in accordance with European Community law establishes hygiene limits for microbiological, biological, physical , chemical and organoleptic indicators of the quality of drinking water, including drinking water, bottled water, hot water supplied by piping, hot water or indoor water pipes, which are structurally interconnected using mixing water pipe with water supply pipe of drinking water and the hot water produced from an individual source for the personal hygiene of staff. The Decree also establishes the scope and frequency of checking compliance of drinking water quality, as well the requirements for methods checking the quality of drinking water. Drinking water must have such physico - chemical properties, that do not pose a threat to public health. Drinking and hot water should not contain micro-organisms, parasites and substances of any kind in the number or concentration that could endanger public health. Indicators of the quality of drinking water and hygienic standards are listed in Annex no. 1 of the Directive. For raw or drinking water, in which the treatment process is artificially reducing the content of calcium or magnesium, the magnesium content may not be after treatment of less than 10 mg / L and a calcium content of less than 30 mg / l. Radiological indicators of drinking water and their limits is determined by special legislation. This legislation regulates the sampling of drinking water and the sampling points. Samples of drinking water, are taken to a control in a manner so that they are representative of a drinking water quality consumed throughout the year and for the entire water supply network, as well. The number of sampling points must at least be equal to the number of shortened analysis according to Annex no. 4, by water supply systems supplying more than 5,000 inhabitants, the number of sampling points must be equal to at least 80% rate of shortened analysis according to the Annex no. 4. The sampling sites should be selected so that more than 50% of the sampling sites were not permanent, but changed each year. Changing sampling points shall be chosen by random selection or any other suitable method that ensures that none of the buildings supplied will be excluded from the possibility of control. Sampling of drinking water is done in places where they should be met water quality requirements (§ 8). In the case of antimony, arsenic, benzene, beryllium, boron, bromates, nitrates, fluorides, chlorides, cyanides, microcystin LR, ozone, pesticidal substances, mercury, selenium and sulfates in which it is not anticipated that their concentration could during distribution between the converter and the point of consumption increase, can be samples of drinking water taken either at the plant outlet

or at appropriate places of water supply network , such as reservoirs, if it demonstrably do not produce changes in the measured values of the indicator. (*Česko. Zákony. Vyhláška č. 252/2000 Sb*.).

Law no. 378/2007 Coll., on Pharmaceuticals, as amended in §88 and §89 provides operators of pharmacies obligation takeover of unusable drugs and drugs of unsatisfactory quality,with expired shelf life, stored or prepared under other than specified conditions, obviously damaged or unused (unusable drugs) must be disposed off, including their packaging, so as not to endanger human life and health or animal health or the environment. When handling unusable drugs shall be treated as the handling of hazardous materials, including lead their evidence under special legislation. Unusable transfusion products and products for advanced therapy, are disposed off as waste, whose collection and disposal is subject to special requirements in order to prevent infection.Disposal of unusable pharmaceuticals are conducted by legal persons or individuals on the basis of consent granted by the regional authority in delegated competence or, in the case of radiopharmaceuticals, by the State Office for Nuclear Safety. About granting consent informs the authority which granted the approval, the Ministry of Health , in the case of human medicine, or the Ministry of Agriculture in the case of veterinary medicine, and communicated information includes the name of the process equipment serving the disposal of unusable drugs, operated by a legal person or an individual.Operators are obliged to hand over unusable pharmaceuticals to the persons referred to §88 paragraph 3. Unusable medicines handed over by individuals to the pharmacy, must be accepted and the pharmacy is obliged to overtake them. The costs arised to a pharmacy to drop off drugs to persons referred to in §88 paragraph 3. and with their removal executed by these persons, is paid by state through the regional office. (*Státní ústav pro kontrolu léčiv. Převzetí nepoužitelných léčiv k likvidaci*). It should be noted that the relevant legislation in this area are for example: Law no. 185/2001 Coll., On waste, the Decree no. 383/2001 Coll., On details of waste management, and law no. 500/2004 Coll., Administrative Procedure Code, and more. Although the situation of water pollution in the Czech Republic through the drug residues is not alarming,it should be noted that this situation may become an important society-wide risk and may result in a significant deterioration of the health status of our population. Contamination of drinking water affects the production of safe food, beverages and quality of the environment on our planet. *(Lukaskova Eva, Pitrova Katerina, Taraba Pavel a Helena Velichova. 2015). (Chlachula Jiri, Sefcik Vladimir a Eva Lukaskova. 2012).*

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Continuous Auditing - The Future of Internal Audit?

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Abstract

Internal audit departments are more than ever before pressured to reduce costs and become more efficient. The use of IT has proven to be a suitable means to achieve this efficiency gain, but also holds limits in the audit area. One approach which tries to overcome these limits and has gained popularity over recent years is the concept of continuous auditing. Continuous auditing deals with the highly frequented or even continuous testing of diverse business activities by means of identifying exceptions or abnormalities, partly with assistance of technology. It may be applied to any kind of data and helps the auditor to focus his manual audit activities on areas with high risk. Despite its potential, we find that companies refrain from using continuous auditing on a large scale which is supported by a range of other studies. This is mostly because of its high implementation efforts and the limited availability of corporate data in digital form. Still, continuous auditing represents a promising supplement to traditional auditing which may more and more enter daily audit practice and change auditors' operational work towards a more automated, risk-oriented approach in near future.

Keywords: continuous auditing, internal audit, internal controls, risk management

Introduction

Although the general focus of internal audit work and its underlying objectives have more or less remained the same, auditing methods used by internal audit departments have advanced over time. Latest developments as the growing digitalization of business operations and the growing extent and diversity of data handled in these operations require from auditors to adjust their audit work and make use of sophisticated methods to handle these challenges. The usage of IT as audit support mechanism has become popular among the audit functions of many companies over the last decades and looks back at a considerable development.

The first steps towards IT usage in internal audit were already made in the 1960s when companies started developing and implementing audit modules which were embedded in legacy systems. As IT was a relatively young topic back then, administration of embedded audit modules was both costly and challenging. Therefore usage was not very wide-spread.

In the 1980s, computer-assisted audit tools and techniques (short: CAATTs) gained in popularity and were used for data analyses and ad hoc investigations. To a large extent, however, the audit profession lacked technical skills, suitable software tools, as well as the organisational will the overcome the challenges coming alongside with this new audit approach.

In the 1990s data analytic solutions were introduced and increasingly used by the internal audit function to verify data and controls. Despite the solutions' potential to analyse data and control on a large scale, auditors refrained from testing whole populations and kept relying of samples (Coderre, 2005).

Nowadays, companies are pressured to reduce costs wherever possible more than ever before. As this development applies to all departments of companies, internal auditors have to find efficient

solutions to reach their audit opinion without a loss in quality. The growing amount of corporate data and its increasing heterogeneity makes this task even more challenging.

One audit methodology which tries to tackle this challenge and increasingly enters businesses' practice is the concept of continuous auditing (short: CA). CA deals with the highly frequented or even ongoing testing of diverse business activities by means of identifying exceptions or abnormalities, partly with assistance of technology. The auditor is thereby directed to areas of increased risk for further (manual) audit activities. Areas without noted exceptions are left out of consideration for further actions. Thereby, it is possible to audit the full extent of a population (instead of only a sample as under the traditional audit approach). By this significant change in the audit approach itself, CA aims at leveraging internal auditing to a higher maturity level.

The academic article at hand focuses on the question in how far CA represents the future way of auditing. It will elaborate on the components of CA, its aims, its subareas, as well as its advantages and disadvantages. Also, it will explore where companies currently stand on their way from traditional auditing to continuous auditing.

Continuous Auditing in detail

Definition

The concept of CA was first introduced by Groomer and Murthy (1989) as well as by Vasarhelyi and Halper (1991) about 25 years ago. According to CIPA/AICPA (1999), this concept covers "a methodology that enables independent auditors to provide written assurance on a subject matter using a series of auditors' reports issued simultaneously with, or a short time after, the occurrence of events underlying the subject matter".

This definition implies several aspects. Using CA in an effective way presumes that the subject matter to be audited has previously been analysed in its design and that appropriate auditors' reports have been identified. Auditors' reports thereby take the form of measuring points (e.g. key performance indicators (short: KPIs), key risk indicators (short: KRIs)) and may focus on a set of selected controls, risks, or on data in general to verify a specific subject area. For each measuring point, target values need to be in place in order to serve as reference values for the factual measurement results at a later point in time. Both measuring points and target values have to be set in a way in that they enable the auditor to make proper conclusions about the subject matter's state. As this preparatory work is rather time- and cost-intense, it is advisable to concentrate on the most critical subject matters only and to choose not more measuring points per subject matter than ultimately necessary. Thereby, the specific amount of measuring points largely depends on the complexity of the subject matter and the degree of assurance to be achieved by the auditor.

The aim of providing written assurance to an addressee (usually top management, the board of directors, or the audit committee as part of the board of directors) as quoted in the definition of CA is the same as under any other audit approach. Also, the definition leaves open the degree of assurance to be provided. In general, assurance provided by continuous auditing may be reasonable or limited. However, due to the high initial input to implement CA, it is advisable to aim for limited assurance only and to complement CA with additional audit activities to achieve a higher level of assurance.

The definition also implies that auditors' reports are issued (i.e. evidence is gathered) simultaneously or shortly after the occurrence of events underlying the subject matter. Therefore, measurement of subject matter may need to take place in a highly frequented, if not continuous manner. CA per definition does not require IT to support the audit process, but computer assistance during the measurement process is highly recommendable to keep the methodology time- and cost-efficient.

In contrast to traditional auditing which features periodic reviews of only a sample of a subject matter, continuous auditing covers an ongoing audit testing of 100 % of all relevant data of a subject

matter. Thus, it provides auditors with an opportunity to go beyond the limits of traditional audit approaches and the limitations of sampling (Chan and Vasarhelyi 2011).

Subareas
According to Vasarhelyi (2011), CA comprises three subareas:

- Continuous Data Assurance
- Continuous Controls Monitoring
- Continuous Risk Management and Assessment

Continuous Controls Monitoring covers the ongoing assessment of internal controls. These controls may originate from different departments as finance, IT, accounting, or personnel and may cover different hierarchy levels. By using Continuous Controls Monitoring, the auditor obtains an early indication about the existence of potential weaknesses in theses departments, as well as in the departments' structures and processes. To identify any weaknesses, KPIs are used to measure whether controls have been executed and whether the execution was performed in line with time targets (Vasarhelyi, 2011).

Continuous Risk Management and Assessment refers to the activities used by auditors to identify and assess the levels of risk or changes to the level of risk. Thereby, KRIs (rather than KPIs) measure abnormalities in departments, processes, or IT systems. Most importantly, these KRIs need to be of forwards-looking character, i.e. they indicate developments which may cause a risk to arise or to change negatively in near future (Vasarhelyi, 2011).

Continuous Data Assurance includes all other activities by auditors to verify data on an ongoing basis. In most cases these analyses feature data at transaction or account level, but may also cover data from more aggregated levels. Thereby, Continuous Data Assurance uses KPIs to identify undesired developments in chosen subject matters which are not primarily considered as control or risk, e.g. continuous scans of master data changes, authorizations and parameters in IT systems, or transaction data (Vasarhelyi, 2011).

Due to the wide range of application areas, also the aims of CA can be manifold. In general, CA can follow the same objects as ordinary audits (e.g. financial audits, operational audits, compliance audits, forensic audits). Thereby, the ability of an internal audit department to rely of CA largely depends on the digital availability of subject matter data as well as of the objectives to be achieved by the audit (Abdolmohammadi and Sharbatouglie, 2005; IIA, 2013).

Procedure
Several approaches have been discussed in literature to introduce and operate CA. These range from high-level phase models to delicate process flows (e.g. Abdolmohammadi and Sharbatouglie, 2005; Mainardi, 2011; IIA, 2015). Few of these approaches also consider CA as some kind of ongoing cycle (e.g. Yeh and Shen, 2010). To work effectively, changes to companies as well as to their internal and external environments need to be accounted for frequently when using CA. Therefore, we agree with Yeh and Shen that CA is an ongoing cycle which constantly identifies potential for its own optimization.

Irrespective of the specific subarea CA is used for or its individual objective, this cycle approach can be broken apart into four phases following the plan-do-check-act cycle.

The *Plan*-phase is of decisive importance, especially during the first-time introduction of CA. During this initial phase, objectives to be achieved as well as the desired level of assurance to be obtained by using CA should be defined. Also, the subject matters to be analysed by CA need to be determined. These can range from specific detail matters to processes, IT systems, or complete departments and corporate functions. Choices made should be based on a medium- to long-term, risk-oriented audit planning. Subject matters which usually require an increased level of manual audit activities may be preferably chosen for CA as these offer an increased potential for efficiency gains.

In accordance to the previously set objectives, measuring points (i.e. KPIs/KRIs) need to be defined for each subject matter. These represent the basis for measurements performed at a later phase. The definition of KPIs/KRIs usually turns out to be a challenging task as their quality directly influences the explanatory power of CA results. As KPIs/KRIs express a specific matter in condensed form, valuable information which would have been gathered during a manual audit, may be lost. Auditors therefore tend to compensate for this risk by defining a considerably high amount of KPIs. Contrarily, the administration (i.e. the actual measurement) of KPIs/KRIs binds financial resources and should therefore be limited to a minimum. Thus, a general amount of measuring points is difficult to state as the extent of KPIs/KRIs depends on the complexity of the subject matter and the desired degree of assurance. To find a suitable solution, it is advisable to analyse the subject matter in its design before designing measuring points.

Moreover, appropriate measurement frequencies for data transmission need to be set. These do not necessarily be perfectly continuous, but should be in line with the CA objectives.

For each KPI/KRI, target values need to be defined which will later be used as reference to measured values. These target values should be set in a way that they allow the auditor to make meaningful conclusion about the audited subject matter. If target values are set too high or too low, exceptions may either me identified in excess (so-called *false positives*) or may not be identified at all.

Follow-up activities which are to be performed upon identification of an exception should be defined in this stage as well. In practice, it turns out useful to document these proceedings and provide them to the employees in charge of carrying out follow-up activities. Optimally, this documentation does not only include activities to be performed, but also points out responsibilities, time lines, etc.

The *Do*-phase includes the actual analysis and evaluation of data. In specific, KPIs/KRIs are determined based on collected data at previously defined points in time. The exact course of action depends on the previously set objectives and the extent of CA activities as well as on the company's technical capacity. It may comprise the following tasks:

- Data selection
- Data extraction
- Data storage
- Data harmonization
- Data preparation
- Data analysis

At first, required data needs to be identified at the place of origin. This identification may turn out to be rather challenging, if relevant data is part of a larger data set and not separated from irrelevant data. In this case, relevant data needs to be marked off before it can be used for further purposes. This delimitation may be based on different parameters (e.g. time, range, content, key words) and should be used to make the data selection as suitable as possible to what is needed for later analyses.

Selected data needs to be extracted and transferred to the entity performing the audit. Hereby, it must be ensured that original data is not changed and that only a duplicate of the original data is transferred. The audit entity may be an auditor (in case CA is performed manually), an audit module which is integrated in the legacy system holding the subject matter, or a separated audit system (Kuhn Jr. and Sutton, 2010). The transferal itself may vary from the auditor transferring data on a storage device to data being transmitted automatically via a technical interface between legacy system and audit module/system. Once transferred, data should be stored and not modelled in any way in the further process. Instead, data analyses should be done with further duplicates of the stored data. Before analyses may actually be performed, data needs to be prepared. This preparation may include steps as grouping, restructuring, or filtering. When data is drawn from different data sources or turns out to be heterogeneous by nature for any other reason, harmonization of data is an essential element

of this stage. Hereby, it is irrelevant whether CA is performed manually or automated (by means of an audit module or an audit system).

These single steps are not necessarily obligatory and may vary in order. If carried out manually, they steps usually turn out to be rather time-consuming. Using IT software to automate proceedings may therefore yield significant benefits.

After measurements have been made for each KPI/KRI, results can be compared to previously defined target values in the *Check*-phase. If tolerance levels were defined, these are to be considered accordingly. Depending on whether CA is performed in a manual or automated manner, results may be presented in various forms. In audit modules/systems, identified derivations between measured values and target values are usually shown as alerts. Some audit modules/systems also make use of traffic light diagrams (red, yellow, green) or two-level scales (pass, fail). Irrespective of the actual form, it is advisable to display results as clearly as possible to simplify identification of areas needing further attention.

Follow-up activities to be performed in the *Act*-phase may vary in form and extent and may range from analytical procedures to case-by-case activities as inspections, inquiries, observations, or reperformances. Findings won by these follow-up activities should be used for verifying previous results from CA activities as well as for reaching (or strengthening) audit opinions. Also, they should be used for optimising KPIs/KRIs, measuring frequencies, target values, and tolerance levels for future CA activities. Follow-up findings may also be useful to reevaluate subject matters' appropriateness for CA purposes. If adjustments are made to the CA methodology, corruption of previous results should be prevented.

CA adoption

Maturity models

In academic literature, some authors assume CA to be the ultimate maturity stage of internal audit (e.g. Chan and Vasarhelyi, 2011; Vasarhelyi, Alles, Kuenkaikaew, Littley, 2012). Thereby, the underlying assumption is that the internal audit function of a company matures over time and becomes more and more sophisticated in its structures and processes. Briefly speaking, maturity models used in literature mostly hold four (in some cases also five) stages, starting with uncoordinated audit activities and ending with strictly structured, automated audit activities (e.g. traditional – emerging – maturing – full continuous). To determine the maturity of an audit function and its belonging to a specific stage, several dimensions are quoted in literature. Among the most frequently mentioned dimensions are the following:

- Objectives
- Extent
- Time frame
- Data access
- Automation
- Audit and management overlap
- Diversity and management of audit subfunctions

The objective and the scope of auditing activities already give an indication about the maturity of an internal audit function. Traditional auditing usually includes a long-term planning which set forth single audits aiming at obtaining assurance about very specific subject matters. CA meanwhile aims at an area-wide coverage of a range of subject matters and only assumes detail testing to happen if exceptions are identified during previous CA analyses. Also, audit activities covering large data volumes may preferable be found in CA.

Traditional auditing is usually centred on drawing meaningful samples from a defined population. Therefore, audit results largely depend on the sample and may be distorted if sampling methods are

applied inappropriately or simply by sampling bias. CA overcomes these shortages by taking into consideration the full population and ensuring a 100% coverage.

The traditional audit approach may include periodic audits as well as irregular audits and ad hoc audits. Due to their nature, audit results are obtained some time after the event has occurred and therefore bear the risk of being obsolescent. Based on this time gap, unfavourable events may already have caused damage to the company without the auditor having the opportunity to counteract. CA, instead, is highly frequented or even follows a real-time frequency. Audit reports are provided to the auditor immediately or shortly after the event's occurrence. The auditor can therefore act on short notice and cure identified exceptions before it causes serious damage to the company.

The reputation of the internal audit function within a company largely determined the power it has over other departments and the extent it can push through its interest. Internal audit functions with limited internal power may face the problem of having only limited access to required data. This may be a result of other functions refusing to provide access or granting access only after formal requests (with upper management involvement) have been posed. Under CA, the audit function comprises of unlimited or almost unlimited access to all corporate data. If necessary, access to data is granted on short notices without much organisational resistance.

Traditional auditing makes only limited use of technology. For the most part, audit planning is done without IT assistance and audit activities are performed manually. Audit reports are typically stored in hard copy. The usage of technology generates large efficiency gains under CA and is therefore highly recommended. This IT usage is not limited to audit activities only, but may also cover audit planning at a previous phase as well as the audit documentation at a later phase.

Let alone any regular (obligatory) reportings of the internal audit function to management, the audit function operates independently from management under traditional auditing. Cooperation between these two parties hardly takes place and coordination of audit scopes or objectives in specific are rare. Under CA, audit activities go hand in hand with management's activities. Planning is largely harmonized, areas which are of less interest for management are preferable covered by the internal audit function. Due to this close integration, one function makes use of the other's results. Also, the audit function may verify management's activities.

Audit activities under tradition auditing are centred on financial aspects. Other aspects, e.g. IT, compliance, data security, are only audited with less priority. Also, if these „minor" areas are subject to an audit, this audit is largely independent from other audits and is seldom interlinked. The situation is the complete opposite under CA. Finance is not necessarily the central subject matter to be audited. Instead, audit activities are well spread over diverse topics and cover a wide range of areas as compliance, security, IT, and operational aspects. Audit activities are interlinked and complement each other in formulating an audit opinion.

Degree of CA adoption in practice

A lot of research has been undertaken to find out in how far companies have adopted CA and where they find themselves in diverse maturity models. As these studies differ considerably from each other in terms of research approach, used data, and timing, results vary significantly as well.

The studies by PricewaterhouseCoopers of 2006 as well as by ACL and the Institute of Internal Auditors (short: IIA) of 2009 indicate that the use of continuous auditing in practice is wide-spread. However, as both studies do not provide a deep insight into the actual intensity of continuous auditing usage, these articles leave some doubt in regard to the representativeness of their findings.

Vasarhelyi, Alles, Kuenkaikaew, Littley (2012) also dealt with this issue and, amongst others, brought forwards the objective to find out about the state of adoption and implementation of continuous auditing systems by internal auditors. On a general level, the authors conclude that companies which had participated in their survey find themselves between stages 1 (traditional) and 2 (emerging) in regard to the level of continuous auditing adoption which clearly contradicts the

findings of the PricewaterhouseCoopers study and the ACL/IIA study. Given this observation, they conclude that perceived usefulness of continuous auditing is rather low.

In their article of 2012, Gonzalez, Sharma, Valletta primarily deal with the antecedents of the use of continuous auditing in the internal audit context, but also analyse the extent of usage of CA. By performing a regression analysis they find that only few companies have continuous auditing fully implemented.

Our experience from the practical field in Germany reflects the rather low implementation rate of CA. Many companies we have worked with over recent years have implemented IT tools to analyse subject matters as part of their audit activities. Mostly we find that these tools are used in irregular intervals based on specific needs as part of scheduled audits (e.g. fraud or authorization scans for specific divisions or departments). However, only in very rare cases companies apply these tools as part of ongoing/continuous audit activities or to provide real-time assurance. Notably, the implementation rate is relatively higher at larger companies than at medium and small companies.

In various talks with members of the internal audit function, we verified the reasons for the low implementation rate and concluded a range of factors hindering the spread of CA. Mostly quoted, the initial implementation of CA requires a high level of cost and time. Before KPIs/KRIs can be defined as basis for measurements, it is recommendable to analyse the subject matter in its design. Otherwise, KPIs/KRIs may lack in precision and may fail the meet CA objectives. Also, target values may not be set appropriately, leading to either exceptions not being identified or to events being identified and labelled as exception while in fact they are unsuspicious. Also, some companies figured that digitalization of their structures and processes had not advanced far enough to enable data to be provided on an ongoing basis. Other companies meanwhile lacked of monetary funds to finance the acquisition or development of an IT system to support CA. In rare cases the audit function saw itself not experienced and knowledgeable enough to tackle the challenges accompanying the implementation and maintenance of CA (e.g. missing experience with specialized IT systems).

Conclusion

Used in an integrated manner, CA enables auditors to identify and remedy weaknesses. Moreover, it turns out to be more time- and cost-efficient than the traditional audit approach. CA features audit coverage of full data populations and therefore overcomes sampling bias of traditional auditing. Before CA is implemented, it is highly recommended to analyse subject matters in their designs in order to ensure a proper definition of measuring points. Among all involved employees, these analyses increase the general understanding of the companies' internal structures and processes as well as their external environments. Also, using KPIs/KRIs allows the auditor to focus on critical areas in a risk-oriented manner which frees resources bound to other areas under the traditional audit approach.

However, these benefits come at a cost. Irrespective of the specific architecture (embedded audit modules, separate audit systems), using IT for CA purposes requires investments for acquisition or development of software as well as for maintaining and updating software in regular intervals. While the IT systems only display auditors' knowledge and experience, the auditor needs to be knowledgeable about subject matters to be audited. This implies that the auditor keeps spending time on analysing subject matters even after the initial CA implementation in order to continuously guarantee a proper definition of measuring points, target values etc. Thereby, the auditor's IT affinity plays a decisive role. During the initial implementation of CA, efforts to be taken may turn out to be higher than under regular usage in later years.

Still, CA includes elements showing promise to make the audit function both more effective and more efficient in future. Given the rather high challenges during its implementation, most companies will refrain from introducing CA for all performed audit activities at once. Correspondingly, benefits generated from the use of CA will not be reached on a short-term basis, but are the result of a

constant step-by-step process towards a higher level of automation and an increased concentration on risk.

Provided that manual audit activities will remain necessary, especially as part of follow up-activities during the *Act*-phase, CA does not represent a completely true alternative of traditional auditing. However, it does represent a valuable complement to traditional auditing which will significantly change the internal audit function. Manual and continuous auditing activities will become more interrelated over time. Manual activities by the auditor will be highly dependent on results of CA and vice versa. This will also impact the auditor in his daily working routines. Focus will shift from highly operational activities as single-case reviews and analyses to more analytical activities as audit planning, managing KPIs/KRIs, and technology handling. Moreover, risk will even more be the leading factor of choosing audit subject matters.

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The Development of Process-Based Information Systems: Methodological Requirements

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Abstract

At the present time several issues are dramatically challenging the way we build and maintain information systems. On the one hand, owing to the extremely competitive conditions and dynamics of the business environment, it is vital for organisations to be able to develop and modify their information systems as quickly as possible, in order to succeed or even to keep in business. On the other hand, new technological developments have recently brought to the information systems infrastructure a set of new technologies with enormous potential to improve the way information systems support organisations. Collaborative technologies and, in particular, workflow, are notorious examples. In this paper, we propose a new information systems framework (Process-based Information Systems), which is able to provide organisations with the means to respond timely and adequately to the opportunities and threats of the business environment. Regarding this framework we try to identify the limitations of conventional Information Systems Development methodologies and, therefore, propose a set of new methodological requirements.

Keywords: Process-based Information Systems, BPMS, Collaborative Applications, Component-based Architectures

1. Introduction

It is generally accepted that organisations have never had the information systems they need to properly conduct their business. Nowadays, the situation is getting worse. Due to the globalisation of the markets, the competition and the pace of change in business have increased to levels never seen before (Hernaus, 2011). To succeed, or even to survive in this turbulent environment, organisations must be flexible, innovative and react quickly and adequately, as a whole, to the constantly changing conditions of the markets (Rosemann and vom Brocke, 2015). Obviously, in this demanding scenario, the pressure put on the information systems' development and maintenance activities is higher than it has ever been.

Nowadays, more than ever, organisations need Information Systems Development (ISD) methodologies that deliver quick, adequate, integrated and easily maintainable systems, which take the maximum advantage of all the information technologies available today. Unfortunately, organisations continue to receive inadequate systems, which are delivered late, require large maintenance efforts and are typically disconnected from the other systems already in operation – the widely known "*islands of automation*" (Liao and Tu, 2007).

Clearly, a new information system concept is needed. A new information technology infrastructure has to be defined; one that makes full use, not only of the more conventional information technologies, but also of the emerging collaborative technologies (Pereira, 2004). Additionally, a new approach to the development of information systems build over this technological infrastructure has to be defined.

Concerning this paper's organisation, in the next section we present some justifications for the actual panorama of information systems in organisations and argue for new ISD approaches. In the third section we describe, very briefly, the fundamental characteristics of the groupware and workflow technologies, which are fundamental to our proposal. In the fourth section we define the proposed information systems framework that will provide organisations with the means to succeed in today business environment. In the fifth section we identify the limitations of current ISD methodologies regarding the proposed framework and define a new set of methodological requirements. Finally, in the sixth section we conclude.

2. The Need for New Approaches to Information Systems Development

As defined by Brodie and Ceri (1992), an information system "*consists of a collection of applications that implement required functions (representing state retrievals and changes) over a collection of shared, persistent information repositories (representing the pertinent aspects of the state).*" In this conventional perspective, an information system consists of a collection of related computer-based artefacts (applications and data stores) developed to support an identified set of required functions.

Despite all the efforts around Information Systems Planning (ISP) in the past, the development of information systems in organisations has originated, almost invariably, a collection of autonomous, independent and poorly connected systems, whose mission is to support the information processing needs of each organisational unit, independently from the others. Moreover, as each organisational unit has some degree of decision autonomy and is separately managed, it is not uncommon to find in the same organisation several systems, developed with different technologies, sometimes very difficult to make compatible. For those reasons, as already mentioned, nowadays the information systems organisational landscape is made up of what is commonly known as "*islands of automation*" (Liao and Tu, 2007). Of course, this fact has undesirable consequences in terms of a non-integrated view and treatment of the organisation's information assets and operations.

This situation has historical justifications, some of organisational nature and some of technological nature. On the one hand, owing to the predominance of the functional model on which the organisations were structured, it is natural that the development of information systems should have been conducted according to the same paradigm, resulting in information systems that support the processing requirements of single functional units. On the other hand, as a consequence of the evolution occurred within the information and communication technologies, solutions that are now easy to conceive, were previously not even thinkable. In other words, the developed information systems have also been constrained by the technological possibilities of the time they were built.

Obviously, the ISD methodologies should be adapted, at every moment, to the characteristics and requirements of the organisations they are going to be applied to, and also to the emerging functionalities made available by the Information and Communication Technologies (ICT). In other words, the ISD methodologies must be permanently aligned with the organisational and technological circumstances of the moment. Regarding this matter, there have recently been some significant changes and advances both on the organisational and technological domains.

In the organisational domain, since the beginning of the 90's, and most notoriously with the work of Davenport (1993) and Hammer and Champy (1993), a new organisational paradigm has begun to take shape, associated with a set of organisational change programmes, among which the most widely known today is *Business Process Management* (BPM) (Rosemann and vom Brocke, 2015; Weske, 2012; Trkman, 2010; Dumas et al., 2013).

Contrarily to the hierarchical and functionally structured organisations, based on the Tayloristic model of work division, which was the standard organisational structure in the past, the concepts of *organisational process* (also known as *business process*), *teamwork* and people *empowerment* have emerged as the new paradigm on which the organisations should be based (Pereira, 2004). This new paradigm which promotes an integrated view of the organisations, is expected to prepare them to react adequately to the rapidly changing conditions of today's markets.

In the technological domain, as a result of the remarkable developments in the hardware and data communications fields, a set of new technologies, globally known as *groupware*, or *collaborative technologies*, has emerged. These technologies are primarily intended to support the communication and collaboration needs of people working together and thus, may help to achieve the integrated information systems infrastructure (Li et al., 2015).

This set of new technologies, also known as CSCW (*Computer Supported Cooperative Work*), is increasingly being used by organisations, as they understand that, today, sharing information and working in teams is the most effective way of doing business (Coleman, 1997). One of those technologies – *workflow* – is particularly suitable to support the co-ordination of work according to an organisational process.

Unfortunately, groupware technologies are being introduced into organisations in a very ad-hoc way, preventing them from taking full advantage of these technologies (Li et al., 2015). Obviously, the groupware technologies, in the same way as the more conventional information technologies, are going to be part of the global information systems technological infrastructure and so, they should be involved in the overall information systems development effort right from the beginning.

Besides the new paradigm which organisations are being forced to adopt in order to succeed in the market, and the new technological infrastructure available, another issue with a huge impact on the way information systems are developed is the rate at which the business environment is changing nowadays. In the past, even when the markets were stable and the levels of competition were moderate, the ISD methodologies in use were already incapable of delivering adequate solutions on time. In fact, that was one of the most often heard criticisms about ISD methodologies. Today, owing to the dynamics of the business environment, the situation is much more complicated. Indeed, if organisations keep on using those conventional ISD methodologies, they will end up with an even greater information systems backlog.

Of course, the same problem exists regarding information systems maintenance. Organisations must be able to change their information systems in a very rapid way, otherwise they will not be fast enough to react timely to the opportunities and threads that are continuously appearing.

In an effort to support the organisations more effectively, the ISD methodologies must take into account the facilities provided by the new technologies, the dynamics of the business environment and the new organisational paradigm (Pereira, 2004) (Fig.1).

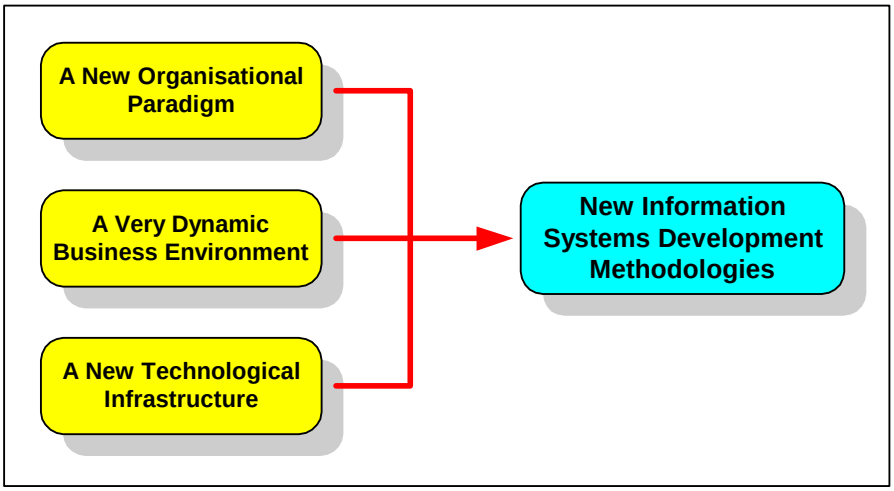

Fig. 1: The need for new ISD methodologies

Nowadays, despite the huge number of ISD methodologies available (already in the nineties Avison & Fitzgerald (1995) mentioned the so-called "methodologies' jungle"), none of them takes into account these new and radically different organisational and technological environments, as they were developed with the specific organisational conditions and technological targets of the past in mind, and now fail to cope adequately with the new development environment. Obviously, the ISD methodologies should be adapted to the new organisational and technological context. In a sense, they need to be reviewed and adjusted to the new realities.

3. Collaborative Technologies

Groupware was defined by Ellis et al. (1991) as "*Computer-based systems that support groups of people engaged in a common task (or goal) and that provide an interface to a shared environment.*" The principal objective of this set of technologies is to facilitate the interaction between people working together, making them more effective and efficient. Electronic mail, videoconference, team

rooms, group editors, discussion groups and workflow systems are just some examples of groupware technologies (Li et al., 2015).

A commonly used classification for the various groupware technologies is Johansen's Time/Space Matrix (Johansen, 1994). This classification tries to distinguish among the different groupware technologies, classifying them in time (synchronous/asynchronous) and space (centralised/distributed) dimensions (see Fig. 2).

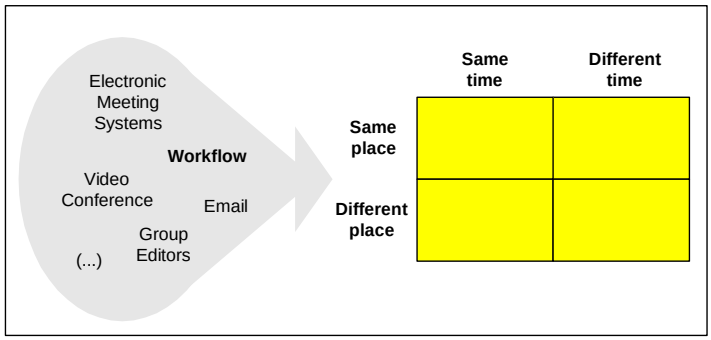

Fig. 2: Groupware technologies and the Johansen's Time/Space Matrix

Although workflow systems are normally viewed as a kind of groupware system, there is a subtle but significant difference between workflow and the other types of groupware. While all of them intend to facilitate the communication and collaboration among people, the workflow systems aim, more specifically, to coordinate their interactions according to a particular organisational process (Van der Aalst and Van Hee, 2004).

Among other authors, Davenport has defined the concept of organisational process as "*a specific ordering of work activities across time and place, with a beginning, an end, and clearly identified inputs and outputs: a structure for action*" (Davenport, 93). As an enabling technology, the fundamental idea behind workflow is the combination of individual tasks into a sequence of actions that achieve a goal, thus supporting directly the concept of organisational process. Consequently, the explicit support of organisational processes is the differentiating characteristic between workflow and the other groupware technologies.

The Workflow Management Coalition (WfMC), a non-profit international body created for the development and promotion of workflow standards, defines workflow as "*The automation of a business process, in whole or part, during which documents, information or tasks are passed from one participant to another for action, according to a set of procedural rules*" (WfMC, 1999). Therefore, the notion of process automation is central to workflow technology.

A widely accepted classification of workflow products distinguishes among four categories: ad-hoc, collaborative, administrative and production workflow (Hollingsworth, 2004). The differences among them consist, very broadly speaking, in the more or less rigidity of the process enactment. Thus, in one extreme, we find production workflow, which aims to support the enactment of completely pre-defined processes, executing them in a very rigid and strict way. Obviously, these workflow systems are adequate to support mission-critical business processes, where nothing can fail and everything must be executed according to the pre-defined process models. In the other extreme, we find collaborative workflow, where the focus is not so much the process per si, but the sharing of information among the people (actors) involved in the process (Becker et al., 2002).

In Marshak's opinion (1997), "*although these categories are very useful and have helped customers get their minds around a very complex and diverse set of products (…) it is important to remember that processes often span categories of applications.*" And she adds, "*a continuum is a better metaphor for viewing workflow categories.*" (Fig. 3).

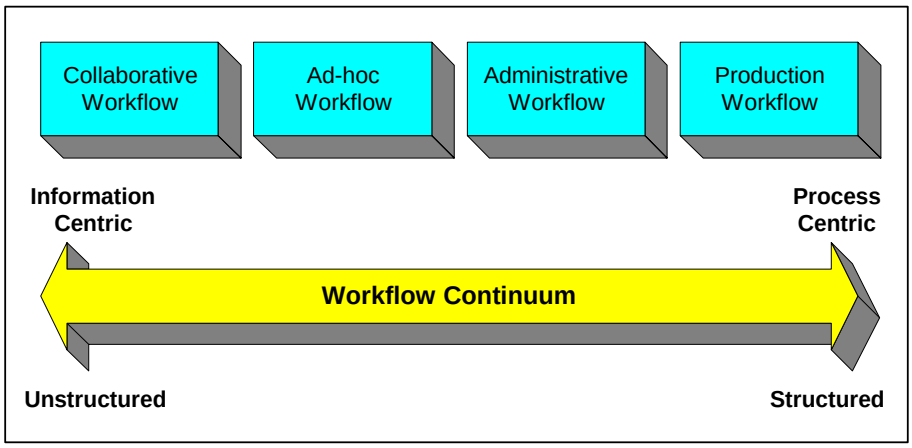

Fig. 3: The Workflow Continuum

Structured and ill-structured processes coexist in any organisation. In real work environments there are no completely structured processes. The most common situation is a mixture of structured and ill-structured parts in the same process specification.

Business Process Management Systems (BPMS) are the modern software systems that implement the workflow concept by managing the execution of business processes, according to their specification models. During the execution of a business process, the BPMS delivers work to actors (humans or machines) according to the correspondent process model and the execution context of each particular process instance. In doing this, the workflow engine of the BPMS invokes the suitable available applications with the corresponding data involved, thus creating the adequate execution context for each process activity (Dumas et al., 2013).

The success of the business process paradigm has led to the development of many commercial BPMS. These include Oracle Business Process Management Suite, TIBCO ActiveMatrix, AuraPortal, Bizagi BPM Suite, and so on. In the open source community BPMS products like jBPM, Bonita BPM or Intalio are also very successful in the market.

One of the main characteristics of current BPMS lies in the implicit assumption that each activity is an individual activity. In other words, each activity is executed by a single actor (human or machine) during a time interval. Obviously, we can think of many situations in which two or more actors have to collaborate at the same time (being in the same or different places) in the execution of the same activity (e.g., a meeting to make a group decision). The general idea here is to relax the former constraint and be able to see an activity also as a group activity (Fig. 4).

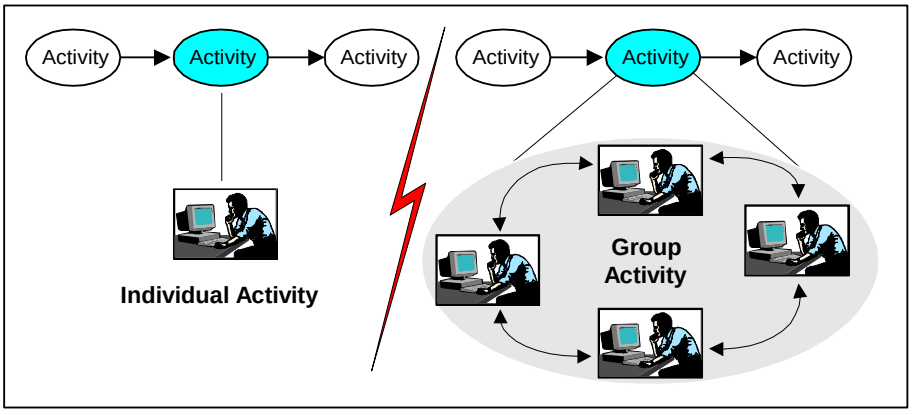

Fig. 4: Individual Activities vs Group Activities

In fact, groupware technology may be regarded by the BPMS in the very same way as the other more conventional information technologies. Clearly, the ideal environment to support the enactment of organisational processes will be made of BPMS flexible enough to support all kinds of processes (the workflow continuum), and transparently integrated with both groupware technology for the support of group activities, and the more conventional information technologies which typically support individual activities.

4. Towards Process-based Information Systems

The integration of the large number of independent and disconnected computer-based information systems, which usually exist in a typical organisation, has always been considered a critical issue. Indeed, this integration is a way to create a global vision of the information and processing resources of the organisation, allowing their joint management.

The first systems integration efforts began with the Data Base Management Systems (DBMS). The general idea consisted in defining a common data model to harmonise and integrate all the organisational information resources in a unique data repository, available to all information systems – the *corporate data model*. In addition, since the construction of a centralised repository containing all the organisational data was not always possible or even viable, other solutions were built, such as distributed data bases in which the data was physically dispersed in several repositories but was seen by the application level as a unique, logically integrated, repository.

This kind of systems integration may be called *integration-via-data* (i.e., the systems are interconnected via data repositories). Nowadays, owing to the facilities provided by the new groupware technologies and, in particular workflow technology, a new possibility of systems integration has emerged, much more ambitious and promising than integration-via-data: the *integration-via-processes*. Moreover, this kind of information systems integration directly matches with the new organisational paradigm (Pereira, 2014).

In the heart of the integration-via-processes approach are the modern BPMS. In fact, a BPMS may be regarded as a very sophisticated form of middleware which, more than allowing a passive interconnection between different systems, allows their *active interconnection*, making them cooperate explicitly in the execution of an organisational process. Thus, a BPMS may be seen as a coordination level, which, if placed over the information and collaboration systems of the organisation, is able to control their cooperation (Pereira, 2014). To this global solution we call *Process-Based Information System* (PBIS) (Fig. 5).

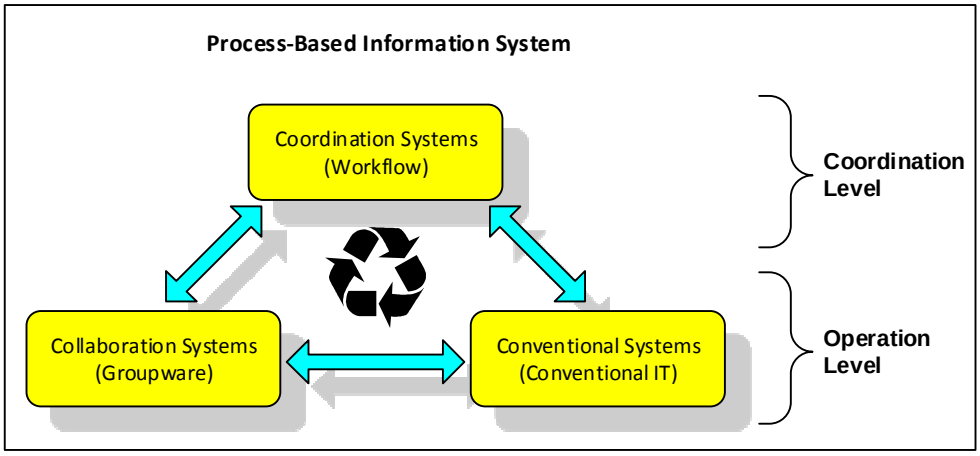

Fig. 5: Process-Based Information System components

Due to the fundamental characteristic of BPMS that allows the explicit separation of the process logic from the applications which implement the activities in the process model, it is possible to change or redefine the organisational processes (*coordination level*) without affecting the existing applications (*operation level*). Thus, BPIS stand highly configurable, maintainable, and flexible (Fig. 6).

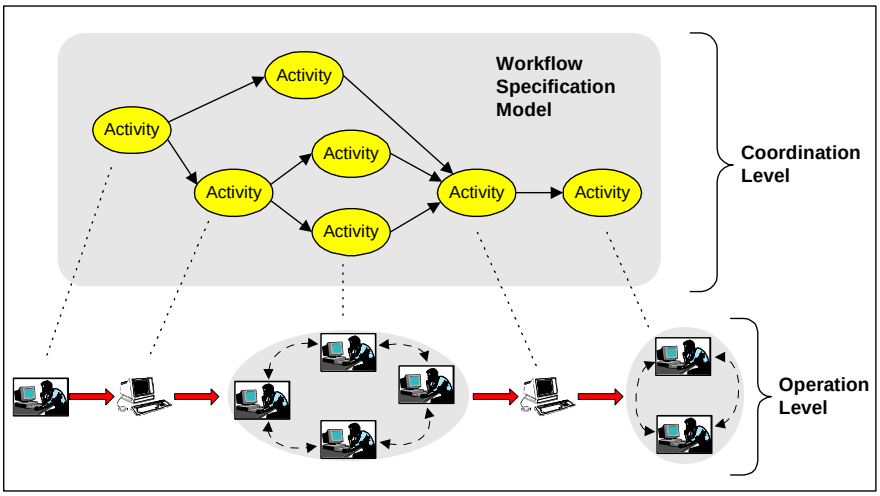

Fig. 6: The BPIS framework

This approach promotes the incremental development of Information Systems. In fact, the BPIS is developed piece by piece, in a very modular way, by adding successive process models to the coordination level, and reusing or, if not available in-house, developing or acquiring new applications in the operation level. As time goes by, the level of application's reuse will increase and, in the limit, the coordination level will be a fair representation of the *corporate process model*.

This ISD approach might also be regarded as a kind of component-based ISD, by analogy with component-based software development in the software engineering domain. A kind of "*programming in the large*", where complete software components, corresponding to autonomous applications, are combined and put to work together according to some organisational process specification. Furthermore, this architecture promotes the reutilization of those large software components by reusing them in several processes (Pereira, 2014).

Obviously, this is a framework which directly supports the new organisational paradigm (process-based organisations, teamwork and people empowerment), making use of the new technological infrastructure, and allowing organisations to develop and maintain their information systems quickly and easily (Pereira, 2014).

Clearly, the ideal environment to support the enactment of organisational processes will be made of BPMS flexible enough to support all kinds of processes (the workflow continuum), and transparently integrated with both groupware technology for the support of group activities, and the more conventional information technologies which typically support individual activities.

5. Requirements of a Methodology for Process-based Information Systems

If a BPMS is simply used to automate the routing of electronic documents between workstations, then the process models developed with the graphic editors normally provided by the BPMS are, in principle, sufficient. However, if one wants BPMS to behave like a coordination system that interconnects pro-actively several people and/or computer-based systems, according to a set of organisational processes, then a systematic approach to the development of this kind of systems, with an appropriate life cycle, must be used (Pereira, 2004). In other words, a PBIS development (PBISD) methodology is needed.

Now, the obvious question is: "What are the specific characteristics of PBIS which distinguish them from the more conventional information systems?" The immediate answer is that, PBIS, besides conventional information systems, implies also the existence of coordination and collaboration systems (see Fig. 5). Therefore, fundamental concepts such as organisational process and teamwork are now present.

In a very simplistic way, we can say that conventional information systems are developed with a simple goal in mind: the automation of a set of processing tasks over some kind of data repository.

When developing such a system, the critical issues are the identification of "*what needs to be done and how*" and "*which data is involved*". Thus, conventional information systems assume a task-oriented and data-oriented perspective.

Clearly, any approach to the development of PBIS must involve a joint analysis of the organisational processes (including their social and organisational issues), the applications required by the various activities that make up the processes, and the data processed by those activities.

Perhaps, the best way to characterise the scope of a PBISD methodology is to define the set of perspectives that must be considered when developing a PBIS. Besides the functional and informational perspectives of conventional information systems, we must analyse the coordination and collaboration dimensions of a PBIS.

Regarding the coordination dimension, Curtis et al. (1992) state that there are four critical perspectives in a process model:

- The functional perspective (*what needs to be done and how*)
- The informational perspective (*which data is involved*)
- The behavioural perspective (*when it is done*)
- The organisational perspective (*who does it*)

So, besides the functional and informational perspectives which are common to conventional information systems, at least two new perspectives (the behavioural and the organisational), with their corresponding modelling methods, must be considered in a PBISD methodology.

Concerning the collaboration dimension of PBIS we argue that the following three perspectives are essential:

- The group perspective (*who interacts with whom*)
- The interaction perspective (*what facilities are needed for the interaction*)
- The responsibility perspective (*who is responsible for the interaction*)

With these three additional perspectives, now we have, at least, seven perspectives we must consider in a PBISD methodology.

Business process models are the starting point for requirements specification of the systems to be developed. In this perspective, we assume that most of the issues and details that are needed to develop BPIS may be derived from business process models (see Fig. 7).

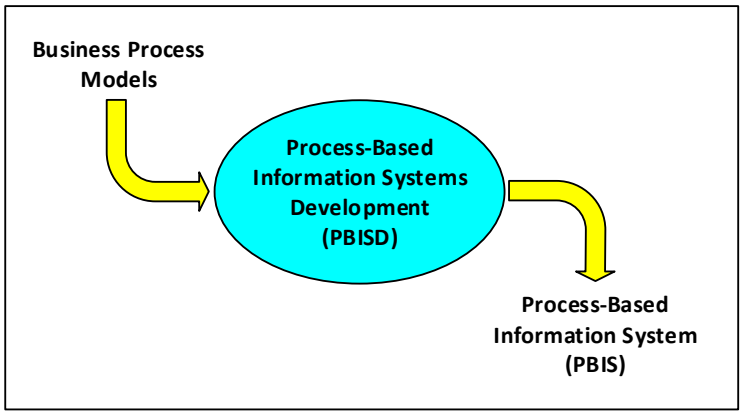

Fig. 7: From Business Process Models to BPIS

None of the conventional ISD methodologies takes into account all of these perspectives. In fact, the coordination and collaboration dimensions, critical in the development of PBIS, are simply not

considered in the conventional ISD methodologies that we are aware of. Therefore, it is our claim that a new PBISD methodology, that considers all the above perspectives, is needed.

6. Conclusion

Considering the functionalities made available by collaborative technologies, most particularly the workflow technology, it is now possible to evolve onto the integrated PBIS. Although there are today many information systems development methodologies, none of them takes into account the new technological developments, with characteristics radically different from the more conventional technologies, for whom those methodologies were made. Therefore, we need a new approach to information systems development that takes into consideration not only the more conventional technologies, but also the more recent collaborative technologies. In this paper, additionally to the definition of the PBIS concept, we have described the major requirements that a PBIS development methodology (PBISD) has to take into account.

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An Example of a Big Data Solution Implementation

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Abstract

Over the last decade, digital data has known an incredible growth. Several businesses have taken advantage of this data abundance, and have moved their decision making strategy from hypothesis driven to data driven approaches. Therefore, new solutions are needed to store and access this big data, then infer knowledge out of it and make it available to managers.
In this paper, we will discuss briefly the different issues that should be taken into consideration for implementing a Big Data framework in companies. Then a solution implementation for a Middle East gas and oil distribution company will be presented.

Keywords: Big Data, Hadoop, MapReduce

Introduction

Nowadays, the progressive digitization of every aspect of everyday life has led to a never seen data explosion, called BigData. The business world is of no exception, and the digitization of every single operation or activity is becoming a standard. This collected data represents an unprecedented opportunity for decision makers but also a real challenge. Actually, data-driven decisions are better decisions since they are based on evidence rather than intuition. Therefore, efficient analysis and interpretation of this BigData opens new avenues to explore, new questions to ask, and new ways to answer the open issues. Such analyses lead to better understand the business and develop better and personalized solutions. However, such huge and heterogeneous amount of digital information need new and improved technological paradigms to deal with them. Storage, access, and mining of Bigdata to infer knowledge and to make it available to managers are some of the issues that should be covered.

There are several examples of big data use cases in virtually every industry. Some businesses have been more receptive of the technologies and faster to integrate big data analytics into their everyday business than others. Some examples of solutions include:
• Financial services providers adopt big data analytics infrastructure to improve their analysis of customers to help determine eligibility for equity capital, insurance, mortgage, or credit.
• Airlines and trucking companies use big data to track fuel consumption and traffic patterns across their fleets in real time to improve efficiencies and save costs.
• Healthcare providers manage and share patient electronic health records from multiple sources—imagery, treatments, and demographics—and across multiple practitioners. In addition, pharmaceutical companies and regulatory agencies create big data solutions to track drug efficacy and provide more efficient and shorter drug development processes.
• Telecommunications and utilities use big data solutions to analyze user behaviors and demand patterns for a better and more efficient power grid. They are also storing and analyzing environmental sensor data to provide insight into infrastructure weaknesses and provide better risk management intelligence.
• Media and entertainment companies use big data infrastructure to assist with decision making around customer lifecycle retention and predictive analysis of their user base, and to provide more focused marketing and customer analytics.

Big Data phenomenon has crippled the capabilities of modern IT infrastructures. Big data systems are now expected to model vast amounts of heterogeneous and complex data. Classical approaches of Data Base Management Systems (DBMS), Data Warehousing and Data Analysis are no longer viable to deal with both the scale of data and the sophisticated analysis that need to be conducted often in

real time. None of the commercial DBMS and Data Warehousing technologies provide an adequate solution in this regard. Therefore, P. Pääkkönen and D. Pakkala (2015) stated that through the recent technological advances in communication and computer science fields that have provided cost-effective solutions to acquire, transfer and analyze large amount of data, several promising tools have been developed to fill in this technological gap and handle the Big Data projects needs.

The first organizations to use Big Data techniques were information technology (IT) companies like Google, which created most of the software infrastructure needed to manage data in a scalable manner. Actually, several businesses have adopted a wide variety of Big data technologies and heterogeneous architectures that have resulted in major disruptions and transformations in their information technology infrastructures. Therefore, there is no standard BigData framework that is applicable to all businesses, but rather, several ones exist and vary a lot from field to field.

In this paper, a big data case study implementation will be discussed. It concerns the realization of a big data solution in a Middle East gas and oil distribution company. First, the company need for migration to a big data solution is presented. Then implementation issues and analytics findings are discussed.

A Big Data Use Case Implementation

A gas and oil distribution company's information system manages all the data from its different subsidiaries. Data comes from business applications, transactions, mobile application or GPS sensors. S. Chaudhuri and al. (2011) mentioned that With the exponential growth of data volume and the emergence of new sources, extraction, transformation and loading ETL have become more difficult and take more time.

Actually, the existing group's Business Intelligence (BI) Platform, based on the ETL, extract data from production systems, load them in the data warehouse, and then make the necessary changes in the staging tables using the data warehouse resources. However, with the big masses of accumulated data, these staging tables quickly become large and require more storage capacity which means an increasing high cost of data warehousing.

Two immediate problems have been identified: (i) an increasingly slow ETL treatment and dashboards loading, and (ii) an increasingly high storage costs. Therefore, two main issues will be addressed. The first issue concerns winning in performance. Actually, the objective is to optimize the decision-making chain, for loading, processing and data restitution, while taking into account the rapid growing volume of data. The second issue directly involves the solution's end users. It must correctly respond to their needs by offering relevant ergonomically arranged key performance indicators, displayed in dashboards that highlight the required information.

According to the above, the loading, processing and retrieval of data carried out through the existing BI platform have fairly a long execution time. This is due firstly to the complexity of the source databases which largely defines the architecture complexity of ETL jobs to be done, and secondly to the constantly growing data volume included in these databases and ETL on which treatments will be performed.

As an alternative to this latency problem, and in a view to improve the existing BI platform, Hadoop (Apache Hadoop, 2016) provides an architecture that enables both the storage and processing of the distributed data. Indeed, the data stored in HDFS (Apache Hadoop, 2016) are separated in different data blocks spread over all cluster machines. On the other hand, the different treatments carried out on the data are converted into MapReduce (M. Mavani, L. Ragha, 2013) jobs which allow, therefore, having the operations conducted in parallel on different machines in the cluster where there is gain in performance and treatment time. In this way, Hadoop takes advantage of all the available resources both in terms of storage capacity and execution time. However, Hadoop will not be a replacement of the BI platform already in place but rather a complement to face the limits of the latter, and taking advantage of what the Big Data technologies can offer.

To produce the needed dashboards, data has been extracted from the company's production databases to Hadoop HDFS and specifically Apache Hive [3]. These extracted data is the basis for the creation of aggregate tables that contain the essential measures for the development of dashboards. These aggregate tables were created using Hive Query Language namely HiveQL (Hive Query Language), then dashboards data was restored using QlikView (QlikView, 2016) tool. Cloudera Manager was used for monitoring the cluster to assess its condition. While Hue serve as a graphic web interface for all services used.

The data loading and creation of aggregate tables was included in a workflow managed by the oozie (Apache Oozie, 2016) service.

Conclusion

There are many open issues for Big Data management and analysis in the business world. In this paper, a Big Data solution implementation for a gas and oil distribution company has been discussed. The usage of Big Data Hadoop platform helped improve the performance at the data processing level through its distributed architecture.

As a perspective, it is possible to integrate Hadoop platform with the existing BI platform by translating the heavy ETL to MapReduce jobs, and exporting data warehouse dormant data to HDFS.

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The Recovery of the Banking System as the Guarantee of Revival Of the Industrial Sectors of the National Economy

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Abstract

The paper describes the methodological aspect of constructing index schemes by the Varzar ideology for two and three-factor multipliers. The index method is widely used by industry analysts; the price indices group is traditionally used for measuring the dynamics of the physical volumes of industrial output, the dynamics of wholesale, retail, purchasing and other prices and tariffs, calculation of the inflation rate, and the method is well-developed theoretically, all of which allows, in the authors' view, to measure the structural component of the inflationary spiral. This article demonstrates a method of assessing the effect of the costs inflation which forms the above-mentioned structural component, using as an example a machine-building company. The authors present graphic illustrations of the planar and the spatial procedures for factor increment analysis. These procedures are accompanied by an extended commentary on the results of an analytical expansion of the production output costs related to its structure, unit costs and prices for the raw materials used.

Keywords: process of inflation, inflation generated in industries, index-number method, analytical index, two- and three-factors multiplicative models, scheme of the factor's expand, graphic interpretation, the index of the joint changes (IJC), cost-push inflation

If you think that someone allows himself
too much, maybe you just largely deny yourself.
From A. Finagle's collection of folk wisdom

Historians of science have long noticed that there is an isomorphism between quantum physics and mathematical economics, which is based on their common relationship with mathematical statistics. Matching the calculated various indicators and indexes becomes particularly relevant at the present time in statistical methodology to assess the development of industrial sectors of the national economy. Special place in this methodology is occupied by the group of factor analytic indexes that measure the price dynamics, inflation, mobility, structural changes and other statistical aspects of economic processes.

As you know, the nature of tasks, composite indexes are divided into simple and analytical. Simple index assesses the quantitative change in one or another of the studied primary or secondary symptom as separate from other related features, and these are analyzed, they are indexed, the signs are considered in the analysis taken into account as the traits-factors, but aggregated for each of the covered periods.

Analytical index measures the change of resultant, which occurred due to the change of one of the considered characteristics on the factors included in the analytical unit of the index. In this way the analytical index is based on statistical concepts of rigidly deterministic relations. Change or influence of others, taken into account in the analysis of index signs-factors, in this case, is repaid, eliminated or eliminated by the fact that their level is fixed, or is fixed at a certain, predetermined period.

For example, consider the simplest two-factor multiplier that connects as direct characteristics of a

statistical connection, the size of the turnover by the j-th commodity item $W^{(j)}$ in the overall diversity of the product range $j = \overline{1,m}$, the physical volume of sales (bulk commodities in real terms) and the sales price per unit $p^{(j)}$. Their relationship is defined in the so-called reporting and reference periods by the following multipliers

$$W_1^{(j)} = Q_1^{(j)} p_1^{(j)}; \qquad W_0^{(j)} = Q_0^{(j)} p_0^{(j)}. \tag{1}$$

While no theoretical or technical problems arise in respect of holding of the index analysis of resultant $W^{(j)}$, related to factor analysis the right part of the multiplier of two signs of the causal factors of the expressions (1) this cannot be stated with confidence, even in such a trivial case as k = 2 (the number of independent traits-factors).

In the statistical theory of index method there are two approaches to the solution of this difficult question. The first approach (regulated) binds a variety of period scales with the character and nature of indexed values. Namely: if the unit is indexed/analyzed the so-called initial symptom, the corresponding "weights" are fixed at the level of the base period; if indexed/analyzed secondary symptom, then its weighting is carried out on a reported basis weight characteristics.

This analytical index provides a very satisfactory correlation indices of resultant signs and factors, ensures their circular reducibility in relative and absolute terms numerically evaluated factorial increments. The procedure considered for constructing the analytical factor indexes historically has generated the widely known, quite versatile and relatively powerful method of economic analysis which is the method of chain substitutions, using such a method of forming direct statistical characteristics of the relationships between signs within the so-called index I and II systems. The analyzed relationship is realized through canonical and understandable expression (2) in general, the considered product portfolio of m positions

$$\Im_{W(Q,p)1/0} = \Im_{W(Q)1/0} \times \Im_{W(p)1/0} = \frac{\sum_{j=1}^{m} Q_1^{(j)} p_0^{(j)}}{\sum_{j=1}^{m} Q_0^{(j)} p_0^{(j)}} \times \frac{\sum_{j=1}^{m} p_1^{(j)} Q_1^{(j)}}{\sum_{j=1}^{m} p_0^{(j)} Q_1^{(j)}} = \frac{\sum_{j=1}^{m} Q_1^{(j)} p_1^{(j)}}{\sum_{j=1}^{m} Q_0^{(j)} p_0^{(j)}} = \frac{\sum_{j=1}^{m} W_1^{(j)}}{\sum_{j=1}^{m} W_0^{(j)}}. \tag{2}$$

The first approach has its advantages and disadvantages, the detail considered by such researchers as Kaufman A. A., and Kazinets L. S., Rothstein A. I. Ploshko B. G., Tornkvist L., Frenkel A. A., Edelhaus G. E., Edgeworth F., Marshall A. and others. Shortcomings inherent in this approach were resolved in 1933 by the compound average geometric index of I. Fisher that the author called modest and unpretentious, «perfect». But the procedure for determining the period of the scales is generally accepted in Russian and international official statistics in economic and operational analysis, although the actual shortcomings of the approach are rather obvious. So, fixing the weights in indexes of secondary signs, constructed according to the regulations, at the level of the reporting period, artificially created obstacles to the objective evaluation of a stand-alone account of the influence of each of the recorded of the traits-factors.

For example, when analyzing the change of the price factor in the dynamics of $p_0^{(j)} \Rightarrow p_1^{(j)}$ the index that is built on reporting weight characteristics, in addition to taking into account changing the actual indexed values also influence by changing the reporting period and the status of the attribute-weight $Q_1^{(j)}$, i.e., its structural and quantitative certainty, but the subsequent period of the dynamics.

This may simplistically be considered the main drawback of the classic scheme of the index analysis.

The second approach to the definition of the weights in the analytical indexes involves the construction of any and all related indexes on the scales of exclusively the base period. Let us note that the permissible analyst position fully meets the goals and objectives of any research, i.e. to obtain the most accurate assessment of isolated effects (actions) of each of the recorded signs of causal factors on the productive trait-factor, provided that the circular reducibility index obtained for all characteristics will be met. Respectively, all of the signs of the factors taken into account are analyzed in turn by the index in a sequence specified in any way and, of course, justified in terms of content and subject to the requirements of consistency.

It is interesting to note the use of both approaches to the construction of the classical indexes of Paasche prices (Paasche price index – P), proposed in 1874 and Laspeyres (Laspeyres price index – L), introduced into scientific circulation even earlier, in 1864. Both the price indexes in statistical practice are even used simultaneously to measure the cost of living, i.e., incurred costs for the maintenance of living standards in the ideal index1. The canonical form of these indices are shown in expressions (3)

$$\Im_{p_{1/0}}^{(P)} = \frac{\sum_{j=1}^{m} p_1^{(j)} Q_1^{(j)}}{\sum_{j=1}^{m} p_0^{(j)} Q_1^{(j)}}; \qquad \Im_{p_{1/0}}^{(L)} = \frac{\sum_{j=1}^{m} p_1^{(j)} Q_0^{(j)}}{\sum_{j=1}^{m} p_0^{(j)} Q_0^{(j)}}. \tag{3}$$

The Paasche price indices, i.e., with weights of the reporting period, are calculated on a wider range of goods, works and services. Due to the fact that the weights of these indexes is not the structure of consumer spending, and the structure of turnover or gross value added, or production in the current period, they (weight) can be determined only at the end of the reporting period. Therefore, the Paasche index takes into account the results of mutual replacement of products, but does not reflect what is happening at the same time reducing the level of welfare of the population.

The index $\Im_{p_{1/0}}^{(P)}$ is used in the measurement of the dynamics of prices of components of GDP, input prices in agriculture, estimated construction prices, export prices, etc. According to the algorithm of the Paasche index such an important macroeconomic indicator as the deflator of the gross domestic product index deflator or the GDP-deflator (Gross Domestic Product deflator), reflecting the ratio of the nominal GDP to real GDP, is also calculated.

A. Gerschenkron, an American researcger (of Russian origin), used both indices in the formulas from (3) in the mid-twentieth century to construct his own index, with which he studied the specific effects (effect of Gerschenkron) in Soviet and American economies and thereby made a significant contribution to the analysis of inflationary and structural processes. The index feature is often called the analytic index of prices by Gerschenkron ($\Im_{p_{1|/0}}^{(G)}$) in contrast to the price indexes of Paasche and Laspeyres, and it has the following type and value:

$$\Im_{p1/0}^{(G)} = \Im_{p1/0}^{(L)} : \Im_{p1/0}^{(P)} = \frac{\sum_{j=1}^{m} p_1^{(j)} Q_0^{(j)}}{\sum_{j=1}^{m} p_0^{(j)} Q_0^{(j)}} : \frac{\sum_{j=1}^{m} p_1^{(j)} Q_1^{(j)}}{\sum_{j=1}^{m} p_0^{(j)} Q_1^{(j)}} > 1.$$

(4)

[1] Index of I. Fisher in the presented expressions has a traditional look $\Im_{p1/0}^{(F)} = \sqrt{\Im_{p1/0}^{(L)} \times \Im_{p1/0}^{(P)}}$.

The systematic lagging of $\Im_{p1/0}^{(P)}$ behind $\Im_{p1/0}^{(L)}$, fixed in the expression (4), allowed the index to become the main inflation indicator. In connection with the detected circumstance, the Laspeyres index was named Index of consumer prices and tariffs of CPI (Consumer Price Index) 2. For price indices is due to the redistribution over time of demand with a relatively faster rising price of goods for goods, the relative prices of which are correspondingly reduced.

The index $\Im_{p1/0}^{(L)}$ does not take into account the possibility of replacing more expensive items less expensive. The CPI is one of the approaches to measuring shifts in prices of a market basket of constant set of goods and services. The CPI is a measure of the general price level, reflecting the change in the price of many consumer goods and services and represents the ratio of the prices of the consumer basket to its price in the base year. The composition of the consumption basket, as can be seen from this definition, is fixed at the base period.

Even more problematic is the interpretation of the so-called spatial Edgeworth-Marshall index, whose formula $\Im_{p1/0}^{(E-M)}$ is also able to capture the shifts in the structure of production and sales. However, the aggregate index is tied to the conditional structure of the scales, not typical for any of the real periods. Moreover, the index calculation meets known obstacles in collecting statistical information, and the interpretation of the direct economic sense are traditionally difficult.

The price indices calculated according to the Laspeyres formula are especially widely used in the calculation of producer price indices for industrial products according to the price of commodities-representatives (the so-called comparable range of elements). However, this index does not include investment goods, but this takes into account the price of imported products. Another use of the indicator $\Im_{p1/0}^{(L)}$ is its inclusion in the valuation model of inflation; thus, in the calculation of inflation for their own purposes Gazprombank uses so-called core consumer prices corrected for seasonality (BIPUS).

Inflationary processes in the economy are estimated typically using two indexes discussed above, and they are used in the compilation of data on aggregate units (e.g., enterprises, regions, countries) or to elements (for example, by type of goods) and units and elements. So, approved by Decree of Goskomstat of the Russian Federation "Position about the order of supervision over prices and tariffs for goods and services that determine consumer price index" indicates that the CPI is "one of the most important indicators characterizing the level of inflation, and is used to implement state financial policy, analysis and forecasting price developments in the economy, the regulation of the real rate of the national currency, the revision of minimum social guarantees, settlement of legal disputes".

Exact knowledge of the inflationary characteristics is extremely important for making sound political decisions, with serious social consequences. So the first half of 2015 representatives of the Ministry of Finance and Ministry of economic development proposed to index pensions in 2016-2018 only on the target level of inflation to about 4.0-5.5%. And this is assuming that in 2014, the official inflation rate was 11.4% and in 2015 it is planned already at 12.2%.

[2] The main purpose of the CPI is to estimate the dynamics of prices of consumer goods. The resolution of the International Labour Organization (ILO) stipulates that "the purpose of the calculation of the CPI is to assess changes over time in the General level of prices for goods and services acquired, used or paid by the population for unproductive consumption."

The CPI is calculated with weekly, monthly and quarterly periodicity and cumulatively for the period from the beginning of the year. The final values of the CPI for the month, quarter, year are determined before the 15th of the month following the reporting period. And one of the major problems concerning the content characteristics of the CPI, associated with the definition of methodological approaches to establishing the size and composition of the consumer basket. Determination of the size and range of composition of the consumer basket is not an easy task, which is based on special statistical studies, because the consumer basket should reflect the composition of consumption goods typical for the country, the change in the prices for which would objectively show the direction of the ongoing economic processes.

According to guidelines provided by Rosstat, CPI maintains information about the consumer price of 380 goods and services in 350 cities of the Russian Federation. The Russian variation of the CPI includes all major groups of goods and services, covering 400 thousand quotations of prices and tariffs, 30 thousand enterprises of retail trade and services. The set of goods and services studied for the calculation of the CPI includes goods and services to mass consumer demand, as well as individual goods and services non-essential items (cars, jewelry). In the analyzed composition of the consumer basket 26.2% are food products, 52.6% – non-food products and 21.2% — paid services.

The structure of consumer expenses of the population for the previous year is used as weights for the current year. The CPI is calculated by using weights of the previous year, which each year are updated. The main source of obtaining the weights is the annual survey of households ' budgets. The sample of households for examination of their budgets is based on the principles of random selection. As a base for the construction of the sample the information array is used, created on the basis of materials of the micro-census of the population of 2012 in the Russian Federation. The volume of sample at 48.7 thousand households, i.e. about 0.1% of the total number of households in the Russian Federation.

In the USA, the calculation of the CPI statistics covers more than 19 thousand retailers and 57 thousand households as a representative sample of approximately 80% of the population. In the composition of the consumer basket there is 44.1% commodities and 55.9 per cent service. Considering the representativeness of the sample survey, covering goods and services of the constant demand (food, clothing, fuel, transportation, medical care, etc.), we should agree with the opinion of the analysts of statistical agencies, as the Russian Federation and other countries, particularly the USA (Bureau of labor statistics) the CPI can indeed be considered as the main indicator of inflation. But the specifics of the moment of the crisis in the state of the national economy, particularly beginning in 2015, is that the decline in production dictated the need to pay close attention to the measurement of inflation of different types – cost-push inflation.

In a market economy cost-push inflation is due to short-term excess of aggregate supply over aggregate demand due to a sharp increase in the prices of factors of production. This increase, as a rule, is caused by either lean years and a significant rise in export of raw materials, or deep devaluation of the national currency. Even in a quasi-market economy such a process is accompanied by a decline in production and rising unemployment3. With unchanged aggregate demand, this may cause a cost reduction of wages and reduction of other costs of the factors of production that, ultimately, should lead to lower prices.

If this situation is increasing the money supply and nominal federal spending, aggregate demand increases, output increases, unemployment reduces, but there is a further growth of prices for final products along the value chain. Such kind of inflation, as treated by the economic theory, is produced also in the cases when the basic sectors of the economy (with the specificity of commodity economy), often coinciding with areas of activity of natural monopolies, no longer function according to market laws and fall under government control and regulation. Then these agents prescribe the growth of prices and tariffs for their economic benefits above market average growth in prices.

[3] In the Russian Federation, the unemployment rate fast approaching 6.5 per cent of the economically active population.

Inflation analysts notice that in crisis conditions the growth rate of monetary inflation substantially exceed the growth rate of structural inflation. Core inflation does not include seasonal and administrative effects on prices. Structural inflation, as expected, reflects structural shifts in production and leading to higher prices mainly in industries where product demand is outpacing product offering.

Analysts believe the weakening of the ruble to be a major factor in the increase in inflation, because its impairment, apart from the obvious fact – the rising cost of imports, stimulates the acceleration of turnover of cash. The latter in itself can have inflationary consequences. Additional factor of increase in monetary inflation can be the the propensity to consume growing in the unstable economy, as the authors say in the paper. Upward momentum of this tendency, sometimes in the mode of excessive demand, is fueled by distrust of legal and natural persons to an unstable banking system and marked inflationary expectations.

Returning to the index $\mathfrak{I}_{p1/0}^{(G)}$, note that Gerschenkron's effect is manifested not only in the analysis of prices and tariffs, but also in the analysis of quantities, i.e., physical volume, or mass of commodities, and is also found in the studies a mandatory component of the time trend study indices of industrial production (volume indices), which are regularly calculated on a monthly basis by the Center of economic conjuncture under the Government of the Russian Federation. Using only the base weights eliminates the main observed drawback of the first approach. However, another problem arises instead – ensuring the alignment between analytical indexes, let's call them "basic indices" in any meaningful system. Pure factor indices built in this system with the index not form an effective feature. We illustrate this difficulty with the example of the mentioned turnover by this ratio

$$\mathfrak{I}_{W(Q)1/0} \times \mathfrak{I}_{W(p)1/0} \neq \mathfrak{I}_{W(Q,p)_{1/0}}. \quad (5)$$

~~$Q_0 \to Q_1$~~	~~$Q_0 = const$~~	~~$Q_0 \to Q_1$~~
$p_0 = const$	$p_0 \to p_1$	$p_0 \to p_1$

A convincing explanation of this seemingly natural result arising from the expression (5), are the following considerations: the isolated assessment of the changes of individual factors does not take into account the fact that actual changes $(Q_0^{(j)} \Rightarrow Q_1^{(j)}; p_0^{(j)} \Rightarrow p_1^{(j)})$ occur in the real economic environment, in particular trade and commercial operations and are implemented not only jointly but are also interdependent. This circumstance determines the particular statistical effect, complementing the effects of isolated changes in individual factors. The necessity of considering such a joint change of the factors in the theory of economic analysis is obvious. The effect is measured according to the scheme of V. Varzar4 known as an Index of joint changes (JCI) with its different variants used in different analytical tasks.

Consider a planar illustration of the diagram, or the "sign of Versar" in the case of turnover, i.e., with respect to the two-factor multiplier from the expression (1). The chart presented on the plane is focused on the two-factor multiplicative model. Basis and reporting the status value of the turnover of the j-th commodity goods coincide in sense with the areas of rectangles with relevant stakeholders $\{Q_0^{(j)}, p_0^{(j)}\}$ and $\{Q_1^{(j)}, p_1^{(j)}\}$. The transition of trade from the basic state $W(Q_0^{(j)}, p_0^{(j)})$ in the reporting $W(Q_1^{(j)}, p_1^{(j)})$ geometrically indicates a change of source area (rectangle 1) by adding three additional areas, as shown in Fig. 1.

[4] Varzar (Varzer) Vasily Egorovich (1851-1940) — Russian, Soviet statistician and economist, academician, founder of industrial statistics in Russia. Organized two of the first major statistical survey (census)

$$W(Q_1^{(j)}, p_1^{(j)}) = W(Q_0^{(j)}, p_0^{(j)}) + W(\Delta Q_{1/0}^{(j)}, p_0^{(j)}) + W(\Delta p_{1/0}^{(j)}, Q_0^{(j)}) + W(\Delta Q_{1/0}^{(j)}, \Delta p_{1/0}^{(j)}).$$

(6)

In order to find the absolute increment in the volume of trade turnover in the reporting period compared with the baseline, we must reference the feature $W(Q_0^{(j)}, p_0^{(j)})$ to move to the left side of the expression (6), respectively, with the opposite sign

$$\Delta W(Q^{(j)}, p^{(j)})_{1/0} = W(Q_1^{(j)}, p_1^{(j)}) - W(Q_0^{(j)}, p_0^{(j)}) = W(\Delta Q_{1/0}^{(j)}, p_0^{(j)}) +$$
$$+ W(\Delta p_{1/0}^{(j)}, Q_0^{(j)}) + W(\Delta Q_{1/0}^{(j)}, \Delta p_{1/0}^{(j)}).$$

(7)

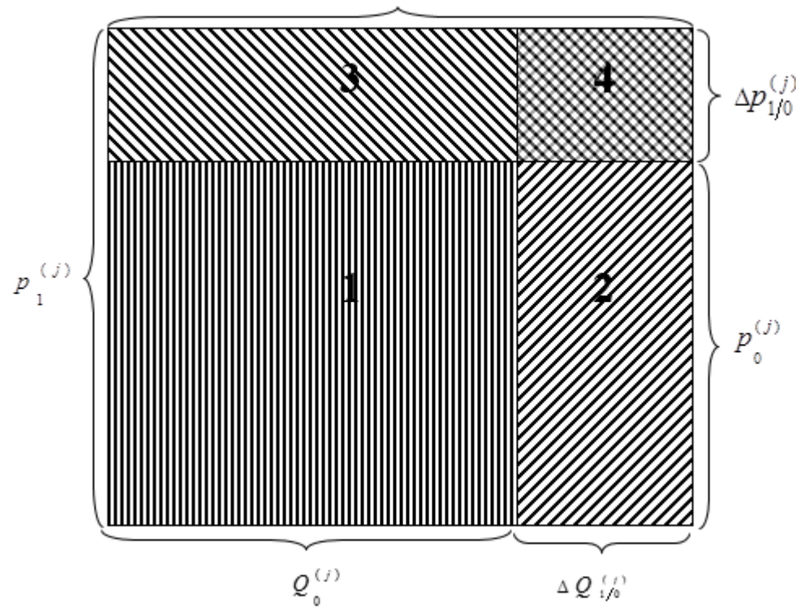

Fig. 1: A graphical representation of the index joint changes (IJC) V. Varzar

1 – original volume value of the turnover of the base period (last year); 2 – the change in the value due to the growth of commodity mass in the reporting period (the current year); 3 – the change in the value due to the change of the price factor; 4 – the change in the value due to the simultaneous and combined changes and volume, and price.

The expression (7) represents the differential form of the appropriate and simple analytical indices (i.e. in absolute terms), each of which has its special purpose and meaning. When we switch to the traditional form of analytical indexes in relative terms, each of which corresponds to the differential forms of equation (7) as separate components, the so-called III index system is formed, which is focused on the evaluation of the phenomenon of joint changes (rectangle 4 in Fig. 1) that provides a measure of the effect of Varzar.

$$\Im_{W(Q,p)1/0} = \Im_{W(Q)1/0} \times \Im_{W(p)1/0} \times \Im_{W(\Delta Q_{1/0},\Delta p_{1/0})1/0} = \begin{matrix} \boxed{\begin{matrix} Q_0 \to Q_1 \\ p_0 \to p_1 \end{matrix}} & \boxed{\begin{matrix} Q_0 \to Q_1 \\ p_0 = const \end{matrix}} & \boxed{\begin{matrix} Q_0 = const \\ p_0 \to p_1 \end{matrix}} \end{matrix}$$

$$= \frac{\sum_{j=1}^{m} Q_1^{(j)} p_0^{(j)}}{\sum_{j=1}^{m} Q_0^{(j)} p_0^{(j)}} \times \frac{\sum_{j=1}^{m} p_1^{(j)} Q_0^{(j)}}{\sum_{j=1}^{m} p_0^{(j)} Q_0^{(j)}} \times \left[\frac{\sum_{j=1}^{m} p_1^{(j)} Q_1^{(j)}}{\sum_{j=1}^{m} p_0^{(j)} Q_1^{(j)}} : \frac{\sum_{j=1}^{m} p_1^{(j)} Q_0^{(j)}}{\sum_{j=1}^{m} p_0^{(j)} Q_0^{(j)}} \right]. \quad (8)$$

The entry components in the square brackets of the formula from expression (6) allows to obtain two significant modifications of the index joint changes $\Im_{W(\Delta Q_{1/0},\Delta p_{0_{1/0}})1/0}$. The first modification represents the actual index of Varzar ($\Im_{p1/0}^{(V)}$) in the form of the ratio, return the Gerschenkron index, i.e., quantitatively characterizing the opposite of a systematic lag of price index of Paasche (P) from the Laspeyres index (L).

$$1) \quad \frac{\sum_{j=1}^{m} p_1^{(j)} Q_1^{(j)}}{\sum_{j=1}^{m} p_0^{(j)} Q_1^{(j)}} : \frac{\sum_{j=1}^{m} p_1^{(j)} Q_0^{(j)}}{\sum_{j=1}^{m} p_0^{(j)} Q_0^{(j)}} = \Im_{p1/0}^{(V)}. \quad (9)$$

That is, the index of the joint changes from expression (9), as can be seen, is the ratio of the other two above-mentioned price indices with the corresponding value of the ratio:

$$\Im_{p1/0}^{(V)} = \Im_{p1/0}^{(P)} : \Im_{p1/0}^{(L)} < 1. \quad (10)$$

This analysis allows to assess the dynamics of changing prices in the calculation and reporting reference range produced and sold commodity mass, which is extremely important to detect the deterioration (or improvement) in the quality of consumption benefits paid and ultimately the quality of life. Note also the presence of inverse proportion of indices $\Im_{p1/0}^{(G)}$ and $\Im_{p1/0}^{(V)}$, which follows from expressions (4) and (10), which, however, does not stop to comment on the impact of structural changes in the product range on the level of prices and inflation expectations in any sequence.

Another modification of the joint of the index changes can be obtained based on expression (7) as the source by using the analytical reception of the so-called replacement of the elements of the secondary diagonal and the subsequent rearrangement of the factors in the numerators and the denominators are already the corresponding volume indices – $\Im_{Q(p_1)1/0}$ and $\Im_{Q(p_0)1/0}$.

$$2) \quad \frac{\sum_{j=1}^{m} p_1^{(j)} Q_1^{(j)}}{\sum_{j=1}^{m} p_0^{(j)} Q_1^{(j)}} \cdot \frac{\sum_{j=1}^{m} p_1^{(j)} Q_0^{(j)}}{\sum_{j=1}^{m} p_0^{(j)} Q_0^{(j)}} = \frac{\sum_{j=1}^{m} p_1^{(j)} Q_1^{(j)}}{\sum_{j=1}^{m} p_1^{(j)} Q_0^{(j)}} : \frac{\sum_{j=1}^{m} p_0^{(j)} Q_1^{(j)}}{\sum_{j=1}^{m} p_0^{(j)} Q_0^{(j)}} = \frac{\sum_{j=1}^{m} Q_1^{(j)} p_1^{(j)}}{\sum_{j=1}^{m} Q_0^{(j)} p_1^{(j)}} : \frac{\sum_{j=1}^{m} Q_1^{(j)} p_0^{(j)}}{\sum_{j=1}^{m} Q_0^{(j)} p_0^{(j)}} = \Im_{Q(p_1/p_0)1/0}. \quad (11)$$

During these elementary transformations two indexes of physical volume of commodity weight were obtained in the calculation for the reported and the basic level of pricing, which gives a second modification of the Varzar index of joint changes, more commonly known as the product range offset index (not to be confused with a second analytical index – the structure index, or index of structural

shift of the I Index system).

Both versions of the joint index of changes (the Varzar index $\Im_{p1|/0}^{(V)}$ and the product range offset index) capture from different positions of the joint price change and product supply at the trade which "with equal success and equally unreasonably" can be assigned to the first and second factors. Modifications convincingly demonstrate the diversity index measurements, the conventionality index of individual characteristics, objective limits of the scope and at the same time the specificity of application of each of them. The construction of the combined changes during the transition from planar images to three-dimensional image, i.e., carrying out similar procedures for three-factor multiplier causes even established researchers specific difficulties in terms of interpreting.

For example, for a model featuring a direct statistical correlation, the costs of raw materials in the process of manufacturing the j-th part – C(j), its dependences on the number of parts – Q(j); specific consumption of raw materials – s(j) and the unit prices of raw materials – p(j) throughout the nomenclature $j=\overline{1,m}$, respectively, in the reported and the base periods of operation of plant section of the engineering enterprise are reflected by the formulas from (12)

$$\sum_{j=1}^{m} C_0^{(j)} = \sum_{j=1}^{m} Q_0^{(j)} s_0^{(j)} p_0^{(j)}; \quad \sum_{j=1}^{m} C_1^{(j)} = \sum_{j=1}^{m} Q_1^{(j)} s_1^{(j)} p_1^{(j)} . \tag{12}$$

Any other combination of traits-factors is invalid, since only the given sequence can be yield economically meaningful and informative indicators: first, the physical volume of raw materials that went into the production of parts for j-th type – Q(j)×s(j), and then the cost of working capital in the amount of product – (Q(j)×s(j))×p(j). The structural transition from the baseline assessment (condition) of full costs for raw materials to actual costs of the reported period may be by analogy with the sequence of counting operations of Figure 1 shown in the diagram of the formation of a joint index of changes in three-dimensional space {Q, m, p} in Fig. 2.

Fig. 2 shows a visual 3d representation of the geometrically estimated areas of the conditional parallelepiped in the form of quantity of the used raw materials at the j-th product, based on which the volumetric parameters of signs, numerically coincident with the value – C(j) are calculated. In this case, a composite index of changes in costs in the reporting period (e.g. per day, week, month, quarter, etc.) as compared with the base within the III Index of the system (the basic indices) will have the following view containing a review of the framework under each of the analytical indices in the formulas from (13):

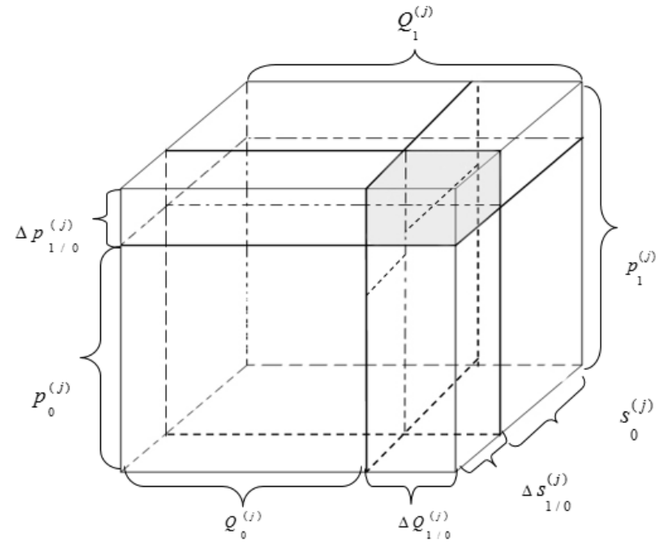

Fig. 2: The 3D-illustration of procedure of the index joint changes the cost consumed in the production process working capital in the space of variables {Q, s, p}

$$\mathfrak{I}_{C(Q,s,p)1/0} = \left|\begin{array}{c} Q_0 \Rightarrow Q_1 \\ s_0 \Rightarrow s_1 \\ p_0 \Rightarrow p_1 \end{array}\right| \times \left|\begin{array}{c} Q_0 \Rightarrow Q_1 \\ s_0 = const \\ p_0 = const \end{array}\right| \times \left|\begin{array}{c} Q_0 = const \\ s_0 \Rightarrow s_1 \\ p_0 = const \end{array}\right| \times \left|\begin{array}{c} Q_0 = const \\ s_0 = const \\ p_0 \Rightarrow p_1 \end{array}\right|_{1/0} =$$

$$= \frac{\sum_{j=1}^{m} Q_1^{(j)} s_0^{(j)} p_0^{(j)}}{\sum_{j=1}^{m} Q_0^{(j)} s_0^{(j)} p_0^{(j)}} \times \frac{\sum_{j=1}^{m} Q_0^{(j)} s_1^{(j)} p_0^{(j)}}{\sum_{j=1}^{m} Q_0^{(j)} s_0^{(j)} p_0^{(j)}} \times \frac{\sum_{j=1}^{m} Q_0^{(j)} s_0^{(j)} p_1^{(j)}}{\sum_{j=1}^{m} Q_0^{(j)} s_0^{(j)} p_0^{(j)}} \times$$

$$\times \left\{ \left[\frac{\sum_{j=1}^{m} Q_1^{(j)} s_1^{(j)} p_1^{(j)}}{\sum_{j=1}^{m} Q_1^{(j)} s_1^{(j)} p_0^{(j)}} \times \frac{\sum_{j=1}^{m} Q_1^{(j)} s_1^{(j)} p_0^{(j)}}{\sum_{j=1}^{m} Q_1^{(j)} s_0^{(j)} p_0^{(j)}} \right] : \left[\frac{\sum_{j=1}^{m} Q_0^{(j)} s_1^{(j)} p_0^{(j)}}{\sum_{j=1}^{m} Q_0^{(j)} s_0^{(j)} p_0^{(j)}} \times \frac{\sum_{j=1}^{m} Q_0^{(j)} s_0^{(j)} p_1^{(j)}}{\sum_{j=1}^{m} Q_0^{(j)} s_0^{(j)} p_0^{(j)}} \right] \right\}. \quad (13)$$

From the expression (11) it follows that the index of joint changes in the present embodiment represents the ratio of the number of indices of dynamics of prices and unit costs of raw materials, as constructed according to the Paasche scheme and Laspeyres scheme:

$$\mathfrak{I}_{C(\Delta Q,\Delta s,\Delta p)1/0} = \frac{\mathfrak{I}_{s1/0}^{(P)} \times \mathfrak{I}_{p1/0}^{(P)}}{\mathfrak{I}_{s1/0}^{(L)} \times \mathfrak{I}_{p1/0}^{(L)}}. \quad (14)$$

These very interesting and informative ratio of factor units from the expression (14) allow for the definition of the objectives of the study to create a rich set of index combinations of different

analytical focus and use them to conduct a comprehensive techno-economic analysis of the dynamics of primary and secondary signs of any depth and detail in the implementation of diagnostics of a condition of economic activity at the micro level of economic entities, the real sector of the economy at the meso- and macro- levels of regional and national economy.

We illustrate the considerations above by a conventional example, for which the data is presented in table. 1.

Table 1: The source data for the analysis by the index method of the three-factor multiplier measuring the material costs of a machine-building enterprise

№ p/p	Item name in the product range	The base period			The reported period		
		quantity, units	specific consump-tion, kg/unit	the price of raw materials, RUB/kg	quantity, units	specific consump-tion, kg/unit	the price of raw materials, RUB/kg
$j=\overline{1,m}$	j	$Q_0^{(j)}$	$s_0^{(j)}$	$p_0^{(j)}$	$Q_1^{(j)}$	$s_1^{(j)}$	$p_1^{(j)}$
1	2	3	4	5	6	7	8
1	Valve seat*	3 000	2,5	3 132	2 900	2,2	3 256
2	Roller assembly**	2 000	5,5	862	1 700	5,0	911

Notes to the table. 1:
* a product designed for the aviation industry, made of bronze Brazh GOST 613-79 of brand Brainz 10-3-1,5;
** a product for the machinery processing industry, made of chromium-Nickel pig iron with heat - and wear-resistance code "OKDP 11 271 27", brand ЧХ9Н5.

The results of performing the necessary analytical calculations for the traditional rules and scheme of Varzar are listed in the table of the summary characteristics – table. 2. The date of the 5th column from this table show a general decrease in the commercial mass of the producer (-6.69%), reflecting the overall crisis of the real economy, while the specific production causes inflation processes and the increase in costs due to the increase of prices amounted to 4.42%. This may lead to a false impression of the rationalization of production with general cost reductions at the enterprise for these types of products (-13.51%).

Table 2: Summary table of results of the influence of considered factors on the total material costs of production in traditional assessment, and by the Varzar scheme of (IJC)

No. factor p/p	Factor name	Symbols	Comparative level of cost changes by the method of chain substitutions				Ad valorem characteris-tics according to the scheme of Varzar, %	
			absolute deviation, RUB	analytic factor index, %	in % to the total deviation	in % to the cost of the base period	The Gerschenk ron factor indexes	in % to the cost of the base period
$k=\overline{1,K}$	$x^{(k)}$	$C(x^{(k)})_{1/0}$	$\Delta C(x^{(k)})_{1/0}$	$\mathfrak{I}_{C(x^{(k)})_{1/0}}$	$\frac{\Delta C(x^{(k)})_{1/0}}{\Delta C(Q,s,p)_{1/0}}$	$\frac{\Delta C(x^{(k)})_{1/0}}{C(Q,s,p)_0}$	$\mathfrak{I}^{(G)}_{x(k)_{1/0}}$	$\frac{\Delta C(x^{(k)})_{1/0}}{C(Q,s,p)_0}$
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
	The change in the value of costs due to:							
1	the change in the	$C(Q)_{1/0}$	-2 205 300	93.31	49.50	-6.69	93.31	-6.69

	volume of products							
2	changes in unit cost of raw materials per unit of product	$C(s)_{1/0}$	-3 457 540	88.76	77.61	-10.49	89.08	-10.92
3	change in the unit price of raw materials	$C(p)_{1/0}$	1 207 620	104.42	-27.11	3.67	104.91	4.91
4	Total:	$C(Q,s,p)_{1/0}$	-4 455 220	86.49	100.00	-13.51	86.49	-13.51

Another area of application of the joint change index should be of analytical calculations of the dynamics of the aggregate CPI levels and intensity of inflationary processes. A separate application of the Index III system can be a sophisticated analysis of the formation of costs in management accounting, as well as modern point of view of cost management and making sound management decisions aimed at saving modes, saving and innovation technologies and/or products.

It should be said about the analytical potential of these calculated indices in relation to the study of the impact of the inflation, increased in recent months, on the level of life of various strata of the population. The inflation process is multifaceted, its nature is similar to chain reactions in the fields of physics, and it can manifest itself in the following areas and positions: 1) price increase; 2) the devaluation of the ruble in conditions of relative stability of the economy; 3) growth of the dollar and the euro in the conditions of absolute instability of the economy; 4) the rise in the cost of gross output and wholesale prices for a unit of commodity weight; 5) the inflated financial "bubble" of the business entity by an order of magnitude above the regulatory/recommended levels in relation to physical assets; 6) a sharp decline in liquidity in all asset types of stock markets; 7) excessive transaction losses, expenses, damages and missed benefits of modern management.

According to experts of the Research institute of statistics of Rosstat, inflation should be cured as a whole, and not by separate measures. The differentiated inflation indices, including equity, currency, and similar indices, constructed by the IJC technology may indicate what measures to take to target inflation. Economic instruments for adequate compensation for inflation losses can be constructed with the help of these indicators.

These indices can can help solve the problem of practical implementation of the methods for adjusting financial statements of an economic entity (for example, in order to assess the market value) in terms of inflation, which is directly related to the calculation of the price index, which is useful for the translation of the financial statements. Therefore, the determination method of the measurement of inflation or the choice of statistical indicators reflecting the amount of inflation processes in the economy of the country is one of the most important stages of development of theoretical and methodical bases of adjustment of financial statements to ensure comparability and validity. The correctness of the subsequent assessment procedures largely determines the scientific validity of the selection of indicators characterizing inflation.

The method of assessing the impact of structural changes on the level of inflationary expectations may be claimed from an unexpected side, since 10 November 2014 the Central Bank of the Russian Federation has changed its focus, and announced the level of inflation and not the rate of the national currency to be the reference point of the monetary policy. The currency corridor, when the megaregulator is buying and selling currency by manipulating the exchange rate, was practiced in the Russian Federation since 1995. Now the key rate became the main tool of management of the money supply, i.e., monetary aggregates of the economy.

Analysis of recommendations on adjusting the financial statements contained in the publications of

Russian authors has shown that the vast majority of them offer for the purpose of adjustments to use the model in constant prices (GPP) and to apply CPI as the inflation index in the framework of this model. However, a number of publications containing methodological issues affecting corrective procedures in terms of inflation based on the CPI may contain controversial provisions and opinions, requiring an open debate.

The formula of the joint changes index from expression (14) can also be represented in its extremely useful modified form via the analog indices of Varzar, which can assess changes in secondary traits: specific expenses of the working capital (s(j)) and unit prices for raw materials and supplies (p(j))

$$\Im_{C(\Delta Q,\Delta s,\Delta p)1/0} = \Im^{(G)}_{s1/0} \times \Im^{(G)}_{p1/0}, \quad (15)$$

In this case, the initial entry of the simple index of total costs on working capital from the expression (15) takes a form that is perfectly finished, almost classical, and, more importantly, convenient for the analytical work and subsequent economic interpretation:

$$\Im_{C(Q,s,p)1/0} = \Im_{C(Q)1/0} \times \Im_{C(s)1/0} \times \Im_{C(p)1/0} \times \Im^{(G)}_{s1/0} \times \Im^{(G)}_{p1/0}.$$

(16)

The above material is not presented in didactic literature and is a methodological development of the authors. This approach to the construction of III Index system may be useful for economists, practitioners, financial and market analysts, and researchers who wish to learn the index method as a reliable statistical tool of subject socio-economic studies, in particular, the technique of the analysis of the joint changes index in different substantive modifications.

Conclusions

The IJC technology allows not only theoretically reliable calculations, but also to get more subtle (although more laborious) measurements in the framework of applied research and operational analytics with any conceivable set of signs of the causal factors of any dimension, without specially resorting to statistical techniques of multiple correlation and the construction of regression equations.

In particular, it is noteworthy that calculations of the effect of physical volume of production (natural-material composition of products, a structural component), unit costs of circulating assets and material costs presented in columns 8 and 9 of table. 2 differ somewhat from the estimates obtained by the routine method. However, the authors believe a more accurate assessment f the assessment of cost inflation, produced by a specific unit of the company obtained using the IJC technology, to be more accurate.

The technique demonstrated gives the opportunity without the use of a particularly complex mathematical apparatus to produce generalization to k-dimensional case, since the goal of any didactics implies subsequent synthesis. The approach also contains potential assessment of the impact of the included factors not only in the traditional relative form (in percentage), but, importantly, in absolute value terms, using differential forms of special analytical indexes, which is more convincing for the management of analytical services and top management of the enterprise.

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Environmental Impact of Aquaculture: A Literature Review

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Abstract

Aquaculture has an enormous contribution to worldwide food production, being one of the fastest growing food sectors and a significant economic activity for many countries. In 2012, aquaculture contributed with 42.2% to total fish production. Due to the continuous growing of world population and of rising incomes and urbanization, aquaculture will continue this impressive development, being expected to overcome capture fisheries production till 2030. The continued growth of aquaculture contributes to increasing pressure on natural resources, water, feed and energy. Fish production generates considerable amounts of effluent which may have an adverse environmental impact. Generally, aquaculture effluents include uneaten feed, faeces and other organic and inorganic compounds. Because aquaculture depends largely upon a good aquatic environment, mainly the success of developing aquaculture needs to be related to it. In the context of the aquaculture expansion it is essential that the aquaculture technologies be ecologically sustainable and to respect environmental legislation. Mostly, the impact of aquaculture on environment mainly depends on reared fish species, rearing and management techniques, location and also, local environmental conditions. In this context, the aim of this present paper is to present a literature investigation regarding the world aquaculture status, together with its potential effects on the environment.

Keywords: environmental impact, sustainable aquaculture, aquaculture production systems.

Introduction

Fish is considered a food with a high nutritional value, providing an important source of protein and a wide variety of vitamins (such as D and B2-riboflavin), minerals (iron, zinc, iodine, magnesium, and potassium) and poly-unsaturated omega-3 fatty acids. According to the report of Food and Agriculture Organization from 2014, in the year 2010 fish accounted 16.7% of the global population's intake of animal protein and 6.5% of all protein consumed. Taking into consideration

that world's population keeps growing during next decades and global life standards, respectively animal protein need rises, fish demand will certainly growth. Because the wild fish captures are already exploited at maximum level, a large part of those new demands must be satisfied through aquaculture activity. As a result, aquaculture has generated a great interest from the international scientific community, supplying the concerns regarding the increase of sustainability and profitability by different methods.

Aquaculture represents the farming of aquatic organisms including fish, mollusks, crustaceans and aquatic plants. According to the Food and Agriculture Organizations, 2014, aquaculture is the fastest growing animal food sector in the world. Food and Agriculture Organizations, (2000) mentioned that in the present, aquaculture supplies an estimated 49% of all fish that is consumed by humans globally and is expected to contribute to more than half of the global fish consumption till 2030.

Although aquaculture has many benefits (providing food and ensuring jobs for humans) a big concern which is facing it is represented by its environmental impact and water quality degradation. Acoording to Guangjun et al (2010), if this sector is not well managed we may experience some unreasonable phenomena such as: the random discharge of aquaculture wastewater, the abuse of medicines, and the escaping of aquatic animals, which have serious influences on the environment.

A. The state of World and EU Aquaculture. World food fish aquaculture production expanded at an average annual rate of 6.2% in the period 2000–2012, slower than in the periods 1980–1990 (10.8%) and 1990–2000 (9.5%). Between 1980 and 2012, world aquaculture production registered a slight increase with an average rate of 8.6 % per year. In a report published by Food and Agriculture Organizations (2014), in the year 2012, this sector reported a record registering almost 90.4 million tonnes, including 66.6 million tonnes of food fish and 23.8 million tonnes of aquatic algae, being estimated for 2013 a production of 70.5 million and 26.1 million tonnes, respectively. The World per capita apparent fish consumption increased from an average of 9.9 kg in the 1960s to 17.0 kg in the 2000s and 18.9 kg in 2010, with preliminary estimates for 2012 pointing towards further growth to 19.2 kg (Food and Agriculture Organizations, 2014).

The species that dominate world aquaculture are aquatic plants, shellfish, herbivorous fish and omnivorous fish. Also, a rapid increase is obvious for marine aquaculture of carnivorous species, especially salmon and shrimp and other marine finfish (Food and Agriculture Organizations, 2014). The most widespread type of aquaculture in the world is represented by the farming of tilapias, Pangasius and other cichlid species. (Food and Agriculture Organizations, 2014).

The global distribution of aquaculture production in all regions and countries with different levels of economic development remains unbalanced. Asia dominates this production, accounting 88.39% of world aquaculture production in 2012, this being determined by the significant contribution of China (Food and Agriculture Organizations, 2014).

Compared to world aquaculture production, which continues to rise, European aquaculture is in a period of stagnation. EU contributions to world aquaculture production have been decreasing significantly over time in both volume and value terms, representing only 1.9% and 3.5% of world production in 2012. According to Eurostat 2014, aquaculture production by the European Union Member States was approximately 1.25 million tonnes of live weight in 2012, almost the same as in 2011. This represented a decline in aquaculture production of about 11% after the relative peak of 2000.

Mainly, the most valuable species produces in EU are Atlantic salmon, oysters, sea bream, sea bass and trout. The main species produced in freshwater is represented by trout. Also, carp is another important species mostly produced in Eastern Europe, where the main producer is Poland covering 39% in terms of total value (Food and Agriculture Organizations, 2014). According to Eurostat (2014) the three largest aquaculture producers among the EU Member States were Spain, the United Kingdom, and France, which together accounted for more than half (54%) of the EU aquaculture

production in 2012.

Aquaculture production systems. Aquaculture systems can be classified in extensive, semi-intensive, intensive, or highly or super intensive depending upon the number of organisms grown per volume of water and the water source and supply. Extensive aquaculture is practiced without feed or fertilizer inputs. In semi-intensive aquaculture fertilizers can be added to increase the natural productivity and the water quality can be improved using additional aeration. In intensive aquaculture high densities are practiced using aeration, full feed, and chemical supplements, in order to promote the health of the organisms grown. In principal, freshwater aquaculture is practiced either in fish ponds, pens, cages or, on a limited scale, in rice paddies, in high flow-through tanks or in recirculating aquaculture systems (RAS), brackish aquaculture is done mainly in fish ponds located in coastal areas and marine culture employs either fish cages or substrates for mollusks and seaweeds such as stakes, ropes, and rafts (Food and Agriculture Organizations, Aquaculture Systems and Practices: a Selected Review, 1989).

Pond aquaculture. Pond aquaculture represented the oldest fish farming activity and involves maintaining the environmental conditions at the same level of the technological requirements of fishes. In these systems fish are raised at low densities, mainly because of lack of additional feeding, fish feeding on aquatic animals reared is strictly resulting from natural productivity and due to the difficulty to control water quality. Usually, in order to improve natural food are applied organic and inorganic fertilizers, which contribute to developing natural developing micro and macro flora, food that will support fish populations or other aquatic animals. Higher production can be obtained in the condition of supplementary feeding and higher stocking densities, but this supposes water aeration. According to SRAC (Southern Regional Aquaculture Center), Publication No. 163/1997, in a pond without aeration, it can be obtained from 226 kg to 680 kg of fish per 0.40 ha. Instead, in a pond with aeration, it can be obtained around 1133 kg to 1814 kg of fish per 0.40 ha. To increase the profitability of these systems is indicated to combine both fertilizer and supplementary feeding.

Between the main disadvantages of these systems, we emphasize: require large volumes of water, large land/pond area, due to the use of organic and inorganic fertilizers may appear eutrophication of the waters, incapacity to guarantee the safety of the product to consumer, because ponds systems are open-air there is always a risk of water contamination. But, according to Verdegem & Bosma (2009) if this systems succeed a better optimization of water consumption and feed management they could triple production without increasing freshwater usage. That's why, to increase the economic efficiency of this systems it`s crucial to optimize water consumption, a good solution being the integration into other production systems and also applying of a production management focused on sustainability.

Aquaculture in Raceway. Raceway, also known as a flow-through system, represents enclosed systems which are based on the continuous water flowing through the culture tanks. Because in these systems water enters at one end and flows through the raceway in a plug flow manner, the best water quality exist only at the head of the tank, where the water enters, and then deteriorates along the axis of the raceway toward the outlet (Timmons and Ebeling, 2013). In comparison with the ponds these systems have several advantages, as higher stocking densities, improved water quality, feeding and harvesting are done more easily, less off flavor and an easier way to control disease problems. Fish metabolites are carried out with the effluent while settleable particulate wastes can be collected by settling or less frequently by other means of filtration. Optionally, this type of systems can be integrated into agricultural production, a fraction of the waste process water used in the irrigation of different agricultural areas.

Between the main environmental concerns of these systems we mention eutrophication as the main consequence of increased nutrient loadings (faecal and uneaten food waste), the use of chemicals to control parasites and disease. Also, a big disadvantage of raceways is related to the needs of constant flows of water with a high quality.

Cages and Pens. Cages are boxes shaped enclosure which floats, is suspended, or sits on the bottom

of a larger water body. Usually, the cages size varied from 1.0 m^3 to 1,000 m^3. Usually, pens are much larger and serve as enclosures to hold organism for grown. In pens, organisms have free access to the bottom within the enclosed area. Growing and production of farmed aquatic organisms in caged enclosures has been a relatively recent aquaculture innovation. Primarily, these systems have been associated with the culture of salmonids, but due to the rapid expansion of aquaculture in the last 20 years this sector has grown very rapidly. Generally, cage culture is suitable for the growing of carnivorous species with a high economic value (Atlantic salmon, Coho salmon and Chinook salmon Japanese amberjack, red seabream, yellow croaker, European seabass, gilthead seabream, cobia, rainbow trout, Mandarin fish) (Tacon A. et al 2007).

The main advantages of cage culture are associated with the use of existing water and the fact that doesn`t require land ownership, the related capital costs being quite low making this technology the most economical culture. Also, a big advantage it`s represented by the possibility to move into optimal rearing environments and sheltered areas.

Between the disadvantages of the system, we mention the fact that these systems are permanently exposed to foul weather conditions making impossible the controlling of physical-chemical water and also the environmental impact on water quality generated by these systems. Also, according to Sugiura et al (2000) and Tacon A. et al (2007), cage cultures are vulnerable to poaching and vandalism and to higher risks of fish escaping.

Aquaculture in recirculating systems (RAS). Recirculating Aquaculture Systems are used for fish farming or other aquatic organisms by reusing the water in the production by mechanical, biological chemical filtration sterilization, oxygenation, and other treatment steps. That's why RAS systems represent an alternative to pond aquaculture due to low water consumption (Verdegem et al 2006) better opportunities for waste management and recycling of nutrients (Piedrahita, 2003) and due to the easy way to control the spread of disease (Summerfelt et al 2009; Tal et al 2009). RAS are intensive production systems than most other types of traditional aquaculture systems (Timmons and Ebeling, 2013) and are the most compatible with environmental sustainability (Martins et al 2010), due to the production of small quantities of wastes and of water reuse. However, the main disadvantages of these systems are high capital and operational costs and requirements for very careful operational management. That's why this type of systems are justified only for growing high-value species such as sturgeon, pike, perch, eel, catfish, tilapia, etc.

B. Impacts of aquaculture on the environment. Due to rapid expansion and to continued pressure on natural water resources, energy and feed, aquaculture can produce different impacts on the environment. Aquaculture can exert both positive impact and negative on the environment. Usually, the quality and quantity of waste from aquaculture, as well as the environmental impacts of aquaculture, vary with farmed species, the management practices used and location of the production system but also on feed quality and management (feed composition, feed ration and feeding method) (Preston et al 1997; Wang et al 2005; Podemski C.L. and Blanchfield P.J. 2006). Among the major effects of aquaculture on the environment in this paper we refer to:

- Effluent discharges;
- Effects of other discharges from aquaculture (e.g. fertilizers, chemicals, and medicines);
- Escapes from fish farms and potential effects on wild populations.

Effluent discharges. Aquaculture effluents contain dissolved and suspended solids that have biochemical oxygen demand (BOD), ammonia and nutrients phosphorus (P) and nitrogen (N) that are derived from fish excretion, faeces, and uneaten feed, and specific organic or inorganic compounds (i.e. therapeutics). Between all these components a special attention is directed towards nitrogen and phosphorus which are considered the main pollutants of intensive aquaculture (Hakanson et al., 1998). These components are a real source of pollution and if they are developed at high level can cause of eutrophication (González et al 2008), resulting in occurrence of the harmful algal blooms (Pearl H. W. 1997; Goldburg Rebeca and Tracy Triplett et al 1997) and the depletion of oxygen due to the increase of microbial activities (Diaz et al 2008).

It is obviously that feeding is the main source of waste output from aquaculture, due to the high amounts in fishmeal (FM) which is rich in P. In fact, Ackefors, (1999) said that the content of phosphorus and nitrogen in the feed and the feed conversion rates are most important in assessing environmental impacts of aquaculture. According to Jackson et al (2003) and Schneider et al (2005) only 20% to the cultured organism is retained as biomass while the rest is incorporated into the water column or sediment. Moreover, Pierhadrita, (2003) says that nitrogen and phosphorus retention range between 10-49% and 17-40% respectively, while from faeces N and P are released from 3.6% to 35% and 15% to 70% respectively. Lastly, dissolved N and P excretions range from 37% to 70% respectively. Nowadays, modern aquaculture is based mostly on the feeding of manufactured feeds (extruded pellets) reducing the phosphorus excretion. For example, in a diet for salmon, with 40% protein, 30% lipids, 13% carbohydrate and a energy content of 19.2 MJ kg-1, the nitrogen content is around 7%, aspect which makes possible to use fat for energy (instead of protein) and excreted of smaller volumes of nitrogen compounds (Pillay, 2004). That`s why it is very important to know the ingredients from the feeds and to balance these nutrient in order to improve the nutritional quality. Cho et al (1991), says that the goal of aquaculture is to produce feed very well suited to the nutritional needs of the fish so that the maximum growth can be achieved with minimum waste, particularly phosphorus and nitrogen. So, according to Youssouf A. et al (2012), a way to reduce P waste produced by aquaculture is to replace the FM with FM substitutes that contain lower P, without affecting the growth performance of fish. Also, Ayoola A. (2010) suggest that a possible alternative of protein sources, can be represented by animal proteins from rendering or slaughter, plant protein concentrates and novel proteins such as algae, yeast, dried distillers grains with soluble (DDGS) and insect meal.

Besides feed composition, others factor responsible for pollution effluent from aquaculture is the type of the culture systems and the practiced stocking densities. In general, the effluent resulting from aquaculture raceway is more polluted in comparison with ponds effluent, cages and pens, mainly because water passes quickly through raceways and dissolved and suspended matter are flushed out. Generally, wastes emitted from cages and raceways are quickly diluted but also can generate changes in sediment structure and function (Beveridge M. et al., 1997). On the other hand effluent from RAS systems, it is around 10% (daily water exchange) of total system volume per day, but RAS produce a concentrated waste.

Another important issue which will receive increasing attention is the practice stocking densities. High stocking densities suppose the concentration of many organisms in a low water volume, increasing the waste productions and thus increasing the concentration of phosphorus and nitrogen compounds from water. Also, not all fish species have similar metabolism having different capacities to process energy and nutrients, and that`s why choosing the suitable species for growth and the suitably grown system can be a good solution to protect the environment. Also, Manoochehri et al (2010), mentioned as a measure to reduce nutrient wastes or to avoid or reduce any negative environmental impacts a careful monitoring and management of aquaculture effluents.

Effects of other discharges from aquaculture (e.g. fertilizers, chemicals, and medicines). Besides the wastes, aquaculture effluents may contain chemicals (fertilizers, disinfectants and chemotherapeutants pesticides, antibiotics). Usually, fertilizers are used in aquaculture ponds, in order to increase the primary productivity by stimulating the phytoplankton growth. For that, a very important aspect is to establish the needed doses. These doses may be determined only from the knowledge of the chemical composition of the water and the physical-chemical characteristics of its bottom. Generally, in aquaculture are used organic fertilizers or inorganic fertilizers, or a combination of both. Inorganic fertilizers are an inorganic compound which contains nitrogen, phosphorus, and potassium. However, fertilizers, whether they are artificial or organic, can cause serious problems if they contaminate water or are added in excess, contributing to the deterioration of water quality and implicit to discharged effluents.

According to Okomoda V. (2011), in modern aquaculture, especially in high stocking density aquaculture, to prevent diseases, eliminate harmful biota, disinfect and restrain polluted and damaged

water, multiple chemicals and medicines are used. In the lasts years, the use of antibiotics has grown, even their use remains still controversial. Generally, the antibiotics are incorporated in fish pellets and due to uneaten feed go straight into water and bottom. Also, they can enter in water through faeces and by urine excretion. In fact, there are researchers who indicate the approximately 70-80% of the drug ends up in the environment (Samuelsen, Torsvik and Erik, 1992; Lalumera et al 2004). Mainly, in aquaculture antibiotics are used for therapeutic purposes and as prophylactic agents (Zheng et al 2012), the most frequent fish infections treated with antibiotics are skin ulcers, diarrhea and blood sepsis (Food and Agriculture Organizations, 2005).

Although their use is carefully indicated, there are cases when their discharge into the aquatic environment can lead to serious damages, due to the fact that they came in direct contact with water and soil. (Boxall 2004). These risks are associated with the direct toxic effects (on benthic micro and meiofauna, algae, plankton and other aquatic organisms) and more subtle effects including potential modification of bacterial communities (and the promotion of antibiotic-resistant organisms) (Marine Strategy Framework Directive, 2015). However, the use of antibiotics in aquaculture remains still difficult, because they must be administered directly into the water, and that's why should be taken into account a number of considerations such as environmental integrity, the safety of fish and the aquatic products intended for human consumption.

Escapes from fish farms and potential effects on wild populations represent another big issue of aquaculture, with detrimental effects on the environment. According to a report published by The Scottish Association for Marine Science and Napier University Scottish Executive Central Research Unit in 2002, escapees from fish farms may interbreed with wild population resulting in losses of genetic variability, including loss of naturally selected adaptations, thus leading to reduced fitness and performance. Also, escaping of fish from farms can be responsible for the spreading diseases and others pathogens. It is necessary for a better understand the relationships between disease and both as a means of preventing environmental economically serious disease outbreaks and indirectly promoting the need for better environmental management (Pullin et al 1993). In cases of cages, pens or other systems which release the untreated effluent directly into the water the possibility of transmitting diseases to wild fish stocks is quite high. The main way of introducing diseases is the transfer of infected farmed juveniles to these systems, or through infected food equipment, and through water streams (Ruiz et al 2000, Murray et al 2005, Salama et al 2011).

Conclusions

Aquaculture represents the sector with an important economic activity being situated on top of the food production industry. Increasing customer demand for aquaculture products, together with increasing environmental and also, the costs associated with land and water will determinate the producers to develop their technological facilities or to implement new solutions in order to assure the practice of high stocking densities and to meet the market demands while taking into consideration environmental protection.

In order to protect the environment, aquaculture activities must be conducted sustainably, with minimal impact on the environment. In fact, the aquaculture industry is already working on this requirement, which in many countries has reached an impasse. In conclusion, to develop a sustainable growth of aquaculture is needed to be profitability, economic development and to practice a good waste management. There are many measures which can be taking in order to reduce the environmental impact of aquaculture, as: reducing as much as possible food losses, the adoption of management strategies of discharged effluents, like the utilization of the recirculating systems or systems with low or zero water exchange, the revalorization of the wastes by integrating in hydroponic systems for plants production or for composting for garden applications. Also, it is important to ensure sustainable sourcing of feed, to avoid escapes by adopting technical standards, to minimize biodiversity impacts and to reduce the impact of chemicals and medicine use, particularly antibiotics.

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Students as a Specific Segment of Banking Sector – Case Study

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Abstract

After the global financial and economic crisis, the competition in the banking market has intensified significantly. A common suggestion is that banks have to focus on the needs, wants, expectations and requirements of clients. To be successful in this competitive fight, banks ought to respond to the growing competition in the banking market by usage of market segmentation techniques. Although banking sector have been a topic of interest to many studies and researches since 1960s and 1970s, students as a specific banking segment was not for a long time in the center of attention of researchers. This article focuses on the students as a specific segment of banking sector, their wants and needs. This paper is based on a data that were gathered through author's research and processed with appropriate statistical methods. Results of the author's research indicate that students have a positive attitude towards modern technology they are not willing to pay high bank fees and use mainly several banking products and services. Author stated several hypotheses to tested relationship between gender and other variables that were confirmed or rejected at the 99% confidence level.

Keywords: segment, segmentation, students, banking sector

Introduction

Changes in the banking sector, such as implementation of new technologies, increasing number of products and competitors, financial crisis, etc. have resulted in new environment with strong competition (Mylonakis 2007). If banks want to be able to face strong competition, they have to follow new trends and put emphasis on marketing activities and satisfying wants and needs of their clients. Satisfying customers' wants and needs is considered as one of the major elements of marketing. With growing competition marketing plays an essential role for every institution. Any institution in any industry have to incorporated marketing management and market segmentation in their activities as an essential element for success in business (Premkanth 2012). Marketing and customer orientation concept of marketing claims that the main purpose of the organization is to discover wants and needs of customers (target markets) with the aim to be able to satisfy those needs and wants more quickly and effectively than competitors (Areo 2015, Slater, Narver 1998, Hensley, Stock 1998, Kotler, Keller 2011). Understanding customers' expectations, needs and wants is considered as a first requirement for market segmentation (Premkanth 2012).

Lots of authors point out that segmentation and adaptation of marketing concept is very important for banks' strategy (Areo 2015, Mokhlis, Mat, Salleh 2008, Premkanth 2012, Ijevļeva 2013). Areo (2015) states that the main aim of any bank is satisfying customers' needs and wants by delivering services according needs and wants of different segments. If any bank wants to be successful in delivering services to its clients, it is necessary to understand needs and wants of particular segment in detail (Areo 2015). Marketing segmentation of students is emphasized by Tišlerová and Žambochová (2011).

The banking industry is transformed by new internet and smartphone trends and applications that are transforming bank products and services (Gupta 2008). These modern trends are used mainly by segments of young people and students (Bain & Company 2015). Eurostat statistics and Bain statistics show that the internet banking is used mainly by students (16-24 years) and young people.

More young people use internet banking in the Czech Republic in comparison with the European Union. 67% of the Czech people in the age group 25-34 uses internet banking. In the European only 62 % of the people in the same age group use internet banking (CZSO 2015). The highest penetration of mobile banking is in the age group 16-34 years (Eurostat 2015, Bain & Company 2015).

We can say that young people and students are a special segment for banks. This fact is reflected in many researches and articles. Students as one of the specifics segments for banks are mentioned in papers of Mokhlis, Mat and Salleh (2008), Hinson, Osarenkhoe and Okoe (2013), or Chigamba and Olawale (2011). Chigamba and Olawale (2011) point out that mainly university students represent one of critically important segments for banks. On the other hand students are not specific segment only for banks, but they have their specific requirements in other sectors – for example logistics and transportation (Ližbetinová, Kampf, Ližbetin 2012).

This article and author's research represented in this paper focuses on the students as a specific segment in the Czech banking market, on the wants and needs of this segment, services and products required by this segment, etc. Since the internet is considered as a social phenomenon of our time (Stellner, Vokoun, 2014), author will focus on the internet banking in the research, too. Czech banking sector, where author carried out her research, is quite stable. 46 national and international banks operated in the Czech market. In comparison with year 2009 there is seven more banks operating in the Czech market. The time series of the number of the banks operating in the Czech market is shown in the graph 1 bellow.

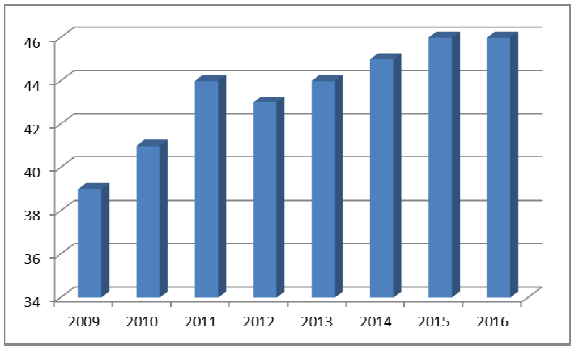

Fig. 1: Number of banks in the Czech market, source: ČNB 2016

Literature Review

The main aim of any bank is satisfying customers' needs and wants by delivering services according needs and wants of different segments. If any bank wants to be successful in delivering services to its clients, it is necessary to understand needs and wants of particular segment in detail (Areo 2015). Lots of authors point out that segmentation and adaptation of marketing concept is very important for banks' strategy (Areo 2015, Mokhlis, Mat, Salleh 2008, Premkanth 2012, Ijevļeva 2013). The understanding of the necessity of the market segmentation in bank industry is not a new phenomenon as well as the idea of segmentation. The idea of segmentation dates back to the 1930s and is connected with works of Chamberlain, or Robinson. The concept of Market segmentation was first defined in detail in 1956 by Smith (Ijevļeva Ijevlava 2013). We can find researches focusing on the segmentation in bank industry dated back to 1970s or 1980s – for example in the papers of Anderson, Cox and Fulcher (1976). Since this article focuses on a specific segment of banking sector – students, first of all we will define the term segmentation and segmentation criteria in banking sector.

There are different types of segments and many different types of criteria (factors) used for segmentation in banking sector – demographic factors, social factors, geographic factors, psychographic factors, etc. (Mylonakis 2007, Stafford 1996, Premkanth 2012, Anderson, Cox and

Fulcher 1976, McDougal, Levesque 1994, Machauer, Morgner 2001, Harrison 1994, Clarkson, Stone, Steele 1990, Ijevļeva Ijevlava 2013).

Psychological and psychographic characteristics are used in the paper of McDougall and Levesque (1994), or Beckett, Hewer and Howcroft (2000). Beckett, Hewer and Howcroft (2000) used psychological and psychographic factors for creating a model of consumer behavior during the purchase of banking services. Based on the literature search we can state that the most used segmentation factors in the banking industry are demographic and social-economic factors. As demographic segmentation factors are mainly used age, gender, marital status, family life cycle, or origin. For example Boyd, Leonard and White (1994) focus in their research papers on the age, gender and marital status. In spite of the fact that some authors – for example Harrison (1994), or Machauer, Morgner (2001) conclude that demographic segmentation criteria provide only little insight to the customer behavior in banking services and suggest the usage of multidimensional model, lots of other authors consider demographic factors as important segmentation factors for banking industry. Machauer and Morgner (2001) used attitude and expected benefits as segmentation criteria in their research. The importance of demographic factors in bank industry is highlighted in the paper of Stafford (1996), Mylonakis (2007), Boyd, Leonard and White (1994), or Clarkson, Stone and Steele (1990). Clarkson, Stone and Steele (1990) claim that financial services and the requirements of consumers vary mainly with the age as one of the most important segmentation factors. Stafford (1996) point out that in spite of the fact if bank uses psychographic, economical, or other segmentation factors bank must understand demographic characteristics of the target market.

Based on the literature review we can state that segmentation plays very important role in the banking sector and that it is necessary to focus on the needs and wants of each target segment separately. Ijevļeva (2013) claims that banks should concentrate to a particular target segment in the banking market. Furthermore literature search revealed that students are very often in the focus of researchers as a specific segment of the banking market for example Mokhlis, Mat and Salleh (2008), Ukenna, et al. (2012), Al-Fahim (2012), Hinson, Osarenkhoe and Okoe (2013), or Chigamba and Olawale (2011)

Methodology

This paper focuses on one of the specific bank segments – students. The main aim of this article is to discover needs, wants and expectations of this specific segment. Author focuses on the banking products and services required by this segment, usage of internet and mobile banking, willingness to pay fees, etc.

In order to investigate requirements of this segment for banking services, author used a questionnaire that was submitted to the students. The total number of questioned respondents was 150. The questionnaire was divided into two parts. The first part of the questionnaire focuses on the information about expectations and requirement of students from their bank. Respondents were asked about bank products and services, usage of internet banking, mobile banking and mobile applications, visiting banks, acceptable bank fees, different services that respondents require from the bank, etc.

The second part of the questionnaire includes personal details of respondents.

Author used a filter question to exclude respondents who do not use any banking services.

The sample includes 50% of female and 50% of male; the average age of respondents was 23.5 years.

The collected data were processed with classical mathematical-statistical methods of data evaluation – especially through calculating the absolute and relative frequency, mean, weighted arithmetic mean, standard deviation, etc.

The chi-square test represents statistical test that is commonly used to test independency of categorical data for comparison of observed data with expected date to a specific hypothesis. Author will use the chi-square test to find out whether the opinion of both groups of respondents (male and female) significantly differs in the usage of banking products with higher level of usage than 50%. The formula for calculation of chi-square test follows.

$$\chi^2 = \sum_{i=1}^{k} \frac{(X_i - Np_i)^2}{Np_i}$$

Author stated two hypotheses for the research . The null hypotheses H0 and alternative hypotheses H1 stated for author's research follows:

$H_1 0$: Usage of banking products and services is independent on the gender

$H_1 1$: Usage of banking products and services is not independent on the gender

$H_2 0$: Willingness to pay banking fees is independent on the gender

$H_2 1$: Willingness to pay banking fees is not independent on the gender

Results and Discussion

First of all, respondents were asked about basic information concerning banks, commitment to bank, number of banks accounts, etc. The results are presented in the following table.

Table 1: Information about students' current accounts, Source: author's research

		Absolute frequency	Relative frequency
How many current accounts do you have	0	0	0
	1	128	85,333
	2	21	14
	3 and more	1	0,667
How long do you have your current account	1 year	2	1,333
	2 years	10	6,667
	3 years	13	8,667
	4 years	50	33,333
	5 years	65	43,333
	6 years and more	10	6,667

All asked students have at least one bank account at one bank. More than 85% of respondents have only one current account. All respondents that have more than 1 current account provided the answer that they have current banks account at different banks. The average time of having a current account is 4.3 years. More women than men stated that they have more than 1 current account.

Since respondents of the author's research are university students; the average age of respondents was 23.5 years and average time of having a current account is 4.3 years. This fact is quite clear with regard to the possibility of opening own current account until age of 18. Till 18 years the only possibility is so called Children's account with the consent of the legal representative (one of the parents). The following figure shows how long students use their current account.

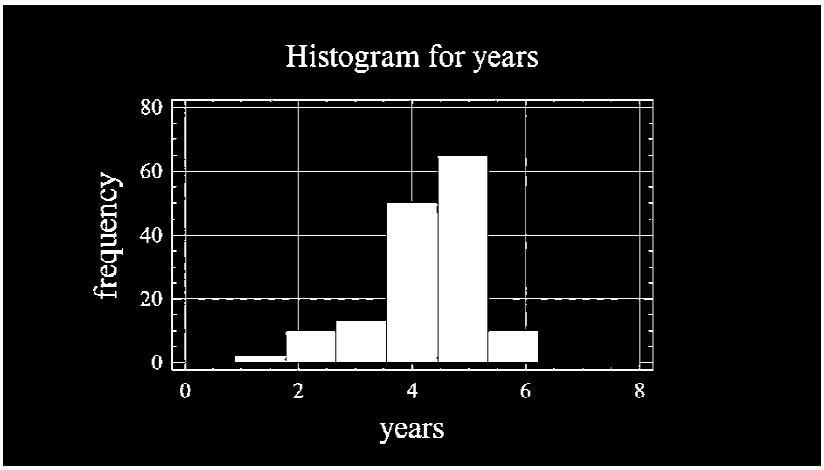

Fig. 2: Histogram of period of current account usage

At the second part of the questionnaire respondents were asked about banking products and services that they use. The following table summarized banking products and services used by students.

Table 2: Banking products and services, Source: author's research

Banking product, service	Absolute frequency		Relative frequency (%)	
	Male	Female	Male	Female
Internet banking	75	75	100,00	100,00
Home banking	5	3	6,67	4,00
Telephone banking	12	23	16,00	30,67
Banking application for smart phones	68	51	90,67	68,00
Debit card	75	75	100,00	100,00
Credit card	12	22	16,00	29,33
Contactless debit card	51	46	68,00	61,33
Current account	75	75	100,00	100,00
Overdraft	15	11	20,00	14,67
Savings account	8	14	10,67	18,67
Term deposit	2	4	2,67	5,33
Consumer loan	2	3	2,67	4,00
Building savings	10	28	13,33	37,33
Mortgage	0	2	0,00	2,67
Life insurance	46	57	61,33	76,00
Household insurance	3	2	4,00	2,67
Car insurance	57	20	76,00	26,67
Travel insurance	69	73	92,00	97,33
Cash back	4	9	5,33	12,00
Loan for real estate	0	0	0,00	0,00

All respondents (male and female) uses internet banking, current account and debit card. More than 50 % of respondents use banking application for smart phones, contactless debit card, life insurance and travel insurance. 76 % of male uses car insurance, too. But only 26.67 % of female uses car insurance. For products with higher level of usage for male and female the chi-square test will be calculated.

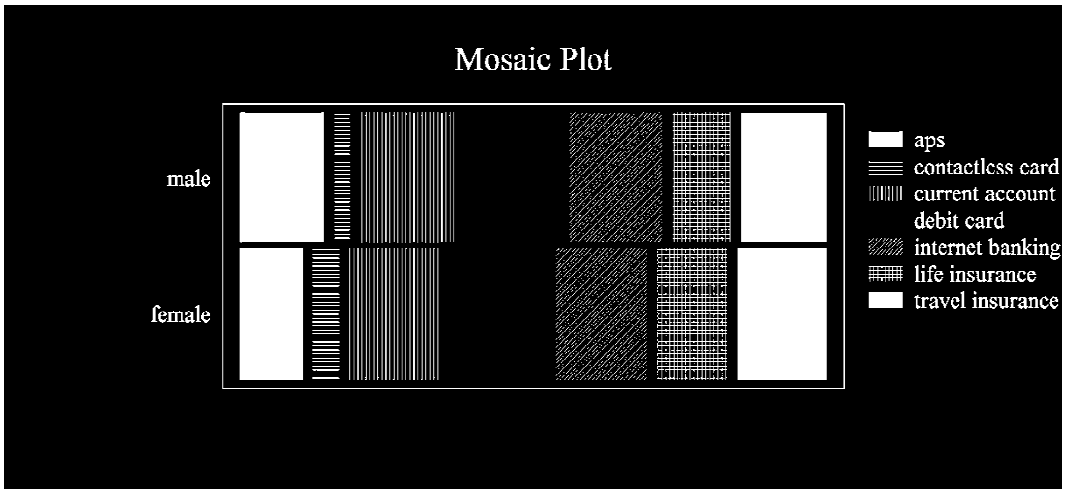

Fig. 3 : Mosaic plot of selected services

In the Fig. 3 we can see the distribution of usage of selected services is for male and female. Precise conclusions will be taken on the basis of the chi-square test.

Chi-Square Test

Chi-Square	Df	P-Value
6.58	6	0.3612

The chi-square test performs a hypothesis test to determine whether or not to reject the idea that the usage of products is independent on the gender. Since the P-value is greater than 0.01, we cannot reject the null hypothesis that the usage of banking products and services is independent on the gender at the 99% confidence level.

From the analysis is clear that for several products – for example car insurance and building savings the answers of male and female differ, therefor the chi-square test will be calculated for these banking product separately.

Chi-Square Test

Chi-Square	Df	P-Value
23.82	1	0.00
21.89	1	0.00 (with Yates' correction)

In this case since the p-value is less than 0.01, we can reject the null hypothesis that usage of these products is independent on the gender of respondents at the 99% confidence level. The p-value with Yates' correction was used because it should be more accurate for 2-by-2 table.

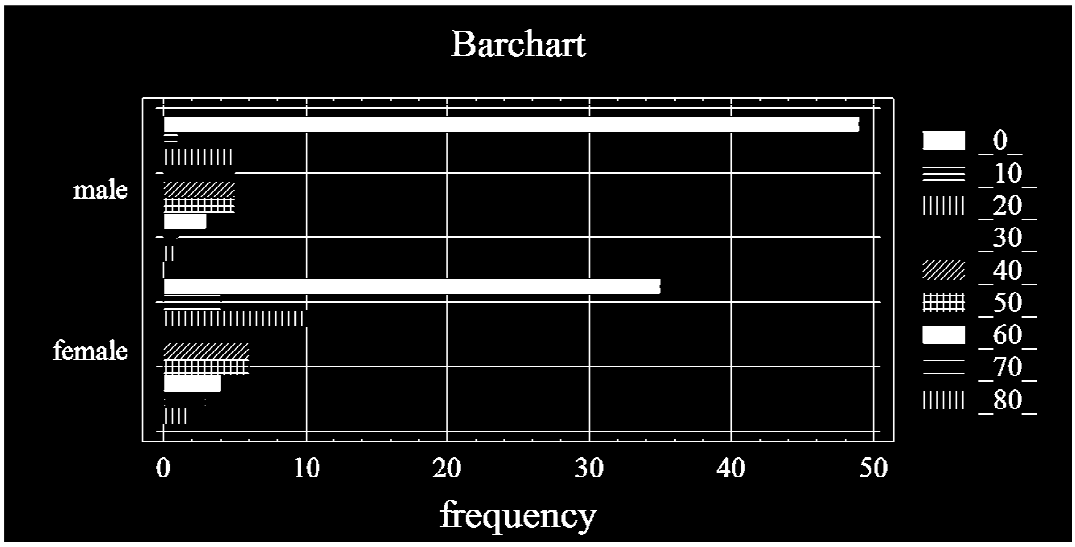

Fig. 4 : Barchart for current account fees

The barchart in the Fig. 4 shows the willingness of respondents to pay banking fees for current account. Respondents were asked how much money they are willing to pay for their current account. As we can see the most of the respondents is not willing to pay banking fees for current account.

The summary statistics concerning willingness to pay banking fees follows

	female	male
Count	75	75
Average	20.2703	13.9189
Standard deviation	24.7161	21.8223
Minimum	0.0	0.0
Maximum	80.0	80.0
Stnd. skewness	3.07119	4.62392
Stnd. kurtosis	-0.884931	0.894545

This table shows summary statistics for the two samples of data. Other tabular options within this analysis can be used to test whether differences between the statistics from the two samples are statistically significant. Of particular interest here are the standardized skewness and standardized kurtosis, which can be used to determine whether the samples come from normal distributions. Values of these statistics outside the range of -2 to +2 indicate significant departures from normality, which would tend to invalidate the tests which compare the standard deviations. In this case, both samples have standardized skewness values outside the normal range. Both standardized kurtosis values are within the range expected.

For detail analysis to discover differences in respondents' opinion chi-square test were used.

Chi-Square Test

Chi-Square	Df	P-Value
7.46	8	0.4881

Based on the results of chi-square test, since the p-value is greater than 0.10 we cannot reject the hypothesis that the willingness to pay banking fees is independent on the gender.

The following table summarizes the basic information about usage of internet banking, application for mobile banking and frequency of visit of bank and usage of internet banking.

Table 3: Visiting bank, internet banking and mobile banking apps, Source: author's research

		Absolute frequency		Relative frequency	
		Male	Female	Male	Female
How often do you visit your bank	Once a week	0	0	0	0
	Every two weeks	2	5	1.333	3.333
	Once a month	9	15	6	10
	Every three months	20	31	13.333	20.667
	Once a year	71	69	47.333	46
	I don't visit bank personally	48	30	32	20
Usage of internet banking	2 times a week and more	5	18	3.3333	12
	Once a week	18	29	12	19.333
	Once every two weeks	22	24	14.667	16
	Once a month	24	3	16	2
	Less than once a month	6	1	4	0.667
Usage of mobile banking application	Yes	28	24	18.667	16
	No	47	51	31.333	34

As we can see from table 3 not many students visit bank periodically. Most of them visit bank once a year. And more than one third of male and 20% of female stated that they don't visit bank personally at all. All respondents use internet banking. Woman uses internet banking more periodically than men. This fact is typical not only for students but for the whole population in the Czech Republic. This fact was proved by other author's research (Slabá 2015). Mobile applications are considered as one of the very important phenomenon of the internet society. But less than 20 % of students use mobile applications for internet banking in the Czech Republic for banking purposes.

Conclusion

Based on the author research we can say that there are several specifics in the student segments. Students are not focused for example on the area of mortgages, term deposit, savings account, or house insurance, but have a close relationship to new technologies such as the Internet or mobile banking. Based on the author research and statistics of the Eurostat and the Czech Statistical Office, we can claim that students use internet and the mobile application most frequently than other age groups. All respondents use current accounts from one or more bank institutions. The average time of having a current account is 4.3 years.

Author stated hypothesis to determine whether or not to reject the idea that the usage of products is independent on the gender and whether or not to reject the idea that the willingness to pay banking fees is independent on the gender. The first null hypothesis that was tested for two services - car insurance and building savings was rejected at the 99% confidence level. We can say that usage of car insurance and building savings depends on gender. For other tested services the author cannot reject the null hypothesis - Usage of banking products and services is independent on the gender at the 99% confidence level. The last tested hypothesis - Willingness to pay banking fees is independent on the gender cannot be rejected at the 99% confidence level.

Based on the author's research we can say that bank institution should take into account that student segment is a specific segment that is characterized by the age, lack of funds, interest on the Internet and modern technology. Since the importance of loyalty programs has been growing (Solarová 2015), the banks should focus on the possibility of application of specific loyalty programs for students.

Since the author's research revealed that some of the students use current accounts and other services from more than one bank and some of the respondents switched the banking institution in less than 5 years, this fact should be considered as a topic of further author research.

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Identification of Stakeholder Profile for Developing Targeted Communication

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Abstract

Changes in marketing communication leads to new perception of marketing communication and promotion itself. Lots of researches and practitioners have been looking for new interdisciplinary conception of marketing communication. Marketing and marketing communication is more and more connected not only with customers, but with key stakeholder groups and some authors use new term stakeholder marketing. This paper focuses on the interconnection of marketing communication and stakeholder theory and possibilities of usage of identification of Stakeholder Profile for developing targeted communication.

Keywords: stakeholder, Stakeholder Circle Methodology, Stakeholder Profile, marketing communication, urgency, power

Introduction

Marketing communication is an element that is associated with the business over 100 years. In spite of this fact promotion and marketing communication dramatically changed during last years and marketers have to look beyond traditional concept of marketing and promotion (Belch, Belch 2014). Marketing has to start to focus more on the integrated marketing communication, specific marketing segments and targeted marketing communication. The integrated marketing communication has been changing since the first formal conceptualization and gaining interest and attention around the world, too (Kliatchko 2005). Integrated marketing communication as well as targeted marketing communication is considered as one of the key elements for successful business (Belch, Belch 2014). Targeted marketing communication and integrated marketing communication is practiced at large scale worldwide. Both of these phenomenon are associated with customer satisfaction, brand loyalty, brand awareness, brand image, etc. (Reid 2013). All these elements depend on how company is able to reveal and understand customers' expectations, wants, needs and requirements (Saeed 2013). In these days it is not enough to focus only on customers in marketing communication activities. Therefore many academics as well as practitioners have been search for new approaches to marketing communication and incorporating not only customers, but the other key stakeholder groups to their communication plans and integrated marketing communication, too (Gurău, 2008).

Contemporary turbulent environment leads to growing competition at market and reflect the growing popularity of stakeholder theory and multidisciplinary stakeholder approach (Varvasovszky, Brugha 2000, Olander, Landin 2005, Payne, Ballantyne, Christoper 2005, Brugha, Varvasovszky 2000). The stakeholder management is nowadays used by lots of companies and incorporated in marketing, marketing communication, management and marketing management. Lots of authors point out that the relationship between stakeholders and organizations is crucial for organization's success (Rivera-Camino 2007, Leana, Rousseau, 2000, Savage, Nix, Whitehead, Blair, 1991) and represents the most appropriate way for success in competitive market as a support tool for marketing and management decision (Yang 2014).

To be able to succeed in this environment and preparation of targeted communication plan, all institutions have to be able to identify their key stakeholders and reveal and analyses expectations, needs and wants of the entire community of stakeholders.

This article will focus on the identification of Stakeholder Profile of key stakeholder groups of selected small-sized company that is used for the developing of the targeted marketing communication plan.

Literature Review

Since this paper focuses on the connection between stakeholder management and marketing communication for the purpose of identification of stakeholder profile needed for effective marketing communication plan, first of all it is necessary to define basic terms from both spheres of interest.

Integrated marketing communication (further only IMC) has passed through long way since its originally initial conceptualization in the late 1980s and early 1990s (Schultz Kitchen, 1997). Till these days there is not any mutually or consistent agreed upon definition, description or process to define IMC (Kliatchko 2008). The first formal definition of IMC that was widely used till 1989 states that 'A Concept of marketing communications planning that recognizes the added value of a comprehensive plan that evaluates the strategic roles of a variety of communication disciplines – general advertising, direct response, sales promotion, and public relations – and combines these disciplines to provide clarity, consistency and maximum communication impact (Duncan, Caywood 1996). From another point of view Duncan defines IMC as 'an on-going, interactive, cross-functional process of brand communication planning, execution, and evaluation that integrates all parties in the exchange process in order to maximize mutual satisfaction of each other's wants and needs (Duncan, Everett 1993, p.39). Kliatchko suggest that definition of IMC should be made up of two main elements – for basic pillars (stakeholders, channels, content and results) of IMC and business process of IMC driven by key stakeholders (Kliatchko 2008). From the Kliatchko point of view it is obvious that the marketing communication and stakeholders are closely connected.

Origins of stakeholder concept dates back to 1970 but the importance of stakeholder theory has been growing in recent years (Brugha, Varvasovszky 2000, Freeman 2010). The term stakeholder has been widely used in academic and scientific paper and researches and therefore we can find different definitions of the stakeholder concept. Most of the definition involved in adopting the term stakeholder in narrower or broader sense (Ruiz-Roqueñi, Retolaza 2012). Freeman claims that stakeholder represents 'any individual or group that maintains a stake in an organization, a claim, a right or an interest' (Freeman 1984, p. 46). Johnson and Scholes define stakeholders as 'individuals or groups who depend on an organization to fulfill their own goals and on whom, in turn, the organization depends' (Johnson, Scholes 2002, p. 132). This definition is very similar to original Freeman's definition of stakeholders - 'any group or individual who can affect or is affected by the achievement of an organization's purpose' (Freeman, 2010, p. 53). Literally speaking Freeman signified in his definition 'anyone who has a stake'.

Elements of stakeholder management are incorporated in many other disciplines especially in management and marketing. Number of authors emphasizes the need to involve stakeholders in marketing and marketing communications. In contemporary literature, new phenomenon – stakeholder marketing can be found. Stakeholder marketing represents 'a concept that arises from the confluence of stakeholder theory with marketing discipline and practice' (Ruiz-Roqueñi, Retolaza, 2010, p. 815). The following table represents selected papers and articles connected stakeholders and marketing.

Table 1: Stakeholders and marketing, author's research

Author(s)	Year	Area of interest
Polonsky	1995	Integrating stakeholders into environmental marketing strategy
Polonsky	1996	Stakeholder management and stakeholder matrix: Potential strategic marketing tools
Payne, Ballantyne, Christoper	2005	A stakeholder approach to relationship marketing strategy
Presenza, Iocca	2012	Stakeholders and event marketing
Maxim	2009	Stakeholders and relationship marketing
Ruiz-Roqueñi, Retolaza	2012	Stakeholder Marketing: A New Orientation
Maletic, M. et al.	2014	Stakeholders and CSR
Hult	2011	Stakeholder Marketing
Maignan, Ferrell, Ferrell	2005	A stakeholder model for implementing social responsibility in marketing
Rivera-Camino	2007	Green marketing strategy: a stakeholder perspective
Clulow	2005	Stakeholders and added value
Huang	2011	Stakeholder analysis for mobile marketing

Since not only Kliatchko in the case of IMC, but lots of other authors (Varvasovszky and Brugha 2000, Yang 2014, Olander, Landin 2005, Payne, Ballantyne, Christoper 2005, Brugha, Varvasovszky 2000, Leana, Rousseau, 2000, Savage, Nix, Whitehead, Blair, 1991, etc) consider stakeholders as a key element of marketing communication, we can state that the connection between marketing and key stakeholders is unchallengeable. Therefore author will focus in the research on the identification of stakeholder profile for successful targeted marketing communication. There are different approaches to the basic factors influencing stakeholder profile. Following table summarizes the most common factors that are connected with definition of stakeholder profile.

Table 2: Factors of stakeholder profile, author's research

Author(s)	Year	Factors
Varvasovszky and Brugha	2000	Interest in the issue, influence/power, position (supportive, non-mobilized, opposed), impact of the issue on actor (low, low-medium, medium, high)
Reed et al.	2009	Interest, influence, power, requirements
Mitchel et al.	1997	Expectation, power, legitimacy, urgency, salience
Ackermann, Eden	2011	Power, interest, influence, expectations, requirements
Bourne and Walker	2006 2008	Influence, direction of influence (outward, sideward, downward, upward), power, proximity, urgency, support, value, action
Bourne	2006, 2008a 2008b, 2010	Influence, expectation, signification, requirements, vested stake, urgency, proximity, power, direction of influence

Methodology

Based on the literature search we can say that there are different approaches to stakeholder management, analysis and definition of stakeholder profile. Lots of authors prefer numeric expression of values influencing stakeholder profile, the other define a stakeholder profile based on verbal description. Since this article focus on the identification of stakeholder profile for developing targeted communication, author decided to use for the purpose of author's research the Stakeholder Circle Methodology developed by Linda Bourne. This methodology offers for the basic description of stakeholder profile numeric as well as verbal equivalent (qualitative and quantitative rating) of all used factors. Based on the literature search author identified the most important elements of the Stakeholder Profile. As stated in the text above, for definition of the Stakeholder Profile of each

stakeholder group author selected the most important aspects based on the Stakeholder Circle Methodology. These factors follow:

- direction of the influence:
  - outward, sideward, downward, upward,
  - internal, external
- importance for the company:
  - ownership, influence, knowledge, interest, impact, rights, source of funds, contribution, source of other resources, committee member
- mutuality – assessment of what stakeholders require from the company:
  - benefits – delivery of benefits resulting from success of company
  - power – to affect success of company, or organizational power
- classification:
  - authorities, rights holder, supplier, manager, team, community
- power:
  - low level of power to influence company
  - informal capacity to cause change
  - partial formal power
  - high level of power to influence company (stakeholder can stopped company's activities)
- proximity:
  - no direct contact with company - stakeholder group is remote from company
  - Active stakeholder groups (clients) with regular contact with company
  - Routinely part-time working stakeholder groups
  - Stakeholder groups with direct proximity in company
- Value:
  - Limited or no stake in outcomes of the company
  - Small indirect stake in outcomes
  - Medium direct stake in outcomes
  - Outcomes of the company are important for stakeholder group
  - Very high stake in company outcomes
- Action
  - No probability to attempt to influence outcomes of the company
  - Low probability to attempt to influence outcomes of the company
  - Stakeholder maybe prepared to influence outcomes of the company
  - High probability and effort to influence outcomes of the company
  - Significant effort to influence outcomes of the company
- Urgency:
  - Little need of activity outside routine marketing communication
  - Planned activities warranted within medium timeframe
  - Planned activities warranted within short timeframe
  - Urgent activities according to the common marketing communication
  - Immediate marketing communication activities that are priority compared to the common marketing communication

Preparation targeted communication depends on gaining support and managing relationships and expectations of all stakeholder groups that are described by categories defined by direction of influence (Bourne 2010, Bourne 2006). Bourne and Kasperczyk state that the above essential data must be defined and taken into account in developing targeted communication to manage and support relationships with key stakeholder groups (Bourne, Kasperczyk 2009). Therefore all these factors will be evaluated by respondents of the author's research.

For the authors research was selected one Czech company that represents small-sized company based on the European categorization of SMEs. The selected company has 35 employees with annual turnover less than 10 million Eur. There are 5 managers in the company who was involved in the author's research. The main research method was semi-structured questionnaire and interviews with

the representatives (managers) of the selected company with the aim of identification of the Stakeholder Profile based on the previous mentioned list of factors for key stakeholder groups that could be used to prepare targeted communication with these stakeholder groups. The main aim of this paper is to identify the most urgent stakeholder groups in respect of targeted marketing communication based on the Stakeholder Profile developed based on the Stakeholder Circle Methodology.

Author stated following research statement:

Customers are the most urgent stakeholder group for the selected company.

This research statement will be confirm based on the results of author's research and identified Stakeholder Profile developed based on the Stakeholder Circle Methodology.

Author identified the initial list of stakeholders for author's research based on the content analysis and literature search. Respondents were asked to identify and prioritize 10 most important stakeholder groups. The initial list of stakeholders follows:

1. Banks
2. Competitors
3. Customers
4. Educational institutions
5. Employees
6. Government
7. Management
8. Media
9. Suppliers
10. Transporters

Results and Discussion

Respondents identified the key stakeholder groups of the selected university and evaluate the following characteristics for each stakeholder group – for detail see table 2.

Table 2: Basic information

Stakeholder group	Direction	Internal / external	Importance	Mutuality	Classification
Customers	outwards	E	Interest, impact, power to affect failure of the company	Customer satisfaction	Customer
Competitors	sidewards	E	Impact, interest	-	Other
Media	outwards	E	Interest	Can influence views of the organisation	Community
Employees	downwards	I	Knowledge, power to affect success of the company	More work experience, more money	Team
Suppliers	outwards	E	Contribution, source of resources	-	Supplier
Management	upwards	I	Knowledge, influence, power to affect success of the company	Organisational power	Manager
Transporters	outwards	E	Contribution	-	Other
Banks	outwards	E	Influence, knowledge, power to affect success of the company	-	Authorities
Government	outwards	E	Influence, power to	-	Authorities

			affect success of the company		
Educational institutions	outwards	E	Interest	Career advancement	Community

As we can see from table 2 most of key ten stakeholder groups are external stakeholders. There are only two internal stakeholder groups among 10 most important stakeholder groups – employees and management. Both of them dispose of knowledge and power to influence the success of company. Management and employees have opposite direction upwards (management) and downwards (employees). Direction upwards defines the influence of management mainly top management over the company's activity and direction downwards denotes part as well as full time staff, specialist, team members working with management to achieve outcomes and goals of the company (Bourne, Walker 2008, Bourne, Kasperczyk 2009). Direction of influence upward refers to maintain and develop relationships and downwards is about the idea of managing a team of employees (Bourne 2008b). As can be seen from table 2 most of the stakeholder represents direction outwards that involves impacts of lots of external stakeholder groups – e.g. suppliers, transporters, government, banks, media, etc.

Application of the mutuality factor in the Stakeholder Circle Methodology and commonly in stakeholder management addresses the specific two-way nature of relationship between company and stakeholder groups. Mutuality combines both requirement of stakeholder from company and success of company's outcomes as well as the question why and how is stakeholder important for company (Bourne 2010).

Based on the previous steps respondents were asked to start to evaluate the other characteristics for complex stakeholder profile – power, proximity, value, action, urgency and priority. Evaluation of these characteristics is summarized in the following tables.

Table 3: Evaluation of power, proximity, value and action of stakeholder groups

Stakeholder group	**Power**	**Proximity**	**Value**	**Action**
Customers	high level to influence company	regular contact with company	Outcomes are important	significant effort to influence company
Competitors	high level to influence company	no direct contact with company	Limited or no stake in outcomes	probability to influence company
Media	high level to influence company	no direct contact with company	Limited or no stake in outcomes	significant effort to influence company
Employees	high level to influence company	direct proximity in company	Outcomes are important	significant effort to influence company
Suppliers	Low level	no direct contact with company	Small indirect stake in company	Stakeholder maybe prepared to influence outcomes
Management	high level to influence company	part-time working stakeholder groups	Very high stake in company	significant effort to influence company
Transporters	Low level	no direct contact with company	Limited or no stake in outcomes	No probability to attempt to influence company
Banks	high level to influence company	Regular contact	Outcomes are important to stakeholder as well as company	High probability and significant effort to influence company
Government	informal capacity to	regular contact with company	Medium direct stake in company	Stakeholder maybe prepared to influence

	cause change			outcomes
Educational institutions	Low level	no direct contact with company	Limited or no stake in outcomes	No probability to attempt to influence company

The table 3 summarizes main characteristics – power, proximity, value and action. The power of stakeholder group answers the question if the stakeholder group have limited or high power to influence. Stakeholder groups with high level of power may have stopped the activities or permanently change activities of the company. The table above shows that there are several stakeholder groups, which have the highest level of power that means high level to influence company or stopped company's activities. In this case stakeholder groups with the highest level of power are represented by banks, management, employees, customers, competitors and media. Proximity represents the closeness of stakeholder group to company (Bourne 2008b) and provides another way of identifying of stakeholder influence of the company (Bourne 2010).

In terms of proximity internal stakeholder groups – employees and management are directly involved in the activity of the selected company. Most of the stakeholders in the case of selected company have no direct contact with company. Stakeholder groups that are not directly involved in the activity of this company are competitors, media, suppliers, transporters and educational institutions. Banks, government and of course customers have a regular contact with the company.

Value is sometimes marked as vested stake and represents the stake of the stakeholder group in the company output. Customers, employees, management and banks have the highest stake in company outputs. On the other hand there are several stakeholder groups with limited or no stake in outcomes – competitors, media, transporters and education institutions. Action represents importance and expresses the probability of the action of stakeholder forward to influence the company. Customers, media, employees, and management represent stakeholder groups with very high importance of the company to stakeholder group therefor there could be a significant effort of stakeholder to influence outcomes of the company. High probability and effort to influence outcomes of the company was assigned to banks. The other stakeholder groups are connected with low probability to attempt to influence company or preparedness to attempt to influence outcomes. It is necessary to emphasize to the understanding and subsequent satisfaction of needs, wants and requirements of stakeholder groups that represents significant effort and high probability to influence outcomes of the company.

Evaluation of action and value entering into the last factor – urgency (for detail see table 3)

Table 4: Evaluation of urgency and prioritisation of stakeholder groups

Stakeholder group	**Urgency**	**Priority**
Customers	Urgent activities according to the common marketing communication	1
Competitors	Planned activities warranted within medium timeframe	2
Media	Planned activities warranted within medium timeframe	3
Employees	Urgent activities according to the common marketing communication	4
Suppliers	Planned activities warranted within medium timeframe	5
Management	Urgent activities according to the common marketing communication	6
Transporters	Little need of activity outside routine marketing communication	7
Banks	Planned activities warranted within short timeframe	8
Government	Planned activities warranted within medium timeframe	9
Educational institutions	Little need of activity outside routine marketing communication	10

The most urgent stakeholder groups of the selected company are customers, employees and management. The company should place particular emphasis on processing of marketing communication plan for these stakeholder groups. The company has to perform urgent activities according to the common marketing communication. The company should focus on planning activities in marketing communication within medium timeframe mainly for media, since this stakeholder group has the power to influence the perception of the other stakeholder groups of the company and company's brand perception, other stakeholder view of the company and opinion on the company, etc. Company should plan marketing communication activities in medium timeframe for competitors, suppliers and government, too. There is no or little need of activities outside routine marketing communication for transporters and educational institutions.

Since the stakeholder group with highest priority is customers and this stakeholder group is connected with urgent marketing communication activities, the selected company has to focus on targeted marketing communication with this stakeholder group. The results of the author's research confirm the research statement that customers are the most urgent stakeholder group for the selected company. Competitors and media follow customers with the respect of priority.

Conclusion

The essential starting point for developing of effective targeting communication is evaluation of all factors presented in this paper as well as understanding needs, wants, requirements and expectations of all key stakeholder groups. Therefore it is necessary to carried out detail content analysis to be able to meet these needs and expectations. Based on the author's research the most important and urgent stakeholder groups for marketing communication were identified. The research statement was confirmed and customers were identified as the most important stakeholder group with the highest priority. Customers are not only the most urgent stakeholder group, but customers have also power to stop (as Bourne state 'kill') the company's activity. This stakeholder group with outwards direction of influence has the similar influence and power as management of the company. Four most important stakeholder groups have high level of power to influence company outcomes, but only customers have regular contact with company and outcomes of the company are important for them.

Second highest priority was assigned to competitors and third highest priority was assigned to media. These stakeholder groups require only planned activities warranted within medium timeframe, have limited or no stake in outcomes of the company, but on the other hand they have the highest power, high level to influence company. The company has to start to communicate properly inside organization, as urgent activities in marketing communication for employees and management are needed. The internal stakeholder groups should not be omitted since as Fiala and Prokop state inter-organizational trust, that is based on the proper communication has statistically significant positive effect on the performance of the company (Fiala, Prokop, 2013).

After description of Stakeholder Profile in the Stakeholder Circle Methodology, the identification of Stakeholder Engagement Profile follows to assessing the stakeholder level of engagement. Targeted communication plan is developed based on the Stakeholder Engagement Profile. Stakeholder Circle Methodology uses Engagement index for evaluation of development of Stakeholder Engagement Profile over the time period. The further author's research will focus on the Stakeholder Engagement Profile and Stakeholder Index.

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Improving Recommendations Using Context from Users' Reviews

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Abstract

Recommender systems enable E-commerce websites to improve their sales by suggesting relevant items to customers. If considering the context of buying situations, more accurate recommendations can be computed. In this paper, we discuss the issue of using the contextual information contained in users' reviews in order to improve recommendation.

Keywords: Recommender systems, context aware recommender systems, users' reviews.

Introduction

In e-commerce websites, as in many other websites, there are often a huge number of online resources available to users. Most of the times, users are lost and cannot directly know, for example, what item to buy, or what online news to read, or even to which restaurant to go. Reaching relevant resource is not an easy task. Recommender Systems (RS) (Ricci et al., 2011) try to overcome this difficulty by suggesting to users items of their interest. Indeed, RS aim to filter items according to users' profiles and preferences. They thus, on one hand, help users find items they may want to buy, and in the other hand, help businesses generate more sales. To do this, RS aim to predict users' ratings by considering their previous ratings as well as information about users and items.

While traditional Recommender Systems focus only on users and items when computing predictions, Context Aware Recommender Systems (CARS) (Adomavicius and Tuzhilin, 2011), more sophisticated ones, aim to provide more accurate predictions by considering information describing the situation of buying. Indeed, some contextual information (such as time, weather or accompanying persons) may influence user decisions. For example, a same user may book different hotels in different situations: one for his business trip with Wi-Fi or meeting area, and a different one for his family holiday with accommodations like family rooms or even childcare services. Hence, the recommender system should not suggest the same hotel in both situations.

Getting contextual information is a first step for building a context aware recommender system. In e-commerce websites, such information is hardly ever explicitly provided by users. Moreover, most of current e-commerce web sites allow users, not only to rate items, but also to write reviews on these items. While the primary goal of these reviews is to express sentiments and preferences about items, they often carry some contextual information.

In this paper we introduce first CARS and its main issues. After that, we discuss works on getting contextual information from users' reviews. In the third section, we present some remaining open question. The last section concludes the paper.

Context Aware Recommender Systems

The key idea of CARS is to consider, in addition to users and items, extra information related to the context in order to provide more accurate predictions. To do that, a CARS's designer should answer to the main questions: (i) how to get the contextual data? (ii) From the contextual data, which ones

are relevant for the recommendation purpose? (iii) And how to introduce the contextual data in the recommendation process. In this section, we introduce these main issues of CARS.

Getting Contextual Data for Recommendation

A first step to provide context aware recommendation is to obtain the contextual data. To do this, Adomavicius et al. (Adomavicius and Tuzhilin, 2011) listed three different approaches: (i) Explicitly, by asking direct questions to relevant people or eliciting this data through other means; (ii) Implicitly, from the data or the environment; for example, temporal information can be extracted from the timestamp of a transaction, and information about user localization can be detected by a mobile telephone company. This approach is common on mobile context aware application as most current mobile devices are equipped with sensors that inform about users' current context. (iii) By inference, using statistical or data mining methods. As examples, authors of (Palmisano et al., 2008)[3] explored the possibility of inferring the contextual information 'intent of purchase' from the existing customers' demographic and transactional data. They demonstrated that it is possible to infer fairly accurately the context on condition that a proper segmentation level is identified, and good predictive model is selected. In other works (Lahlou et al., 2013c) (Lahlou et al., 2013a) (Lahlou et al., 2013b), researchers aimed to infer the contextual information 'intent of purchase' from users' reviews. This last point is studied in more details in the next section.

Selecting Relevant Contextual Data

Another issue in CARS is determining which contextual information is relevant and which is not. This is an important issue since it allows to minimize the risk to set up an expensive process in order to collect ratings under some contextual conditions and discover a posteriori that these selected conditions were irrelevant or not important to investigate (Baltrunas et al., 2012). Furthermore, selecting relevant data could improve recommendation accuracy(Vargas-Govea et al., 2011).

Paradigms for Incorporating Context into Recommendation Computations

Once relevant contextual attributes are obtained, the next step is the incorporation of these new data in the recommendation computation.

In traditional recommender system, the goal is to compute a utility function that affects a score for each pair (user, item). This score represent the predicted rating for the user on this item. In contrast, the goal in CARS is to predict a score for the triplet (user, item, context). Adomavicius et al. (Adomavicius and Tuzhilin, 2011) described three paradigms to incorporate the contextual information into the recommendation algorithm: (i) the contextual pre-filtering: where contextual information are used to only select the relevant set of data, and then recommendations are computed using any traditional recommender system on the selected data; (ii) the contextual post-filtering: where contextual information are initially ignored, and recommendations are computed using the entire data. After that, the contextual information are used to adjust resulting recommendations for each user; (iii) the contextual modeling, where contextual information are used directly in the modeling technique in order to provide predictions.

Inferring Context from Users' Reviews for Context Aware Recommendation

Suggesting to buyers more relevant items need to know more about the context of their buying situations. For instance, users' decisions may be affected by their intents of purchase. However, asking them to directly fill in such information may be a heavy task. Moreover, current e-commerce web sites allow users to write reviews on the purchased items. As aforementioned, though these reviews are primarily written to express sentiments and preferences about items, they often carry some contextual information. Figure 1 shows a review containing some contextual information. As

one can see, the review in figure 1 reveals who was accompanying the reviewer, the purpose of his trip, the duration and the date of his stay.


I stayed at this hotel with two colleagues on a business trip for 7 nights in December of 2007. I have stayed in many hotels across the world and hotel Maamoura ranks among the top of my hotel experiences. The staff is incredibly friendly and helpful. The rooms are very spacious, clean, well furnished and quiet. The bathrooms are great as well. The hotel location is excellent in the middle of the city but on a quiet side street. There are tons of bank machines, pay phones and food options nearby. The hotel has 2 elevators. After long days of work I often found myself staying up to talk to the hotel manager simply because he is a really great guy. You will also be hard pressed to find a hotel manager who is more proud of Morocco and more dedicated to ensuring that everything goes well for you on your trip. I will definitely stay there again upon a return trip to Casablanca.

Fig.1: A hotel review that contains some contextual information

Recent works tackle the issue of inferring contextual information from reviews in order to use it for CARS. To do that, authors in (Lahlou et al., 2013c) (Lahlou et al., 2013a) (Lahlou et al., 2013b) used a text classification approach where target categories are the set of possible values that can take the contextual information. For example, they classify hotel reviews into the following category in order to know the "Trip type": "Business", "Couple", "Family", "Friends" and "Solo". They use and compare different classification algorithms with different settings. Their experiments show that the Multinomial Naïve Bayes (MNB) algorithm outperforms Support Vector Machine (SVM), k-Nearest Neighbor (k-NN) and Decision Trees (DT) for this task. They achieve promising results given all encountered challenges.

In another work, (Aciar, 2010) identifies contextual sentences in users' reviews by applying text mining tools to define rule set. He classify contextual sentences as either 'contextual' (that contain information about the context) , or 'preferences' (that contain preferences about features that users have evaluated). Similarly, in (Bauman and Tuzhilin, 2014) researchers start by classifying reviews in two categories depending on if they contain contextual information, that they call *specific*, or not, that they call *generic* . After that, they capture contextual words from specific reviews using word-based and a Latent Drichlet Allocation (LDA) based methods.

Other works, (Hariri et al., 2011) (Li et al., 2010) investigate others text mining techniques to detect contextual information from reviews. (Hariri et al., 2011) use a Labeled Latent Drichlet Allocation (L-LDA) as a text categorization technique in order to infer the context, whereas (Li et al., 2010) evaluate and compare three classifiers for this task: a rule based classifier, Maximum Entropy, and a hybrid classification algorithm.

Open Perspectives

Once contextual information are correctly inferred from online reviews, the following step is to incorporate it into recommendation computations. Obviously, each inferred contextual information has a certain score of accuracy. One open issue is to find the optimal way to efficiently incorporate this contextual information while considering their uncertainty.

Furthermore, using reviews for CARS can be used in a new different way. Instead of inferring contextual information from reviews, once can consider all the review as the context. Then this context can be used for recommendation. A way to do that may be applying text mining techniques in order to transform the text into 'bag of words'. Then, each word from a review would have a score indicating its importance in the review. Note that the number of contextual feature would be very large. A feature selection step would be unavoidable to filter relevant words that would be the context. CARS algorithms may be then applied.

Conclusion

Users' reviews contain multitude of information that can help to provide more accurate recommendations and therefore improve sales in e-commerce websites. In this paper, we discussed the issue of using available users' reviews in order to get contextual information about the buying situation in order to use it to improve recommendation. Although some works tried to get context from reviews, this promising topic remains open and still needs deeper investigations.

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Creativity, Ambidextrous Leadership and Innovative Performance: A Multi-Level Conceptual Framework

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Abstract

The creativity phenomenon might be considered as either an outcome (novel and useful on the basis of originality, fluency, and flexibility) or a process (cognitive and behavioural). Moreover, creativity is encompassed in ambidextrous leadership in terms of creative and divergent thinking as well as leader's exploitation and exploration behaviour. The aim of the paper is to develop a conceptual framework regarding the relationships between creativity, ambidextrous leadership and innovative performance incorporating a multi-level perspective. The aim of the paper has been achieved through critical literature studies. The key findings constitute the following propositions: (1) Individual, team, and organizational creativity with their antecedents are positively associated with subjective and objective innovative performance as well as this relationship is mediated with both cognitive divergence/convergence and exploration/exploitation behaviour; (2) Ambidextrous leadership permeates creativity at every methodological level (individual, team, and organizational) and is reflected with divergent and convergent thinking styles in terms of a process, an outcome, and context; (3) Cognitive divergence is positively associated with creativity that in turn leads to exploration behaviour; (4) Cognitive convergence is positively associated with rigidity that in turn leads to exploitation behaviour; (5) Leaders' temporal flexibility moderates the associations between cognitive divergence and creativity as well as cognitive convergence and rigidity respectively; (6) Exploration behaviour is positively associated with both subjective and objective innovative performance; (7) Exploitation behaviour moderates the relationship between exploration behaviour and subjective & objective innovative performance; (8) Subjective innovative performance might moderate the relationship between exploration behaviour and objective innovative performance.

Keywords: leaders' creativity, leadership, innovative performance, ambidexterity.

Introduction

The creativity realm emerged strongly from works of Wallas (1926), Guilford (1950) and Torrance (1962, 1974). Creativity has been agreed to be a contributor towards inter alia performance, innovative performance, competiveness, and entrepreneurship (e.g. Anderson et al., 2014; Mumford and Gustafon, 1988) at the individual, team, organizational, cultural, and even societal level (a systems view) (e.g. Anderson et al., 2014; George, 2007; Hennessey and Amabile, 2010; Shalley et al., 2004). The creativity phenomenon might be considered as either an outcome (novel and useful on the basis of originality, fluency, and flexibility) or a process (cognitive and behavioural). Admittedly, creativity is encompassed in ambidextrous leadership in terms of creative and divergent thinking as well as leaders' exploitation and exploration behaviour (e.g. Zacher, Robinson and Rosing, 2014).

While much research has been conducted in the realm of creativity, innovation as well as leadership, there is no evidence in terms of the associations between ambidextrous leadership, creativity, and innovative performance at different levels of analysis. Hence, the aim of the paper is to contribute to that gap and to develop a conceptual framework with regard to the relationships between creativity, ambidextrous leadership and innovative performance incorporating a multi-level perspective. The aim has been achieved through critical literature studies.

Insights on creativity phenomenon

A large body of research has been performed to better explain and understand that phenomenon as well as it has been explored from various perspectives, e.g. cognitive, neurological, personal, or organizational (Hennessey and Amabile, 2010) as well as in terms of different theoretical approaches (e.g. psychological trait theory, behavioural theories & functionalist approaches, and Social Cognitive Theory & socio-constructivist approaches (Edwards-Schachter et al., 2015). Creativity as the ability to generate and extend ideas, concepts, and methods in novel ways (Csikszentmihalyi, 1988) is a multidimensional and disentangling construct considered in terms of an individual with traits, a process, and an outcome. Admittedly, in a line with a propulsion theory (Sternberg, 1999; Sternberg, 2006; Sternberg, Kaufman and Pretz, 2001, 2002), creativity can be of different kinds, depending on how it propels existing ideas forward ranging from minor replications to major redirections in thinking. The creative process is conceptualized as a form of action (a socio-cultural act) by which individuals move between different positions constructing new perspectives with reflexivity and emergence of novelty (Glaveanu, 2015) that constitutes an outcome of a creative process.

With regard to antecedents and determinants of individual creativity, the following ones attracted much scholars' attention: cognition, emotion, motivation, personality traits, environment (context). For instance, according to the investment theory (Sternberg, 2006; Sternberg and Lubart, 1991, 1995), creativity requires a confluence of six distinct but interrelated resources: intellectual abilities (synthetic, analytic, and practical-contextual skills), knowledge, thinking styles (a legislative style), personality, motivation, and environment. Cognitive individual differences reveal in divergent and convergent creativity (Eysenck, 2003; Runco, 2007; Soroa et al., 2015; Tan and Wong, 2015). It involves a dynamic perspective of creativity comprehended as an interaction between thinking styles, affective dispositions, and motivational preferences (Bledow, Rosing, and Frese, 2013). Consequently, bipolar cognition dimensions have been recognized: rule-oriented cognitive strategies and set-breaking cognitive strategies (Soroa et al., 2015). Regarding emotion, two dominant dimensions have been recognized as critically salient: positive affect (mood) and negative one (De Dreu, Baas and Nijstad, 2008; Russell and Carroll, 1999). With regard to motivation as the factor influencing creativity, approach orientation (divided into proactive and preventive) has been evidenced as relevant in enhancing creativity (Higgins, 1997, 2014). Hence, goal orientation has been proposed as a moderator of the effects of mood on creativity (De Dreu, Baas and Nijstad, 2008; Roskes, De Dreu and Nijstad, 2012). Moreover, intrinsic, task-focused motivation is essential to creativity (Sternberg, 2006) and is determined by internal locus of control (Dewett, 2004). In accordance with personality, Sternberg and Lubart (1991, 1995) have supported the salience of inter alia the following personality attributes for creative functioning: willingness to overcome obstacles, willingness to take sensible risks, willingness to tolerate ambiguity, and self-efficacy. Although most studies on creativity are concentrated on the attributes of creativity, the context illustrating an interaction between individuals and context (environmental conditions) ought to be also taken into account (Runco, 2004; Sternberg, 2006). Regarding team level creativity, the following antecedents have been recognized by scholars: characteristics of a team, the integration process, coordination, flow information (Fischer, Oget and Cavallucci, 2015; cf. Bouchard and Bos, 2006). When it comes to the antecedents of organizational level creativity, the characteristics of an organization are very salient (Fischer, Oget and Cavallucci, 2015; cf. Bouchard and Bos, 2006).

Creativity and innovation as well as ambidextrous leadership - rationale

Creativity constitutes the starting point (impetus) for innovation (Massaro, Bardy and Pitts, 2012; Woodman, Sawyer and Griffin, 1993; Zacher, Robinson and Rosing. 2014). Innovation constitutes the implementation of creative ideas within an organization (Turkson and Appiah, 2009). Roberts (1988) divided innovation into two stages: invention (the generation of novel ideas) and exploitation (implementation of these ideas in the sense of value innovation). In a similar vein, scholars make explicit

distinction and identify the first stage of innovation with creativity (Bledow et al., 2009; Cropley, Kaufman and Cropley, 2011; West, 2002), however, it might be also envisaged that both creativity and innovation processes overlap and constitute iterative cycles (Haner, 2005) leading to outcomes of innovation - innovative performance (subjective and objective).

Leadership has been recognized as one of the predictors of creativity and innovation (e.g. Williams and Foti, 2011; Zacher and Johnson, 2014; Zacher, Robinson and Rosing, 2014; Zhou and Hoever, 2014). The ambidexterity leadership theory for innovation proposes that leaders reflect opening and closing behaviour positively predicting exploration (experimenting, making challenging assumptions) and exploitation behaviour (adhering to standards, avoiding risks, focusing on goal achievement) respectively (Zacher, Robinson and Rosing, 2014). It also posits that innovative performance is the highest when both exploration and exploitation behaviour are high. Moreover, ambidexterity is an important antecedent of innovation at the individual, team, and organizational level and all levels participants have to manage the tension between exploration and exploitation to be innovative (Bledow et al., 2009; Gibson and Birkinshaw, 2004; Zacher, Robinson and Rosing, 2014)

Creativity, ambidextrous leadership and innovative performance – a multi-level research perspective

The creativity construct involves multiple ontological, epistemological, and methodological associations (e.g. Batey, 2012; Bouchard and Bos, 2006; Fischer, Oget and Cavallucci, 2015). Epistemologically, it concerns individuals, teams, organizations as well as culture and society – creativity ought not be only analysed at the individual level, yet it should involve collaboration relationships among members of a team (Kind and Kind, 2007) (e.g. particular teams, top management teams). Ontologically, it might cover at least traits, processes, and outcomes. With regard to the methodology, both quantitative and qualitative approaches and measures are alluded. It is convergent with invariants set out by Fischer, Oget and Cavallucci (2015) that reflect various levels of creativity constructs: the originality of imagination and the concept of transgression, the interdependence of participants, and dependence on cultural, social, and disciplinary contexts. Leadership with its ambidextrous rationale is encompassed in every level and facet of creativity and innovative performance evaluated both subjectively and objectively. The proposed conceptual framework is presented in Figure 1.

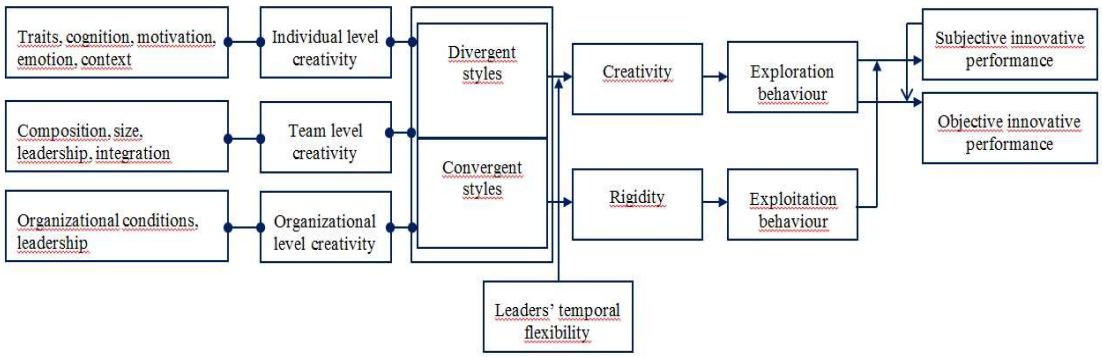

Fig. 1: A conceptual framework of creativity, ambidextrous leadership and innovative performance

As well as this, the following primary propositions have been formulated:

Proposition 1: Individual, team, and organizational creativity with their antecedents are positively associated with subjective and objective innovative performance as well as this relationship is mediated with both cognitive divergence/convergence and exploration/exploitation behaviour. Hence,

Proposition 2: Ambidextrous leadership permeates creativity at every epistemological level (individual, team <including top management teams>, and organizational) and is reflected with divergent and convergent thinking styles in terms of both a process and an outcome.

Proposition 3: Cognitive divergence is positively associated with creativity that in turn leads to exploration behaviour.

Proposition 4: Cognitive convergence is positively associated with rigidity that in turn leads to exploitation behaviour.

Proposition 5: Leaders' temporal flexibility moderates the associations between divergence and creativity as well as convergence and rigidity respectively.

Proposition 6: Exploration behaviour is positively associated with both subjective and objective innovative performance.

Proposition 7: Exploitation behaviour moderates the relationship between exploration behaviour and subjective & objective innovative performance.

Proposition 8: Subjective innovative performance might moderate the relationship between exploration behaviour and objective innovative performance.

Conclusion

The paper introduces, develops, and illustrates a conceptual framework with regard to the relationships between creativity, ambidextrous leadership and innovative performance incorporating a multi-level perspective drawing on current developments within those realms. Nonetheless, the contribution requires further investigation. First, methodology and measures for all particular constructs ought to be established. Second, it is necessary to specify innovative performance at every epistemological level. Third, detailed associations between individual, team, organizational creativity and their antecedents are going to be specified. Those complements will enable to develop hypotheses and conduct empirical research.

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Academic Integrity among Postgraduate Students of Northern Cyprus Universities

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Abstract

The present research aims to highlight the seriousness of plagiarism amongst postgraduate students of Cyprus Universities. It explores the students' perceptions of plagiarism as well as the reasons of plagiarism from the students' point of view. A total of 1128 postgraduate students participated in this study. A questionnaire survey was used for collection of primary data. Major findings revealed that almost three quarters of postgraduate students believe that copying is a very serious or serious problem; while approximately half of them believe that the item 'having a friend/a colleague do the work for them' is a very serious or serious offence. Half of the students have admitted that they have intentionally plagiarized written materials and 18.7% of them have courageously admitted that they have paid someone to do his/her work. Findings have also revealed that plagiarism is happening frequently amongst students. Lack of time to complete assignment was seen to be the most probable reason for plagiarism. This paper offers some recommendations to combat plagiarism. These recommendations include raising awareness, clarifying the rules of disclosure, using plagiarism-detection software, and creating a strong culture that promotes academic integrity.

Keywords: academic integrity, plagiarism, postgraduate students

1. Introduction

Northern Cyprus becomes a hub for the students from many different nationalities and cultures. The eight universities of Northern Cyprus are confronted with various challenges. One of these pressing issues is students' plagiarism. Soon as students register for their postgraduate courses, their professors require that they write articles about related topics of their study programs. The professors, then, state their main concern that students produce their work free from plagiarism. Putting this concern on top of professors' agenda implies that they have passed through terrible times facing the issue of students' plagiarism. If not, they are trying to give their fair share to the ongoing fight of this phenomenon.

The responsibility of the researcher is to be honest in his academic endeavors, and to conduct his/her researches considering all academic, honest practices. Violations of the academic honesty and integrity corrupt the proper advancement of knowledge. However, various studies have shown that plagiarism and other academic misconducts are happening. Thus the research can be seen as a natural response to an ongoing issue of great importance. It is also beneficial to study this issue in multicultural universities where students from so many different nationalities are taking part in the learning/teaching process.

However, the present study will not provide definitive answers and solution to plagiarism. Its general aim is to open the conversation around this academic misconduct.

The study is mainly conducted on postgraduate students of Northern Cyprus Universities in order to investigate their perceptions of plagiarism. It is assumed that students from different cultural background have different perceptions towards plagiarism. The research will also highlight the reasons of plagiarism from the students' point of view.

It is known that universities develop different instructional measures to discourage plagiarism, but it is also important to encourage approaches of developing strategies aiming at developing the students' attitudes and perceptions towards plagiarism. The present research argues that there is noticeably insufficient amount of research investigating the perceptions of students towards plagiarism in Northern Cyprus universities. Overall, the findings of the research will be used to determine how the students, professors and university managements can work together to develop a more honest and coherent teaching/learning environment for the better future of education.

2. Literature Review

According to www.merriam-webster.com, plagiarism is defined as "to use the words or ideas of another person as if they were your own words or ideas." Whereas online Merriam Webster Dictionary states that plagiarism was first used in 1716, dictionary.reference.com states that it was first used in 1615 and defines it as "an act or instance of using or closely imitating the language and thoughts of another author without authorization and the representation of that author's work as one's own." Regardless of the debate of the start of use, both dictionaries almost share the same definition. Moulton and Robinson (2002: 1316) define plagiarism as "appropriating someone else's words or ideas without acknowledgement."

Honig and Bedi (2012: 119) state that "Failing to act as a profession immediately and assertively in the face of these recurrent ethical transgressions threatens the very essence of our community of knowledge." As it is considered to be one of the dishonest practices in academia, plagiarism puts at risk the university degree value. It raises questions about the reliability of the teaching system as a whole. Causes of plagiarism have been studies by many researchers and scholars. Hansen and Anderson (2015: 427) concludes that what challenges the meaning of plagiarism are the low rate of understanding of plagiarizing university students, the emergence of plagiarism-related e-commerce and dealing with students as customers not leaners.

A number of studies tried to examine the nature of plagiarism and the reasons for this academic dishonesty. Lines (2015) examined the motivations and nature of substantive editing among postgraduate students in Australia. The study discussed the problem of misunderstanding the dividing line between professional editing and substantive editing. It is found that there were lots of students engaging in this type of plagiarism. Findings showed that there are certain negative effects of this problem. Kumari and Lakshmi (2015) described in their study different concepts of plagiarism like types of citations, recognition of plagiarism and obstacles facing students while writing their theses. They also suggested some steps to be taken to avoid this critical problem which faces the academic life. Bahadori et al. (2012) reviewed some of scientific texts related to plagiarism. Their main aim was to enhance the understanding of teachers and students of plagiarism through providing a coherent understanding of the roots and factors of this phenomenon. Ramzan et al. (2012) conducted a research to examine the level of awareness and the seriousness of plagiarism among graduate and postgraduate students of Pakistan. Findings showed that there was a low level of awareness amongst student towards plagiarism. It was also noticed that most of students did not understand the meaning of plagiarism. Interestingly, a substantial number of students said that they intentionally plagiarized some written materials.

Different studies aimed to show the relevance between theory and practice of academic integrity. James and Mahmud (2014) analyzed the opinions of 28 academic integrity interviewees. The main target group specifically was 12 persons who were affiliated in legal departments. It was found that legal students

breached the academic integrity despite their understanding of its negative effects on their professional life. Gallant and Drinan (2008) tried to bridge a gap between theory and practice in the academic integrity activity, to examine the current notions of leadership role in fighting research misconduct, and to suggest new ways to evaluate the relationship between the research and teaching goals. The paper introduced a complete case study to show how a proposed model can be used by postsecondary institutions to fight academic misconduct.

Some other studies examined the frequency and size of this phenomenon. Graig and Dalton (2014) studied the perceptions of Abu Dhabi Petroleum Institute's first-year students towards the frequency and proportion of cheating and it studied the reasons for such behavior. Findings revealed that frequency of cheating differed from one semester to another. The frequency decreased as the students spent more time at the university. The researcher called for developing an honest inquiry system so as to overcome the plagiarism problem and simplify the students' engagement and ownership of their academic work. Honig and Bedi (2012) conducted an exploratory study for a number of papers which were presented at a conference. They examined 279 papers to check them for plagiarism. Findings showed that 25% of the papers had some amount of plagiarism and 13% of them had significant plagiarism. It was noticed that the monitoring system of academic activities was not appropriate among the Academy of Management members.

Another group of studies also examined the reasons for plagiarism, ways of preventing it, and students' perception about plagiarism. Mohammed et al. (2015) reviewed about five hundred articles covering various aspects of plagiarism. They found that the main reason for plagiarism is lack of knowledge about it. Among the reasons were also found the limited period or the constraint of time for conducting the research, unskilled writers and researchers, and the continuous pressure of publishing works in well-known journals. The study also explained how submitted manuscripts are being checked for plagiarism using software and other related technological services. The study concluded that the basis of preventing this problem is raising awareness. Rezanejad and Rezaei (2013) examined the awareness, reasons, attitudes towards instructors, and perceptions of Iranian language students about plagiarism. The students have shown different opinions about definition of plagiarism. Most of the students viewed plagiarism as using words of others as if they are their own. Results indicated that students regard copying assignments completely from other friends as a dishonest act. It was also found that students argued that instructors guess about students who might have committed this dishonest act rather than check about students who have really committed it. It was noticed that most of Iranian students regard easiness of plagiarism as the most influential reason for plagiarism. Findings also showed that university professors played a crucial role in teaching students about plagiarism

Northern Cyprus Universities offer a number of postgraduate programs in a number of fields of studies including but not limited to natural and applied sciences, social sciences and fine arts. Most of the programs are taught in English. Others are taught in Turkish. A great number of postgraduate students are non-native speakers of English language. There are some students who are fluent in English and others who have excellent command of it. Different expressions of concerns exist for the study of plagiarism. The researchers want to open this discussion by studying the perceptions and reasons for this academic misconduct problem.

3. Methodology

The objective of the study is to examine postgraduate students' perceptions of plagiarism as well as the reasons they believe to cause this academic misconduct in Northern Cyprus Universities. To achieve the objective of the study, a questionnaire consisting of five sections was used as the main tool of data collection.

In total, 1500 questionnaires were distributed. The questionnaires were collected directly. The researchers received back 1128 questionnaires out of the 1500 questionnaires that were distributed, which represent 75.2% of total surveyed sample.

Once the data collection was finished, the responses were analyzed using the Statistical Package of Social Science (SPSS). The reliability of the questionnaire was measured by Cronbach's Alpha coefficient. Another tool used for the analysis was Factor analysis in order to describe the correlated variables and variability among observation. Frequencies were also used.

4. Ethical Consideration and Limitations of the Study:

In conducting this study, the researchers acknowledged some ethical considerations. The information collected was treated with strict confidentiality and used for the purpose of the study only. Also, the questionnaire used for this study was originally developed by Graig and Dalton (2014) who conducted an almost similar study in the Petroleum Institute, Abu Dhabi, United Arab Emirates. However, the researchers of the current study neglected the first section of the original questionnaire which aimed to discover the students' awareness and understanding of institutional policy which is not a concern for this study. Instead, they changed this section and sought to get some demographic data about the respondents. The content of the other four sections of the original questionnaire was almost kept. One item was added to the third section of the questionnaire so as to guarantee the consistency between the second, third and fourth sections in the questionnaire. The shape was slightly modified to simplify answering the statements.

The study also has some limitations. It addresses the issue from the student's point of view. There are other factors or players who may have different opinions concerning this pressing phenomenon. Another limitation of the study is that it is applied only on postgraduate students and it does not include the undergraduate students who may have different points of views regarding plagiarism, or may see the reasons for plagiarism differently.

5. Results

5.1 Demographic Statistics

The data showed that 73.6% of the respondents were males, while 26.4% of them were females. It also showed that 81.7% of the respondents were MA students, while 18.3% of them were PhD students. Table 1 shows the frequency and percentages of the demographic variables.

Table 1: Sample Distribution of Demographic Variables

Variables		**Frequency**	**Percentage**
Gender	Male	830	73.6%
	Female	298	26.4%
	Total	**1128**	**100%**
Educational Level	Master	921	81.7%
	PhD	206	18.3%
	Total	**1128**	**100%**

5.2 Factor Analysis

Bartlett's Test was employed for the first group of questions which were related to general perceptions of the seriousness of offence. It is found that the approx. Chi-Square is 606.774, the Degree of Freedom is 28.00, and significance is 0.000. Findings show that the value of the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) is 0.878. This result shows that the data were adequate for Factor analysis.

Bartlett's Test was also used for the second group of questions which were related to engagement in the behavior of offence. It is found that the approx. Chi-Square is 522.919, Degree of Freedom is 28.00, and significance is 0.000. Results show that the value of Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) is 0.832. This result also shows that the data were adequate for Factor analysis.

Bartlett's Test was also employed for the third group of questions which were related to frequency of occurrence of offence. It is found that the approx. Chi-Square is 850.923, Degree of Freedom is 28.00, and significance is 0.000. Findings show that the value of Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) is 0.918. This finding shows that the data were adequate for factor analysis.

Bartlett's Test was finally employed for the fourth group of questions which were related to reasons for academic dishonesty. It is found that the approx. Chi-Square is 384.992, Degree of Freedom is 66.00, and significance is 0.000. Findings show that the value of Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) is 0.771. This finding shows that the data were adequate for factor analysis. Twelve Factors have been extracted. Out of them one Factor has been excluded due to the value of Factor loading which was less than 0.5.

According to Factor Analysis table, all the variables are well fitted in factor solution. This is because most of the factors have loading value more than 0.50 except one Factor in the group questions of reasons for academic dishonesty. The result of factor analysis gives evidence to the proper use of the instrument which measures the variables of perceptions and reasons of plagiarism, and allows proceeding for data collection. The reliability was tested by performing the Cronbach's Alpha reliability statistics. Results indicate the high reliability of the present measure. Factor Analysis table shows that the determinant is more than 0.00001. This indicates the absence of multicollinearity. Appendix 1 shows the Factor Analysis results.

5.2 Perceptions

5.3.1 General Perceptions of the Seriousness of Offence

Concerning the results of the students' general perceptions of the seriousness of plagiarism, analysis has shown that 74% of the postgraduate students believe that 'copying from notes in an exam/test/quiz' is very serious or serious. The other ranking and percentages of the seriousness of offence as perceived by students are found to be as follows: 71.2% for copying a colleagues answer in an exam/test/quiz, 70.7% for plagiarizing work from others and passing it off as their own, 70.2% for copying a homework assignment from a peer, 65.9% for providing answers to a friend/colleague in an exam/test/quiz , 57.3% for paying someone to do the assignment, 54.4% for doing homework for a friend/colleague, and 52.9% for having a friend/a colleague do the work for them.

5.3.2 Engagement in the Behavior

Concerning the results of the students' frequency of engagement in the behavior of plagiarism, analysis has shown that 49.5% of the postgraduate students have plagiarized work from others and passed it off as their own, 43.3% have done homework for a friend/colleague, 41.9% have allowed a friend/colleague to copy his/her work, 40.9% have provided answers to a friend/colleague in an exam/test/quiz, 37% have copied homework assignment from a peer, 27.9% have copied a colleagues answer in an exam/test/quiz, 25% have copied from notes in an exam/test/quiz, and 18.7% have paid someone to do his/her work.

5.3.3 Frequency of Occurrence

Concerning the results of the students' perceptions of the general frequency of occurrence, analysis has shown that 54.3% of the postgraduate students believe in the frequent or sometimes occurrence of copying a homework assignment from a peer occurs. Percentages and ranking for the other items of consideration are found to be as follows: 50% for providing answers to a friend/colleague in an exam/test/quiz , 47.6% for plagiarizing work from others and passing it off as their own , 46.7% for doing homework for a friend/colleague, 44.7% for copying a colleagues answer in an exam/test/quiz, 41.4% for copying from notes in an exam/test/quiz, 39.4% for having a friend a colleague do the work for them, and 38.4% for paying someone to do the assignment

5.3 Reasons

According to the findings of the research, 71.6% of postgraduate students believe that the most likely reason for plagiarism is lack of time to complete assignment. The other most probable reasons and percentages are found to be as follows: 62% for lack of interest, 61.5% for worth the risk to get a better grade , 61.1% for English not good enough, 60.6% for lack of understanding of how to complete assignment, 60.6% for authors' words are best, 60.1% for low chance of being caught or reported, 58.2% for penalties are minimal, 55.3% for too much effort required to paraphrase and quote, 52.9% for normal behavior (everyone does it/not considered serious), 52.9% for never been taught how to paraphrase and quote, 33.2% for taught to copy in school.

6. Discussion

A considerable number of students still do not understand the seriousness of the academic misconduct. Their level of awareness is still far away from expected. These findings of the research are almost consistent with the findings of other researchers conducted over the previous years (Ramzan et al., 2012; Graig and Dalton, 2014; Honig and Bedi, 2012; Rezanejad and Rezaei, 2013). However, it is surprising to find out that approximately half of the students tend to believe that giving their academic work to be done by their friends and colleagues is not a serious offence to academic integrity. This might be attributed to the concept of collectivism as it was introduced by Hofstede (1980). Students tend to take care and work of each other. From a collectivistic perspective, this manifested itself in the academic life. This goes in contrast to the individualistic perspective where students prefer to work independently. Other reasons for this high percentage may be attributed to the lack of time to complete assignment, lack of understanding of how to complete assignment, weak proficiency in English, or the behavior that everyone does it. A few variations in the percentages take place when the students were asked about the frequent occurrences of these items of consideration. This is just a confirmation of their original perception about the seriousness of the issue. The percentages dropped a little bit when students where asked if they themselves committed this academic misconduct. This is a natural response because everyone tends to believe in his right mind
Despite the students' moderate understanding of the seriousness of some of the offences, they have confessed to breach academic integrity. Though 70.7% of the respondents believe that plagiarizing work from others and passing it off as their own is a very serious or serious offence, 49.5% of them have courageously admitted that they have plagiarized and 47.6% of them have seen that this offence occurs frequently. First, this is again another place to tell that there is a low level of understanding about plagiarism because 29.3% still believe that plagiarizing work from others is not a serious offence. Second, the courage of confession may refer to the reasons of low chance of being caught or reported, minimal penalties, or taking the risk to get a better grade. Another area of breaching is found to be in the item of paying someone to do the assignment. When asked about their engagement in the offence, only 18.7% of the students admitted their frequent engagement. The percentage increased to 38.4% when students where asked about the general frequency of occurrence by others. This is also a natural psychological trend of believing in one's right mind. These results of breaching are consistent with the findings of other researches (Lines, 2015; Ramzan et al., 2012; James and Mahmud, 2014; Graig and Dalton, 2014).

Concerning the reasons for academic misconduct, the major findings are also consistent with the findings of other researches (Mohammed et al., 2015; Graig and Dalton, 2014; Rezanejad and Rezaei, 2013). The most probable reason for plagiarism is lack of time to complete assignments. This might be attributed to the balance students often try to make between different academic, social, professional or pre-professional, and psychological goals. Students may sometimes lose motivation for academic work. However, it is the responsibility of university lecturers to maintain the students' motivation by considering these goals in structuring their courses. Besides, lack of time is also associated with the lack of English language skills especially for students who come from non-speaking English communities. The problem may also have its roots in the lack of basic organizational skills including but not limited to time management techniques and keeping calendars. This results in low productivity and bad study habits.

Lack of interest is ranked second in the most likely reasons for plagiarism occurrence. Students need to be reminded of the importance of their studies and work assignments. Students also need not to believe that their assignments are busy work. The cause for this may be due to the students' belief that their lecturers don't read their work carefully. As a result, they do not work because they think that the assignments they prepare will not be recognized by their instructors. Instructors may impose their research agenda on the students. Giving the opportunity for students to select their own titles may add an incentive to them and encourage them to do good researches and projects. The third reason for plagiarism as perceived by students is worth the risk to get a better grade. Generally students want to maintain a high GPA. They see this as part of their success in life, so they express their concern for cheating and plagiarism to compete with their peers and colleagues. They cheat because they do not have a high level of confidence of themselves. They may also do this because they need to compete for the future scholarships or professions which focus on GPA as a criterion for entering the program or the profession. The fourth reason is the bad command of English. Students may lack excellent English skills. Instead of improving their language skills, they opt to cheat. The reason for this item to be fourth in the classification may be due to the high level of tolerance to students' English errors and mistakes by lecturers, so students tend not to improve their language skills. Lack of understanding of how to complete an assignment ranks fifth in the study. It is possible that students may not know the guidelines of completing the assignment. They reason may also refer to lack of knowledge, lack of intellectual skills, or lack of practical skills. However, instructors have to clarify the complete procedures of completing assignments. Authors' words rank sixth in the study. Some students fear to alter the meaning of the original words, so they keep the authors' words unchangeable. This is especially true to established words and phrases.

Low chance of being caught ranks seventh in the study. Some students do not care about getting caught. These students may believe that the benefits are more than the risks. This is a good reason for them to cheat. Some departments at the university may use the plagiarism detection systems, while other departments may not use these systems. This may also explain the students' behavior. The item of consideration 'penalties are minimal' ranks eighth in the research. These students feel that it is easy to cheat because rules are not enforced. The ninth and tenth reasons in the study are the items 'too much effort is required to paraphrase and quote' and everyone does it' successively. This group of students may be lazy or may have heavy academic load. These students need to be given guidelines in organizing their work as well as informing them about the importance of building their skills for the future careers they may seek.

The item 'never been taught how to paraphrase and quote' ranks eleventh in the study. Some students may feel the pressure to paraphrase the authors' words. This of course varies from one discipline to another. Some students largely maintain the writers' way of expressing ideas and structuring sentences. They borrow words and sentences from authors without acknowledgement. They do not use quotation marks to acknowledge the source of content. All in all, these students feel that their skills are weak. The last item 'taught to copy in school' does not rank high in the study. Though the percentage is the lowest for this item of consideration, but still it is disturbing to know that some students do believe that one of the reasons for academic dishonesty is 'taught to copy in schools'.

7. Conclusion

As plagiarism continues to threaten the trust and honesty of academic research, it is worth stressing that tools to prevent it have to be restated. Among these tools are raising awareness, clarity in the rules of disclosure and using plagiarism-detection software. It is also important not only to focus on punishment as a strategy to fight plagiarism, but rather to create a strong culture that promotes academic integrity and responsibility. Responsibility requires that students, professors and university management of Northern Cyprus Universities have to develop a more honest and coherent teaching/learning environment in order to maintain ethical standards throughout the universities. Finally, all parties related to scientific research have to look for new strategic choices that can help to confront academic misconduct.

Future research might focus on faculty members' perceptions and practices towards plagiarism and how they deal with this issue. Another study may explore the graduate students' perception towards academic dishonesty. Comparative studies in the region concerning the same issue are also encouraged. A cross-cultural study on the influence of Hofstede's cultural dimensions on the perceptions of plagiarism may also be applied.

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Appendix 1: Factor Analysis Result.

Variables	Items	Factor Loading	Reliability Cronbach's Alpha	Determinant	KMO	Bartlett's Test		
						Approx Chi-Square	Df	Sig.
General Perceptions of the Seriousness of Offence	Copying a homework assignment from a peer	**0.646**	**0.858**	**0.051**	**0.878**	**606.774**	**21**	**0.000**
	Copying from notes in an exam/test/quiz	**0.717**						
	Copying a colleagues answer in an exam/test/quiz	**0.776**						
	Providing answers to a friend/colleague in an exam/test/quiz	**0.732**						
	Doing homework for a friend/colleague	**0.557**						
	Having a friend / a colleague do the work for you	**0.702**						
	Plagiarizing work from others and passing it off as your own	**0.740**						
	Paying someone to do the assignment	**0.779**						
Engagement in the Behavior	Copied homework assignment from a peer	**0.744**	**0.779**	**0.077**	**0.832**	**522.919**	**21**	**0.000**
	Copied from notes in an exam/test/quiz	**0.787**						
	Copied a colleagues answer in an exam/test/quiz	**0.805**						
	Provided answers to a friend/colleague in an exam/test/quiz	**0.644**						
	Allowed a friend/colleague to copy your work	**0.678**						
	Done homework for a friend/colleague	**0.627**						
	Plagiarized work from others and passed it off as your own	**0.748**						
	Paid someone to do your work	**0.678**						
Frequency of Occurrence	Copying a homework assignment from a peer	**0.804**	**0.904**	**0.015**	**0.918**	**850.923**	**21**	**0.000**
	Copying from notes in an exam/test/quiz	**0.804**						
	Copying a colleagues answer in an exam/test/quiz	**0.815**						
	Providing answers to a friend/colleague in an exam/test/quiz	**0.713**						
	Doing homework for a friend/colleague	**0.718**						
	Having a friend a colleague do the work for you	**0.781**						
	Plagiarizing work from others and passing it off as your own	**0.779**						
	Paying someone to do the assignment	**0.769**						
Reasons for Academic Dishonesty	Lack of time to complete assignment	**0.552**	**0.749**	**0.149**	**0.771**	**384.992**	**28**	**0.000**
	Low chance of being caught or reported	**0.581**						
	Penalties are minimal	**0.521**						
	Worth the risk to get a better grade	**0.536**						
	Normal behavior (everyone does it/not considered serious)	**0.508**						
	Taught to copy in school	**0.548**						
	Lack of understanding of how to complete assignment	**0.546**						
	Never been taught how to paraphrase and quote	**0.461**						
	Too much effort required to paraphrase and quote	**0.562**						

	Authors' words are best	**0.536**						
	English not good enough	**0.566**						
	Lack of interest	**0.503**						

Appendix 2: Frequency of General Perceptions of the Seriousness of Offence

Item	Scale	Frequency	Percentage (%)
Copying a homework assignment from a peer	Very serious	309	27.4
	Serious	483	42.8
	Not Serious	271	24.0
	Not Very Serious	65	5.8
Copying from notes in an exam/test/quiz	Very serious	537	47.6
	Serious	298	26.4
	Not Serious	206	18.3
	Not Very Serious	87	7.7
Copying a colleagues answer in an exam/test/quiz	Very serious	510	45.2
	Serious	293	26.0
	Not Serious	233	20.7
	Not Very Serious	92	8.2
Providing answers to a friend/colleague in an exam/test/quiz	Very serious	380	33.7
	Serious	363	32.2
	Not Serious	282	25.0
	Not Very Serious	103	9.1
Doing homework for a friend/colleague	Very serious	239	21.2
	Serious	374	33.2
	Not Serious	380	33.7
	Not Very Serious	135	12.0
Having a friend/a colleague do the work for you	Very serious	206	18.3
	Serious	390	34.6
	Not Serious	353	31.3
	Not Very Serious	179	15.9
Plagiarizing work from others and passing it off as your own	Very serious	423	37.5
	Serious	374	33.2
	Not Serious	206	18.3
	Not Very Serious	125	11.1
Paying someone to do the assignment	Very serious	353	31.3
	Serious	293	26.0
	Not Serious	303	26.9
	Not Very Serious	179	15.9

Appendix 3: Frequency of Engagement in the Behavior

Item	Scale	Frequency	Percentage (%)
Copied homework assignment from a peer	Frequently	108	9.6
	Sometimes	309	27.4
	Rarely	298	26.4
	Never	407	36.1
Copied from notes in an exam/test/quiz	Frequently	81	7.2
	Sometimes	201	17.8
	Rarely	266	23.6
	Never	575	51.0
Copied a colleagues answer in an exam/test/quiz	Frequently	81	7.2
	Sometimes	201	17.8
	Rarely	266	23.6
	Never	575	51.0
Provided answers to a friend/colleague in an exam/test/quiz	Frequently	98	8.7
	Sometimes	363	32.2
	Rarely	347	30.8
	Never	320	28.4
Allowed a friend/colleague to copy your work	Frequently	98	8.7
	Sometimes	374	33.2
	Rarely	423	37.5
	Never	233	20.7
Done homework for a friend/a colleague	Frequently	98	8.7
	Sometimes	390	34.6
	Rarely	342	30.3
	Never	298	26.4
Plagiarized work from others and passed it off as your own	Frequently	222	19.7
	Sometimes	336	29.8
	Rarely	325	28.8
	Never	224	21.6
Paid someone to do the assignment	Frequently	76	6.7
	Sometimes	135	12.0
	Rarely	228	20.2
	Never	689	61.1

Appendix 4: Frequency of 'Frequency of Occurrence'

Item	Scale	Frequency	Percentage (%)
Copying a homework assignment from a peer	Frequently	225	22.6
	Sometimes	358	31.7
	Rarely	303	26.9
	Never	212	18.8
Copying from notes in an exam/test/quiz	Frequently	152	13.5
	Sometimes	315	27.9
	Rarely	288	25.5
	Never	374	33.2
Copying a colleagues answer in an exam/test/quiz	Frequently	174	15.4
	Sometimes	331	29.3
	Rarely	271	24.0
	Never	353	31.3
Providing answers to a friend/colleague in an exam/test/quiz	Frequently	152	13.5
	Sometimes	417	36.5
	Rarely	353	31.3
	Never	212	18.8
Doing homework for a friend/colleague	Frequently	179	15.9
	Sometimes	347	30.8
	Rarely	353	31.3
	Never	249	22.1
Having a friend/a colleague do the work for you	Frequently	141	12.5
	Sometimes	303	26.9
	Rarely	353	31.3
	Never	331	29.3
Plagiarizing work from others and passing it off as your own	Frequently	184	16.3
	Sometimes	353	31.3
	Rarely	244	21.6
	Never	347	30.8
Paying someone to do the assignment	Frequently	157	13.9
	Sometimes	276	24.5
	Rarely	255	22.6
	Never	439	38.9

Appendix 5: Frequency of Reasons

Item	Scale	Frequency	Percentage (%)
Lack of time to complete assignment	Most Likely	271	24
	Likely	537	47.6
	Unlikely	233	20.7
	Most Unlikely	87	7.7
Low chance of being caught or reported	Most Likely	184	16.3
	Likely	494	43.8
	Unlikely	325	28.8
	Most Unlikely	125	11.1
Penalties are minimal	Most Likely	195	17.3
	Likely	461	40.9
	Unlikely	309	27.4
	Most Unlikely	162	14.4
Worth the risk to get a better grade	Most Likely	206	18.3
	Likely	488	43.3
	Unlikely	315	27.9
	Most Unlikely	120	10.6
Normal behavior (everyone does it/not considered serious)	Most Likely	108	9.6
	Likely	488	43.3
	Unlikely	363	32.2
	Most Unlikely	168	14.9
Taught to copy in school	Most Likely	108	9.6
	Likely	266	23.6
	Unlikely	385	34.1
	Most Unlikely	369	32.7
Lack of understanding of how to complete assignment	Most Likely	217	19.2
	Likely	466	41.3
	Unlikely	315	27.9
	Most Unlikely	130	11.5
Never been taught how to paraphrase and quote	Most Likely	141	12.5
	Likely	456	40.4
	Unlikely	385	34.1
	Most Unlikely	147	13.0
Too much effort required to paraphrase and quote	Most Likely	179	15.9
	Likely	444	39.4
	Unlikely	353	31.3
	Most Unlikely	152	13.5
Authors' words are best	Most Likely	217	19.2
	Likely	466	41.3
	Unlikely	261	23.1
	Most Unlikely	184	16.3
English not good enough	Most Likely	266	23.6
	Likely	423	37.5
	Unlikely	261	23.1
	Most Unlikely	179	15.9
Lack of interest	Most Likely	249	22.1
	Likely	450	39.9
	Unlikely	266	23.6
	Most Unlikely	162	14.4

Power Distance, Uncertainty Avoidance and Satisfaction: Evidence from Northern Cyprus Universities

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Abstract

Understanding the needs, wants, and desires of university students in multi-cultural educational system is a critical issue for any university administration. The development of an efficient system of delivering a culturally sensitive curriculum requires the development of skills to understand how to satisfy students under the care of the university. Part of this understanding is to take into account the cultural differences between students. This research seeks to examine how Hofstede's cultural dimensions namely power distance and uncertainty avoidance can be related to students' satisfaction. This was examined by applying factor analysis and ordinary least squares (OLS) regression. Overall, the finding of the research will be used to determine how the students, professors and university management can coexist for a better education in North Cyprus. The research used a questionnaire as the main tool for gathering data. A sample of 637 students from the eight universities in North Cyprus was selected using the random sample procedure. While research findings indicated no relationship between high power distance and the satisfaction levels of university students, they indicated positive and significant relationship (robust relationship) between high uncertainty avoidance and the satisfaction levels of university students.

Keywords: Culture, power distance, uncertainty avoidance, satisfaction.

1. Introduction

There are eight universities in North Cyprus. They are Cyprus International University, Near East University, Eastern Mediterranean University, Girne American University, European University of Lefke, University of Mediterranean Karpasis, Istanbul Technical University, and Middle East Technical University. Six of them are local universities and two are the branches of the Middle Technical University in Ankara and İstanbul Technical University in Istanbul. Cyprus International University reported that the number of students in 2006 was 3545 and it rose to 7948 in 2014. As one can see, there is a growing number of students. They are from Turkey, Turkish Republic Northern Cyprus (TRNC), African, East Asian and Middle Eastern countries. Considering the number of all these students, Cyprus becomes a hub for the students from many different nationalities and cultures.

Despite all these figures and numbers, universities in North Cyprus are confronted with challenges such as bridging the cultural gap between the different nationalities. One of these pressing issues is students' satisfaction. Anderson and Zemke (1998) argue that it is very important for organizations to satisfy their customers. Satisfied customers will increase the organization's profit margin whilst dissatisfied customers

will weaken their growth. In contrast to the easily quantifiable improvements that are currently taking place in universities, little attention is given to the less quantifiable aspect of culture and its diversity. For instance, Eastern Mediterranean University (2012) has recognized in its strategic plan for 2012-2015 that one of the challenges is that comprehensive and effective policies should be formulated in coordination with all stakeholders. In the same plan, it is emphasized that one of the actions to be taken is the improvement and development of the campus infrastructure in line with the developments in educational technologies. The challenge of meeting the cross-cultural variations among students is receiving less attention, one can guess. However, it is recognized that education abroad offers an individual the opportunity to expand his/her experience and to connect with other international community. Builtjens and Noorderhaven (1996) hinted that leaders and managers at both the international and cross-cultural levels take decisions which consider their countries' norms and values. This fact leads to the necessity of training employees of multi-national organizations to be more culturally sensitive to the differences across cultures. As we are living in a globalized world, studying culture and its influences on education is a necessity.

This paper seeks to place culture into the debate of students' satisfaction, and calls for the universities to consider the cultures of students and adapt accordingly. This is to avoid potential decrease in numbers in the future or resistance by those who are not satisfied. McColl-Kennedy and Schneider (2000) point out that customers are important for any organization like other assets. Thus organizations have to monitor and manage customer satisfaction in an effective way so as to prosper and be more competitive with their rivals. This assertion holds also true for students as they are the customers of the universities. The paper also searches to determine how power distance and uncertainty avoidance can be taken into consideration by the universities in North Cyprus as cultural dimensions influencing their students' satisfaction. The paper also presupposes that knowledge of culture and its influence can be useful in Northern Cyprus universities. This is of course going beyond the design of both materials and platforms because they are not considering the impact of culture on students' satisfaction in the learning environment.

The research is conducted on both undergraduates and postgraduates students in order to investigate the power distance and uncertainty avoidance cultural dimensions on students' satisfaction. It is assumed that students studying in North Cyprus have variances in their satisfaction due to these two cultural dimensions. Accordingly, the students' perspectives are explored to learn the differences among students in terms of their satisfaction level. The present research argues that there is noticeably insufficient amount of research investigating the relationship between Hofstede dimensions, namely power distance and uncertainty avoidance and university students' satisfaction especially when students are coming from different nations. Overall, the findings of the research will be used to determine how the students, professors and university management can coexist for better future education in North Cyprus.

2. Literature Review

2.1 Theoretical Framework

Erez and Christopher (1993, p.43) states that "societies shape their collectives and aggregates according to the rules implied by culture." However, there are different definitions of culture. Schein (2004, p.17) defines culture as "a pattern of shared basic assumptions that was leaned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems." Hofstede (1980, p.13) defines culture as "the collective programming of the mind." Hofstede and Hofstede (2005) states that culture includes manners of thinking and behavior inherited and transmitted from one generation to another. These manners are elaborated through direct reciprocal action between, family members, friends, groups, work colleagues and community. In contrast to what has been introduced by Hofstede (1980) in terms of defining culture, Kuper (1999, p.299) describes culture as an issue of ideas and values with a combined shaping of mind. Interestingly, some other scholars go beyond that like Geertz (1993) who demonstrates that culture from a historical point of view is transmitted with different patterns of meanings characterized by symbols through which people communicate, maintain, and grow their knowledge, attitudes and perceptions toward life.

All these definitions and most probably others, despite some of the differences between them, show that human activity is influenced by culture. Monaghan and Just (2000) inform us that culture has a direct influence on human activity. Others have emphasized the deep roots of culture and its influences on values and beliefs, whether these beliefs and values are rational or not.

In offering education, it is important to strengthen the ties between different nations and to consider the variances between cultures so as to make the students more satisfied. Parrish and Linder-VanBerschot (2010) assume that different levels of culture exist within many structures including workplaces, family and community. This existence takes place not only at the regional level but also at the national and even international levels. This requires that teachers have to recognize the implications and consequences of culture on the teaching and learning environment. Nisbett (2003) reveals that teachers must be knowledgeable of their learners' culture to be able to interpret and analyze how those cultures demonstrate and manifest themselves in learning processes.

Hofstede (1980, 2001) and Hofstede and Hofstede (2005) developed a framework for describing cultural differences based on five value dimensions. These dimensions are high power distance versus low power distance, high uncertainty avoidance versus low uncertainty avoidance, individualism versus collectivism, masculinity versus femininity and long-term orientation versus short-term orientation. The development of these dimensions was done by a staff survey at IBM Corporation. Hofstede has lately added the sixth dimension which is indulgence versus restraint. According to the Hofstede (2015), indulgence "stands for a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. Restraint stands for a society that suppresses gratification of needs and regulates it by means of strict social norms."

According to Hofstede (2015), power distance dimension "expresses the degree to which the less powerful members of a society accept and expect that power is distributed unequally." Thus, in a society with high power distance, superiors are inaccessible by those inferior in positions while in a society with a low power distance, superiors are accessible and there is a feeling of equal distribution of power. Huq, Tyler and Schulhofer (2011) pointed out that individuals of various ethnicities recognize ways of interaction differently. What might be fair and acceptable in one ethnic group might not be fair and acceptable in another one in the lights of the expectancy of behaviors of an authoritative agency. This leads us to the notion that culture and ethnic groups might be perceived to conciliate outcomes of attitudes and individuals in societal reciprocity.

According to Hofstede (2015), uncertainty avoidance dimension "expresses the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity." Individuals who live in a low uncertainty avoidance culture usually tend to prefer not to be bound by regulations and rules, so they prefer to be free. The opposite is true for people who live in a high uncertainty avoidance culture. The choices are not many for individuals. They either want to stay away from these situations by imposing firm behavioral norms and asserting values and beliefs in complete factuality or else they accept the new situations by changing the ruling regulations into flexible ones. Stress and anxiety are the main distinguishing characteristics of strong uncertainty avoidance cultures. Another characteristic is the urge to have written laws, regulations and rules. On the contrary, people in a weak uncertainty avoidance culture try to take risk and tolerate different situations of uncertainty. Moreover, there is a higher degree of acceptance to change, a higher degree of tolerance for differences in opinions and a greater preparation for exposure to danger.

2.2 Related Researches

2.2.1 Cultural Dimensions and Satisfaction

A number of studies used Hofstede's (1980) power distance dimension as a tool to examine the practices of business. Some of them aimed to examine the relationship between power distance and satisfaction. Cropanzano et al. (1997) observed that equality and power distance go in sharp contrast with each other. Interestingly and figuratively, he noted that the organization and its atmosphere will be poisoned if there is

injustice. Injustice inside organizations reduces the level of energy and increases the level of laziness. It means that the less the power distance the more the satisfaction is. Fock et al. (2013) studied the effects of power distance on some kinds of empowerment. They conducted their study on a number of employees from China and Canada. One of their findings indicated that the effect of the leadership empowerment on satisfaction was found to be more influential on low power distance (Canada) culture compared to high power distance (China) culture. Rafiei and Pourreza (2013) investigated the impact of power distance on the relationship between participation and a number of variables. Findings showed that there is a relationship between the level of power distance and job satisfaction.

Other studies aimed to examine the relationship between uncertainty avoidance and satisfaction. Häkkinen and Järvelä (2006) emphasized the significance of creating reciprocal understanding or common goals and values. It can be said that studies support an argument that a learner's uncertainty avoidance may have an influence on his learning experience but it does not give information about how this may affect his satisfaction. Karahanna et al. (2013) studied the impact of uncertainty avoidance on consumer perceptions and attitudes of e-loyalty. Results showed that uncertainty avoidance has an impact on information quality in relation to usefulness and e-loyalty. It is implied in this study that the more e-loyalty, the more satisfaction is. Reimann et al. (2008) indicated that customers vary in their level of satisfaction when there is a problem or defect in the service provided to them, especially when their expectations are not met. Customers who are from cultures with high level of uncertainty avoidance were less satisfied than customers who are from cultures with low uncertainty avoidance.

2.2.2 Cultural Dimensions and Other Related Issues

Many studies have aimed to examine or to expand upon Hofstede's (1980) principal findings. Cronjé (2010) concluded that three variables affect the cultures' roles when there is a conflict. These variables are communicative uncertainty reduction, shared meanings construction, and the appropriate usage of technology. Purohit and Simmers (2006) researched Hofstede's power distance dimension. They found that people from US, Nigeria, and India show different behavior patterns in terms of solving their administrative conflicts.

Rodrigues (2005), and Sulkowski and Deakin (2010) found that culture has a direct influence on learner's perceptions, expectations and preferences. This has been found to be related and reflected in whether they have a preference to be either active or passive, have more or less responsibility for learning, and prefer interaction with peers or teachers. Psychologists from several societies and organizations used power distance dimension of Hofstede. They clearly concluded that power distance measurements of individuals are so crucial to anticipate and understand people's societal behaviors. Among them are Tyler, Lind and Huo (2000) who proposed that measurement of respondents about conflict reconciliation procedures responses would interpret behavior. The same proposition is suggested by Farh et al. (2007) regarding workplace discerned institutional support. They recommended that investigators have to assess and analyze values of culture at the personal level. They have particularly placed a great importance to power distance. Zhang (2013) explored Chinese students' attitudes of power distance and its influence on their communication with teachers and peers in an online learning setting. It is found that teachers were seen by students as major sources of knowledge, having high power and possessing authority. Moreover, Chinese students who face some difficulties in learning were not feeling easy to communicate with teachers. Instead they preferred to ask assistance from peers who share similar linguistic and cultural background. Rahmat and Fayazi (2006) showed that power distance in institutions has a negative relationship with institutional loyalty and performance.

Sulimma (2009) mentioned that students who are high in UA prefer well-structured learning, show interest to get the right answers, expect that the teacher has the correct answers, and refer results to circumstances rather than confessing self-control for their learning. Deepwell and Malik (2008) postulated that students who are high in UA may have a tendency to take online learning because it depends on the learners being self-directed to finish assignments and to become more involved with various discussions and collaborations with peers, to have an access to library resources, research and development and to work on materials given by the tutors.

Mansoor and Tayib (2010) demonstrated that institutional culture has strong powerful influence on job satisfaction. Chang and Lee (2007) speculated that culture affects employees' job satisfaction. They also emphasized that a suitable culture in organizations increases job satisfaction of employees. Hence there is a strong positive correlation between culture and job satisfaction. Amos and Weathington (2008) emphasized that an appropriate organizational culture has a positive impact on employees, gives them satisfaction and increases their commitment to the organization.

Andreassi et al. (2012) examined the factors affecting job satisfaction across four-regional cultures. One of the findings of their study showed that differences do exist in relation to significance of job attributes on job satisfaction. Sabri et al. (2011) studied the effect of organizational culture on job satisfaction level of instructors working at institutes and universities in Lahore, Pakistan. Findings showed that there is a positive and significant relationship between organizational culture and job satisfaction. Ndubisi et al. (2012) researched culture's role in the association of quality of relationship with loyalty of customers. The results revealed that uncertainty avoidance has a significant association with loyalty. Broadly speaking, this shows that culture explains customer's loyalty. Richard et al. (2002) reported that processes that foster justice in organizations are crucial. They also emphasized that the way organizations deal with employees has an influence on attitudes, perceptions, feeling, beliefs, and behaviors. Kuh et al. (2005) explained that students' persistence, engagement and participation in learning will increase when resources and values of the institution enrich the students' educational experience.

2.3 Research Hypotheses

The research focuses on how students' power distance and uncertainty avoidance affect their satisfaction. Therefore, it is hypothesized that:

H1: There is a positive and significant relationship between high power distance and the satisfaction levels of university students.

H2: There is a positive and significant relationship between high uncertainty avoidance and the satisfaction levels of university students.

H3: Nationality, level of education and gender have a positive effect on the relationship between power distance and uncertainty avoidance and the satisfaction levels of university student.

3. Methodology

The study adopted a quantitative methodology. The paper used a sample in order to understand the students' satisfaction along Hofstede's cultural dimensions namely power distance and uncertainty avoidance. Because of using the random sample procedure, the data were transformed to standardized variables (Z-score) so as to overcome any problems in the estimated standard deviation. The following Z-score equation was used to provide an assessment of how off-target a process is operating:

$$Zscore_i = \frac{X_i + \mu_i}{\sigma}$$

Where; X_i is the standard score, μ_i is the mean of the population, and σ is the standard deviation of the population. Then, OLS robust model was applied to investigate the relationship between the exogenous variables and students' satisfaction. The formula was expressed as follows:

$$S_i = \beta_0 + \beta_1 PD_i + \beta_2 UV_i + \sum_{i=1}^{n=3} \beta_i (N_i, LE_i, G_i) + \varepsilon_i$$

Where; S_i: represents students' satisfaction, PD_i: represents power distance, UV_i: represents uncertainty avoidance, (N_i, LE_i, G_i): represents nationality, level of education, and Gender, andε_i: error term.

The researchers utilized both primary and secondary data. The primary data were collected from students of the eight universities in North Cyprus. The secondary data were obtained from books, journals and the

Internet. A random sample of 750 students from North Cyprus universities was selected. A total of 637 students provided responses. The response rate was 85%.

Students responded to a paper questionnaire that assessed power distance, uncertainty avoidance and students' satisfaction. Thus, the instrument of the research was composed of three scales. The first one was power distance scale of Hofstede (1980) which was composed of three items. The second scale was uncertainty avoidance scale of Hofstede (1980) which was composed of four items. The third scale is satisfaction scale of SurveyMonkey (2015) which is composed of fifteen items. These items were measured on a 5 point Likert scale. The reliability of the questionnaire was measured by Cronbach's Alpha coefficient. Another tool used for the analysis was Factor analysis in order to describe the correlated variables and variability among observation.

4. Results

4.1 Demographic Statistics

The data showed that 62% of the respondents were males, while 38% of them were females. It also showed that 59.5% of the respondents were undergraduates, while 40.5% of them were postgraduates. While the data showed that most of the respondents were from Nigeria with a percentage of 18.45%, and Turkey with a percentage of 14.9%, they showed that least of them were from India with a percentage of 0.9% and Lebanon 1.3%. Table 1 shows the frequency and percentages of the demographic variables.

Table 1. Sample Distribution of Demographic Variables

Variables		Frequency	Percentage
Gender	Male	395	62%
	Female	242	38%
	Total	**637**	**100%**
Educational Level	Undergraduate	379	59.5%
	Postgraduate	258	40.5%
	Total	**637**	**100%**
Nationality	Nigeria	117	18.45%
	Turkey	95	14.9%
	Iraq	51	8.0%
	Syria	48	7.5%
	Libya	47	7.4%
	North Cyprus	45	7.1%
	Russia	39	6.1%
	Turkmenistan	31	4.9%
	Zambia	30	4.7%
	Palestine	24	3.8%
	Rwanda	23	3.6%
	Jordan	20	3.1%
	Iran	19	3.0%
	Egypt	14	2.2%
	Somalia	10	1.6%
	Ghana	10	1.6%
	Lebanon	8	1.3%
	India	6	0.9%
	Total	**637**	**100%**

4.2. Factor Analysis - Measure of Sampling Adequacy

Bartlett's test has been employed for the power distance group of questions. It is found that the approx. Chi-Square is 40.482, the degree of freedom is 3.00, and significance is 0.000. Findings show that the value of the Kaiser-Meyer-Olkin Measure of sampling adequacy (KMO) is 0.569. This result shows that the data were adequate for factor analysis. Bartlett's test has also been used for the uncertainty avoidance group of questions. It is found that the approx. Chi-Square is 125.087, degree of freedom is 6.00, and significance is 0.000. Results show that the value of Kaiser-Meyer-Olkin Measure of sampling adequacy (KMO) is 0.643. This result also shows that the data were adequate for factor analysis (Hutcheson and Sofroniou, 1999).

Bartlett's test has finally been employed for the satisfaction group of questions. It is found that the approx. Chi-Square is 750.493, degree of freedom is 120.00, and significance is 0.000. Findings show that the value of Kaiser-Meyer-Olkin Measure of sampling adequacy (KMO) is 0.772. This finding shows that the data were adequate for factor analysis. 15 factors have been extracted. Out of them 2 items have been excluded due to the value of factor loading which was less than 0.5.

According to factor Analysis table, all the variables are well fitted in factor solution. This is because most of the factors have loading value more than 0.50 except 2 items in the group questions of satisfaction. The result of factor analysis gives evidence to the proper use of the instrument which measures the variables of power distance and uncertainty avoidance and allows to proceed for data collection. The reliabilities of the scales were tested by performing the Cronbach’s Alpha reliability statistics. Results were more than 75% (power distance: 0.771, Uncertainty avoidance: 0.818 and satisfaction: 0.763) which indicate the high reliability of the present measure of the scales. Factor analysis table shows that the determinant is more than 0.00001. This indicates the absence of multicollinearity. Table 2 shows the factor analysis results. (See appendix 1).

4.3 Testing of Hypotheses

The multiple regression analyses were performed on the mean scores data collected from the respondents. In model 1, the R Square value is 0.825 which means that dimensions of power distance and uncertainty avoidance account for 82.5% of the variation in students’ satisfaction. The adjusted R square value is 0.825 which is the same as R Square, which means that this model is acceptable (See Table 3).

Table 3. Model Summary of Multiple Regression Analyses.

Dependent Variable Students' Satisfaction	**Robust Model**											
Independent variables	**Model 1**			**Model 2**			**Model 3**			**Model 4**		
	β	***Collinearity Diagnostics***		***β***	***Collinearity Diagnostics***		***β***	***Collinearity Diagnostics***		***β***	***Collinearity Diagnostics***	
		Tolerance	**VIF**		**Tolerance**	**VIF**		**Tolerance**	**VIF**		**Tolerance**	**VIF**
Constant	**0.002 (0.007)**	----	----	**0.007 (0.012)**	----	----	**-0.010 (0.020)**	----	----	**-0.031 (0.029)**	----	----
Power Distance	**-0.017 (0.011)**	0.996	1.004	**-0.017 (0.011)**	0.992	1.008	**-0.017 (0.011)**	0.992	1.008	**-0.017 (0.011)**	0.991	1.009
Uncertainty Avoidance	**0.982 (0.018)*** **	0.996	1.004	**0.982 (0.018)*** **	0.993	1.007	**0.980 (0.018)*** **	0.981	1.020	**0.979 (0.018)*** **	0.980	1.021
Nationality				**-0.001 (0.002)**	0.994	1.006	**-0.001 (0.002)**	0.991	1.009	**-0.001 (0.002)**	0.991	1.009
Level of Education							**0.010 (0.001)**	0.985	1.015	**0.011 (0.001)**	0.984	1.017
Gender										**-0.030 (0.015)** **	0.997	1.003
No of respondents	**637**			**637**			**637**			**637**		
R square	0.825			0.825			0.826			0.827		
Adjusted R square	0.825			0.824			0.825			0.825		
F-test	1494.344***			995.176***			598.444***			601.096***		
Durbin-Watson	1.902			1.911			1.912			1.908		

** and *** denote significant level at P < 0.05 and P < 0.01respectively. Based on Standard errors are in parentheses. **Note**: Durbin-Watson of residuals test indicates that the residual does not display any serial correlation.

The value of F-test is 1494.344. This means that it is highly significant ($p \leq 0.0001$). The coefficient value for the power distance variable is -0.017 which is not significant. Therefore, the variable of high power distance does not affect the students' satisfaction. On the contrary, the coefficient value for uncertainty avoidance variable is 0.982 which is significant. Thus, the variable of high uncertainty avoidance is positively and significantly related to students' satisfaction.

In terms of collinearity diagnostics, the value of tolerance in model 1 is 0.996 for both power distance and uncertainty avoidance. This result confirms the absence of perfect multi-collinearity since it is more than 0.02. Both variables also share the variance inflation factor (VIF) value which is 1.004. This value is less than 5.00. Hence, it shows that there is no multicollinearity between the independent variables (power distance and uncertainty avoidance). Each one of them has a distinct relationship with the dependent variable (students' satisfaction). The value of Durbin-Watson test in all models indicates "white noise residual", which means that there is no autocorrelation.

The Robust Model takes into consideration to analyze the impacts of the demographic variables namely country, gender and educational level on the variables of power distance and uncertainty avoidance with their relationship with the variable of students' satisfaction. Results show almost the consistency of the R Square in all models: 0.825 for Model 2, 0.826 for Model 3, and 0.827 for Model 4. Considering the hypotheses of the research, this is an indication that the sample has approximately the same cultural characteristics in terms of power distance and uncertainty avoidance.

5. Discussion and Conclusion

Most of the students in North Cyprus are from Turkey, African Countries, Arab countries and Asian countries. Regarding power distance and uncertainty avoidance, almost all of these countries score high on power distance and uncertainty avoidance dimension of Hofstede 1980. It can be implied that variations do not exist on the studied sample.

Findings of this research showed that there is no statistically significant relationship between high power distance and students' satisfaction ($p < 0.05$). This result is consistent with the results of other researchers conducted over the previous years (Cropanzano et al., 1997; Fock et al., 2013; Rafiei and Pourreza, 2013). The findings of these researches confirmed that low power distance in organizations is linked to higher degree of satisfaction. It can be stated that students' satisfaction is not strengthened by the increase or decrease of power distance. It seems that students consider other factors as influential of their levels of satisfaction. One of these factors could be the quality of the teaching staff. It is assumed that the teaching staff play a crucial rule in the level of students' satisfaction. Other factors may be library resources, IT assistance, psychological comfort, rewards of study, support services, and general life satisfaction. In investigating the relationship between high power distance dimension, students' satisfaction and students' demographic factors and variables, the results showed no statistically significant relationship. The reason for this may be attributed to the great number of students who come from high power distance countries to study in North Cyprus universities and the lack of students who come from low power distance countries. Therefore, H1 is not supported.

The results of the research indicated that there is a statistically significant relationship between high uncertainty avoidance and students' satisfaction ($p < 0.05$). This result is almost consistent with the results of other researchers conducted during the previous years (Häkkinen and Järvelä, 2006; Karahanna et al., 2013; Reimann et al., 2008). The result means that students who have high uncertainty avoidance levels in North Cyprus universities are more satisfied. This result suggests that university students in North Cyprus have availability of clear procedures, policies and regulatory framework that guide their academic life in North Cyprus. It can also be implied that students do not consider academic life in North Cyprus as vague, and that most of their expectations are met. In other words, students do not find it difficult to adapt to the existing culture. In investigating the relationship between high uncertainty avoidance dimension, students' satisfaction and students' demographic factors and variables, the results showed no statistically significant

relationship. The reason for this may also be attributed to the great number of students who come from high uncertainty avoidance countries to study in North Cyprus universities. Therefore, H2 is supported.

However, management and lecturers of North Cyprus universities need to be very formal when dealing with their students. They have to clearly formulate laws, rules, procedures, and polices. It is advisable that those universities leave nothing unclear or unexplained. This is important because not doing so would result in a serious challenge to the students' levels of satisfaction. It can also be said that failure by universities' managements in North Cyrus to consider cultural differences of students especially uncertainty avoidance dimension leads to decreased levels of satisfaction.

As the demographic variables of nationality, level of education and gender have no positive effect on the relationship between power distance and uncertainty avoidance and the satisfaction levels of university student, it is concluded that H3 is not supported.

To conclude, the findings of the study showed some differences between students from different cultures in terms of their level of satisfaction towards the universities in North Cyprus. These differences regarding cultural values may have various implications to universities' administrations. Raising the level of understanding of these cultural variations especially power distance and uncertainty avoidance dimensions would contribute to develop more effective learning/teaching strategies, and would improve the abilities of universities to satisfy students who come from multi-cultural communities. Therefore, the researchers recommend that decision makers in North Cyprus universities should take into consideration the cultural dimensions in order to raise the level of students' satisfaction of their universities.

This research added evidence to the existing literature, and contributed to current understanding of power distance and uncertainty avoidance and their relation to satisfaction. Future studies could focus on other aspects of cultural influence on students' satisfaction. For instance, researches can focus on addressing the complex issue of students' satisfaction from all its perspectives. Other researches can also replicate this study in different countries, together with studying all Hofstede cultural dimensions and their impact on satisfaction.

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Appendix 1

Table 2. Factor and Reliability Analyses.

Variables	Items	Factor Loading	Reliability Cronbach's Alpha	Determinant	KMO	Bartlett's Test		
						Approx Chi-Square	Df	Sig.
Power Distanc	I prefer dialogues to top-down teaching.	**0.675**	**0.771**	**0.938**	**0.569**	**40.482**	**3**	**0.000**
	Classroom power is to be shared between teachers and students.	**0.663**						
	I take responsibility for my own learning.	**0.639**						
Uncertainty Avoidance	I build my learning on previous experiences.	**0.671**	**0.818**	**0.821**	**0.643**	**125.087**	**6**	**0.000**
	Homework should follow strict instructions.	**0.640**						
	I prefer YES or NO answers.	**0.635**						
	I prefer structured learning	**0.564**						
Satisfaction	How easy is it to register for courses at this university?	**0.860**	**0.763**	**0.301**	**0.772**	**750.493**	**120**	**0.000**
	How crowded are the dormitory facilities at this university?	**0.776**						
	How happy are you with the choice of university-sponsored extracurricular activities at this university?	**0.756**						
	How fair are the administrative procedures at this university?	**0.745**						
	How well do the professors teach at this university?	**0.719**						
	How helpful is the staff at the on-campus health center?	**0.670**						
	How helpful is your academic advisor?	**0.638**						
	How healthy is the food served at this university?	**0.633**						

	How safe do you feel on campus?	**0.632**						
	How well-maintained are the facilities at this university?	**0.596**						
	How effective is the teaching outside your major at this university?	**0.552**						
	How useful are the services provided by the on-campus career center?	**0.513**						
	How easy is it to obtain the resources you need from the university library system?	**0.508**						
	How likely are you to continue attending this university next year? *****	**0.448**						
	How likely are you to recommend this university to others? *****	**0.363**						

***** Denotes that the item is excluded, value of factor loading <0.5.

On Value-At-Risk and Conditional Jump Dynamics: An Application on Nasdaq Stock Market

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Abstract

We consider the problem of managing risk in stock market. The Value at Risk (VaR) metric, a widely reported and accepted measure of financial risk, requires accurate estimation of volatility and a corresponding quantile of the empirical distribution. Current researches usually use GARCH type models with normal distribution. However, in this article a GARCH-jump mixture and an Autoregressive-conditional-Jump-Intensity (ARJI–GARCH) models, are used to describe stock price movement and are compared with standard GARCH model to verify the best VaR forecast model for Nasdaq stock index. Normal and Generalized-Error-Distribution (GED) distributions are adopted to describe the diffusion process and heavy tails. We use the unconditional and conditional coverage tests to evaluate the accuracy of VaR forecasting models. Through the GARCH and Jump methodology, empirical results of Nasdaq stock indices on the period from 1 January 2000 to 28 July 2011 provide evidence of conditional Jump dynamics in Nasdaq returns. Another interesting result is that the Jump Garch and the ARJI models perform GARCH models and that GED distribution is more suitable for high confidence level (99%).

Keywords: value at risk (VaR); conditional jumps; GARCH; forecasting.

Introduction

VaR is defined as an estimate of how much a portfolio can lose within a given time period, for a given confidence-level. Widely used by managers in the banking industry and portfolio, and by credit rating agencies, an appropriate VaR measure is an important task. A practical assumption usually made is that returns of financial assets follow a normal distribution. Because of the lack of symmetry in the yields distribution in most markets, this assumption has been proven invalid (Jansen and de Vries, 1991). Calculating VaR under the normal assumption underestimates the actual risk.1 Then, alternative distributions such as Student distribution (Jorion, 2006), skewed-Student distribution (Hansen, 1994), or GED distribution (Liu and Hung, 2010) have been proposed and implemented to build risk models of financial returns. Vee et al. (2011) point that the GED errors outperform student errors in forecasting out of-sample volatility. In order to capture the propriety of heavy tails, the GED is adopted.

Furthermore, it is well known that financial returns of most financial assets exhibit volatility clustering. Most literature dealing with parametrics VaR focuses on the volatility models are based on Garch framework (Bollerslev, 1986).2 Those models are able to describe the clustering and the heteroskedasticity of returns. However, due to financial crisis and stock market crash, when sudden and large price changes happen, the adequacy of the GARCH models patently cannot be guaranteed.

Extreme news events, such as crashes, terrorist attacks, are rare but when they occur they are catastrophic. Over the last three decades, the Wall-Street-crisis (1987), the Asian-financial-crisis (1997), the global-financial-crisis (2008) and the tsunami-crisis (2011) have attracted much researchers attention. The significance influences of news arrival process on financial markets are proved.3

[1] See Zangari (1996).

[2] Various variants of GARCH model have been developed to model volatility (IGARCH, EGARCH and TGARCH).

[3] See (Andersen, 1996; Jones *et al*., 1994).

Andersen and Lund (1996) found that more than two types of news occurrence process have different implications for stocks market returns. Maheu and McCurdy (2004) confirm that two types of news events, namely, normal and extreme news events exist. Since Poisson process is assumed to be suitable for describing rare event properly, it was introduced to financial engineering domain for asset pricing. Press (1967) was the first that used the Poisson process to describe jump behaviour. Ball and Torous (1983) modelled the impact of jumps in stock prices by assuming a Poisson distribution for discrete movements and a Bernoulli jump distribution for continuous movements. Results suggest that the Poisson distribution governs the number and the frequency of events that result in price movement. Latter, a GARCH-jump mixture model that incorporates jump processes into GARCH-type framework and that allows normal and extreme news events to be modelled is developed (Nieuwland et al., 1994). In this model, jump intensity, which refers to the arrival rate of jumps, is usually assumed as a constant. To overcome this defect, Chan and Maheu (2002) propose the ARJI model, in which the intensity of conditional jumps is time varying and follows an Autoregressive-Moving-Average (ARMA) process. Since its introduction the ARJI model has been used to investigate the behaviours of financial assets (Maheu and McCurdy, 2004; Chiou and Lee, 2009). But few previous studies have been conducted to estimate the VaR for the stock market and studied the influence of the price jump.

The present investigation on the Nasdaq stock indices on the period from 1 January 2000 to 28 July 2011, considers both constant and dynamic intensity Jumps models. The aim is to compare the performance of the ARJI model proposed by Chan and Maheu (2002) to the JUMP-Garch and Garch models in VaR estimation. We initially test the presence of jumps in the Nasdaq stock market returns and investigate whether returns exhibit constant or dynamic jumps. We use Garch models with jumps specifications to model the time varying volatility and the jump intensity. We take into account the excess kurtosis in stock returns by assuming two distributions for returns innovation. Then, we examine relative out of sample predictive ability of different jump GARCH models that is evaluated in VaR calculation. Finally, we use backtesting procedures for the evaluation of the statistical accuracy of the VaR models.

The remainder of the article proceeds as follows. Section II outlines the VaR models and backtesting methodologies which are employed in the article. Section III provides data and empirical results for both the in-sample and the out-of-sample analysis and VaR evaluation. Section IV concludes.

Methodology

We consider the application of JUMP and ARJI-GARCH models with normal and GED distributions to estimate the corresponding volatility and quantile of the empirical distribution for VAR calculations.

Jump-garch and ARJI garch models: a survey
According to the work of Chan and Maheu (2002), the autoregressive conditional jump intensity model shows that the jump intensity obeys an ARMA process and incorporates the GARCH effect of financial returns series.

Let $$R_t = 100(\ln S_t - \ln S_{t-1}) \quad (1)$$

where S_t is the stock price, r_t denotes the daily returns of the underlying assets on time t and Ω_{t-1} is the information set of all observed returns up to time $t-1$. The mean equation of the Jump model is,

$$R_t = \mu_t + \sum_{i=1}^{p} \phi_i R_{t-1} + \varepsilon_{1,t} + \varepsilon_{2,t} \quad (2)$$

Two independent stochastic innovations were considered in the returns process. The first we model using a normal innovation then using a GED distribution. The second is the jump innovation

representing a compound Poisson process accounting for 'abnormal' volatilities due to extreme events.

$\varepsilon_{1,t}$ is a mean-zero innovation with a normal stochastic process, and it connoted the latest normal information. This process is defined as:

$$\varepsilon_{1,t} = \sqrt{h_t} Z_t, \qquad Z_t \sim \text{NID}(0,1) \tag{3}$$

where h_t is the conditional variance parameterized as a GARCH(1,1), and presented as function of the previous return innovation $\varepsilon_{1,t}$ as,

$$h_t = \omega + \alpha \varepsilon_{t-1}^2 + \beta h_{t-1} \tag{4}$$

where ω, α, β are nonnegative parameters with α + β <1 to ensure the positive of conditional variance and stationarity.

The jump stochastic process ($\varepsilon_{2,\,t}$) is assumed to be Poisson distribution:

$$\varepsilon_{2,\,t} = \sum_{k=1}^{n_t} X_{t,k} \tag{5}$$

The conditional jump size $X_{t,k}$ given the history of observations Ω_{t-1}, is assumed to be normally distributed with mean θ_t and variance, δ_t^2: $X_{t,k} \sim N(\theta_t, \delta_t^2)$.

Let n_t describes the discrete counting process governing the number of jumps that arrive over the interval $[t-1,\ t]$, which is distributed as a Poisson random variable with the parameter $\lambda_t > 0$. The conditional density of λ_t is,

$$P(n_t = j|\Omega_{t-1}) = \frac{exp\ (-\lambda_t)\lambda_t^j}{j!}, \quad j = 0,1,2 \ldots \tag{6}$$

The mean of a Poisson distributed random variable is equal to λ_t and so is its variance. In the literature this parameter is referred to the jump 'intensity'.

Two variants of the model are considered here: a constant jump-intensity model that assumes that knowledge of information set at time $t-1$ implies knowledge of λ_t, that is a constant jump intensity ($\lambda_t = \lambda$) and a constant jump size distribution ($\theta_t = \theta,\ \delta_t^2 = \delta^2$). The second one allows the jump intensity λ_t to be dynamic and is called the ARJI model. The later is discussed bellow.
Chan and Maheu (2002) proved that observed jumps intensity in returns may be very different over time. To explore the importance of time variation in the jump intensity, a single specification of the jump component is applied. In ARJI-GARCH models, the conditional jump intensity λ_t which is the expected number of jumps conditional on the information set Ω_{t-1}, is specified as an ARMA (1,1) process:

$$\lambda_t = \lambda_0 + \rho\lambda_{t-1} + \gamma\zeta_{t-1} \tag{7}$$

where ζ_{t-1} represents the innovation to λ_{t-1} and measures the unexpected forecast of λ_{t-1} as the information set is updated. It is defined as:

$$\zeta_{t-1} \equiv \text{E}[n_{t-1}|\Omega_{t-1}] - \lambda_{t-1} = \left[\sum_{j=0}^{\infty} jP(n_{t-1} = j|\Omega_{t-1})\right] - \lambda_{t-1} \tag{8}$$

where $P(n_{t-1} = j|\Omega_{t-1})$, called the filter, is the ex-post inference on n_{t-1} given the information set Ω_{t-1}, $E(n_{t-1}|\Omega_{t-1})$ is the ex-post judgment of the expected number of jumps from $t-2$ to $t-1$ and λ_{t-1} is the conditional expectation of n_{t-1} given the information set Ω_{t-2}.

From the Equation 8, ξ_{t-1} is a martingale difference sequence with respect to information set Ω_{t-1}. Thus $E(\zeta_t) = 0$ and $\mathrm{Cov}(\zeta_t, \zeta_{t-\mathrm{i}}) = 0, \mathrm{i} > 0$. Accordingly, the intensity residuals in a specified model should not exhibit any autocorrelation. The GARCH–ARJI model can therefore be rewritten as follows:

$$\lambda_t = \lambda_0 + (\rho - \gamma)\lambda_{t-1} + \gamma E[n_{t-1}|\Omega_{t-1}] \quad (9)$$

where $\lambda_t > 0, \lambda_0 > 0, \rho \geq \gamma, \gamma \geq 0$.

The conditional variance of returns is decomposed into: a smoothly developing conditional variance component related to the diffusion of past news impacts and the conditional variance component associated with the heterogeneous information arrival process which generates jumps. That is:

$$\begin{aligned} \mathrm{Var}(R_t|\Omega_{t-1}) &= \mathrm{Var}\left(\varepsilon_{1,t-1}\middle|\Omega_{t-1}\right) + \mathrm{Var}\left(\varepsilon_{2,t-1}\middle|\Omega_{t-1}\right) \\ &= h_t \\ &+ (\theta^2 + \delta^2)\lambda_t \end{aligned} \quad (10)$$

Also, the conditional mean of returns is:

$$\mathrm{E}(R_t|\Omega_{t-1}) = \mu + \sum_{i=1}^{l} \phi_i R_{t-i+} \theta \lambda_t \quad (11)$$

Let $f(R_t|n_t) = j, \Phi_{t-1}$ denote the conditional density of returns given the information set Φ_{t-1} and that j jumps occur. Having observed R_t and using the Bayes rule, we can infer the ex-post probability of the occurrence of j jumps at time t, with the filter defined as the conditional density of returns,

$$P(n_t = j|\Omega_t) = \frac{f(R_t|n_t = j, \Omega_{t-1})P(n_t = j|\Omega_{t-1})}{P(R_t|\Omega_{t-1})}, \qquad j = 0,1,2 \ldots \quad (12)$$

After integrating out all jumps during a one-unit interval, the conditional probability density function may be expressed as:

$$f(R_t|\Omega_{t-1}) = \sum_{j=0}^{\infty} f(R_t|n_t = j, \Omega_{t-1})P(n_t = j|\Omega_{t-1}) \quad (13)$$

Two conditional distributions for the error term $\varepsilon_{1,t}$ are considered. The first is a standard normal distribution. The second is a GED distribution. This is used to investigate the influence of fat tailed innovation process on the performance of the of one-day-ahead VaR estimate. The density function of the standard normal distribution is presented as follows,

$$f(z) = (2\pi)^{-1/2} exp(-z_t^2/2) \quad (14)$$

Under the normality assumption the conditional density of returns given that *j* jumps occur is:

$$f(R_t|n_t = j, \Omega_{t-1}) = \frac{1}{\sqrt{2\pi(h_t + j\delta^2)}} \times exp\left[-\frac{(R_t - \mu - j\theta)^2}{2(h_t + j\delta^2)}\right] \quad (15)$$

Therefore, the likelihood function of the ARJI with normally distributional errors (hereafter, GARCH-N) can be derived as,

$$\mathrm{L}(\psi) = \sum_{\mathrm{T}+1}^{\mathrm{T}} \log \mathrm{P}(\mathrm{R_t}|\Omega_{\mathrm{t-1}};\ \psi) \quad (16)$$

where $\psi = (\mu, \omega, \alpha, \beta, \theta, \delta, \eta_0, \rho, \gamma)$ is the vector of parameters to be estimated and $\Omega_{t-1}$is the information set of all observed returns up to time $t - 1$.

The probability density function for the standardized GED distribution is expressed as follows:

$$f(z_t) = \frac{\kappa}{B2^{1+1/\kappa}\,\Gamma(1/\kappa)} exp\left(-\frac{1}{2}\left|\frac{z_t}{B}\right|^{\kappa}\right) \quad (17)$$

Under the GED distribution assumption the conditional density of returns given that j jumps occur is:

$$f(R_t|n_t = j, \Omega_{t-1}) = \frac{\kappa}{B2^{1+1/\kappa}\,\Gamma(1/\kappa)\sqrt{h_t + j\delta^2}} \times exp\left[-\frac{1}{2}\left|\frac{R_t - \mu - j\theta}{B\sqrt{h_t + j\delta^2}}\right|^{\kappa}\right] \quad (18)$$

Hence, the log-likelihood function of the ARJI-GED model can be derived as:

$$L(\psi) = \sum_{T+1}^{T} \log P(R_t|\Omega_{t-1};\ \psi) \quad (19)$$

where $\psi = (\mu, \omega, \alpha, \beta, \theta, \delta, \eta_0, \rho, \gamma, \kappa)$ is the vector of parameters to be estimated.

Value-at-risk forecasts

VaR is defined as the maximum amount of money that a portfolio may lose over a given forecast horizon and at the given confidence-level $\alpha = 1 - c$ (e.g. $\alpha = 0.95$). Mathematically:

$$\text{VaR} = F^{-1}(\alpha) = \int_{-\infty}^{VaR} f(r)dr = p(r \leq \text{VaR}) = \alpha \quad (20)$$

where r_t is the portfolio return at time t and $f(r)$ is the marginal probability function for r_t (i.e.$r_t \sim f_t(r)$).

Under normal distribution and conditional ARJI, the one-step-ahead VaR is defined as follow:

$$\text{VaR}_{t+1|t}^{\text{ARJI-N}} = \hat{\mu}_{t+1} + \hat{\lambda}_{t+1|t}\theta + q(z_t; c)\sqrt{\hat{h}_{t+1|t} + (\theta^2 + \delta^2)\hat{\lambda}_{t+1|t}} \quad (21)$$

where $\hat{\mu}_{t+1}$, $\hat{\lambda}_{t+1|t}$ and $\hat{h}_{t+1|t}$ are one-step-ahead forecasts of the mean, the jump intensity and the variance of the returns conditional on all information upon the time t, respectively. $q(z_t, c)$ is the c^{th} left quantile of the standardized normal distribution and is time invariant. ARJI-N model degenerates into Jump-Garch-N model under restrictions of $\lambda_t = \lambda$ and $\theta_t = \theta$, $\delta_t^2 = \delta^2$. Moreover, for the Garch-N model we added the following restrictions; $\theta = \delta = \lambda_0 = \rho = \gamma = 0$.

Under the GED distribution, the one-step-ahead VaR is calculated as follow:

$$\text{VaR}_{t+1|t}^{\text{ARJI-N}} = \hat{\mu}_{t+1} + \hat{\lambda}_{t+1|t}\theta + q(z_t; \kappa, c)\sqrt{\hat{h}_{t+1|t} + (\theta^2 + \delta^2)\hat{\lambda}_{t+1|t}} \quad (22)$$

Note that $q(z_t; \kappa, c)$ is the left quantile at c% for the standardized GED distribution with shape parameter κ. To ensure the steadiness of the results, we specify the significant levels to 10%, 5% and 1% respectively.

Backtesting the methods

VaR model is efficient if it can forecast risk accurately. Backtesting is a well-established tool for the evaluation of the statistical accuracy of the VaR models.
In this article the performance assessment of VaR models is done by computing the empirical failure rate and performing the unconditional and conditional coverage tests.

Unconditional coverage tests (LR_{UC}). Let $H_t = I\big(R_t < VaR_t(c)\big)$ denote a hit sequence where $I(\cdot)$ is an index function that takes one if an occurrence of the returns is less than the forecasted VaR and

zero otherwize. Then, given the back-test interval T, the sum of the value of the hit sequence N is the number of the VaR violations, while N/T is the failure rate of this interval. We denote $\hat{\pi} = N/T$ the failure rate. If a VaR model truly provides the level of coverage defined by its confidence-level, then the failure rate over the full sample will equal to c for the $(1-c)$ confidence-level.

If the VaR model is accurate, given the significant level c, H_t will be Bernoulli distributed with probability α while the number of the VaR violations N will be binomial distributed with probability αand likelihood function, $L(N)$ such that,

$$L(N) = \binom{T}{N} \alpha^N (1-\alpha)^{T-N} \tag{23}$$

Kupiec (1995) tests the null hypothesis that the observed violation rate is statistically equal to the expected violation rate, α. The appropriate likelihood ratio is represented as follows:

$$LR_{uc} = -2\ln\left(\frac{\alpha^N(1-\alpha)^{T-N}}{\hat{\pi}^N(1-\hat{\pi})^{T-N}}\right) \tag{24}$$

which is asymptotically distributed as $\chi^2(1)$.

Conditional coverage test ($\mathbf{LR_{cc}}$). Christoffersen's(1998) conditional coverage statistic examined the null hypothesis that the VaR failures occur independently, and spread across the whole estimation period, against the alternative hypothesis that the failures are clustered together. This is tested by the likelihood ratio statistic:

$$\begin{aligned} LR_{cc} &= LR_{uc} + LR_{ind} \\ &= -2ln\left(\frac{\alpha^N(1-\alpha)^{T-N}}{\hat{\pi}_{01}^{N_{01}}(1-\hat{\pi}_{01})^{N_{00}}\hat{\pi}_{11}^{N_{11}}(1-\hat{\pi}_{11})^{N_{10}}}\right) \end{aligned} \tag{25}$$

where $N_{i,j}, i,j = 0,1$ is the number of observations with value i following by j, $\pi_{i,j} = P\{I_t = j | I_{t-1} = i\}$, $\hat{\pi}_{01} = N_{01}/(N_{00}+N_{01})$ and $\hat{\pi}_{11} = N_{11}/(N_{10}+N_{11})$. LR_{cc} is asymptotically distributed as $\chi^2(2)$.

Empirical Analysis

Data

Our empirical investigation is conducted on a daily data sample of Nasdaq stock market index for the period from 1 January 2000 to 28 July 2011, yielding a total of 3018 observations. The stock indices returns are defined as 100 times the first difference in the logarithm of the closing spot prices of the Nasdaq index. In Fig. 1, descriptive graphs of levels of spot price and density against normal distribution are given in (a), while returns and density against normal distribution are given in (b). Levels graph shows that series does not have a constant variance. The volatility clustering feature is seen graphically in (b) from the presence of sustained periods of high or low volatility.[4]

[4] Volatility clustering: large changes tend to be followed by large changes and small changes tend to be followed by small changes.

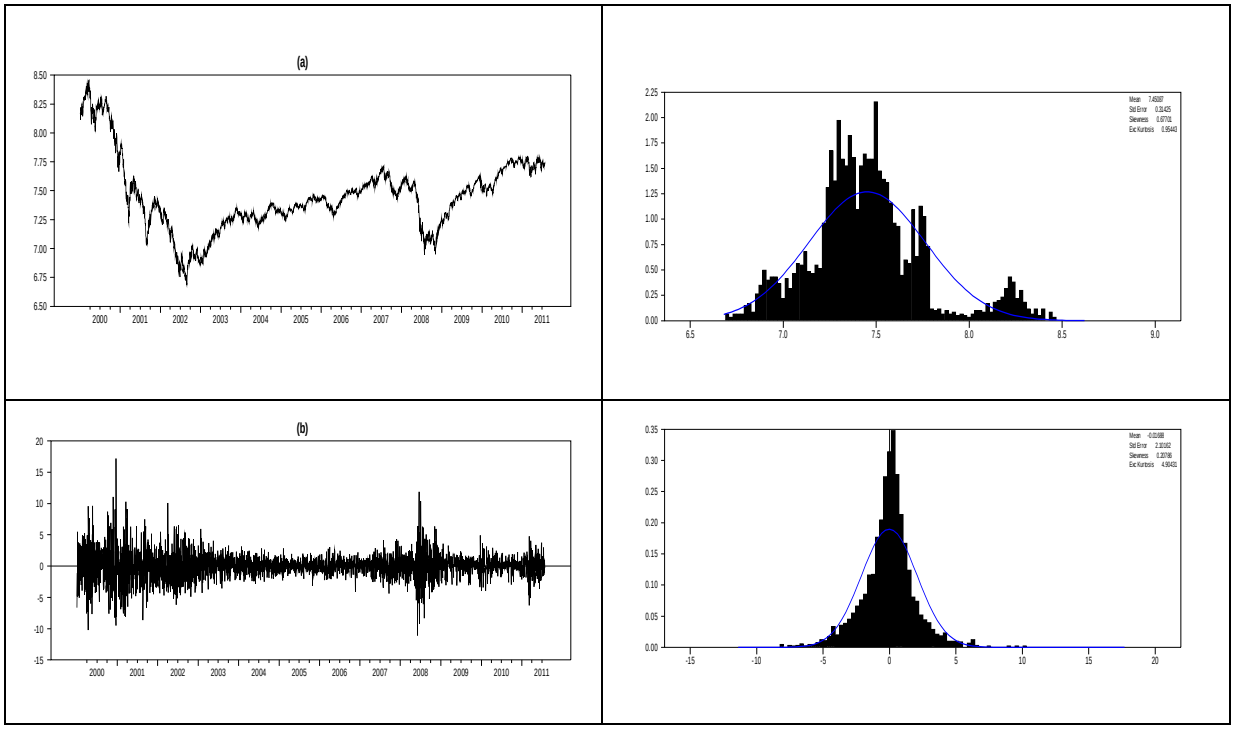

Fig 1. Spot prices and returns of the Nasdaq index

Density return graph combined with a normal distribution curve shows fatter tails and a higher peak around the mean. The sample is split in estimation and evaluation sample. We use 2715 observations (from 4-January-2000 to 31-May-2010) to estimate the models and reserve the last 303 observations (from 1-June-2010 to 28-July-2011) for out-of-sample evaluation of the models.

Table 1. Descriptive statistics for daily Nasdaq returns

	obs.	Mean	SD	Skewness	kurtosis	J–B	Q(20)
Panel A. full period (3018-observations)							
R_t	3018	-0.0168	2.1016	0.2078c	7.9043c	3046.3075c	110.947c
R_{2t}	3018	4.4156	11.5898	9.3920c	164.6324c	3 329 593.2535c	2650.394c
Panel B. Estimation period (2715 observations)							
R_t	2715	-0.0222	2.1654	0.2279c	7.6917c	2513.6549c	108.546c
R_{2t}	2715	4.6879	12.1100	9.0725c	152.7101c	2 572 730.8400c	2316.118c
Panel B. Forecast period (303 observations)							
R_t	303	0.0316	1.4074	-0.4056c	6.5263c	88.8872c	33.173b
R_{2t}	303	1.9752	4.1626	4.7859c	33.5063c	12 906.0390c	171.357c

Notes:[a] a, b and c denote significance at the 10%, 5% and 1% levels, respectively.
[b]J–B statistics are based on Jarque and Bera and are asymptotically chi-squared distributed with 2 degrees of freedom
[c]Q2(20) denotes the Ljung–Box *Q*-test for 20th order serial correlation of the squared returns.

Table 1 show that the average daily returns are negative in the whole and estimation periods but positive in forecast period. The time series features notably higher volatility throughout the

estimation period compared to the variance for forecast period. For all periods, estimated kurtosis are very large. This denotes a fat-tailed distribution. There is a significant positive skewness for the whole and the estimation period. In particular, the observed negative skewness coefficients for the forecast period imply that long positions are associated with greater risk since more extreme losses are placed on the left side of the distribution of stock index returns. The normality assumption is overwhelmingly rejected with a p-value of the Jarque and Bera statistics less than 0.01. Ljung–Box portmanteau tests on squared return series at 20 lags indicate that there is heteroskedasticity.

Estimation result

In order to stress the importance of the jump processes in the analysis of the Nasdaq stock market volatility, this article estimates different marginal specifications as the simplest Garch, the constant intensity Jump-Garch and the ARJI-Garch models. We use the Maximum Likelihood Estimation (MLE) for all specifications. The number of jumps is 20, for all models.

Prior to discussing the parameter estimation results, the next section focuses on testing whether data exhibit constant intensity jump or time-varying conditional jump intensity.

Constant or time-varying jump? We divide the in-sample data into three subsamples; 2000–2004, 2005–2007, 2008–2010. We examine the constant jumps intensity model over the different sample periods (Table 2). The coefficients λ are at a whole statistically significantly different from 0 at the level of 5%. This implies that there exists jump behaviour for the Nasdaq returns. As discussed above the jump-Garch model supposes that the jump intensity parameter λ_t is constant, i.e., $\lambda_t = \lambda$ for all t. For the three periods, the jump intensity parameter respectively ranges from 6.533 (2000–2004) to 0.784 (2005–2007), and then, to 0.249 (2008–2010). Our findings provide evidence of changing jump dynamics over the subsamples. The parameters estimates of the mean of the jump size, θ, and the jump variability, δ, are all significant. The estimated value for $\theta(\delta)$ is -0.219 (0.343) in the first period and - 1.381 (-0.881) in the third period, respectively. This provides further evidence of time varying jump.

Table 2. Parameter estimates of the constant intensity jump model for different sample periods

Parameter	2000-2004	2005-2007	2008-2010
M	1.4193c	0.4510c	0.4056c
	(56.993)	(3.863)	(9.082)
$ø_1$	-0.0648b	-0.0402	-0.0977b
	(-2.214)	(-1.052)	(-2.102)
$ø_2$	-0.0644b	-0.0542	-0.0774
	(-2.110)	(-1.368)	(-1.912)
Ω	-0.0875c	0.0000c	-0.0014
	(-23.949)	(0.000)	(-0.315)
A	0.0412c	0.0548c	0.0763c
	(40.681)	(3.622)	(14.790)
B	0.9523c	0.9150c	0.8946c
	(471.903)	(35.803)	(147.094)
Δ	0.2146c	0.3437b	-0.8815c
	(6.606)	(2.179)	(-3.852)
Θ	-0.2199c	-0.5222b	-1.3815c
	(-30.216)	(-2.334)	(-8.087)
Λ	6.5332c	0.7843a	0.2490c
	(29.399)	(1.733)	(6.681)
Log-likelihood	-2854.8324	-1137.3116	-1179.9316

Notes: [a]a, b and c denote significance at the 10%, 5% and 1% levels, respectively.
[b]Figures in parentheses ( ) indicate *t*-statistics of the estimated coefficients.

Models estimation.

Various models are estimated to determine the 'best' risk model, i.e., AR(2) GARCH(1,1), the simplest constant intensity jump model namely Jump-GARCH(1,1) and the ARJI model namely ARJI-GARCH(1,1). For each model, we distinguish two conditional distributions as explained in the methodology.

Table 3 reports parameter estimates for these alternative models during the in-sample period. For each model, the first column represents the normal distribution and the other representing the GED distribution. The estimated results of the models all meet the conditions that each parameters (α, β), of the conditional variance equation, be greater than or equal to zero and sum to a value less than one to insure the stationarity of the covariance. As indicated in Table 3, the volatility persistence indicated by ($\alpha + \beta$) was more than 0.96, in each case. The estimated degrees of freedom parameter (shape parameter) of the GED distribution for residuals is less than two confirming that the log returns are not normaly distributed. The log-likelihood values confirm this finding.

Table 3. Parameter estimates of the Garch, constant jumps-Garch and the ARJI models

	GARCH		Jump-GARCH		ARJI	
Parameter	Normal	GED	Normal	GED	Normal	GED
M	0.0634b	0.0813c	0.5669c	0.5528 c	0.6894c	0.5314c
	(52.325)	(3.801)	(28.976)	(11.472)	(44.085)	(35.355)
$ø_1$	-0.0573c	-0.0471c	-0.0672c	-0.0658c	-0.0796c	-0.1088c
	(-2.830)	(-4.426)	(-3.206)	(-3.393)	(-3.564)	(-14.291)
$ø_2$	-0.0461b	-0.0461a	-0.0608c	-0.0625c	-0.0750c	-0.0974c
	(-2.170)	(-2.420)	(-10.645)	(-3.196)	(-3.078)	(-4.854)
$Ω$	0.0138c	0.0122b	-0.0218c	-0.0191c	-0.0242c	-0.0194c
	(2.692)	(2.477)	(-807.014)	(-8.637)	(-33.372)	(-26.881)
A	0.0675c	0.0660c	0.0601c	0.0522c	0.0492c	0.0501c
	(7.647)	(6.984)	(50.265)	(6.930)	(52.255)	(29.022)
B	0.9289c	0.9311c	0.9312c	0.9399c	0.9418c	0.9399c
	(102.183)	(99.445)	(508.273)	(106.954)	(715.125)	(486.457)
Shape (k)		1.2386c		8.7575C		20.3366c
		(24.515)		(0.000)		(0.000)
$ζ_0$			-0.3756c	-0.0000	0.2965c	0.4563c
			(-12.146)	(-9.4e-06)	(4.739)	(112.653)
$ζ_1$						
$η_0$			-0.4072c	-0.8035c	-0.4432c	-0.5140c
			(-22.088)	(-12.458)	(-18.882)	(-16.944)
$η_1$						
$η_2$						
$λ_0$			1.3157c	0.6452c	0.1581c	0.2952c
			(22.003)	(8.019)	(24.715)	(18.578)
P					0.8957c	0.7098c
					(191.614)	(54.558)
$Γ$					0.1022a	0.3452a
					(1.782)	(4.652)
Log-likelihood	-5222.2727	-5208.8369	-5182.8299	-5185.5839	-5178.4073	-5174.9818

Notes: [a]a, b and c denote significance at the 10%, 5% and 1% levels, respectively.
[b]Figures in parentheses ( ) indicate *t*-statistics of the estimated coefficients.

Regarding the jump parameters ζ_0, η_0 and λ_0, except for the jump volatility ζ_0 in the Jump-GARCH-GED model, all the other coefficients describing the dynamic characteristics of $\square_{\square,\square}$ are statistically significant at 1%. Especially, the mean of the jump size $\square_0$ is significantly negative in all models, which implies that after a stock market downturn, the direction of a jump in the next period is more likely to be positive than negative. The coefficient $\square_0$ in the Jump Garch model is highly significant, implying that there a jump behaviour for the Nasdaq return whenever there is abnormal information. Furthermore, as regards to the jump intensity ($\square_{\square}$) in the ARJI models, the coefficients ($\square_0$, ρ and γ) are also found to be significant, indicating the presence of time-varying jumps on the arrival of news events. Positive and significant values of ρ parameters (0.89 and 0.71) which measures the persistence in the conditional jump intensity, implies that a high probability of many (few) jumps today tends to be followed by a high probability of many (few) jumps tomorrow. γ parameters which measures the sensitivity of $\square_{\square}$ to the most recent intensity residual ($\square_{\square-1}$) are also positive (0.10 and 0.34), suggesting that a unit increase in $\square_{\square-1}$ results in a increased effect on the next period's jump intensity.

Our empirical results proved the need for dynamic jump processes. The log-likelihood values in Table 3 show that all jump models significantly improve on the fit of the GARCH models and that ARJI-GED model performs other Jump models. Moreover, the GED distribution performs better in the Garch and ARJI-Garch however in the Jump-Garch model the normal distribution performs better. We aim to look at the performance of jump models, to provide more insight into this models performance and finely, to determine 'optimal' risk models.

Var calculation and back-test. When assuming a normal distribution for the innovations, the VaR for long trading positions (i.e. left tail of the density distribution of returns) is given by Equation 21 with $\square(\square_{\square};\square)$ being the left quantile at c% for the standardized normal distribution. When assuming a skewed Student distribution, the VaR for long trading positions is given by Equation 22 with $\square(\square_{\square};\square,\square)$ being the left quantile at c% for the standardized GED with κ degrees.

After forecasting VaR of each day in the out-of-sample(1 June 2010-28 July 2011), using the procedure described above under 90%, 95% and 99% confidence-levels, the VaR given by the several models are now compared with real observations and then evaluate the performance of the constructed models using backtesting techniques. The results of mean VaR and failure rates are reported in Table 4. The failure rates compute for each VaR is defined as the number of times returns exceed (in absolute value) the forecasted VaR. If the VaR model is correctly specified, this rate must be equal to c. If this is not confirmed, the model is considered of poor predictive quality. If the failure rate is greater than the given probability c then the model underestimates the true risk. As shown in the Table 4, for low confidence-level (90%) and compared to models based on GED distribution, models based on normal distribution yield the highest VaR estimates, the lowest average failure rate and quadratic loss. However for the high confidence-level (99%), the estimated VaR produced by models based on GED distribution are higher than those based on normal distribution. We note here that for the higher confidence-level of 99%, the effect of fat tails becomes much acute. Based on the failure rates, most models tens to overestimate the true risk since the failure rates are smaller than the corresponding probabilities.

Table 4. Mean VaR and the faillure rates

	GARCH		Jump-GARCH		ARJI	
Parameter	Normal	GED	Normal	GED	Normal	GED
90% confidence-level	-2.7407	-2.7388	-3.2939	-1.1413	-2.7991	-1.2980
	(0.026)	(0.026)	(0.019)	(0.165)	(0.026)	(0.158)
95% confidence-level	-3.2606	-3.3337	-3.8171	-2.1138	-3.3195	-2.2734
	(0.016)	(0.016)	(0.016)	(0.056)	(0.019)	(0.049)
99% confidence-level	-4.2835	-4.5545	-4.2856	-6.2581	-4.3432	-6.4304

	(0.009)	(0.006)	(0.013)	(0.003)	(0.013)	(0.003)

Note: failure rates (in the parentheses)

Basically two test procedures to examine the performances of the VaR forecasts: Unconditional and Conditional. The results for the LR test of Kupiec (1995) are reported in the first part of Table 5.

Table 5. Unconditional and Conditional coverage tests of VaR models

Unconditional coverage tests

	GARCH		Jump-GARCH		ARJI	
Parameter	Normal	GED	Normal	GED	Normal	GED
90% confidence-level	+	+	*	*	+	*
	x	x	x	x	x	x
95% confidence-level	*	*	*	+	*	+
	x	x	x	0	x	0
99% confidence-level	*	*	*	*	*	*
	x	x	x	x	x	X
Conditional coverage test						
90% confidence-level	*	*	*	*	*	*
	x	X	x	x	x	X
95% confidence-level	*	*	*	*	*	*
	x	X	x	x	x	X
99% confidence-level	x	X	x	x	x	X
	*	*	*	*	*	*

Notes:
[a]The symbol '0', 'x' is used to denote VaR models which pass (fail to pass) the unconditional coverage test for the respective market at the 5% significance level.
[b]The symbol '+', '*' indicates that the null hypothesis was rejected (accepted) at the 10% significance level for the LR_{uc}
[c]LR_{uc} statistics under 90%, 95% and 99% confidence-levels.
[d]The LR_{uc} statistics are asymptotically distributed $\chi^2(1)$.

Results show that for low confidence-level (90%), the GARCH model and the ARJI based on normal distribution pass the □□□□ test. However for the high confidence-level (99%) all models fail to pass the □□□□. Moreover, results suggest that the best performing VaR models for 5% significant level are the Jump-Garch-GED and the ARJI-GED.

Results of Christoffersen's likelihood ratio test suggested that all models failure to pass the conditional coverage tests.

Conclusion

In parametric VaR estimation, volatility is one critical important factor. This article attempts to improve VaR estimation by investigating the influence of jump dynamics on stock market volatility. To this end two conditional independent processes, i.e., a diffusion and a compounded Poisson process, describe the volatility behaviour of stock returns. Heavy tails are modelled using GED distribution. We compare the VaR forecasting performance of ARJI, Jump-GARCH and GARCH models based on the unconditional and conditional tests. Daily Nasdaq stock index is used for empirical investigation.

Interesting results are observed. First, strong evidence of Jump dynamics in the Nasdaq return whenever there is abnormal information were provided. Second, Jump Garch and ARJI models are found to perform well compared to GARCH models. Third, the effect of fat tails becomes much stronger at high confidence-level (99%) hence a GED distribution is more suitable. Finally, based on Christoffersen's conditional coverage tests, models tens to overestimate the true risk.

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Commercialization of Research & Development Product: A Case of Malaysian Public Research University

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Abstract

The Malaysian government has always encouraged researchers of institutions of higher learning to commercialize their research and development product. Huge funding and scheme has been allocated to promote and encourage university researchers to conduct a research and produce innovative product that are able to be commercialize. However, the report from Malaysian Ministry of Higher Education (MOHE) highlighted the performance of commercialization of university research and development products under satisfaction. Hence, this has indicated that there is a necessity to address the circumstances and drive the universities to a better performance. This paper explores and identifies factors that might have a relationship with the ability of researchers to commercialize their research and development product. The data was collected through survey questionnaire because it allowed the identification of important and emerging issues that required further explanation. The useable response rate was 200 and the data analyzed to explore the relationship between variables. The result indicates that both Entrepreneurial Orientation (EO) and Market Orientation (MO) has influence the commercialization of university research and development product.

Keywords: Entrepreneurial Orientation (EO), Market Orientation (MO), Commercialization, Research and Development

Introduction

Malaysian government targeted to be a higher income nation in the year 2020. Therefore numbers of agendas and activities had been plan and execute for achieving the aim. Research and development are one of the main agenda that has been focus on whereby RM 285 million invested in Ninth (9^{th}) Malaysia Plan (2006-2010). For the Tenth (10^{th}) Malaysia Plan (2011-2015), the budget allocation increased to RM741 million and portray the seriousness of Malaysian government toward research and development. The current report by MOHE (2014) stated that the commercialization rate is still low with a total of 125 products commercialize from 2059 created.

According to Pries and Guild (2004) research and development activities are able to lead to the commercialization of research products and contribute to the economic growth of the nation. Developed countries such as United States (US) and Canada are able to generate more than 1 (one) billion annually from the commercialization activities between 1980 to 2010 with more than 5,000 new innovation.

Research and development are normally associated with universities or institutions of higher learning due to their ability as a hub to the distribution, creation and application of a new knowledge. Research and

development are used and tested actively to create an innovation in which successfully commercialized will becoming source of income generation for the university.

Although universities main function is providing teaching and learning as well as conducting research, however they are expected to commercialize their research and development product. This indicates that, the researchers are requiring studying the marketing potential of the research product before they are embarking into the research. It will beneficial and valuable to the money invested by university.

Research Objectives

The objectives of the research are as the following:

a) To investigate whether Entrepreneurial Orientation (EO) have an influence toward commercialization of university research and development product.

b) To explore whether Market Orientation (MO) have an influence toward commercialization of university research and development product.

c) To identify the most contributing factor toward commercialization of university research and development product

Furthermore based on the research objectives two related hypotheses were also developed in this study, which are:

H1: there is a positive relationship between entrepreneurial orientation (EO) and commercialization of university research and development product.

H2: there is a positive relationship between market orientation (MO and commercialization of university research and development product.

Both hypotheses aim to test the relationship between constructs developed in this research.

Research Framework

Figure 1 shows the framework of the research which is inclusive of independent variables (IV) and dependent variables (DV). The two (2) independent variables identified in this research are Entrepreneurial Orientation (EO) and Market Orientation (MO). Entrepreneurial Orientation (EO) consist of innovativeness, risk taking and pro-activeness are classified as independent variables (IV). The other independent variables is Marketing Orientation (MO) with consists of customer orientation, competitor orientation and inter-functional coordination. Meanwhile the dependent for this framework variable is commercialization of research and development product.

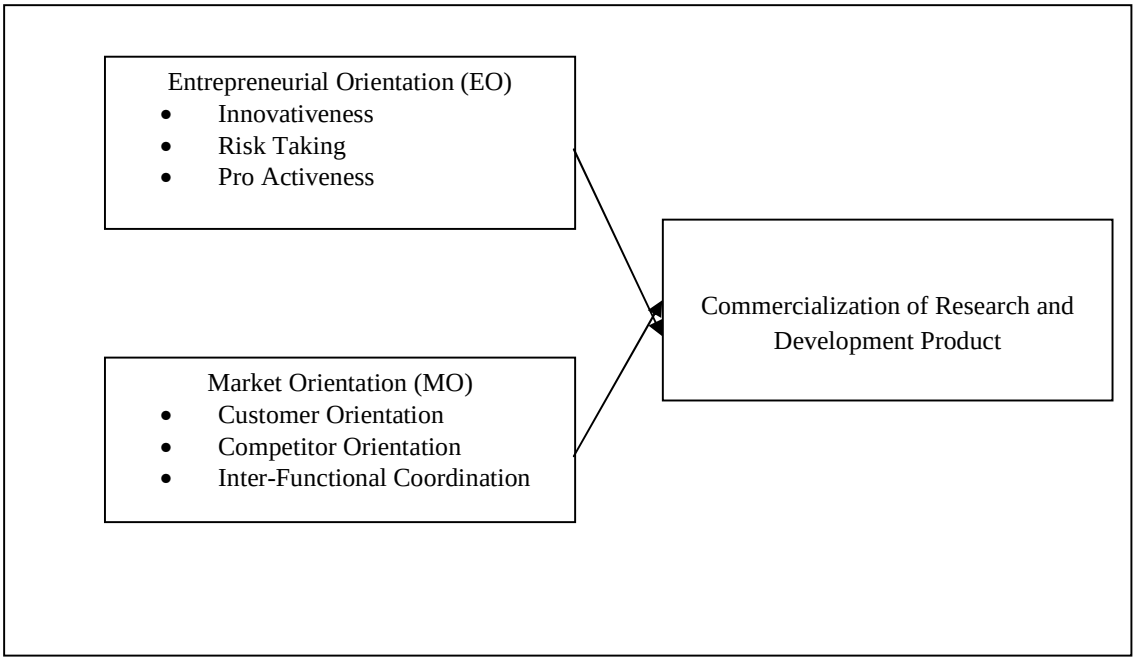

Figure 1: Research Framework

Literature Review

Entrepreneurial Orientation (EO)

Historically, EO has been conceptualized as comprising three dimensions as reiterated by Miller (1983) and these are innovativeness, risk taking and pro-activeness. Innovativeness is the predisposition to engage in creativity and experimentation through the introduction of new products/services as well as technological leadership via research and development in new processes. Lumpkin and Dess (1996) were among the first who emphasize the role of innovation in the entrepreneurial process. Innovativeness has become an important factor used to characterize entrepreneurship and to reflect a firm's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes. Risk taking involves taking bold actions by venturing into the unknown, borrowing heavily, and/or committing significant resources to venture in uncertain environment (Miller, 1983). Risk taking has been viewed as a fundamental element of entrepreneurship (Antoncic and Hisrch, 2003). According to Swierczek and Ha, (2003) risk taking is a quality that is frequently used to describe entrepreneurship and the degree to which managers are willing to make large and risky resource commitment, which have a reasonable chance of costly failure. Pro-activeness is an opportunity-seeking, forward-looking perspective characterized by the introduction of new products and services ahead of the competition and acting in anticipation of future demand. Pro-activeness described by Lumpkin and Dess (1996) as "taking initiatives and pursuing new opportunities related to future demand and by participating in emerging market". It also refers to the extent to which a firm is a leader or a follower and is associated with aggressive posturing relative to competitors (Fairoz, Hirobumi and Tanaka, 2010). They claim that pro activeness reflects a firm's reaction to opportunities in the market place whereas competitive aggressiveness refers to firm's response to competitor's challenges. Even though Lumpkin and Dess (1996) suggested these two further dimensions, unfortunately some researchers are arguing that competitive aggressiveness and pro-activeness is similar in terms of definitions (Miller, 1983, Swierczek and Ha, 2003) and they still stress that innovativeness, risk taking and pro activeness are the key features of EO.

Meanwhile, for this research, the researchers will adopt an approach based on Miller's original conceptualization because the three dimensions (innovativeness, risk taking and pro-activeness) are the main traits of EO. This is due to the facts that the three (3) dimensions have been widely recognize by many researchers in the area of entrepreneurship as the main dimension for EO.

The role of EO towards business performance is widely acknowledged in the literature. Some of the researchers agreed that high performing firm require strong and established EO (Zahra, 2008; Wiklund and Shepard 2003). EO has also been relates to key organizational outcomes such as innovativeness, strategic flexibility and firm performance (Wiklund, 1999). Although there are many study conducted about EO and firm performance, however, no study focus on the relationship between EO and performance of commercialization university research and development products. Thus, this study intends to investigate the relationship between EO and the said variables.

Market Orientation (MO)

Market orientation (MO) has been defined in difference ways by many researchers in the literature. However majority of them are focuses MO as obtaining customer information, competitors, market factors, inter-functional assessment, shared diagnosis and coordinated action (Narver and Slater, 1994). According to Jaworski and Kohli (1993), MO is an organizational process that involves market intelligence generation, dissemination and responsiveness to such intelligence across department. Both definitions lead to core capabilities, competitive advantage, and business performance of an organization. It is important to be familiar with the market and to study the information about competition, customers, demand and production possibilities because it will be useful for creative ideas generation (Buchanan and Vanberg, 1991). Majority researchers have begun to understand about market orientation as they are able to gather relevant information and transform the knowledge into product development.

Many authors agreed that customers' needs and want are keep changing from time to time. Researchers therefore should continuously determining customers' needs and wants as it will help to generate the new dimension of required product in the market. It is an added advantage to the researchers if they are able to foresee the needs of the consumer in the future. This is to ensure the product will be survived in the market for a longer period.

On the other hand, Buchanan and Vanberg, (1991) stated that MO is positively related to business performance in all types of markets. This is agreed upon by majority of the authors such as Affendy, Asmat, Talib and Abdul Rahim (2011) well as Asikhia,(2011). Conceptually, there is a strong consensus among the researchers about the fact that the final result of MO will improve an organization performance.

Customer Orientation

Customer orientation will continuously understand the needs of the current customers and potential target customers. It is also contributed to superior financial performance when the organization satisfies their customers' needs and wants. This motivates customers continually engage with the organization. Zhang and Bruning (2007) indicate that customer orientation has a positive influence on firm innovation and performance.

Competitor Orientation

Competitor orientation is the constant understanding of the capabilities and strategies of the current and future competitors that use the knowledge in creating superior customer value (Asikhia, 2011). It's not only to understand the ability and strategies of the competitors, but also measuring themselves as compared to the target competitor strengths and weaknesses.. From the previous researches, it shows that competitor orientation is vital towards commercialization of university research and development products since it may create a competitive advantage for a new start-up created by university commercialization activity. Perhaps, understanding ability of current and future competitor and identifying their own strengths and

weaknesses will be the best strategies for university researcher to enhance the commercialization rate of university research products (Vorhies and Morgan, 2005; Zhang and Bruning, 2007*)*.

Inter-functional Coordination

According to (Narver and Slater, 1994) inter-functional coordination is the coordination of all functions in the business that utilizes customer and other market information to create superior value for customers. Organizations with better inter-functional coordination would have better ability to create, retain, and transfer knowledge within the firm. Better inter-functional coordination allows the firm to use knowledge about the customers and competitors more effectively (Zhang and Bruning, 2007). This study sees that inter-functional coordination plays an important factor in successful commercializing of university research and development products because researchers are able to share expertise, knowledge and experiences via inter or intra faculty within the university.

Commercialization of University Research Product

There is no consensus among researchers in the literature with regards to commercialization definition. Joly (2012) define commercialization as a process of extracting economic value from new products, processes, and knowledge through the use of Intellectual Property (IP) rights, licensing agreements, and the creation of spin-off companies. According to Zhao (2004) commercialization is a process of developing new ideas and/or research output into commercial products or services and putting them on the market. Developing country such as Malaysia is still left behind in terms of research capabilities as compare to developed country. In fact, Malaysia has just emphasized on commercialization of research product very recently. Malaysia government focus on research and development activities among the universities in stages started with the establishment of a research culture (2006-2008). This was followed by emphasizing on quality of research (2008-2010) and promoting research excellence through producing innovation and its commercialization in 2011 and 2012 (Aziz, Harris and Norhashim, 2011).

Methodology

Sampling Technique, Sample Size and Data Collection

This study employed a survey questionnaire as the primary data collection technique. According to Ghauri and Grønhaug (2002), the survey is an effective tool for obtaining opinions, attitudes and descriptions as well as for identifying cause and effect relationships. Data was gathered through a personally administered questionnaire and a total of 200 researchers responded. The respondents for this study were researchers from five (5) Malaysia Public Research University. The researchers from the said universities were chosen because being a research university they are expected to conduct more research and produce innovative product that are able to be commercialized. The researchers adopted the non-probability sampling technique through convenience sampling and the information collected was from members of the population who are available to provide it. This method is considered appropriate for the research due to the researcher's accessibility to the program attended by the respondents from the public university such as exhibitions, seminars and conferences. The data also gathered through personal networking.

Goodness of Measures for Instrumentation

The instrument used in the research is able to accurately measure the concept and variables that researchers intend to measure (Sekaran, 2011; Saunder et. al.,2009). This will help to ensure the quality of the study. The questionnaire used a five (5) point Likert scale for each item constructed. Both validity and reliability was used to measure the goodness of the data. Validity was tested through content and face validity to provide a better understanding of the questionnaire. Pilot testing was conducted on 30 respondents prior to the full distribution of the questionnaire. Corrective action was taken from the feedback given of the pilot study. On the other hand the reliability measures the stability and consistency of instruments and helps to assess the goodness of measures. There are a few ways of measuring the

reliability of the instrument and the most widely used test is Cronbach's Coefficient Alpha (Hussey and Hussey, 1997; Zikmund, 1997; Bryman and Bell 2003). Table 1 shows Cronbach's Alpha values of construct for the instruments of this research.

Table 1: Reliability results for the constructs variables no of items Cronbach's Alpha

Variables	No of Items	Cronbach's Alpha
Entrepreneurial Orientation (EO)	18	0.86
Marketing Orientation (MO)	19	0.89
Overall	62	0.91

The data tabulated in Table 1 shows that the Cronbach's Alpha values range from 0.86 to 0.91, thus confirming the reliability of the instrument. The higher the coefficient, the better the measuring instrument.

Profile of Respondents Table 2 shows the frequency and percentages of distribution of the respondent profiles. A majority of the respondents were female with56% compared to 44% males. Majority of the respondents were less than 40 years old (62.5%), 41 – 60 years old made up 26% and followed by the more than 60 years old age group (1.5%). In term of qualification, 54.5% of the respondents possess Doctor of Philosophy (PhD) and 45.5% Master's degree. Most of the respondents (70%) had less than 10 years of length of service. 28.5% between 11 – 20 years and only 1.5% more than 20 years of service. In the case of commercialization, only 35.5% of the respondents able to commercialize their products, 23% in the process and 45.5% had no experience at all.

The objective of this study is to identify the relationship between entrepreneurial orientation (EO) and market orientation (MO) on commercialization of university research product. In order to achieve this objective, the study employed a bivariate statistical analysis. The results shown in Table 3 indicates that there is a significant positive relationship between entrepreneurial orientation (EO) and commercialization where $r = 0.306^{**}$, $p<0.05$. Similarly, the results also indicate that market orientation has significant negative relationship with commercialization whereby $r = 0.265^{**}$, $p<0.05$.

Table 2: Demographic analysis

Item		Frequency	Percentage	Item		Frequency	Percentage
Gender	Male	88	44%	Length of Service	0-5 years	79	39.5%
	Female	112	56%		6-10 years	61	30.5%
Age	25-30 years	47	23.5%		11-15 years	35	17.5%
	31-40 years	78	39.0%		16-20 years	22	11.0%
	41-50 years	52	26.0%		More than 20	3	1.5%

					years		
	51-60 years	20	10.0%	Commercialization experience	Yes	63	31.5%
	Above 60 years	3	1.5%		No	91	45.5%
Qualification	PhD	109	54.5%		In the Process	46	23.0%
	Masters	91	45.5%				

Table 3: Pearson Correlations between constructs variables and commercialization

Construct Variables	Commercialization	
	Pearson Correlation (r)	Significant
Entrepreneurial Orientation	0.306**	0.000
Market Orientation	0.265**	0.000

*p<0.05

The two hypotheses were tested using multiple regressions in which no multicollinearity existed between the construct variables. This is shown in Table 4 through the results of the Variance Inflation Factor (VIF) and Tolerance level. Results for both constructs are within the acceptable level (VIF<10, Tolerance>0.1). The value of R^2 is 0.46 indicating that 46% of the variance in commercialization of university product can be explained by entrepreneurial orientation (EO) and market orientation (MO).

According to (Chin, 1998) the R^2 values of 0.67, 0.30 and 0.19 for dependent variables are described as substantial, moderate and weak respectively. Therefore in this study, the R^2 value of dependent variables (i.e., commercialization) is explained by the two predictive constructs which is 46%, within a substantial level. Furthermore, the results in Table 4 also show that entrepreneurial orientation (EO) is significant and positive related to commercialization of university research product and development with beta values β = 2.38, t-value = 3.284, p<0.05. Therefore, hypothesis (H1) of the study is accepted. Similarly, the results of market orientation (MO) indicates that there is significant and positive relationship with commercialization of university research product and development (β = 1.72, t value = 2.373, p<0.05). Thus, hypothesis H2 of the study is accepted as well.

Table 4: Hypothesis Testing Results

Hypothesis	β-coefficient	t value	Significant
H1	2.38	3.284	0.001
H2	1.72	2.373	0.019
Notes: R^2 = 0.46, F = 13.25, VIF (Entrepreneurial Orientation = 1.179, Tolerance =0.8487; VIF Market Orientation = 1.179, Tolerance=0.848)			

P<0.05

Conclusion

This study presents the influence of entrepreneurial orientation (EO) and market orientation (MO) towards commercialization of university research and development product. The results indicate that both independent variables (EO and MO) have a significant and positive relationship with dependent variable (commercialization of university research and development product). This implies that both the EO and MO are importance for researchers to commercialize their products. Although the researchers claim that the disciplines and working environment are not allow for them to think about commercialization of the product produce, it doesn't mean that they should totally ignore the important of EO and MO. This will narrow the gap between industries need and product produce. Therefore in order to ensure research and development products are able to be commercialized, the researchers should understand internalize and implement both EO and MO to ensure product produce is marketable and meet customer expectation. It is hoped that the findings of this study will be beneficial to the researchers and universities in the formulation of strategies and policies to increase the number of product to be commercialized in the future.

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Environmental Impact of Aquaculture: A Literature Review

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Abstract

Aquaculture has an enormous contribution to worldwide food production, being one of the fastest growing food sectors and a significant economic activity for many countries. In 2012, aquaculture contributed with 42.2% to total fish production. Due to the continuous growing of world population and of rising incomes and urbanization, aquaculture will continue this impressive development, being expected to overcome capture fisheries production till 2030. The continued growth of aquaculture contributes to increasing pressure on natural resources, water, feed and energy. Fish production generates considerable amounts of effluent which may have an adverse environmental impact. Generally, aquaculture effluents include uneaten feed, faeces and other organic and inorganic compounds. Because aquaculture depends largely upon a good aquatic environment, mainly the success of developing aquaculture needs to be related to it. In the context of the aquaculture expansion it is essential that the aquaculture technologies be ecologically sustainable and to respect environmental legislation. Mostly, the impact of aquaculture on environment mainly depends on reared fish species, rearing and management techniques, location and also, local environmental conditions. In this context, the aim of this present paper is to present a literature investigation regarding the world aquaculture status, together with its potential effects on the environment.

Keywords: environmental impact, sustainable aquaculture, aquaculture production systems.

Introduction

Fish is considered a food with a high nutritional value, providing an important source of protein and a wide variety of vitamins (such as D and B2-riboflavin), minerals (iron, zinc, iodine, magnesium, and potassium) and poly-unsaturated omega-3 fatty acids. According to the report of Food and Agriculture Organization from 2014, in the year 2010 fish accounted 16.7% of the global population's intake of animal protein and 6.5% of all protein consumed. Taking into consideration that world's population keeps growing during next decades and global life standards, respectively animal protein need rises, fish demand will certainly growth. Because the wild fish captures are already exploited at maximum level, a large part of those new demands must be satisfied through aquaculture activity. As a result, aquaculture has generated a great interest from the international scientific community, supplying the concerns regarding the increase of sustainability and profitability by different methods.

Aquaculture represents the farming of aquatic organisms including fish, mollusks, crustaceans and aquatic plants. According to the Food and Agriculture Organizations, 2014, aquaculture is the fastest growing animal food sector in the world. Food and Agriculture Organizations, (2000) mentioned that

in the present, aquaculture supplies an estimated 49% of all fish that is consumed by humans globally and is expected to contribute to more than half of the global fish consumption till 2030.

Although aquaculture has many benefits (providing food and ensuring jobs for humans) a big concern which is facing it is represented by its environmental impact and water quality degradation. Acoording to Guangjun et al (2010), if this sector is not well managed we may experience some unreasonable phenomena such as: the random discharge of aquaculture wastewater, the abuse of medicines, and the escaping of aquatic animals, which have serious influences on the environment.

A. The state of World and EU Aquaculture. World food fish aquaculture production expanded at an average annual rate of 6.2% in the period 2000–2012, slower than in the periods 1980–1990 (10.8%) and 1990–2000 (9.5%). Between 1980 and 2012, world aquaculture production registered a slight increase with an average rate of 8.6 % per year. In a report published by Food and Agriculture Organizations (2014), in the year 2012, this sector reported a record registering almost 90.4 million tonnes, including 66.6 million tonnes of food fish and 23.8 million tonnes of aquatic algae, being estimated for 2013 a production of 70.5 million and 26.1 million tonnes, respectively. The World per capita apparent fish consumption increased from an average of 9.9 kg in the 1960s to 17.0 kg in the 2000s and 18.9 kg in 2010, with preliminary estimates for 2012 pointing towards further growth to 19.2 kg (Food and Agriculture Organizations, 2014).

The species that dominate world aquaculture are aquatic plants, shellfish, herbivorous fish and omnivorous fish. Also, a rapid increase is obvious for marine aquaculture of carnivorous species, especially salmon and shrimp and other marine finfish (Food and Agriculture Organizations, 2014). The most widespread type of aquaculture in the world is represented by the farming of tilapias, Pangasius and other cichlid species. (Food and Agriculture Organizations, 2014).

The global distribution of aquaculture production in all regions and countries with different levels of economic development remains unbalanced. Asia dominates this production, accounting 88.39% of world aquaculture production in 2012, this being determined by the significant contribution of China (Food and Agriculture Organizations, 2014).

Compared to world aquaculture production, which continues to rise, European aquaculture is in a period of stagnation. EU contributions to world aquaculture production have been decreasing significantly over time in both volume and value terms, representing only 1.9% and 3.5% of world production in 2012. According to Eurostat 2014, aquaculture production by the European Union Member States was approximately 1.25 million tonnes of live weight in 2012, almost the same as in 2011. This represented a decline in aquaculture production of about 11% after the relative peak of 2000.

Mainly, the most valuable species produces in EU are Atlantic salmon, oysters, sea bream, sea bass and trout. The main species produced in freshwater is represented by trout. Also, carp is another important species mostly produced in Eastern Europe, where the main producer is Poland covering 39% in terms of total value (Food and Agriculture Organizations, 2014). According to Eurostat (2014) the three largest aquaculture producers among the EU Member States were Spain, the United Kingdom, and France, which together accounted for more than half (54%) of the EU aquaculture production in 2012.

Aquaculture production systems. Aquaculture systems can be classified in extensive, semi-intensive, intensive, or highly or super intensive depending upon the number of organisms grown per volume of water and the water source and supply. Extensive aquaculture is practiced without feed or fertilizer inputs. In semi-intensive aquaculture fertilizers can be added to increase the natural productivity and the water quality can be improved using additional aeration. In intensive aquaculture high densities are practiced using aeration, full feed, and chemical supplements, in order to promote the health of the organisms grown. In principal, freshwater aquaculture is practiced either in fish ponds, pens, cages or, on a limited scale, in rice paddies, in high flow-through tanks or in recirculating aquaculture systems (RAS), brackish aquaculture is done mainly in fish ponds located in coastal areas and marine culture employs either fish cages or substrates for mollusks and seaweeds such as stakes, ropes, and rafts (Food and Agriculture Organizations, Aquaculture Systems and Practices: a Selected Review,

1989).

Pond aquaculture. Pond aquaculture represented the oldest fish farming activity and involves maintaining the environmental conditions at the same level of the technological requirements of fishes. In these systems fish are raised at low densities, mainly because of lack of additional feeding, fish feeding on aquatic animals reared is strictly resulting from natural productivity and due to the difficulty to control water quality. Usually, in order to improve natural food are applied organic and inorganic fertilizers, which contribute to developing natural developing micro and macro flora, food that will support fish populations or other aquatic animals. Higher production can be obtained in the condition of supplementary feeding and higher stocking densities, but this supposes water aeration. According to SRAC (Southern Regional Aquaculture Center), Publication No. 163/1997, in a pond without aeration, it can be obtained from 226 kg to 680 kg of fish per 0.40 ha. Instead, in a pond with aeration, it can be obtained around 1133 kg to 1814 kg of fish per 0.40 ha. To increase the profitability of these systems is indicated to combine both fertilizer and supplementary feeding.

Between the main disadvantages of these systems, we emphasize: require large volumes of water, large land/pond area, due to the use of organic and inorganic fertilizers may appear eutrophication of the waters, incapacity to guarantee the safety of the product to consumer, because ponds systems are open-air there is always a risk of water contamination. But, according to Verdegem & Bosma (2009) if this systems succeed a better optimization of water consumption and feed management they could triple production without increasing freshwater usage. That's why, to increase the economic efficiency of this systems it`s crucial to optimize water consumption, a good solution being the integration into other production systems and also applying of a production management focused on sustainability.

Aquaculture in Raceway. Raceway, also known as a flow-through system, represents enclosed systems which are based on the continuous water flowing through the culture tanks. Because in these systems water enters at one end and flows through the raceway in a plug flow manner, the best water quality exist only at the head of the tank, where the water enters, and then deteriorates along the axis of the raceway toward the outlet (Timmons and Ebeling, 2013). In comparison with the ponds these systems have several advantages, as higher stocking densities, improved water quality, feeding and harvesting are done more easily, less off flavor and an easier way to control disease problems. Fish metabolites are carried out with the effluent while settleable particulate wastes can be collected by settling or less frequently by other means of filtration. Optionally, this type of systems can be integrated into agricultural production, a fraction of the waste process water used in the irrigation of different agricultural areas.

Between the main environmental concerns of these systems we mention eutrophication as the main consequence of increased nutrient loadings (faecal and uneaten food waste), the use of chemicals to control parasites and disease. Also, a big disadvantage of raceways is related to the needs of constant flows of water with a high quality.

Cages and Pens. Cages are boxes shaped enclosure which floats, is suspended, or sits on the bottom of a larger water body. Usually, the cages size varied from 1.0 m^3 to 1,000 m^3. Usually, pens are much larger and serve as enclosures to hold organism for grown. In pens, organisms have free access to the bottom within the enclosed area. Growing and production of farmed aquatic organisms in caged enclosures has been a relatively recent aquaculture innovation. Primarily, these systems have been associated with the culture of salmonids, but due to the rapid expansion of aquaculture in the last 20 years this sector has grown very rapidly. Generally, cage culture is suitable for the growing of carnivorous species with a high economic value (Atlantic salmon, Coho salmon and Chinook salmon Japanese amberjack, red seabream, yellow croaker, European seabass, gilthead seabream, cobia, rainbow trout, Mandarin fish) (Tacon A. et al 2007).

The main advantages of cage culture are associated with the use of existing water and the fact that doesn`t require land ownership, the related capital costs being quite low making this technology the most economical culture. Also, a big advantage it`s represented by the possibility to move into optimal rearing environments and sheltered areas.

Between the disadvantages of the system, we mention the fact that these systems are permanently

exposed to foul weather conditions making impossible the controlling of physical-chemical water and also the environmental impact on water quality generated by these systems. Also, according to Sugiura et al (2000) and Tacon A. et al (2007), cage cultures are vulnerable to poaching and vandalism and to higher risks of fish escaping.

Aquaculture in recirculating systems (RAS). Recirculating Aquaculture Systems are used for fish farming or other aquatic organisms by reusing the water in the production by mechanical, biological chemical filtration sterilization, oxygenation, and other treatment steps. That's why RAS systems represent an alternative to pond aquaculture due to low water consumption (Verdegem et al 2006) better opportunities for waste management and recycling of nutrients (Piedrahita, 2003) and due to the easy way to control the spread of disease (Summerfelt et al 2009; Tal et al 2009). RAS are intensive production systems than most other types of traditional aquaculture systems (Timmons and Ebeling, 2013) and are the most compatible with environmental sustainability (Martins et al 2010), due to the production of small quantities of wastes and of water reuse. However, the main disadvantages of these systems are high capital and operational costs and requirements for very careful operational management. That's why this type of systems are justified only for growing high-value species such as sturgeon, pike, perch, eel, catfish, tilapia, etc.

B. Impacts of aquaculture on the environment. Due to rapid expansion and to continued pressure on natural water resources, energy and feed, aquaculture can produce different impacts on the environment. Aquaculture can exert both positive impact and negative on the environment. Usually, the quality and quantity of waste from aquaculture, as well as the environmental impacts of aquaculture, vary with farmed species, the management practices used and location of the production system but also on feed quality and management (feed composition, feed ration and feeding method) (Preston et al 1997; Wang et al 2005; Podemski C.L. and Blanchfield P.J. 2006). Among the major effects of aquaculture on the environment in this paper we refer to:

- Effluent discharges;
- Effects of other discharges from aquaculture (e.g. fertilizers, chemicals, and medicines);
- Escapes from fish farms and potential effects on wild populations.

Effluent discharges. Aquaculture effluents contain dissolved and suspended solids that have biochemical oxygen demand (BOD), ammonia and nutrients phosphorus (P) and nitrogen (N) that are derived from fish excretion, faeces, and uneaten feed, and specific organic or inorganic compounds (i.e. therapeutics). Between all these components a special attention is directed towards nitrogen and phosphorus which are considered the main pollutants of intensive aquaculture (Hakanson et al., 1998). These components are a real source of pollution and if they are developed at high level can cause of eutrophication (González et al 2008), resulting in occurrence of the harmful algal blooms (Pearl H. W. 1997; Goldburg Rebeca and Tracy Triplett et al 1997) and the depletion of oxygen due to the increase of microbial activities (Diaz et al 2008).

It is obviously that feeding is the main source of waste output from aquaculture, due to the high amounts in fishmeal (FM) which is rich in P. In fact, Ackefors, (1999) said that the content of phosphorus and nitrogen in the feed and the feed conversion rates are most important in assessing environmental impacts of aquaculture. According to Jackson et al (2003) and Schneider et al (2005) only 20% to the cultured organism is retained as biomass while the rest is incorporated into the water column or sediment. Moreover, Pierhadrita, (2003) says that nitrogen and phosphorus retention range between 10-49% and 17-40% respectively, while from faeces N and P are released from 3.6% to 35% and 15% to 70% respectively. Lastly, dissolved N and P excretions range from 37% to 70% respectively. Nowadays, modern aquaculture is based mostly on the feeding of manufactured feeds (extruded pellets) reducing the phosphorus excretion. For example, in a diet for salmon, with 40% protein, 30% lipids, 13% carbohydrate and a energy content of 19.2 MJ kg-1, the nitrogen content is around 7%, aspect which makes possible to use fat for energy (instead of protein) and excreted of smaller volumes of nitrogen compounds (Pillay, 2004). That`s why it is very important to know the ingredients from the feeds and to balance these nutrient in order to improve the nutritional quality. Cho et al (1991), says that the goal of aquaculture is to produce feed very well suited to the nutritional needs of the fish so that the maximum growth can be achieved with minimum waste, particularly phosphorus and nitrogen. So, according to Youssouf A. et al (2012), a way to reduce P waste produced by aquaculture is to replace the FM with FM substitutes that contain lower P, without

affecting the growth performance of fish. Also, Ayoola A. (2010) suggest that a possible alternative of protein sources, can be represented by animal proteins from rendering or slaughter, plant protein concentrates and novel proteins such as algae, yeast, dried distillers grains with soluble (DDGS) and insect meal.

Besides feed composition, others factor responsible for pollution effluent from aquaculture is the type of the culture systems and the practiced stocking densities. In general, the effluent resulting from aquaculture raceway is more polluted in comparison with ponds effluent, cages and pens, mainly because water passes quickly through raceways and dissolved and suspended matter are flushed out. Generally, wastes emitted from cages and raceways are quickly diluted but also can generate changes in sediment structure and function (Beveridge M. et al., 1997). On the other hand effluent from RAS systems, it is around 10% (daily water exchange) of total system volume per day, but RAS produce a concentrated waste.

Another important issue which will receive increasing attention is the practice stocking densities. High stocking densities suppose the concentration of many organisms in a low water volume, increasing the waste productions and thus increasing the concentration of phosphorus and nitrogen compounds from water. Also, not all fish species have similar metabolism having different capacities to process energy and nutrients, and that`s why choosing the suitable species for growth and the suitably grown system can be a good solution to protect the environment. Also, Manoochehri et al (2010), mentioned as a measure to reduce nutrient wastes or to avoid or reduce any negative environmental impacts a careful monitoring and management of aquaculture effluents.

Effects of other discharges from aquaculture (e.g. fertilizers, chemicals, and medicines). Besides the wastes, aquaculture effluents may contain chemicals (fertilizers, disinfectants and chemotherapeutants pesticides, antibiotics). Usually, fertilizers are used in aquaculture ponds, in order to increase the primary productivity by stimulating the phytoplankton growth. For that, a very important aspect is to establish the needed doses. These doses may be determined only from the knowledge of the chemical composition of the water and the physical-chemical characteristics of its bottom. Generally, in aquaculture are used organic fertilizers or inorganic fertilizers, or a combination of both. Inorganic fertilizers are an inorganic compound which contains nitrogen, phosphorus, and potassium. However, fertilizers, whether they are artificial or organic, can cause serious problems if they contaminate water or are added in excess, contributing to the deterioration of water quality and implicit to discharged effluents.

According to Okomoda V. (2011), in modern aquaculture, especially in high stocking density aquaculture, to prevent diseases, eliminate harmful biota, disinfect and restrain polluted and damaged water, multiple chemicals and medicines are used. In the lasts years, the use of antibiotics has grown, even their use remains still controversial. Generally, the antibiotics are incorporated in fish pellets and due to uneaten feed go straight into water and bottom. Also, they can enter in water through faeces and by urine excretion. In fact, there are researchers who indicate the approximately 70-80% of the drug ends up in the environment (Samuelsen, Torsvik and Erik, 1992; Lalumera et al 2004). Mainly, in aquaculture antibiotics are used for therapeutic purposes and as prophylactic agents (Zheng et al 2012), the most frequent fish infections treated with antibiotics are skin ulcers, diarrhea and blood sepsis (Food and Agriculture Organizations, 2005).

Although their use is carefully indicated, there are cases when their discharge into the aquatic environment can lead to serious damages, due to the fact that they came in direct contact with water and soil. (Boxall 2004). These risks are associated with the direct toxic effects (on benthic micro and meiofauna, algae, plankton and other aquatic organisms) and more subtle effects including potential modification of bacterial communities (and the promotion of antibiotic-resistant organisms) (Marine Strategy Framework Directive, 2015). However, the use of antibiotics in aquaculture remains still difficult, because they must be administered directly into the water, and that's why should be taken into account a number of considerations such as environmental integrity, the safety of fish and the aquatic products intended for human consumption.

Escapes from fish farms and potential effects on wild populations represent another big issue of aquaculture, with detrimental effects on the environment. According to a report published by The

Scottish Association for Marine Science and Napier University Scottish Executive Central Research Unit in 2002, escapees from fish farms may interbreed with wild population resulting in losses of genetic variability, including loss of naturally selected adaptations, thus leading to reduced fitness and performance. Also, escaping of fish from farms can be responsible for the spreading diseases and others pathogens. It is necessary for a better understand the relationships between disease and both as a means of preventing environmental economically serious disease outbreaks and indirectly promoting the need for better environmental management (Pullin et al 1993). In cases of cages, pens or other systems which release the untreated effluent directly into the water the possibility of transmitting diseases to wild fish stocks is quite high. The main way of introducing diseases is the transfer of infected farmed juveniles to these systems, or through infected food equipment, and through water streams (Ruiz et al 2000, Murray et al 2005, Salama et al 2011).

Conclusions

Aquaculture represents the sector with an important economic activity being situated on top of the food production industry. Increasing customer demand for aquaculture products, together with increasing environmental and also, the costs associated with land and water will determinate the producers to develop their technological facilities or to implement new solutions in order to assure the practice of high stocking densities and to meet the market demands while taking into consideration environmental protection.

In order to protect the environment, aquaculture activities must be conducted sustainably, with minimal impact on the environment. In fact, the aquaculture industry is already working on this requirement, which in many countries has reached an impasse. In conclusion, to develop a sustainable growth of aquaculture is needed to be profitability, economic development and to practice a good waste management. There are many measures which can be taking in order to reduce the environmental impact of aquaculture, as: reducing as much as possible food losses, the adoption of management strategies of discharged effluents, like the utilization of the recirculating systems or systems with low or zero water exchange, the revalorization of the wastes by integrating in hydroponic systems for plants production or for composting for garden applications. Also, it is important to ensure sustainable sourcing of feed, to avoid escapes by adopting technical standards, to minimize biodiversity impacts and to reduce the impact of chemicals and medicine use, particularly antibiotics.

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Une Politique de Tarification Routière : Le Péage Urbain en Tunisie ?

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Abstract

Afin d'étudier une politique économique rationnelle et tarifier le prix d'un nouveau projet public, il est indispensable d'étudier les réactions des consommateurs face à un changement de prix ou de situation. L'objet de cet article est de montrer que le processus d'acceptabilité d'une mesure comme le péage urbain est une condition préalable nécessaire mais insuffisante. Complété par une étude empirique qui consiste à s'interroger sur la disposition à payer des automobilistes afin d'économiser la perte du temps inhérente aux déplacements quotidiens. Cette étude s'inscrit dans une perspective novatrice, puisqu'elle initie une étude sur la mise en place d'une nouvelle politique urbaine ; le péage urbain ; en Tunisie. L'objet de cet article est de (i) analyser l'impact d'une politique de gestion publique de la congestion via le biais d'un péage urbain sur les citadins, (ii) estimer le consentement à payer des automobilistes pour réduire la congestion urbaine et déterminer les variables favorisant cette disposition à payer. Pour atteindre ces objectifs, cette étude fait valoir une riche enquête de terrain menée dans la ville de Sfax. A l'aide de la méthode d'évaluation contingente, nous analysons les préférences déclarées de 457 automobilistes pour réduire la congestion et la perte du temps aux déplacements.
Keyword : consentement à payer, évaluation contingente, péage urbain.

1. Introduction

Synonymes de perte de temps, de stress et de frustration, se déplacer, pour se rendre au travail par exemple, est un geste routinier qui cause une gêne quotidienne et constitue par là même un réel symptôme de dysfonctionnement de la mobilité urbaine. Mais au-delà de cette subjectivité des termes, la prise en compte du temps en tant que ressource rare pose, elle, le problème crucial de sa valeur. Notamment, l'utilisation de l'automobile ne signifie point qu'un nouveau besoin spécifique de voiture particulière est né ; le besoin final est toujours le même. Ce qui existe c'est une demande de déplacement associé à une hausse continue du coût du temps, laquelle conduit un grand nombre d'usagers à rechercher des moyens de plus en plus rapide pour se déplacer. C'est précisément le cas de ceux dont les trajets s'éternisent et sont ralentis et/ou irrités par la congestion routière. Ce coût *psychologique* est cependant accentué par l'incapacité du réseau routier à contenir une demande de plus en plus accrue et constitue de ce fait un enjeu de politiques économiques majeur. Cela dit, outre le ralentissement et le manque de productivité inhérent, la congestion routière nuit à la qualité de l'air urbain, à l'environnement naturel, aux bâtiments et à la santé des individus. Les finances publiques sont les premiers sollicités pour assumer les dépenses d'infrastructures routières et de financement des transports collectifs. Toutefois, les difficultés budgétaires conjuguées à un problème de congestion routière vont amener davantage les autorités à faire payer aux usagers le prix de leurs présences sur le réseau. Dès lors, la question est de savoir s'il est possible de forcer les automobilistes à internaliser, via des péages urbains notamment, cet effet externe.

Le principe de ce péage renvoie aux travaux pionniers de DUPUIT (1844) et PIGOU (1920). Muni d'une théorie de l'utilité, DUPUIT part de la situation où une taxe *ad valorem* majore le prix d'un bien marchand, ce qui le conduit à étudier par analogie les effets d'un péage urbain sur la demande de déplacement. C'est dire que le péage urbain (*congestion princing*) permet, en fonction de son prix et son objectif, de modifier le comportement des automobilistes.

Un économiste *normatif* peut facilement justifier l'internalisation de l'externalité de congestion, le concept de bien public (bien-être collectif) étant le référentiel de base. Un économiste imprégné par une vision plus réaliste considère, en revanche, qu'il ne s'agit pas là d'une tâche facile et surtout ce n'est pas un *free lunch*. Une régulation par les prix, *i.e.* le péage urbain, est le résultat d'un processus politique contraint par des objectifs d'efficacité, d'équité et d'acceptabilité sociale mettant en scène

des groupes d'intérêt et des fonctions de préférences non congruentes. La conjecture est d'autant plus plausible que ces groupes d'intérêt sont également des contribuables qui perçoivent (sans surprise) le péage urbain comme une taxe supplémentaire. Cette méfiance est couplée d'une interrogation sur les conditions d'emploi et d'affectation des recettes collectées, l'idée de l'*État Léviathan* venant compléter le tableau. En somme, si la littérature économique relative à la congestion routière abonde, il n'en ressort aucun plaidoyer la *légitimant*. En revanche, elle suscite chez les économistes une interrogation sur la manière de réduire les effets externes négatifs qui y sont liés. C'est alors que le péage urbain apparaît comme une réponse à des problèmes de rareté qui se heurte au principe de gratuité.

Or, l'acceptabilité admet, on le sait, une dose d'inégalité pour conserver l'efficacité et/ou l'équité. C'est donc un compromis qui pâtit de l'hostilité des automobilistes (RAUX, SOUCHE, 2001).

Notre message théorique est précisément de s'interroger sur l'adhésion sociale du péage urbain à Sfax (deuxième grande ville de la Tunisie) et de s'interroger sur les politiques d'accompagnement à mettre en place par les pouvoirs publics. En somme, tout le pari d'une collectivité qui instrumentalise le péage urbain ne consiste pas uniquement à atteindre les objectifs visés en matière de mobilité interne ou d'environnement. Il s'agit en outre de faire accepter le péage par les usagers. La question de perception est ici cruciale. Une meilleure acceptabilité, voire l'appropriation de la mesure, en dépend. D'autres questions ayant trait à l'efficacité économique d'un tel instrument, aux comportements des automobilistes et à la nature de la circulation de la ville sont d'importance. Nous visons en premier lieu d'étudier l'acceptabilité d'un outil tarifaire dans la ville de Sfax à travers la méthode d'évaluation contingente et d'estimer par la suite la valeur du temps qui est la variable structurante dans le processus d'acceptabilité sociale.

Parallèlement, il s'agit est d'inscrire une politique des transports dans une logique de développement durable. Cela dit, le calcul des coûts de la congestion s'avère primordial pour le choix d'une nouvelle politique de lutte à la congestion. Ces coûts, comme la perte de temps et le gaspillage de carburant sont directement assumés par les conducteurs mais également assumés par l'ensemble de la société. Dans cette perspective, les décideurs publics se trouvent impuissants à contenir ces coûts représentés par les externalités environnementales négatifs et la perte de temps (perte de productivité).

2. Évaluation contingente de la congestion routière dans la ville de Sfax : enquête sur l'acceptabilité d'un péage urbain

L'automobile, on le sait, contribue aux changements climatiques causés par le rejet des émissions atmosphériques, lesquelles génèrent des externalités négatives. Une étude conduite en 2010 pour évaluer l'acuité des nuisances sonores à Sfax, montre que les pics de CO les plus importants sont observés dans le centre-ville et notamment durant les heures de pointes (le matin lors du déplacement domicile/travail et le soir par les sorties estivales entre 18h et 21h) enregistrant 20ppm. Quant aux pics de bruit cela dépasse les 95dB en fonction de la fréquence des déplacements à des heures et des zones bien déterminées. Cela dit, l'évolution du nombre de déplacement par jour par automobile n'a cessé d'augmenter passant de 660 000 en 1996 aux 1300 000 déplacements en 2012 (INS, 2014). L'intensification de la circulation caractérisent notamment le centre de la ville. En effet, la commune de Sfax et les 6 municipalités alentour, se sont constituées en un groupement intercommunal pour former le Grand Sfax qui compte 50 % de la population du gouvernorat de Sfax. En 2014, Sfax-ville compte 299000 habitants dont 2 339,00 possèdent une voiture sur une superficie de 27.09$\mathbf{km^2}$. La concentration des activités, couplée à l'augmentation des véhicules particuliers entrainent, sans surprise, des difficultés de circulation et un déficit de stationnement. Cette situation génère de la pollution, des difficultés de circulation et un stationnement anarchique. Les effets de la congestion à Sfax sont apparents durant toute la journée et ses causes sont complexes.

A ce niveau, nous proposons le péage urbain comme solution de double objectif mais qui concourt des difficultés de mise en place relatif à son acceptabilité sociale. Il est alors indispensable, de justifier notre étude par une analyse avantages-coûts. Cette dernière requiert l'estimation de la valeur de réduction de la congestion routière. Mais, puisque la route est un bien public (gratuit), le temps qu'on évalue est ressource rare, le recours à la méthode d'évaluation contingente s'avère indéniable notamment que nous présentons un scénario fictif (péage urbain). Cette dernière est basée sur la création d'un scénario hypothétique (mettre la zone à péage). Elle a été utilisée et appliquée,

selon les règles d'art d'échantillonnage, en considérant un échantillon de 457 automobilistes, pour une population composée de 2 339,00 individus possédant une voiture et parcourant Sfax-ville.

La motivation de notre étude trouve quant à elle ses sources en économie des transports. Elle valorise le temps des déplacements en estimant les variables influant l'utilité des voyageurs.

Dans cet exercice, il s'agit pour l'essentiel d'évaluer la disposition à payer des automobilistes face à un scénario hypothétique, *i.e.* la mise en place d'un péage urbain pour économiser le temps de déplacements journaliers, ce qui requiert l'utilisation de la méthode d'évaluation contingente, seule capable de répondre à notre objectif.

En faisant appelle à une méthode d'évaluation contingente, deux questions s'imposent. Celle relative à la formulation personnelle de la valeur du CAP, qui revient à un choix sous contrainte budgétaire. Une seconde, relative à la révélation de cette valeur, qui est une question de comportement stratégique.

D'un point de vue politique, les nombreuses externalités négatives que les voitures infligent à la société (congestion, polluants, accidents, bruits) justifient en effet des interventions correctrices minimisant les pertes de bien-être collectif (DE PALMA et ZAOUALI (2007), SMALL and VERHOEF (2007)) à travers un système de taxation urbaine.

3. Conclusion

Notre enquête nous a permis de recenser quelles étaient les principales questions qui intervenaient dans l'acceptabilité sociale d'une nouvelle mesure tarifaire, l'objectif de cette seconde partie était de construire un processus d'acceptabilité en avant-projet afin d'éviter l'échec du péage.

Sur la base d'une enquête de préférences déclarées, en réaction à des enquêtes officiellement menées en Europe et en Asie, nous avons construit un cadre d'analyse de l'acceptabilité tarifaire qui intègre en dynamique l'efficacité et les différentes dimensions théorique de l'équité de la nouvelle mesure (équité territoriale : garantie d'accessibilité ; équité horizontale : principe de l'usager-payeur, équité verticale : bien-être social).

Ce cadre a été validé d'abord qualitativement sur la base d'une enquête sur terrain auprès de 457 automobilistes parcourant le centre-ville de Sfax. Puis grâce au calcul du consentement à payer qui nous en avons recherché une validation quantitative. Il ressort de cette étude que parmi les 457 automobilistes enquêtés, 85 % ayant déclaré des difficultés de stationnement près de leurs lieux de travail et perdent au moyenne 10 minutes à tourner en rond pour trouver une place au centre-ville. Les automobilistes semblent être conscients de la dégradation de la qualité de circulation et des conditions de dysfonctionnement de déplacements privés à partir desquelles les comportements vont être modifiés. Dans l'optique de gain du temps et de la réduction de la consommation énergétique, un péage de stationnement vient limiter l'accès au centre-ville. Il s'agit d'une nouvelle politique de développement de la grande Sfax. Nous avons présenté le projet de péage urbain comme solution tarifaire pour réduire les problèmes d'embouteillage, de stationnement mais notamment de financement. En déterminant une valorisation monétaire des attributs déterminants la demande (par exemple quel niveau de prix les individus considèrent-ils comme acceptables pour utiliser les transports collectifs et renoncer à leurs voitures), elle donne une évaluation chiffrée du seuil susceptible d'allier le comportement des déplacements.

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The Impacts of Investments in Capital, Education and Technology on Productivity in Europe

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Abstract

In this paper there are analysed the impacts of capital investments, education and technology on the European countries' productivity, seen as a key dimension of economic growth and competitiveness. Using econometric instruments, such as Pearson correlations, Granger causality and Panel Least Squares method, there are processed data for 20 European countries, OECD members, for the period 2000-2013. The results reveal that gross capital formation education and technology were the most significant positive determinants of productivity, but the manifestation of the financial crisis had the most significant negative effects on productivity, while foreign direct investments inflows had insignificant impact. Moreover, foreign direct investments inflows appears to be the only variable that does not appear to have a causal relationship with productivity.

Keywords: productivity growth, gross capital formation, foreign direct investments, education, technology, crisis

Introduction

Each and every country or the groups of countries, including European Union, are concerned by the necessity of reaching and maintaining sustainable development and economic growth, but also of gaining more competitive advantage compared to other countries. However, such ambitious targets cannot be reached if they do not improve their productivity, which represents a key dimension of economic growth and competitiveness and this is why understanding and controlling the main drivers of productivity has to be one of the most important themes to be analysed. Moreover, while the macroeconomic climate is from time to time affected by serious and dangerous phenomena as economic and financial crisis, it is equally important to find the appropriate levers to surpass those hard times with minimum losses.

Starting from the above considerations, we consider in this paper that the period starting from 2000 till 2013, marked partially also by the manifestation of a severe economic and financial crisis, can be a good basis for an analysis on the impacts of determinants such as investments in capital, education and technology on productivity in Europe.

Literature Review

Enhancing economic performance and ensuring sustainable development are undoubtedly major concerns for each country and, at the same time, important subjects for research. However, we remark that in literature most of the studies are focused more on the economic growth determinants and less on the factors that are driving labour productivity growth.

Defined most often as the ratio between the volume of output and the volume of inputs, productivity measures how efficiently are used different kinds of inputs in an economy in order to maximize the output, proxied usually by GDP growth (OECD, 2015). In this context, even it cannot be forgotten the effects of some macroeconomic determinants such as inflation, unemployment etc., it is acknowledged in literature (OECD, 2015) that an important growth in labour productivity is reflecting an increase and a better use of capital, either fixed or human, or efficiency gains by innovation or by enhancing the work abilities of the employees.

There are many different theoretical approaches of economic growth and productivity in literature. However, most of them sustain practically two main ideas regarding the determinants of growth. Thus, while the neoclassical theory, launched by Solow (1956), sustains that capital accumulation is the essential driver of productivity and economic growth, the second one, theory of endogenous growth, developed by Romer (1986) and Lucas (1988) considers human capital and innovation capacity as the most representative determinants.

According to the neoclassical theory of Solow capital accumulation may be considered as a major determinant of productivity and there are many reasons for sustaining such an idea, especially if taking into consideration that the output is strongly determined by the dimension of the means involved in the economic process, out of which a very important part is represented by the fixed capital and the inventories which are completed also by the human capital. In this regard, investments in capital, either domestic or foreign, are essential for enhancing the level of the productivity.

Domestic investments in capital is proxied usually in literature by gross capital formation annual growth indicator and measures the increase of the fixed assets in the economy and the net changes in the level of inventories. As part of gross fixed capital formation, growth in fixed assets as land improvements, plants, machineries and equipment purchases, but also in constructions of roads, railways, including schools, offices, hospitals, private commercial and industrial buildings are significantly growing the productive capacity of the country and, when completed by higher inventories, are enhancing thus the productivity of the labor force (Wolff, 1991; Zheng et al., 2009; Fleisher et al., 2010).

On the other hand, investments in capital may come also from outside the country, by foreign direct investments inflows. As literature confirms, most of the times foreign direct investments have a positive impact on productivity (Borensztein et al., 1988; Keller & Yeaple, 2003, Griffith et al., 2003). However, Aitken and Harrison (1999) found a negative impact of FDI on productivity in Venezuela, while other authors (Hanson, 2001, Alfaro et al., 2004) found questionable or non-existent effects of FDI on productivity and economic growth, which makes ambiguous the link between FDI and productivity.

In literature was found also in many empirical papers (Loko & Diouf, 2009; Fleisher et. al. 2010) that human capital quality plays a major role in enhancing productivity, the most important impact being induced especially by the level of education (Barro & Lee, 2000). Moreover, the level of education may have an important effect on productivity growth because of its role as a determinant of an economy's capacity to carry out technological innovation (Romer, 1990) and to implement the new technologies.

Technology represents, in turn, another important determinant of productivity in a country. This fact is sustained mainly by the adepts of theory of endogenous growth, but it is also confirmed by many specific studies (Chen & Dahlman; Fleisher et al. 2010). In this regard, such studies have stressed the importance of ICT (information and communication technology) in sustaining long term economic growth and productivity.

We also believe that productivity is depending on the specific macroeconomic developments especially on the manifestation of some profound negative phenomena such as financial and economic crisis, which affect the economic activity.

Data and Methodology

Starting from the findings made in literature, as mentioned above, our research makes an empirically analysis on the impact of the capital accumulation and technology on the labour productivity in European countries, aiming to identify how strong are the effects generated by these factors and to draw conclusions regarding the way productivity may be enhanced.

We have concentrated our analysis on a selected group of 20 European countries, which are members of EU and also of OECD, which are: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden and UK. For these countries, we will use annual data taken from the OECD database and Global Financial Development Databank (GFDD) of World Bank, for the period from 2000 till 2013, which will be processed and analysed employing econometric instruments such as Pearson Correlations and Granger Causality Analysis, but also by building and testing a regression model using Panel Least Squares method.

In order to assess the labour productivity evolution, we use the labour productivity annual growth indicator, from the OECD database, which will be considered in our econometric study as the depending variable, symbolized as PGR.

We use more than one indicator for estimating the impact of capital accumulation, due to the various ways in which it can be gained and of the different effects that may result on labour productivity according to the the specific used capital. Thus, we take into consideration both the effects brought by domestic capital but also of the foreign direct investments inflows. Moreover, we consider the domestic investments not only in terms of fixed capital (gross fixed capital formation), but also in terms of fixed assets plus inventories (gross capital formation). Going further we estimate the impact of human capital by the level of education of the labour force. Finally, we take into consideration technological advance as determinant of productivity.

The impact factors on labour productivity growth, considered in our analysis also as independent variables, including their expected positive or negative relationship with the dependent variable are synthetized in Table 1.

Table 1: Impact factors - Independent variables

Independent variable/ Determinant	Indicator	Abbrevia-tion	Expected relationship (+/-)	Source
Domestic capital investment growth	Gross capital formation annual growth (%)	GCFGR	+	World Bank GFDD database
Domestic fixed capital investment growth	Gross fixed capital formation annual growth (%)	GFCFGR	+	World Bank GFDD database
Foreign direct investments inflows	Change in Foreign Direct Investments net inflows as percentage of GDP (%)	ΔFDII_G	+	World Bank GFDD database
Education	Change in labor force with tertiary education (of total) (%)	ΔL_TED	+	World Bank GFDD database
Technology advance	Change in mobile cellular subscriptions per 100 people (%)	ΔMOBS	+	World Bank GFDD database
Crisis	Crisis	CRISIS	-	dummy

As table 1 confirms, we have considered necessary to take into account in estimating the effects on productivity also of the financial crisis manifestation, which determined, in the analysed period, significant changes. Thus, we introduced also the dummy variable "crisis", marking the crisis period.

Results and Comments

In order to confirm the existence of the linkages between the evolution of labour productivity and the considered impact factors we used first Pearson correlations to process the panel of data for the European countries which are studied and the results obtained are those in Table 2.

Table 2: Correlations of productivity growth with the considered determinants

Sample: 2001 2013							
Included observations: 260 after adjustments							
Correlation Coef./Probability	PGR	GCFGR	GFCFGR	ΔFDII_G	ΔL_TED	ΔMOBS	CRISIS
PGR	1.000000						

GCFGR	0.470860***	1.000000					
	0.0000	-----					
GFCFGR	0.395986***	0.917293***	1.000000				
	0.0000	0.0000	-----				
ΔFDII_G	0.071724	0.141391**	0.100529	1.000000			
	0.2491	0.0226	0.1058	-----			
ΔL_TED	0.085585	-0.049008	-0.058324	-0.083109	1.000000		
	0.1689	0.4313	0.3489	0.1816	-----		
ΔMOBS	0.256086***	0.360961***	0.411910***	0.038545	-0.106289*	1.000000	
	0.0000	0.0000	0.0000	0.5361	0.0872	-----	
CRISIS	-0.296248***	-0.376227***	-0.421646***	-0.129651**	0.094566	-0.351808***	1.000000
	0.0000	0.0000	0.0000	0.0367	0.1283	0.0000	-----

***, **,* - denotes significance at 1%, 5%, respectively 10% level

Analysing the data in Table 2, we note first that they confirm the expected signs of the linkages between the labour productivity growth and the impact factors. There result significant positive correlations of labour productivity growth with domestic capital accumulation, both in relation with gross capital formation growth (coef. = 0.4708, Prob. = 0.0000) and with the gross fixed capital formation growth (coef. = 0.3959, prob. = 0.0000). They reflect, thus, strong linkages of productivity with the additions to the fixed assets of the economy, but also, in a smaller part, with the changes in the level of inventories. On the other hand, the change in foreign direct investments inflows and the labour force education appear to have positive but not significant relationships with productivity.

Results in table 2 are confirming also the existence of a significant relationship between technological advance and productivity and, at the same time, a negative correlation of productivity with crisis manifestation, as expected.

While the results obtained regarding the correlations do not confirm also the cause-effect directions of the linkages found we performed also pairwise Granger causality tests the results being shown in Table 3.

Table 3: Pairwise Granger Causality Tests

Sample: 2000 2013 Lags: 3			
Null Hypothesis:	Obs	F-Statistic	Prob.
GCFGR does not Granger Cause PRD	220	5.10420	0.0020
PRD does not Granger Cause GCFGR		3.56918	0.0150
GFCFGR does not Granger Cause PRD	220	3.63604	0.0137
PRD does not Granger Cause GFCFGR		4.94147	0.0024
ΔFDII_G does not Granger Cause PRD	200	1.76134	0.1559
PRD does not Granger Cause ΔFDII_G		1.41974	0.2383
ΔLF_TED does not Granger Cause PRD	200	4.50732	0.0044
PRD does not Granger Cause ΔLF_TED		0.43711	0.7267
ΔMOBS does not Granger Cause PRD	200	4.24926	0.0062
PRD does not Granger Cause ΔMOBS		3.26782	0.0224
CRISIS does not Granger Cause PRD	220	21.2885	4.E-12
PRD does not Granger Cause CRISIS		10.0170	3.E-06

According to data in Table 3 it results that except in the case of the change in foreign direct investments inflows in which the hypothesis that it does not Granger cause productivity is not rejected, all the other factors are Granger causing productivity growth. Moreover, excepting the case of foreign direct investments inflows and education, in all the other cases can be found also reverse causal relationships.

The above considerations and the results already obtained, sustain the possibility of deepening the analysis of the impacts of the considered determinants on labour productivity growth in the selected 20 European countries. In this regard, we will use further the Panel Least Squares method to build and test the following econometric regression model (1) for revealing the level of these impacts:

$$y_{jt} = c + \sum_{i} \beta_i \bullet X_{ijt} + \varepsilon \qquad (1)$$

where, j stands for the specific country, t stands for the year, y represents labour productivity growth, Xi represent the impact factors considered, βi are the coefficients of the impact factors and ε stands for the error term.

We tested the model on the data of the 20 European countries for determining effects of the impact factors on labour productivity growth, for the period 2000- 2013, leading us to the results presented in Table 4:

Table 4: Results of testing the proposed model for productivity growth

Dependent Variable: PGR				
Method: Panel Least Squares				
Sample (adjusted): 2000 2013				
Periods included: 13 Cross-sections included: 20				
Total panel observations: 260				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
GCFGR	0.165172	0.032086	5.147864	0.0000
GFCFGR	-0.100146	0.040615	-2.465743	0.0143
ΔFDII_G	-0.001580	0.014309	-0.110413	0.9122
ΔL_TED	0.349586	0.151265	2.311079	0.0216
ΔMOBS	0.036420	0.020877	1.744504	0.0823
CRISIS	-0.751259	0.295682	-2.540765	0.0117
C	0.165172	0.032086	5.147864	0.0000
R-squared	0.275166	F-statistic		16.00759
Adjusted R-squared	0.257976	Prob(F-statistic)		0.000000

The results show, first of all, that labour productivity growth is depending quite significantly (R-squared = 0.2752, Adjusted R-squared = 0.2579) on the considered factors, even its evolution appears to be determined also by other variables.

We note that, for the countries considered, gross capital formation growth had the most important positive impact, statistically significant under the threshold of 1%. Moreover, another important positive effect on labour productivity growth was induced by the level of the education of labour force, significantly below the threshold of 5%, while technology had also a positive impact, below the threshold of 10%.

On the other hand, as expected, crisis appears to be the most significant negative impact factor on the labour productivity. However we observe once again that foreign direct investments inflows had an insignificant, and even negative, effect on labour productivity growth, while gross fixed capital formation growth appears unexpectedly to have had a negative influence. Under these circumstances, we may conclude that the level of the foreign direct investments inflows, but also the level of investments in fixed assets was insufficient to enhance labour productivity.

Conclusions

Our study consists in an analysis, using econometric methods, made for the 2000-2013 period, on 20 European countries, OECD members, regarding the impact on labour productivity induced by the technological advance and by the increase of the investments in capital, both fixed and human, the latter from the perspective of the level of education of labour force. Moreover, the study takes into consideration the side effect of the crisis manifestation on productivity.

Our findings show for the analysed panel of countries that labour productivity is significantly positive correlated with gross capital formation and technology, but significantly negative correlated with crisis manifestation, while foreign direct investments and education show positive but less significant correlations with productivity. Moreover, analysing the causal relationship between productivity and the other variables we found that except foreign direct investment inflows, in all other cases, productivity appears to be determined by the considered variables.

Deepening our analysis, we have built and tested a regression model based on Panel Least Squares Method, which has led to the conclusion that over the 2000-2013 period, in the 20 European countries, productivity was significantly positive influenced by the domestic investments in capital,

by the level of education of the labour force and by the use of new technologies, but crisis manifestation had an important negative impact on productivity. On the other hand, foreign direct investments had a very insignificant, yet negative impact on productivity, which suggests that the level of them was too low to make a difference. Under these circumstances, it results that the analysed countries should direct their efforts in order to invest more in their fixed and human capital, but also in technology and should try to attract significant foreign investments.

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Using the Web as an Efficient Source of Building an Arabic Corpus: Presentation and Evaluation

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Abstract

Nowadays, the user demand for accurate information is still increasing, especially, with the expansion of numeric Arabic information in the Web. This growing is not only devoted to consult the existing documents on the Web, but also to build corpus for several applications of natural language, such as, question-answering, machine translation, information retrieval, etc. In this paper, we introduce a presentation and an implementation of Arabic corpus of questions-texts. This corpus, called AQA-WebCorp (Arabic Question Answering Web Corpus), revealed a real automatic interrogation of Google, in order to generate passages of texts whose the answer of a given question is located. This constitution then will provide a better base for our experimentation step. Thus, we try to model this constitution by a method for Arabic insofar as it recovers texts from the web that could prove to be answers to our factual questions. To do this, we had to develop a java script that can extract from a given question an html page. Then, clean this page to the extent of having a data base of passages to build our corpus. In addition, we give the preliminary results of our proposal method. Finally, some investigations for the construction of Arabic corpus are also described.

Keywords: AQA-WebCorp, Web, corpus, URL, question, texts, Corpus building, Google.

Introduction

Today, the World Wide Web has been a driving force in innovations within information retrieval, as users worldwide use search engines to find relevant content on the web. For question-answering, information retrieval methods are used for retrieving documents relevant to the question, and selecting documents likely containing the answer. Most question-answering systems use existing search engines.

The corpus (singular form of corpora[1]) construction is a task that both essential and delicate. It is complex because it depends in large part a significant number of resources to be exploited. In addition, the corpus construction is generally used for many NLP applications, including machine translation, information retrieval, question-answering, etc. Several attempts have succeeded of building their corpus. According to Sinclair (2005), a corpus is a collection of pieces of texts in electronic forms, selected according to external criteria for end to represent, if possible, a language as a data source for linguistic research. Indeed, a definition that is both specific and generic of a corpus according Rastier (2005) is the result of choices that brings the linguists. A corpus is not a simple object; it should not be a mere collection of phrases or a "bag of words". This is in fact a text assembly that can cover many types of text.

With the internet development and its services, the web has become a great source of documents in different languages and different areas. This source is combined with storage media that allow the rapid construction of a corpus Meftouh et al (2007). In addition, using the Web as a base for the establishment of textual data is a very recent task. The recent years have taken off work attempting to exploit this type

[1] McEnery (2003) pointed out that corpuses is perfectly acceptable as a plural form of corpus.

of data. From the perspective of automated translation in Resnik et al (1998), the others study the possibility of using the websites which offering information in multiple languages to build a bilingual parallel corpus.

Arabic is also an international language, rivaling English in number of native speakers. However, little attentions have been devoted to Arabic. Although there have been a number of investigations and efforts invested the Arabic corpus construction, especially in Europe. Progress in this area is still limited. In our research, we completed building our corpus of texts by querying the search engine Google. We are concerned our aim, a kind of, giving a question, analyzing texts at the end to answer this question.

This paper is organized into six sections as follows: it begins with an introduction, followed by use of the web as a corpus source. Section 3 outlines the earlier work in Arabic; Section 4 shows our proposed approach to build a corpus of pairs of questions and texts; Section 5 describes an experimental study of our approach; a conclusion and future work will conclude this article.

1. Using the Web as a Source of Corpus

Nowadays, the web has a very important role in the search for information. It is an immense source, free and available. The web is with us, with a simple click of the mouse, a colossal quantity of texts was recovered freely Gatto (2011). It contains billions of text words that can be used for any kind of linguistic research Kilgarriff and Grefenstette (2001). It is considered the greatest knowledge resource. Indeed, the current search engines cannot find extracts containing the effective answers to a user question. Which sometimes makes it difficult to get accurate information; sometimes, they can't even extract the correct answers. The web is also an infinite source of resources (textual, graphical and sound). These resources allow the rapid constitution of the corpus. But their constitution is not easy so that it raises a number of questions Isaac (2001).

The construction of a corpus of texts from the web was not a simple task. Such constitution has contributed to developing and improving several linguistic tools such as question-answering systems, information extraction systems, machine translation systems, etc.

In fact, one of the most interesting Web intrinsic characteristics is its multilingual. As for the current distribution of languages used on the Web, recent estimates of the top ten languages (30 June 2015[2]) report that English and Chinese are the most used languages, followed by Spanish. The Arabic is a fourth on Internet users by language, followed by other major languages such as Portuguese, Japanese, Russian, German, Malay, French, and German.

Our intent is threefold. First, the empirical evaluation must be based on a relevant corpus. Secondly, we seek to analyze our built corpus. Finally, the main purpose of our research concerns the search for an accurate answer to a question in natural language. That is why we considered the Web as a source of potential to build our corpus.

2. Literature Review: Arabic Corpus Construction from the Web

The corpus is a resource that could be very important and useful in advancing the various language applications such as information retrieval, speech recognition, machine translation, question-answering, etc. This resource has gained much attention in NLP. The task of building a corpus of textual resources from the web is somewhat recent. In Arabic, the attempts to exploit this type of data are limited. Although

[2] www.internetworldstats.com

there has been some effort in Europe, which led to the successful production of some Arabic corpus; Progress in this field is still limited. According to Atwell et al (2004), the progress has been hampered by the lack of effective corpus analysis tools, such as taggers, stemmers, readable dictionaries to the machine, the corpus viewing tools, etc., that are required for build and enrich a corpus as a research tool.

Although many researches are available to document corpus construction in English and other languages, there are some publicly accessible corpuses, especially in Arabic. This language has not received the attention that it deserves in this area. In this regard, many researchers have emphasized the importance of a corpus and the need to work on their construction. For his part, Mansour (2013), in his work, showed that the contribution of a corpus in a linguistic research is a huge of many ways. In fact, as such a corpus provides an empirical data that enables to form the objective linguistic declarations rather than subjective. Thus, the corpus helps the researcher to avoid linguistic generalizations based on his internalized cognitive perception of language. With a corpus, the qualitative and quantitative linguistic research can be done in seconds; this saves the time and the effort. Finally, the empirical data analysis can help the researchers not only to precede the effective new linguistic research, but also to test the existing theories.

In this section, we present the most significant studies on English corpus construction and previous attempts to build a corpus in Arabic. In addition, we will also cover the studies that claim the construction of corpus for question-answering. There are now numerous studies that use the Web as a source of linguistic data. Here, we review a few studies for the Arabic language, as our case, that use the search engines queries to build a corpus.

Among the most recognized Arabic corpus construction projects, we cite, for example, the work of Resnik which studies the possibility of using the websites offers the information's in multiple languages to build the bilingual parallel corpora Resnik (1998).

Ghani and his associates Ghani et al (2001) performs a study of building a corpus of minority languages from the web by automatically querying the search engines.

In order to study the behavior of predicate nouns that highlight the location and movement, the approach proposed by Isaac and colleagues Isaac et al (2001) developed software for the creation of a corpus of sentences to measure if the introduction of prepositions in queries, in information retrieval, can improve the accuracy.

Even more, the work of Baroni and Bernardini (2004) introduced the "BOOTCAT Toolkit". A set of tools that allow an iterative construction corpus by automated querying the Google and terminology extraction. Although it is devoted to the development of specialized corpora, this tool was used by Ueyama and Baroni (2005) and Sharoff (2006) to the generalized corpus constitution.

Similarly, the work of Meftouh et al (2007) describes a tool of building a corpus for the Arabic. This corpus automatically collected a list of sites dedicated to the Arabic language. Then the content of these sites is extracted and normalized. Indeed, their corpus is particularly dedicated for calculating the statistical language models.

In another approach of Elghamry in which he proposed an experiment on the acquisition of a corpus from the web of the lexicon hypernymy-hyponymy to partial hierarchical structure for Arabic, using the pattern lexico-syntactic "بعض x مثل y1 ... yn" (certain x as y1, ... yn) of Elghamry (2008).

From the perspective of automatic summarization, Maâloul et al (2010) studied the possibility of extracting Arabic texts of the website "Alhayat" by selecting newspaper articles of HTML type with UTF-8 encoding, to locate the rhetoric relations between the minimum units of the text using rhetorical rules. In addition, Ghoul (2014) provides a grammatically annotated corpus for Arabic textual data from

the Web, called Web Arabic corpus. The authors note that they apply the "Tree tagger" to annotate their corpus based on a set of labels. This corpus consists of 207 356 sentences and 7 653 881 words distributed on four areas: culture, economy, religion and sports.

Finally, in Arts et al (2014) the authors present arTenTen, an Arabic explored corpus from the web. This one is a member of the family of Tenten corpus Jakubíček et al (2013). arTenTen consists of 5.8 billion words. Using the JusText and Onion tools, this corpus has been thoroughly cleaned, including the removal of duplicate Pomikalek (2011). The authors use the version of the tool MADA 3.2 for marking task, lemmatization and part-of-speech tagging of arTenTen (Habash and Rambow (2005), Habash et al (2009). This corpus is compared to two other Arabic corpus Gigaword Graff (2003) and an explored corpus of the web Sharoff (2006).

Documents on the web have also operated by other approaches and other researchers Volk (2001), Volk (2002), Keller and Lapata (2003), Villasenor-pineda et al (2003) to address the problem of the lack of data in statistical modeling language Kilgarrif and Grefenstette (2003). In Elghamry et al (2007), these data were used to resolve anaphora in Arabic free texts. Here, the authors construct a dynamic statistical algorithm. This one uses the fewest possible of functionality and less human intervention to overcome the problem lack sufficient resources in NLP. However, Sellami et al (2013) are working on, the online encyclopedia, Wikipedia to retrieve the comparable articles.

In a merge of search engine and language processing technologies, the web has also been used by groups in Sheffield and Microsoft among others as source of answers for question-answering applications Mark et al (2002), Susan et al (2002). AnswerBus of Zhiping (2002) allows answering the questions in English, German, French, Spanish, Italian and Portuguese.

Although the text corpus building efforts are focused on English, Arabic corpus can also be acquired from the Web which is considered as a large data source. These attempts might be in all of the NLP applications. However, we also note significant efforts mainly for the question-answering. In this regard, the major of our knowledge, the number of corpus dedicated to Arabic question-answering is somewhat limited. Among the studies that have dedicated to this field, we cite Trigui et al (2010) who built a corpus of definition questions dealing the definitions of organizations. They use a series of 50 organization definition questions. They experienced their system using 2000 extracts returned by the Google search engine and Arabic version of Wikipedia.

We conclude that the natures of web texts are liable to be show up in many applications of automatic processing Arabic language. There are, at present, a number of construction studies of texts corpus in various applications, including the named entity recognition, plagiarism detection, parallel corpus, anaphora resolution, etc. The efforts to build corpus for each application are significant. They could be in all NLP applications.

3. Presentation of AQA-WebCorp: Arabic Question-Answering Web Corpus

In the rest of this article, we show in detail our suggestion to build our corpus of pair's questions and texts from the web as well as our preliminary empirical study. In our case, the size of the corpus obtained depends mostly on the number of questions asked and the number of documents selected for each question.

In the context of their construction of a corpus of texts from the web, researchers in Issac et al (2001) point out that there are two ways to retrieve information from the web for building a corpus. The first one is to group the data located on known sites Resnik (1998). Indeed, this way runs a vacuum cleaner web. This ensures the recovery of the pages from a given address. However, the second method investigates a

search engine to select addresses from one or more queries (whose the complexity depends on the engine). Thereafter, recover manually or automatically the corresponding pages from these addresses.

In our work we follow the second method. From a list of questions posed in natural language, we ensure the recovery of the list of corresponding URLs. Then, from these URLs, we propose to recover the related web pages. Eventually, we propose to clean these pages so as to produce the lists of texts that will be the foundation that built our corpus. After building our corpus of pair's questions and texts, we do not keep it to that state. In this respect, a stage of analysis and processing will be looked later to achieve our main objective which is the extraction of an adequate and accurate answer to each question.

5.1 Collection of the questions

It is comes to collect a set of questions in natural language. These questions can be asked in different fields, including sport, history & Islam, discoveries & culture, world news, health & medicine.

Currently, our corpus consists of 115 pairs of questions and texts. Indeed, the collection of these Questions is carried out from multiple sources namely, discussion forums, frequently asked questions (FAQ), some questions translated from the two evaluation campaigns TREC and CLEF (Figure 1).

The data collected from the web of the questions and the texts will help us to build an extensible corpus for the Arabic question-answering. The size of our corpus is in the order of 115 factual questions: 10 questions translated from TREC, 10 questions translated from CLEF and 95 questions gathered from the forums and FAQs. To build our corpus, we used the Arabic texts available on the Internet that is collected being based on the questions posed at the outset.

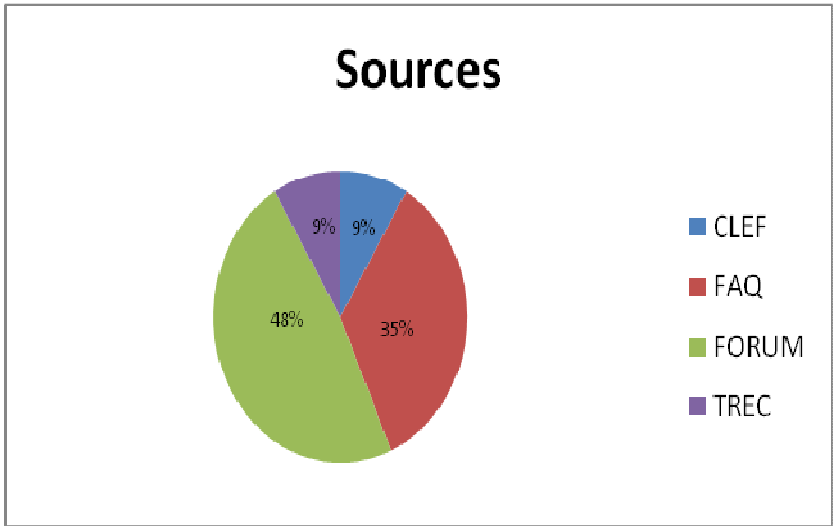

Fig 1: Source of the questions used for our corpus

From a perspective of analysis and post processing carried out to our corpus taking into account the form and the content of the corresponding questions, we collected factual questions having the type (What, Where, When, Who, How) (ما , أين, متى, من كم) (Figure 2).

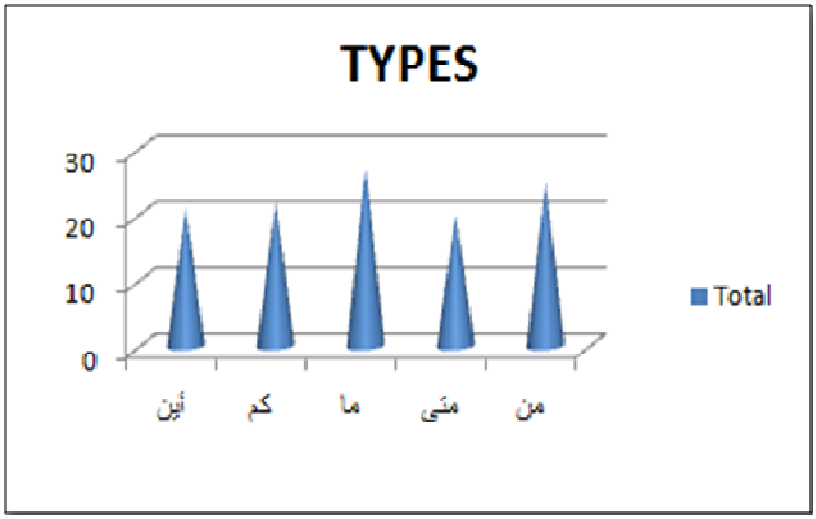

Fig 2: Some examples of questions used in our corpus

5.2 The steps of construction

Most studies in Arabic corpus construction are designed for areas other than the question-answering (see figure 3). According to a research done at Google[3], we find that the number of attempts devoted to this area is so limited. That's why we decided to build our own corpus. To address this goal we need as an intermediate step interrogating a search engine. The construction of the corpus for the question-answering gets better. We hope that it will continue to improve in the coming years and will complete one day to produce corpus in this field of research that will be used by researchers in their empirical studies.

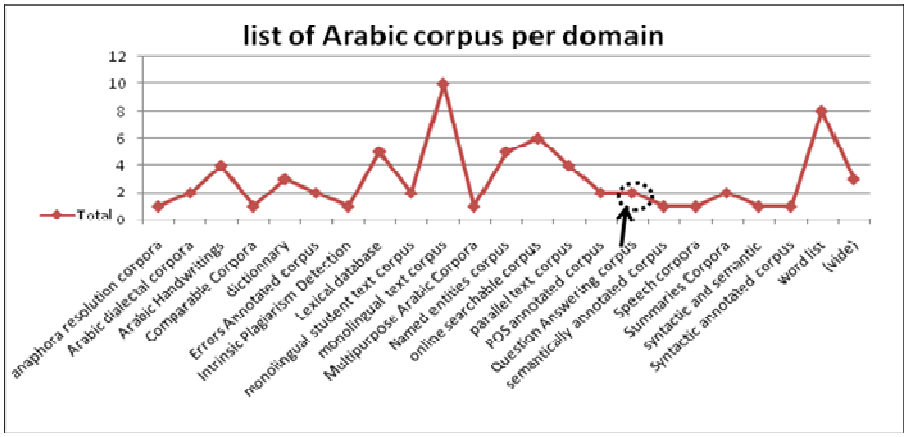

Fig 3: List of Arabic corpus per domain

[3] http://www.qatar.cmu.edu/~wajdiz/corpora.html

To implement our corpus for Arabic, we propose a simple and robust method implemented in Java. The principle of this method is based on four stages, relatively dependent. The constitution of our corpus of pairs of Arabic question and texts is actually done by developing all of these four steps. We describe in the following each of these steps:

- Documents research
- Web pages recovery
- Texts preparation
- Texts classification

This methodological framework is to look for web addresses corresponding to each question. Indeed, we have segmented questions in a list of keywords. Then our tool seeks list of URLs addresses which match those keys words. Then, for each given address we propose to recover the webpage that suits him. In this respect, our corpus construction tool is an interface between the user request and Google. Specifically, it is a way to query the Google database to retrieve a list of documents. Finally, we performed a transformation of each retaining web page from (".html" →".txt"). Finally, we look for if the answer is found in the correspondent text. The text is considered valid to build our body if it contains this answer. Otherwise, we go to the following URL.

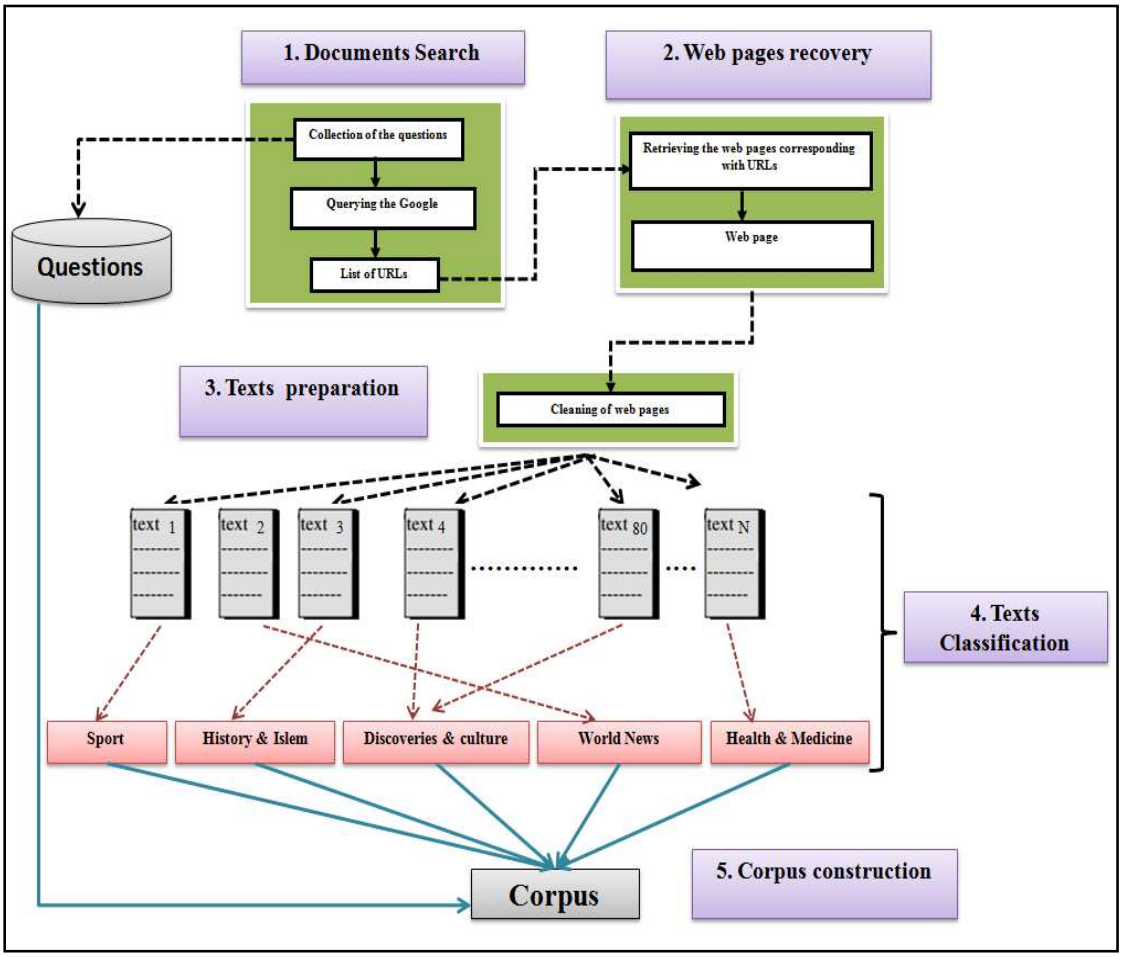

Fig 4: Construction process of our corpus AQA-WebCorp

As illustrated in the (figure 4), we introduce in this section a simple method of construction of our corpus promoting an effective interrogation of the web. This method is generally composed of three modules. Given a module for generating list of URLs address is implemented, this module supports for any questions posed in natural language a list of corresponding URLs. Next, a processing module behaves like a corresponding web page generator. A third module provides a sort of filtering of these pages. The result of this module could be a set of texts that can be added to the questions to build our corpus from the web.

4. Empirical Assessment

The first stage consists from a question posed in natural language, to attribute the list of URLs corresponding addresses to it. Indeed, the documents search is done being based on the words of the collected questions. A better to ensure this step we developed a java script for interrogating Google to obtain these results. The result of this step is a set of URLs addresses. For each question a list of the URLs will be affected.

In our case, to look for an answer to a question in Arabic, we propose to use a search engine (i.e. Google) to retrieve the documents related to each question. Then add post linguistic treatments to those documents which are actually constitute our corpus to have an accurate and appropriate answer. In this respect, querying a search engine accelerates the recovery of documents online but requires an offline processing of these documents. We think that this is a better solution, but much more complex is the implementation of a Linguistic search engine for a particular purpose.

At this stage, the module of documents search is implemented. First, when a question is asked, our tool submits it to the search engine (Google) to identify the list of URLs based on a list of words constitute this question.

Consider the following example: our tool can then from the question: « من صمم برج ايفل ؟ » Generate a list of equivalent URLs addresses. The default Web access means is through a search engine such as Google. In addition, by clicking the "search URLS" button, a list of addresses will be automatically displayed. While for each URL, this prototype can retrieve the necessary information's (host, query, protocol, etc.).

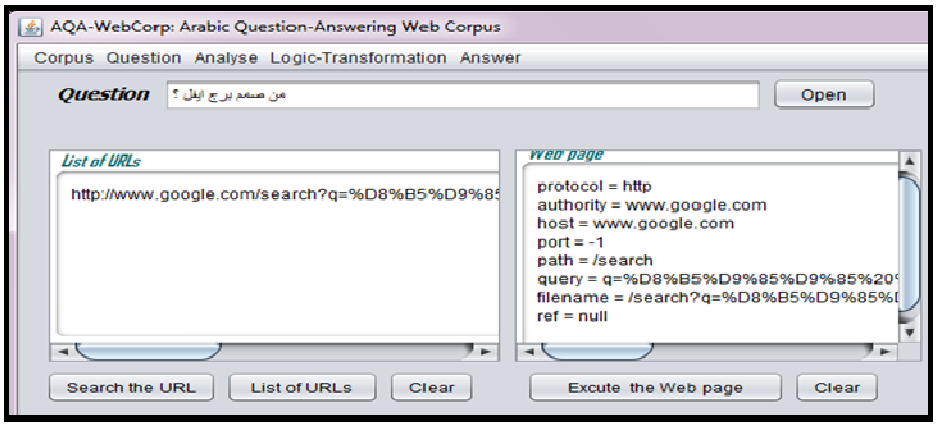

Fig 5: List of URLs generated for the question: " من صمم برج ايفل ؟ "

Once the list of URLs is generated, our tool must determine for each address the corresponding web page. This is to look for the corresponding HTML page for each given URL. The following figure illustrates

this case. From the address retained in the first step, a set of web pages is recovered. Each of these pages is exported in the format ".html".

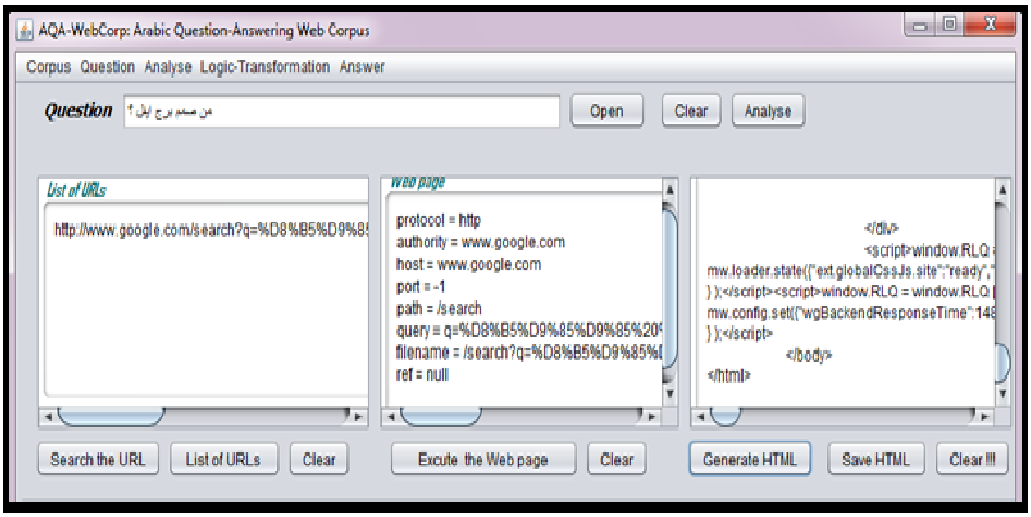

Fig 6: An URL of a web page retaining from the question:" من صمم برج ايفل ؟ ".

The figure below is an actual running of our prototype, using the previous steps of figure 6. The "generate HTML" button retrieves a page from its URL (figure 7).

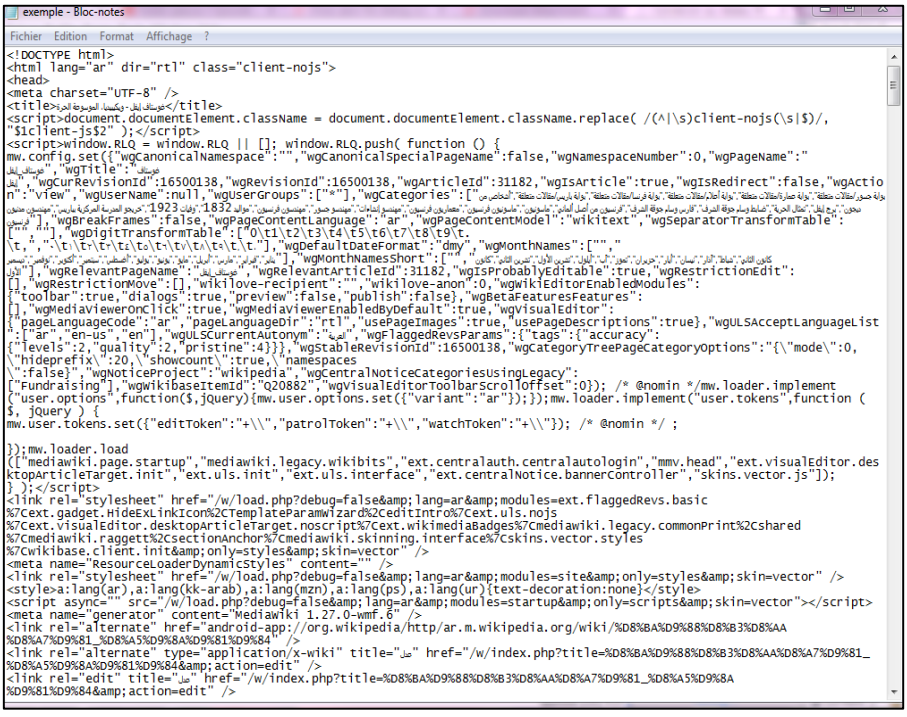

Fig 7: HTML page generated

The last step is to transform every web page obtained in the previous step into a ".txt" format. The texts being in ".html" format, and given that the intended application is the statistical language modeling, it seems justified to put them in the ".txt" format. For this, we remove all the HTML tags for each retrieved pages. As we have said before, our method seeks answers to each question in each generated text. It is possible either is to keep the text for own corpus construction work, or to disregard it.

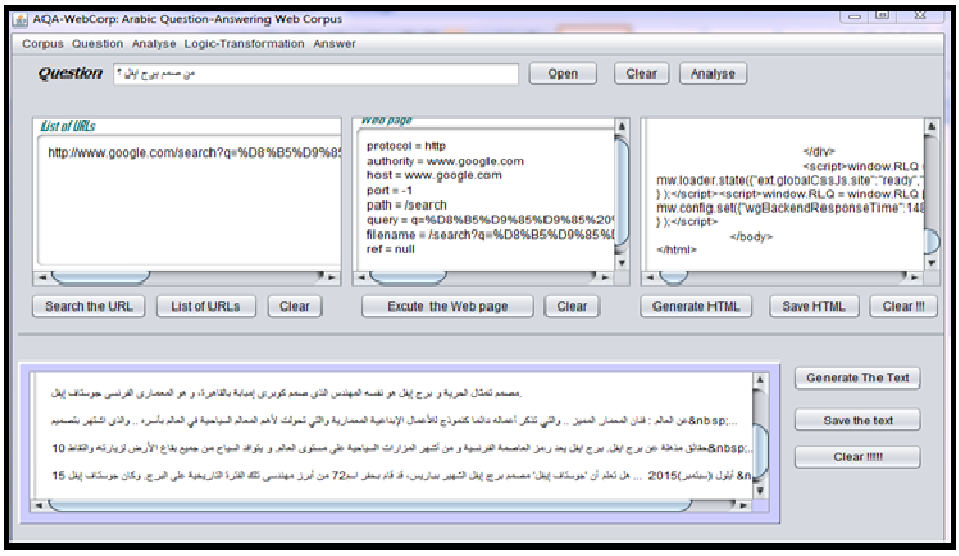

Figure 8: Example of a text containing an answer to the following question: " من صمم برج ايفل ؟ ".

When the text is generated it shall be ensured its suitability to answer the question put in advance, before saving it. To select this text, we proposed to select from the retained text list one which is to compile the most of information's related to the question. When this text is found, it is saved at the end of to be able to build our own corpus.

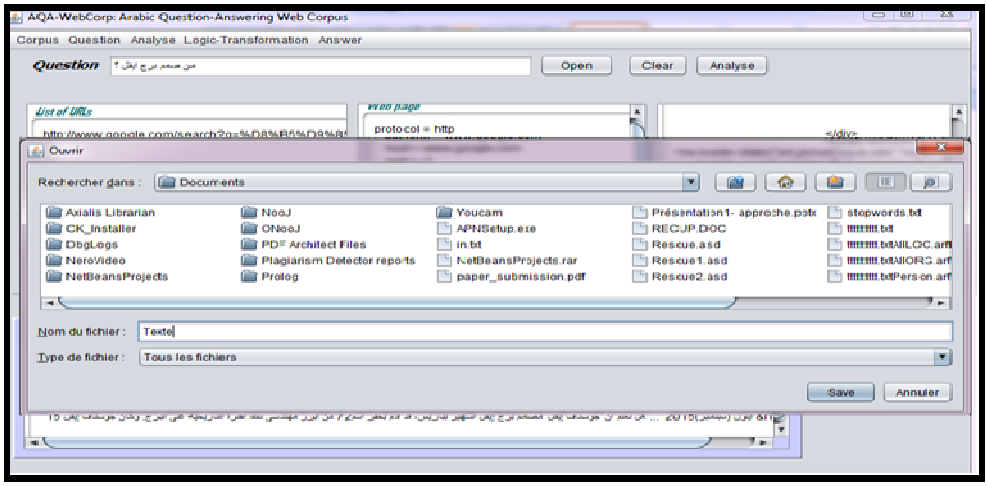

Figure 9: Saving the text

We are currently developing a corpus dedicated to the Arabic question-answering. The size of the corpus is in the order of 115 pairs of questions and texts. This is collected using the web as a source of data. The data collected, of these questions and texts from the web, will help us to build an extensible corpus for the Arabic question-answering. The pairs of texts-questions distributed on five areas "أخبار العالم ; التاريخ والإسلام; إكتشافات; ثقافةو ; رياضة; صحة و طب" as follows:

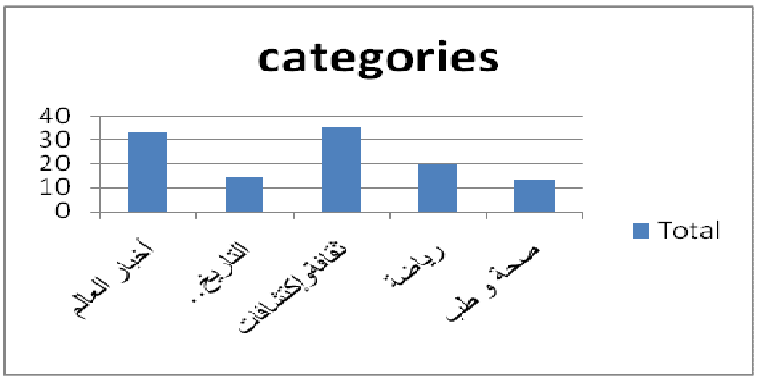

Figure 10: Statistics of pairs questions-texts used in different

Through the Google search engine, we develop a prototype that builds our corpus to Arabic question-answering. This corpus is in the order of 115 pairs of questions and texts. We are experimented our tool using 115 URLs returned by the search engine Google. Currently our corpus contains 115 pairs of questions and texts.

4.1 Results

We test our proposed method with a set of collected questions which consists of 115 factual questions. To evaluate our method, two performance measures are employed, such as Accuracy and c@1. These measures are used to measure the passages of texts automatically generated from the web that could answer those questions. In our case, there are some questions that are either not answered, either incorrectly answered. According to Peñas and Rodrigo (2011), not answering has more value than answering incorrectly. To evaluate those unanswered questions, we use the c@1 measure. It is an extension of accuracy measure (the proportion of correctly answered questions) with this feature and a very easy to understand interpretation. This measure has a good balance of discrimination power, stability and sensitivity properties.

CA: Number of Correctly Answers.
UQ: Number of Unanswered Questions.
TQ: Total of Questions.

The Accuracy measures the number of questions correctly answered divided by the total number of collected questions (correctly answered and not correctly answered).

- Accuracy = CA /TQ

The c@1 measures the proportion of correctly answered questions.

- C@1 = (CA + UQ * (CA / TQ)) / TQ

It should be noted that the number of questions correctly answered is 101, and the number of questions which are incorrectly answered or not answered is 14 questions. So we get an Accuracy of 0.87 and a c@1 of 0.98 (see table below).

Table 5: Results of preliminary experiments

	Correctly answered	**Unanswered = (incorrectly+ not (answered))**	**Total**	**Accuracy**	**c@1**
Number	101	14	115	0.87	0.98

Conclusion and Perspectives

It is undeniable that the Arabic corpus is certainly important for various applications in automatic natural language processing. This paper presents our first steps in this field towards the construction of a new corpus dedicated to the Arabic question-answering. It also presents our first version of the AQA-WebCorp (Arabic Question-Answering Web Corpus). It incorporates pairs of questions and texts of five categories, including («صحة و طب; رياضة; ثقافةو إكتشافات; التاريخ والإسلام; أخبار العالم»). The first phase focuses on Google search for documents that can answer every question, while the later phase is to select the appropriate text. In addition, to improve the quality of our current corpus, we propose to solve the problems mentioned above. Our task is still unfinished; we hope that we can continue to advance the construction of our body, so it could be effectively used for various purposes. It remains to perform post processing necessary to prepare the corpus for the second phase of representing these textual data into logical forms that can facilitate the extraction of the correct answer.

The proposed method is effective despite its simplicity. We managed to demonstrate that the Web could be used as a data source to build our corpus. The Web is the largest repository of existing electronic documents. Indeed, as prospects in this work, we have labeling this vast corpus and make it public and usable to improve the automatic processing of Arabic.

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Privacy, security, ethical, and social issues in the authorization procedure for technical surveillance measures -A case study-

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Abstract

The present paper aims to analyze the possibility of examining the merits, in the preliminary proceedings chamber, of court orders issued by the judge of rights and freedoms through which have been acquiesced technical surveillance measures. We consider that this work is of interest given the obvious discrepancy between the definitive nature of the court order and the object of preliminary chamber ruling, in the light of the legality and validity of evidence acquired during prosecution. The majority of national court decisions reveals that the judge`s for rights and freedoms rulings trough which a measure of technical surveillance is authorized are subject to judicial control in preliminary chamber, but there are several courts in Romania that states otherwise.
Keywords: Preliminary chamber, technical surveillance measures, ruling, judicial control.

1. Introduction

In the case subjected to analysis, a criminal investigation was launched by the National Anticorruption Division (NAD), concerning crimes of traffic of influence, buying of influence and aiding and abetting.

Throughout the criminal investigation, the judge of rights and freedoms, at prosecutor's request, authorized the use of technical surveillance measures consisting in video surveillance and interception of electronic communications of the defendant. There were issued two warrants for technical surveillance, warrants that subsequently have been extended; to this extent was delivered a total of six ruling of the judge of rights and freedoms.

Regarding the first resolution, it is not the subject of this analysis, thus it will not be challenged as it regards its lawfulness. Following the adoption of the first resolution, the case was disjoined concerning offences of abuse of office, the last five resolutions being given subsequently after the disjoint.

With regard to these five resolutions, among others, the defense attorney revealed that they are null and void; subsequently the warrants that were issued based on them are null. These aspects were invoked during preliminary chamber procedure considering that the judicial control over the ruling of authorization for technical surveillance measures given by the judge of rights and freedoms, although it`s definitive character, falls in the competence of the preliminary chamber judge.

2. The defendant claims and exceptions

The defense claimed that the decisions are unlawful and unfounded, leading to the conclusion that there is a lack of motivation itself given that all magistrates had in mind the offenses retained in the first resolution. Magistrates gave interception warrants for offenses of traffic of influence, buying of influence and aiding and abetting instead for abuse of office.

None of these decisions is motivated, the analysis of the legal requirements regarding the necessity, proportionality and subsidiarity of technical surveillance measures being made in relation to the offenses of trading in influence, buying influence and aiding and abetting, thus regarding other facts than those for which it has been open the criminal investigation in the new drafted case.

Also there has been stated that the harm is evident in such circumstances that the intrusion into

private life occurred without a thorough analysis from the authorized judge, it was an abuse which flagrantly broke European and national laws and violated the private life of the persons subjected to surveillance. In reference to these aspects it was detailed, concerning each of the five resolutions of the judges of rights and liberties, arguing on the reasons for nullities of the mentioned rulings, stating that in all five cases the judgment does not match the content of the resolution, thus violating the rights of defendants who had been intercepted on the basis of warrants obtained pursuant to unlawful rulings.

The defense pointed out that the errors committed by the judge of rights and freedoms should be punished at this time, otherwise the ECHR will have to condemn Romania again.

Relative to the subsidiarity of this measure, the judge of rights and freedoms motivates based on other allegations and extended the first warrants for crimes of trading in influence, buying of influence and aiding and abetting. The motivations relate to other cases and it becomes evident that no judge has read the file, the judges have collectively referred to the first warrant and hence the injury, or if it were to be known the offenses for which the defendant was investigated probably no judge would have admitted the prosecution request.

Defender requests the sanction of these serious misconducts that led to violation of article 8 of the ECHR and at rights infringements procedure. The proposals were admitted in bulk and motivation did not regard each person individually, with a minimum motivation.

The claims and exceptions submitted by the defense for the defendant were communicated to the NAD in order to formulate an answer. Along with the reply on exceptions, NAD representatives have filed five resolutions given by the same judges of rights and freedoms for correcting the errors.

3. National Anticorruption Division`s Response Regarding the Defense Claims

Regarding the issues raised at pt. 1, from an analysis of the five court resolutions issued by the Bucharest County Court, it appears that the judges of rights and freedoms that authorized the technical surveillance measures have considered the factual situation of the offenses related to the case, they analyzed the evidentiary means which resulted from implementing the technical surveillance warrants, they explored whether the criminal investigation was initiated, they analyzed the cumulative conditions provided by article 139 par. 2 of the Criminal Procedure Code, the proportionality and the necessity in order to authorize the technical surveillance measures.

Indeed, although it was mentioned, in all five court resolutions that it is the opinion of the prosecutor's office that there are reasonable suspicion about committing the offences of abuse of office, if the civil servant obtained for himself or for others an unlawful advantage incriminated and punished in article 132 of Law no. 78/2000 on preventing, discovering and sanctioning corruption offences, referring to article 297 of the Criminal Code, instigation to abuse of office, instigation to use, in any way, directly or indirectly, information which is not public or allowing unauthorized persons to access this information, offence punished by article 47 in reference to article 12 letter b) of Law no. 78/2000 and use, in any way, directly or indirectly, information which is not public or allowing unauthorized persons to access this information, crime punished by article 12 letter b) of Law no. 78/2000, although the conditions stipulated by art. 139 of the Criminal Procedure Code were analyzed in regard to these offenses, because of a material error in the analysis part of the resolution, the existence of a reasonable suspicion on preparing or committing other offenses, respectively traffic of influence, buying influence and favoring the offender, offenses which were the subject of prosecution in the criminal case from which present case was disjointed, was mentioned.

We consider that in order to assess whether the provisions of article 139 of the Criminal Procedure Code were complied with, during the procedure of extending the warrants for technical surveillance measures, all five court resolutions must be analyzed in their entirety and not individually.

The mention of other articles in the content of the resolutions, regarding other offences than the ones against which was retained the reasonable suspicion of committing, is just a material error simply

because the factual situation regards crimes related to the present case, given the fact that the analysis, of the necessary conditions for extending the warrants for technical surveillance measures, was conducted in its entirety.

For these reasons, based on article 278 of the Criminal Procedure Code, it was requested that judges of rights and freedoms, who issued the resolutions, correct the material errors.

In conclusion, we consider that the surveillance measures were requested and extended lawfully, reason why the exclusion of evidence obtained by conducting technical surveillance measures, is not mandatory.

4. Clarifications of the Defense`s Arguments Submitted in Court

Given the procedural rules stated by the Criminal Procedure Code and in respect of the response submitted by the NAD, the defense submitted a series of new arguments in regard of these new acts, pointing out that:

1. The errors in technical surveillance measure authorization are errors of judgment and not at all material errors.

2. The resolution of the correcting the material errors are not res judicata.

3. The illegality of the technical surveillance measure authorization and of the resolution for correcting material errors is subject to censorship of a preliminary chamber judge.

New resolutions pronounced by judges of rights and freedoms within the Bucharest County Court cannot be regarded as rulings for the correcting of some material errors.

Material errors are those errors slipped on the occasion of the drafting of a document and does not affect the validity or merits of the judgment. In this context, we cannot consider that a lack of motivation or reasoning based on other circumstances or facts that has not been retained by the prosecutor in the indictment, can be "corrected" in accordance with the procedure for correcting of material errors.

This is the practice of the Supreme Court, in which it repeatedly emphasized the distinction between material error and error of judgment:

"To such mistakes which are not able to affect the actual substance of the decision, it cannot be assimilated the failure to state reasons of the decision, so that this lack could be covered by the procedure laid down by article 281 of the Civil Procedure Code.

In doing so, the court violated the principle of the divestiture, which assumes that after the solution is adopted we can no longer go back on it including any additional arguments or actual reasons for that the judicial power was exhausted.

Lack of reasoning of the decision itself cannot be supplemented by subsequent delivery of a ruling of correction of error, with the justification that the mistake was determined by how the decision was drafted".[1]

In another case, the Supreme Court expressly stated that:*"To be subject to the procedure for correcting, the errors must be obvious and material. Constitute obvious factual error only those script mistakes, in the case of writing the name or surname of a person, of an amount, of some dates referred to in the procedural act or the date of drawing up the act, obvious error being translated in the absence of any doubt about the certainty that they are manifest, and not subject to further deliberation, appreciation or expressing a belief "*.[2]

So, it is obvious that the resolution of correcting material errors are the result of a new deliberation and reassessment of situation originally intended by judge of rights and freedoms at the time of

approval of technical surveillance measure, aspect that is unacceptable to be achieved by means of correcting material errors. The legislator has not provided a procedure for a court judgment self-correcting errors, because in such a situation he would have not regulated the appeal procedures or the judicial review.

There may not be considered material errors full pages of the authorization for technical surveillance measures that were given in the first place considering other facts than those for which a person is prosecuted.

2. We demonstrate that the resolutions of correcting material errors are not res judicata and, consequently, preliminary chamber judge is not bound of their contents.

In this regard, the supreme court of Romania revealed that: *"the resolution for correcting material errors or those given to remove obvious omissions cannot be appealed separately but only with judgment itself, the appeal against the sentence reckoning that is made against these decisions as well, even if they were given after the judgment"*.[3]

Considering that the resolutions for correcting material errors are part of the authorization of technical surveillance measures, it becomes obvious that they are subject to the preliminary chamber judicial review, especially in the context in which the authorization for technical surveillance measures are not subject to any judicial remedy, the legislator foreseeing the possibility of controlling them in the preliminary chamber.

To consider at this moment that through the procedure for correcting material errors is possible to elude from the examination, conducted by a preliminary chamber judge, the technical surveillance authorizations, leads to deprivation of the legal content of the object of preliminary ruling chamber itself.

The more so corrected or not, the authorizations had illegal effects on a person's privacy.

In the context in which the judge of rights and freedoms who acquiesced surveillance measures might have wanted to self-correct by the procedure of article 278 of the Criminal Procedure Code, he could have done that no later than the deadline for which the warrant for technical surveillance measures was issued.

The damage is obvious considering that if investigating judges of rights and freedoms might have taken into consideration in their reasoning the crimes of the prosecution, they might not acquiesced the prosecutor demands or they would just have acquiesced partially.

Preliminary Chamber judge has the duty to sanction the wrongdoing in the authorization by annulling their contents.

Pursuant to article 282 of the Criminal Procedure Code, we requested the annulment of the authorizations, considering that the conditions which attract the relative nullity are met. Thus, given the considerations elaborated in detail, we required to take into consideration that even at this time, although the judges of the Bucharest County Court pronounced resolutions for correcting material errors, they are not able to cover the grounds for revocation that we invoked.

It is generally accepted that rulings for correcting material error do not have an independent existence but are an integral part of the conclusion that it corrects.

So, given that the ruling for authorization of technical surveillance measures, by law, are not likely to be appealed, we believe that the only judicial body, empowered to sanction their illegality and groundlessness is the preliminary chamber judge.

Incidentally, this is the optics of the national courts which noted that: *"Within the procedure of the preliminary chamber is checked retrospectively the lawfulness of both the indictment and the evidence on which it is based, so that the entire phase of the prosecution to be examined and*

researched and the procedural acts, procedures, evidence or evidentiary methods carried out or obtained in breach of equitability of the procedures to be removed".[4]

5. The Court's Judgment

The preliminary chamber judge, in regard of these aspects shall withhold that claims brought have the character of an appeal against definitive rulings pronounced by the judges of the rights and freedoms, rulings that have authorized a part of the wiretaps in the case. An initial issue concerns the fact that, under the procedural aspect, these rulings cannot be discussed in terms of their legality in the procedure of preliminary chamber and the judge cannot rule on their legality given that he could not exercise the role of a judicial reviewer, but only to filter concerning matters of legality exclusively on the prosecutor's acts.

The purpose of the preliminary chamber is to verify the legality of prosecutor`s acts and not to discuss the legality of the definitive rulings given by the judge of rights and freedoms. If the legislator had considered it necessary he would have included an appeal against this kind of rulings, but at this particular moment, according to the criminal procedure code they are definitive.

Moreover, even if we could talk on the legality, along with the response to exceptions, representatives of NAD submitted five resolutions given by judges of rights and freedom for correcting the obvious material error, stating that the rulings must be examined as a whole and not done separately.

It has also been shown by the defense counsel that the resolutions for correcting material error are not legal, since this type of changes could not be made within this procedure. But as stated before, it is about definitive rulings given by a judge of rights and freedoms that are not covered by the procedure of preliminary chamber.

The provisions of article 342 Criminal Procedure Code state about the checking of the competence and legality of the indictment, the verification of the legality of evidence and of their conduct by the prosecution. Besides, the aforementioned provisions are complemented by art. 54 Criminal Procedure Code, which establishes the competence of the judge in the preliminary chamber: verify the legality of prosecuting, check the legality of evidence and the conduct of procedural acts by the prosecution, resolves complaints against the solutions for non-prosecution or not to indict and solves other situations expressly provided by law.

Thus, the limits of the competence of a judge in preliminary chamber are expressly and exhaustively set out and the verification of the lawfulness of rulings, by which were ordered the extensions of authorizations of technical surveillance measures, in this case, exceed these powers.

6. Critics Regarding the Ruling of the Preliminary Chamber Judge

Aspects concerning the unlawfulness of rulings by which were authorized or assented specific probative procedures have been considered by the legislator of the new Criminal Procedure Code ever since the earlier phase of entering into force.

Thus, through the Explanatory Memorandum of Law no. 255/2013 for the implementation of the Criminal Procedure Code, the procedural penalties for unlawfully obtained evidence have been reconsidered.

The legislator highlighted that: "there were revalued the texts on sanctions applicable to the procedural evidence administrated unlawfully. The debates with magistrates, judges and prosecutors, made obvious the interpretable character of the original text (art. 102), capable of creating non-uniform practice regarding the significance or consequences of the illegality of certain evidences. Thus, into the texts with principle value on the loyalty of evidence, the exclusion of evidence unlawfully administrated and evidence derived there from, it was stated explicitly on the relationship between the evidence, on the one hand, and on the ruling that ordained or authorized its

administration, the evidentiary means and methods, on the other hand, expressly providing for the invalidity of the latter attracts the exclusion of the evidence".[5]

We observe that the violation of the provisions on carrying out and exploitation of data derived from the surveillance measures are sanctioned by the legislator in the Preliminary Chamber, which, by its rules, eliminate the possibility of restitution, subsequently in the trial stage, of the case to the prosecution by analyzing at the same time, previously to sending to the court, the lawfulness of evidences from this phase and if the rules were respected regarding the procedure for issuing the warrant for technical surveillance measures and the enforcement thereof. (Gradinaru S., 2015, p. 187)

The relevant doctrine (Udroiu M. 2014, p. 659), states that from art. 102 par. 3 of the Criminal Procedure Code results that exclusion of evidence unlawfully or unfairly administrated is not an autonomous procedural sanction, but subsumed under the penalty of invalidity intervened only to the extent it has been ascertained the nullity (absolute or relative) of the ruling that ordained or authorized the evidentiary method or by which it was administered.

"The ruling by which the judge of rights and freedoms authorized technical surveillance measures cannot not be appealed irrespective of the decision in matter; nevertheless, we appreciate that falls within the competence of the preliminary chamber judge the analysis of the legality of the ruling through which the judge of rights and freedoms authorized technical surveillance measures or the means of evidence obtained through the acquiesced evidentiary process (for example, one can ascertain the nullity of the acquiesced evidentiary process by a judge of rights and freedom in breach of the rules of personal or material competence). (Udroiu M. 2015, p. 356)

Another author (Tudoran M. V., 2012, pp. 126-130) has attempted to emphasize the situations in which the nullity of the authorization may be invoked, retaining the following situation relevant in the present case:

“The authorization does not include the mentions stipulated by law. When referring to the term "mentions" that includes the obligation to motivate the ruling of the judge, as long as all categories of procedural acts in this matter must include an actually motivation for the corresponding request”.

Whether nevertheless it was started the enforcement of the warrant, even vitiated, considering the elements required, but not included in the emitted authorization, we appreciate that in this situation of manifest illegality, the authorization and all technical surveillance measures performed will be excluded from the case, given the finding of absolute nullity of that act. The court has the possibility to take ex officio into consideration that violation of the rights of the monitored person, basically without lawfully emitted authorization, in this situation the annulment of the act being necessary in order to discover the truth and fair settlement of the case.

To this extent, national courts have ruled that: *"in order to rule in this manner, the preliminary chamber judge, when examining the request for the declaration of absolute nullity of Criminal ruling no. 29/ I/09.22.2014 of the judge of rights and freedoms of the District Court Z. and exclusion of evidence, formulated in terms of article 345 par. (1) of the Criminal Procedure Code, he found that they are unfounded, according to article 141.*

Therefore, finding the lawfulness and merits of the Criminal ruling no. 29/I/09.22.2014 given by the judge of rights and freedoms of the District Court Z., the preliminary chamber judge has rejected the nullity of this decision and the exclusion of any evidence obtained as a result of temporary authorization of the use of technical surveillance measures, namely the interception and recording of calls made from phone with no …., station belonging to the defendant". [6]

7.Conclusions

In the procedure of preliminary chamber, is carried out an *a posteriori* judicial control of the lawfulness of both the indictment and the evidence on which it is based, so that the whole phase of

the criminal prosecution to be examined and researched and trial documents, procedural acts, evidence or probative procedures performed or obtained in breach of equity to be removed.

Considering the procedural stage, for analysis of the entire criminal investigation, the ruling by which technical surveillance measures are authorized, as part of the evidentiary ensemble, may be assessed as for their legality, proportionality and subsidiarity, by the judge of the preliminary chamber .

To consider at this moment that through the procedure for correcting material errors is possible to evade authorizations from the examination conducted by the judge of preliminary chamber leads to deprivation of content of the object of preliminary chamber itself.

Thereby, considering that the exclusion of evidence is a sanction that might be applied by the judge of the preliminary chamber, according to the above reasoning, can be ascertained inclusively the nullity of the ruling by which has been duly authorized the evidentiary method. In other words, preliminary chamber judge can ascertain the nullity of the ruling given by a judge of rights and freedoms by which it authorized conducting technical supervision measures.

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Endnotes:

[1] High Court of Cassation and Justice, Civil Division and intellectual property, civil decision no. 3837 of 11 June 2008;
[2] High Court of Cassation and Justice, criminal section, decision no. 1916 / 25.09.2009;
[3] High Court of Cassation and Justice, criminal section, decision no. 3745 / 06.07.2004;
[4] Preliminary chamber resolution no. 189 of 18 April 2014, Cluj Court of Appeal, Criminal Division;
[5] The explanatory memorandum to the law for the implementation of Law no. 135/2010 on the Criminal Procedure Code and the amending and supplementing certain acts containing provisions of criminal procedure;
[6] Criminal ruling no. 86/2015 of the Court of Appeal CLUJ on 02/12/2015 in case no. 2758/84/2014/A4;

Utterance Segmentation Using Conditional Random Fields

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Abstract

Utterance segmentation is an important task in conversational analysis process. It consists mainly on dividing discussions into functional segments that would be labelled with the corresponding dialogue acts. In this paper, we proposed a novel discriminative method based on Conditional Random Fields to automatically extract utterance boundaries within Arabic politic debates taken from Aljazeera broadcasts. Despite of the complexity of the used corpus that includes long utterances expressing opinions conflicts and arguments, learning results were very encouraging with a relevant f-score of 97.3%.

Keywords: utterance segmentation, turn segmentation, Arabic debates, CRF classifier.

Introduction

The segmentation task is a primordial step in human-human conversational analysis. In fact, conversation segmentation differs from traditional text segmentation. It consists of dividing conversation into turns; each turn is then segmented into meaningful units named utterances. Utterances have approximately similar boundaries to the annotated dialogue acts units.
Utterance segmentation can be supported by several higher-level tasks such as dialogue acts recognition, question/answer, information retrieval and conversations summarization. Our work involves as a first step the segmentation of politic debates into utterances that can be labeled with the following dialogue acts in the annotation task. Typical dialogue acts types are requests, opinions, acceptations, rejects and arguments tags.
The motivation of dialogue act recognition framework is to build argumentative structures like “thesis/ opinion request/ opinion”, “opinion/Accept/Justification” dialogue acts sequences. These communicative chains endorse participants’ interaction and conflicts that occur frequently in politic debates. Argumentative sequences can be useful to reply to complex questions such as “Who rejected the opinion of X concerning the idea Y?”.
This paper is structured in two main sections. First, we present previous works in automatic segmentation task. Then, we detail segmentation experiments and results using conditional random fields applied on a set of Arabic politic debates collected from Aljazeera TV programs.

1. Related work

The problem of identifying the different DA segments within an utterance has been addressed with generative or discriminative approaches.

The most popular generative model is the hidden event language model, as introduced by Stolcke and Shriberg (1996). In this approach, sentence boundaries are treated as the hidden events, and the above optimization is simply done by the Viterbi decoding.

Ivanovic (2005) applied also generative approaches more precisely Hidden Markov Models (HMM) to find the most likely segment boundaries in online instant messages based services. They build two probability distributions representing the probability that a token is at the state of beginning of a segment or not, respectively. They experiment HMM approach based on sequences of lemmas, part

of speech tags, and head words of chunks. They also explored a syntactic method based on parse trees as they assume that utterance boundaries only occur at major syntactic boundaries. Best results are obtained with the parse tree method.

Geertzen et al. (2007) applied graphical models to automatically detect functional segments. They experiment Naïve Bayes generative classifier with the DIAMOND corpus consisting of assistance-seeking Dutch dialogues. They explored features relating to dialogue history, prosody and word occurrence.

Lafferty et al. (2001) introduced CRFs as discriminative models that have been proposed to perform better than HMMs and maximum entropy approaches for the task of utterance segmentation. In this context, Silvia et al. (2011) experiments CRFs using n-grams of words and POS tags with a context window of -2/+2. Experiments were lead using two corpora namely SWITCHBOARD and LUNA corpus.

Guz et al. (2010) applied semi-supervised learning method given the hard task of annotation and the high cost of human experts to manually label training data. Thus, the goal of semi-supervised learning is to reduce the amount of labeled data needed to train statistical models. Guz et al. (2010) applied self-training and co-training approaches using the ICSI meeting corpus of multichannel conversational speech data proposed by Shriberg et al. (2004).

Most of utterance segmentation researches were applied on various languages corpora like English, German and Italian. Researches on Arabic conversation classification (Bahou et al. (2008), Shala et al. (2010), Graja et al. (2013), Lhioui et al. (2013), Hijjawi et al. (2013)) consider a turn as one utterance; so utterance segmentation returns to turn segmentation task. To the best of our knowledge, the only work that segment Arabic dialogues turns into utterances is implemented by Elmadany et al. (2005) who proposed an automatic segmentation utterance approach using SVM classifier for Egyptian instant messages. They used the JANA corpus which consists of approximately 3001 turns, 4725 utterances with average 4.3 words per utterance, and 20311 words. They explored lexical and morpho-syntactic features for boundaries detection. They obtained an F_1 score of 90.75%.

Compared to the last research implemented for Arabic turn segmentation into utterances, our work shows best reliability in terms of corpus size (about 100 thousand words) and evaluation results (F_1 score=97.4%) despite of the complexity of delimiting politic debates that generally include segments with an important number of words in each utterance (it can reach 50 words per utterance). The complexity is also due to the difficulty of detecting boundaries mainly for argumentative acts as when enunciating a personal opinion or when enumerating arguments.

2. Methodology

Debates segmentation consists mainly of three steps: preprocessing, turn and utterance segmentation subtasks.

2.1. Preprocessing

As a first step before training the collected data, we perform the preprocessing task which consists of three main steps:

a) Save information in the head of each conversation (program name, episode title, date, topics discussed, participants …). Mostly, politic debates have the following head structure as detailed in figure 1.

```
<head>
  <program_name>ما وراء الخبر</program_name>
  <episode_name>الحوار الوطني التونسي والخيارات المتاحة</episode_name>
  <animator>محمد كريشان</animator>
  <participants>
```

```
    <participant id="0">رضا بوزريبة</participant>
    <participant id="1">رفيق عبد السلام</participant>
  </participants>
  <date>2013/10/4</date>
  <subtopics>
    <subtopic id="0">خارج ورقة الرباعي</subtopic>
    <subtopic id="1">خوف على الحوار</subtopic>
    <subtopic id="2">إطار لعقد الصفقات</subtopic>
    <subtopic id="3">الوضع الاقتصادي والوضع الأمني</subtopic>
  </subtopics>
</head>
```

Fig 1. Example of a debate head

b) Manually translate ambiguous words to Modern Standard Arabic (MSA), the case of dialectal expressions and words from other languages used in oral conversations. Examples of ambiguous words are illustrated in table 1.

Table 1: Examples of translated segments to MSA.

Original segment	*Translated segment*
Segment in strange language (English) ***Ok**, **no problem**.*	***طيب**، **ليس هناك مشكل**.*
Dialectal Segment (Tunisian Dialect) ***ايه**، أنا **نشوف اللي** تونس **تنجم توا** تبني علاقات دبلوماسية جديدة.*	**نعم** ، أنا أرى أن تونس **تستطيع في الوقت الحاضر** أن تبني علاقات دبلوماسية جديدة.

c) Extend words with some characteristics like Backwalter transliteration[1], lemma and POS tag using MADAMIRA tool implemented by Pasha et al. (2014).

An excerpt of the preprocessed data set is detailed in figure 2.

```
<w id="1" word=" AlslAm " lemma="سلام" pos="noun" >السلام</w>
<w id="2" word=" Elykm " lemma="علي" pos="prep" >عليكم</w>
<w id="3" word=" wrHmp" lemma="رحمة" pos="noun" >ورحمة</w>
<w id="4" word=" Allh" lemma="الله" pos="noun_prop" >الله </w>
<w id="5" word=" w>hlA" lemma="أهل" pos="adj" >وأهلا</w>
<w id="6" word=" bkm" lemma="ب" pos="prep">بكم</w>
<w id="7" word=" fy" lemma="في" pos="prep" >في</w>
<w id="8" word=" brnAmj" lemma="برنامج" pos="noun" >برنامج</w>
<w id="9" word=" Hdyv" lemma="حديث" pos="noun" >حديث</w>
<w id="10" word="Alvwrp" lemma="ثورة" pos="noun" >الثورة</w>
```

Fig 2. Excerpt of preprocessed training data

2.2. Turn segmentation

Given that each turn is enunciated by a speaker, turn segmentation consists of decomposing the discussion into turns according to speaker change. Generally, turns starts with the speaker name followed by the punctuation mark ":". An example of segmented turns is presented in the figure 3.

```
<turn speaker ="الحبيب الغريبي" id_turn ="20">

أهلاً بكم من جديد في هذه الحلقة التي تناقش دلالات قيام رئيس الحكومة التونسية مهدي جمعة بأولى زياراته الخارجية إلى الجزائر، سيد ضيف الله هل نعتبر أن تونس
الآن في مرحلة إعادة ترتيب أولويات سياستها الخارجية وإعادة صياغة مواقفها وربما ترميم بعض الشروخ التي ظهرت في سياساتها الدبلوماسية في الفترة الأخيرة؟

</turn>
```

[1] http://www.qamus.org/transliteration.htm

```
<turn Speaker="محمد ضيف الله" id_turn="21">

نعم أرى أن تونس تستطيع في الوقت الحاضر أن تبني علاقات دبلوماسية جديدة أعتقد أن هذا التكثيف أتى ربما على حساب أو بالموازاة مع العلاقة التونسية مع بلدان
أوروبية أساساً كانت لها علاقات وثيقة مع النظام السابق مثل إيطاليا وخاصة فرنسا، فتوطيد العلاقات مع الجزائر هو نوع من إيجاد توازن أمام تلك القوى وأعتقد أن
زيارة الغنوشي تتأطر في هذا الإطار خاصة وأن العلاقات مع بقية البلدان العربية كما قلت في البداية.

</turn>
```

Fig 3. Turn segmentation example

2.3. Utterance segmentation

Turns can be formed by one or more utterances. Most researches consider that a turn matches a simple utterance. In our work, politic debates are consisted of long turns that expose ideas, opinions and arguments. So, turns are likely consisted of more than one utterance. Each segmented utterance is then annotated with the following dialogue act. In this purpose, it is important to identify the right segment delimiters to get better annotation results.
To automatically define utterances boundaries, we applied the probabilistic CRF (Conditional Random Fields) learner introduced by Lafferty et al. (2001). This classifier is frequently used for labeling and segmenting sequential data.

2.3.1. Conditional Random Fields

CRFs are undirected graphical models used to specify the conditional probability of assigning output labels given a set of input observations. A conditional probability distribution is defined over label sequences given a particular observation sequence.

CRFs model the conditional distribution P(Y|X), X is an input sequence of observed variables and Y represents a hidden state variable that needs to be inferred given the observation X. In our context, X is considered as a sequence of features for each word and Y the predicted class following the IOB notation model in which every word is to be tagged with one of these two labels: “B” for the first word of a segment and “I” for non initial word belonging to a segment.

The advantage of CRFs compared to conventional classification models is that it takes into consideration dependencies between interconnected annotations in the graph. CRF was experimented for Arabic language in text chunking task by Khoufi et al. (2014) and Khoufi et al. (2015). It was also used in dialogue annotation task by Graja et al. (2013). Obtained results were very encouraging confirming the high accuracy of this classifier in labeling sequential data.

2.3.2. Data Set

To train data with learning machine classifiers, we need a large set of human conversations manually segmented into utterances. Thus, we collected politic debates from Aljazeera TV broadcasts[2] dealing with topical themes (Tunisian revolution, Syrian war, Tunisian elections, etc). The training data was manually segmented by human experts using the ActAAr tool (**Act A**nnotation in **Ar**abic) implemented by BenDbabis et al. (2012). The collected data named CARD corpus (**C**orpus of **AR**abic **D**ebates) was also used by BenDbabis et al. (2015) in the dialogue acts annotation task. Basic information of the collected corpus are detailed in the table below:

Table 1: CARD 1.1 Corpus statistics

Total number of conversations	22
Total number of words	101169
Total number of turns	1805
Total number of utterances	6050
Average number of turns/conversation	82
Average number of utterances/conversation	275

[2] www.Aljazeera.net

Average number of words/conversation	4599
Average number of words/utterance	16
Average number of utterances/turn	3
Average number of participants/conversation	6

2.3.3. Feature extraction

Defining features is the most important process for machine learning approaches as it greatly affects the labeling performance. In our work we chose lexical features like cue words, question words and punctuation marks as they strongly define segments limits. We also explore morpho-syntactic feature namely the Part Of Speech (POS) of words. For each word and the following feature, we used a context window of +2/-2, that means we take into account the two previous and the two next words and their corresponding features values.

- *Punctuation.* Punctuation marks are strong indicators of utterance delimiters particularly for defining ends of segments. For instance, question marks are mostly present at the end of a question.

- *Question words.* These words indicate strongly if the speaker is asking a question or requiring a specific kind of request. They generally occur at the beginning of a segment. For example the word "how" "كيف" generally introduces an utterance that expresses an explanation request.

- *Cue words.* The most common key words or expressions can serve as useful indicators of Dialogue Acts segmentation. These cue phrases are words or groups of words that appear mostly at the beginning of an utterance. Cue phrases occurred frequently as unigrams ("ok" "طبعا" , "yes" "نعم", "I think" "أعتقد", "I agree" "أوافق") or bigrams ("of course" "بطبيعة الحال", "good evening" "مساء الخير").

- *POS tags.* At this level, we used the MADAMIRA morphological analyzer. This tool can be used for several NLP tasks as tokenization, lemmatization, morphological and syntactic analysis. In our work, we performed MADAMIRA to extract word lemmas and POS tags (verb, noun, adjective, adverb, etc). This analyzer shows high reliability in Arabic processing tasks as it performs data disambiguation.

2.4. Experiments and Results

For learning process, we divided the CARD corpus into two parts: 80% for training (79 493 words) and 20% for test (22 089 words). We used the CRF++ platform to train and test the model. This tool is an implementation of CRFs for labeling sequential data.

To train the CARD data, we defined a template that includes unigrams and bigrams of features to focus on the dependencies between features. For each feature, we take into account the two previous and next words (context window=2). The train data and the proposed template were then used by CRF++ classifier in order to generate a prediction model which will be used to segment any new conversation.

Boundary detection performance is evaluated using the known metrics as recall, precision and fscore. We have also adopted evaluation measures specific to the segmentation task used by Zimmermann (2005) namely DA Segmentation Error Rate (DSER). The DSER measures the percentage of wrongly segmented DA segments, where a DA is considered to be mis-segmented if and only if its left or right boundary (or both) does not exactly correspond to the reference segmentation.

To better evaluate CRF performance, we compared the obtained results to the following classifiers: Naïve Bayes (NB), Decision tree (J48) and SMO learning algorithms. Comparison results are shown in table 3.

Table 3: Evaluation results

	NB	J48	SMO	CRF
Recall	0,94	0,94	0,94	0,974
Precision	0,92	0,89	0,93	0,972
F-measure	0,92	0,91	0,92	0,973
DSER	0,06	0,059	0,058	0,026

Results show the efficiency of CRF model in segmenting sequential data with a reduced error rate (DSER=2,59%) compared to other classifiers. Including dependencies about previous and next word features is benefic for the segmentation task. We can notice that lexical cue words are generally used at the beginning of segments.

Punctuation marks are mostly strong indicators of the limit of a segment. Nevertheless, punctuation can cause wrong boundaries especially when the speaker presents an idea or opinion that needs more one sentence. Segmentation errors can be also due to the fact that cue words and question words can occur inside a segment.

The segmentation results are highly reliable compared to the complexity of the corpus especially when presenting argumentative segments.

3. Conclusion and Future Work

In this paper, we proposed an automatic dialogue act segmentation method for Arabic argumentative debates. We experimented CRF algorithm to perform the segmentation process including lexical and morpho-syntactic features.
We obtained high satisfying results with a precision score of = 97,4%, a recall value of 97,2% and an f-score equal to 97,3%.
As a future work, we intend to introduce the segmented utterances, output of the automatic segmentation process, as an input for the automatic annotation task. We also intend to extend the training corpora to improve machine learning results.

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Bouche-a-Oreille Electronique Négatif et Boycott : Rôle de la Culture

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Résumé

Etant une forme de communication tout à fait spontanée et non commerciale, le bouche-à-oreille (BAO) fait croire au consommateur que le message transmis par les autres est plus fiable que celui émis par l'entreprise et oriente l'individu dans son processus décisionnel. Internet a donné un nouvel aspect au BAO en facilitant le passage d'information entre des individus qui ne se connaissent pas. Avec une vitesse de diffusion nettement supérieure à celle du BAO traditionnel et un partage illimité dans le temps et dans l'espace, le BAO électronique exerce un pouvoir d'influence important sur les consommateurs et leur processus décisionnel. Un BAO électronique négatif pourrait pousser le consommateur à boycotter certaines marques, produits ou entreprises. La perception du message partagé par les autres sur Internet change d'un individu à un autre et pourrait bien dépendre de variables culturelles. L'objectif de ce travail de recherche est d'explorer le rôle joué par la culture dans la détermination du boycott suite à un BAO électronique négatif. Une méthodologie de recherche qualitative basée sur une netnographie et des réunions de groupe thématiques a été adoptée. Les résultats mettent en avant le rôle que jouent les variables culturelles telles que dans la perception du message ayant créé un BAO électronique, dans son interprétation et dans les futures réactions des consommateurs.

Mots clés : BAO électronique négatif, boycott, variables culturelles

Abstract

Consumers use to trust others' opinions than those of commercials. Word-of-mouth (WOM) can determine consumers' decision-making process. Internet gave a new facet to WOM, individuals can easily and quickly share information with persons that they didn't know before. With a speeder diffusion rate than traditional WOM, and an unlimited access to information, eWOM affects considerably consumers and their decision-making process. A negative eWOM can push consumers boycott brands, products or firms. The online shared message is perceived differently from a person

to another depending on cultural variables. The objective of this research paper is to explore the role of culture in determining boycott behavior after a negative eWOM. A qualitative research methodology was adopted based on netnography and thematic focus groups. The results highlight the role played by cultural variables in determining consumers' perception of eWOM, the interpretation of these messages and their future reactions.

Keywords: Negative eWOM, boycott, cultural variables

1. Introduction

« *Tout groupe humain prend sa richesse de la communication* » (Françoise Dolto : 1908-1988). Communiquer, partager ses avis, ses sentiments et ses opinions avec les autres est un acte tout à fait naturel et spontané pour l'Homme. Ce partage prend sa richesse du pouvoir d'influence accordé à l'émetteur du message. Le pouvoir de ce partage s'accroît avec la possibilité de transmission du message accordée à son récepteur : il s'agit du bouche-à-oreille (BAO). Etant une forme de communication tout à fait spontanée et pas commerciale (Lindgreen et Vanhamme, 2005), le BAO oriente l'individu dans son processus décisionnel (Hawkins *et al.,* 2004). Internet a donné un nouvel aspect au BAO en facilitant le passage d'information entre des individus qui ne se connaissent pas. Avec une vitesse de diffusion nettement supérieure à celle du BAO traditionnel et un partage illimité dans le temps et dans l'espace, le BAO électronique exerce un pouvoir d'influence important sur les consommateurs et leur processus décisionnel (Cheung et Thadani, 2010 ; Kelley et Marx, 2011 ; Robinson *et al.,* 2012 ; Charo *et al*., 2015). Les consommateurs achètent en fonction de l'information disponible en ligne (Lee *et al.,* 2007). Les avis, les expériences et les sentiments partagés par les autres exercent une forte influence sur son intention d'achat (Pollach, 2008).

Lorsqu'il est négatif, le BAO électronique pourrait avoir de graves conséquences sur l'entreprise (Armelini et Vilanueva, 2011). Une des conséquences négatives les plus directes du BAO négatif : le boycott, lorsque les consommateurs se décident à ne plus acquérir les produits de l'entreprise. Quelle que soit la motivation du boycott, le point de départ pourrait être un simple message partagé sur Internet. Ce message négatif émane généralement d'un consommateur ayant vécu une expérience négative avec un produit, une marque ou une entreprise. La vitesse de diffusion de ce message engendre, chez le consommateur, un altruisme et une volonté d'éviter la reproduction de cette expérience au point de partager, à son tour, l'information avec d'autres individus. Cet effet « boule de neige » ne peut qu'affecter l'image de l'entreprise (Reynolds, 2006) voire ses futures ventes (Griffith, 2011 ; Charo *et al*., 2015). Seulement la manière avec laquelle l'individu perçoit un message négatif varie d'une personne à une autre et en fonction de plusieurs facteurs. En effet, étant exposé à un même message, deux individus pourraient bien réagir différemment. Le rôle de la culture dans la communication interpersonnelle est pertinent (Hall, 1976). La culture exerce une influence sur l'adoption du BAO (Lam *et al*., 2009). Il est alors possible que la culture affecte la perception d'un message partagé et transmis sur Internet et l'effet du BAO négatif sur l'intention de boycott des produits de l'entreprise. Seulement de nombreuses recherches ont été dédiées à l'étude du BAO électronique et ses répercussions sur l'entreprise (Bickart et Schindler, 2001; Doh et Hwang, 2009; Huang *et al*., 2009; Park et Lee, 2009; Park et Kim, 2008; Sher et Lee, 2009; Xia et Bechwati 2008; Park *et al*., 2007 ; Lee et Lee, 2009 ; Kelley, 2011 ; Almana et Mirza, 2013 ; Charo *et al*., 2015), mais il n'existe pas, à notre connaissance, de recherches impliquant les variables culturelles dans la détermination du boycott suite à un BAO électronique négatif. L'objectif de ce travail de recherche est alors d'explorer le rôle que pourrait jouer la culture dans la perception d'un message négatif transmis sur Internet et ses répercussions sur l'intention de boycott.

2. Revue de la Littérature

2.1 Le bouche-à-oreille électronique

Les recherches sur le bouche-à-oreille (BAO) datent des années 60' (Arndt 1967; Dichter 1966; Engel *et al.,* 1969). Le BAO a été défini de plusieurs manières. Parmi les premières définitions données au BAO, nous pouvons en souligner une, celle de Arndt (1967) et qui était l'un des pionniers à l'avoir défini. Cette définition considère le BAO comme étant la communication sur les produits ou

les entreprises entre des personnes que l'entreprise n'a pas engagées (Arndt, 1967). Etant une communication informelle, les individus trouvent que la source du message est parfaitement indépendante de toute intention commerciale, l'entreprise n'est pas à l'origine de l'information partagée par les individus, ce qui fait la différence entre le BAO et le marketing viral (Lindgreen et Vanhamme, 2005). Son caractère spontané lui accorde tout son pouvoir d'influence sur le consommateur. Ce dernier considère les propos des autres plus crédibles que ceux partagés par l'entreprise (Armelini et Vilanueva., 2011). Le BAO donne la possibilité aux consommateurs de partager librement leurs opinions et les oriente dans leurs futures décisions (Hawkins *et al.,* 2004). Les théories traditionnelles de la communication supposent l'existence de quatre principaux éléments constitutifs de la communication sociale : l'émetteur du message, le simulus (le message), le récepteur du message et la réponse (Hovland, 1948).

Avec la naissance d'Internet et sa démocratisation, l'influence des consommateurs les uns sur les autres via le BAO s'est clairement accélérée (Cheung et Thadani, 2010). En effet, la technologie a donné plus de pouvoir à la parole du consommateur et a, de ce fait, rendu le BAO plus persuasif (Litvin *et al.,* 2008). Le BAO électronique se réfère à tout propos, positif ou négatif, émis par les consommateurs concernant un produit ou une entreprise sur Internet (Hennig-Turau *et al.,* 2004).

L'information partagée dans le cadre d'un BAO électronique se caractérise, par rapport au BAO traditionnel, par une vitesse de diffusion bien plus rapide. Cette diffusion se réalise, lorsqu'elle est électronique, de multiples manières : forums et groupes de discussions, blogs, réseaux sociaux, etc. (Goldsmith, 2006). La communication électronique est également plus accessible et pour une période indéterminée (Hennig-Thurau *et. al.,* 2004; Sen, 2008; Park et Lee, 2009; Hung and Li; 2007; Lee *et al*., 2008). Contrairement au BAO hors ligne, il est possible de mesurer l'intensité du BAO électronique dans le sens où il est « *observable* » : la quantité d'information partagée sur Internet est accessible à tous, la vitesse de diffusion et le volume des propos partagés par les individus est bien plus important que les avis que la personne pourrait avoir à partir de son entourage dans un contexte non électronique (Chatterjee, 2001).

Les réponses du consommateur suite à un BAO électronique les plus explorées dans la littérature sont l'intention d'achat du consommateur (Bickart et Schindler, 2001; Doh et Hwang, 2009; Huang *et al*., 2009; Park et Lee, 2009; Park et Kim, 2008; Sher et Lee, 2009; Xia et Bechwati 2008; Park *et al*., 2007 ; Lee et Lee, 2009 ; Kelley, 2011 ; Charo *et al*., 2015), son attitude envers certains produits, marques ou entreprises (Doh et Hwang, 2009; Lee *et al*., 2008; Lee et Youn, 2009), l'adoption de l'information pour la réutiliser (Cheung *et al.,* 2008; Cheung *et al.* 2009; Forman *et al.,* 2008; Zhang et Watts, 2008; Lee et Youn, 2009), sa confiance envers le message (Awad et Ragowsky, 2008 ; Sen, 2008; Sen et Lerman, 2007) et l'intention de recommander les produits de l'entreprise autour de laquelle le BAO électronique a eu lieu (Kelley et Marx, 2011).

Le BAO électronique a élargi les groupes de références du consommateur et affecte le comportement du consommateur en général (Sarma et Choudhury, 2015). Un BAO positif accroit les probabilités d'achat, tandis qu'un BAO négatif a l'effet opposé (Gruen *et al.,* 2005). Le BAO électronique affecte également l'évaluation du produit (Dellarocas, 2003 ; Bae et Lee, 2011), l'intention de fidélité (Litvin *et al.,* 2008) et l'image de l'entreprise (Reynolds, 2006). Dans un contexte de BAO électronique, et selon Sundaram *et al.* (2008), les individus pourraient être motivés par (1) leur altruisme en essayant d'empêcher les autres de vivre les mêmes expériences négatives ; (2) leur volonté de réduire leur anxiété, leur colère, en partageant leurs expériences avec les autres ; (3) leur volonté de vengeance et (4) leur désir de trouver des solutions à leurs problèmes.

Dans ce qui va suivre, nous allons nous focaliser sur une des conséquences les plus directes du BAO négatif : le boycott.

2.2 Le boycott : clarification conceptuelle et motivations

Le boycott est appréhendé à un acte de résistance à la consommation. Suite à une crise, une des formes de réactions du consommateur est le boycott (Mitroff *et al.,* 1996). Cette pratique consumériste dénote d'une fracture de la relation entreprise-consommateur et où la confiance entre les deux parties a été altérée. Le boycott a été défini comme étant « *une tentative d'une ou plusieurs*

parties pour parvenir à certains objectifs en exerçant une pression, de manière individuelle, sur des consommateurs afin qu'ils s'abstiennent de faire certains achats sur le marché » (Friedman, 1985, p. 97).

Muraro-Cochart (2003) a relevé que suite à une situation de crise qu'encourt l'entreprise, une des réactions potentielles du consommateur s'articule autour du boycott ou d'un bouche-à-oreille négatif. Ce bouche-à-oreille négatif tend à affecter les ventes d'un produit donné, la visite d'un point de vente, l'influence d'autres consommateurs pour un changement de comportement, etc.

Par ailleurs, le boycott représente une forme intrigante et peu explorée inhérente au comportement du consommateur. En effet, ce concept peu connu s'apparente à une réaction d'abstention d'achat ou de consommation déterminée par une décision prise suite à des considérations et motivations intrinsèques ou extrinsèques au consommateur. Ces motivations n'ont pas fait l'objet de plusieurs recherches demeurant ainsi dans un stade d'exploration surtout dans un contexte initialement généré en ligne.

Le boycott est appréhendé sous un volet plutôt social qui exprime le choix que devrait faire l'individu dénotant d'une certaine opposition entre le désir du consommateur de consommer et le souhait d'un collectif de s'abstenir en termes de consommation (Sen *et al.*, Morwitz, 2001).

Braunsberger et Buckler (2011) ont identifié trois principales motivations poussant l'individu au boycott à savoir (1) des motivations instrumentales qui consiste en un désir de forcer la cible au boycott et à un changement social manifeste ; (2) motivations non instrumentales ou autrement appelées boycott expressif (Capelli *et al.*, 2012) où le consommateur exprime son mécontentement vis-à-vis de l'entreprise. Ce boycott est susceptible d'être initié de manière individuelle en signe de protestation ou de suivisme de l'action collective ; (3) les coûts engendrés par le boycott dans le sens où plus il y a présence de produits de substitution de qualité plus le coût est moins élevé.

Une quatrième motivation à savoir celle morale a été évoquée par Capelli *et al.* (2012). Elle repose sur le désir de l'individu à préserver ses valeurs intrinsèques et à conserver son estime de soi (John et Klein, 2003). Le consommateur s'engage dans une intention de boycott s'il estime que le produit va à l'encontre de son système de valeurs. Garrett (1987) a, quant à lui, identifié six déterminants de participation au boycott à savoir : la prise de conscience des consommateurs, les valeurs des consommateurs potentiels participants, la cohérence des objectifs de boycott avec les attitudes des participants, les frais de participation, la pression sociale et la crédibilité du leadership du boycott.

Il est important de préciser que peu d'études se sont focalisées sur les motivations conduisant au boycott des consommateurs (Klein *et al.*, 2004). La plupart des recherches portant sur le boycott sont plus descriptives et conceptuelles (Klein *et al.*, 2004). Néanmoins, en brossant un état des lieux sur la littérature s'y afférent, il convient de souligner l'apparition de certains facteurs culturels susceptibles d'influencer le comportement de consommation. Pour présenter le rôle de ces facteurs culturels, il est pertinent de pointer le concept du boycott qui « *survient lorsqu'un certain nombre de personnes s'abstiennent d'acheter un produit, au même moment, en réaction au même acte ou comportement grave, mais pas nécessairement pour les mêmes raisons* » (John et Klein, 2003, p. 1198). D'après ces chercheurs, le boycott ou l'intention de boycott prend naissance suite à un comportement grave de l'entreprise. Ce comportement est susceptible de comporter des signaux qui vont à l'encontre du *background* culturel de l'individu.

Chaque individu a son propre *background* culturel et l'évaluation d'un stimulus s'opère en comparant les signaux transmis par ce dernier avec le référentiel individuel spécifique à lui. Cette évaluation repose sur la théorie de l'assimilation (*Social Judgement Theory*) (Sherif et Hovland, 1961). En cas de décalage entre les signaux émis par l'entreprise et le *background* culturel de l'individu, un malaise est susceptible d'apparaître pouvant générer une situation de crise entre les deux parties. Le boycott ou l'intention de boycott sont initiés suite à des raisons d'ordre culturel. Jensen (2008) a souligné que pour des raisons qui incombent à la religion, les musulmans ont décidé de boycotter les produits danois suite à la publication d'illustrations portant atteinte au prophète Mahomet. La religiosité des individus s'est trouvée affectée par ces stimuli touchant au sacré.

En outre, le boycott n'est pas seulement une action collective mais il marque avant tout un engagement personnel de l'individu et reflète ainsi un acte de résistance envers l'entreprise (Cissé-Depardon et N'Goala, 2009). Cet acte de résistance est une forme d'expression des propres valeurs individuelles du consommateur qui en refusant de consommer respecte son système de valeurs. Malgré les différentes recherches sur le boycott et ses motivations, le lien avec le BAO électronique et la culture du consommateur n'a pas réellement fait l'objet d'investigations antérieures.

3. Méthodologie

La littérature existante apporte des réponses quant au rôle de la culture dans la détermination de la fréquence et de l'intensité du BAO traditionnel (Money *et al.*, 1998). Les recherches antérieures montrent, à titre d'exemple, que les cultures individualistes sont plus autonomes et moins conformes aux autres (Albers-Miller et Gelb, 1996), elles peuvent, alors être moins sensibles aux BAO, tandis que les sociétés collectivistes sont plus consensuelles (Lin, 2001). La culture à laquelle le consommateur appartient pourrait déterminer, d'une manière ou d'une autre, la manière avec laquelle il appréhende un message dans le cadre d'un BAO et ses probables réactions. Le lien des variables culturelles avec le BAO électronique a pourtant été peu exploré (Pentina *et al*., 2015), et encore moins lorsqu'on considère le boycott comme étant la conséquence d'un BAO négatif. D'où le recours à une méthodologie de recherche qualitative. Cette méthodologie s'est déroulée en deux étapes : netnographie et réunions de groupes thématiques.

3.1 Netnographie

La netnographie est une méthode de recherche qualitative qui consiste à analyser les propos partagés par les internautes: messages postés sur les forums de discussion, répliques échangées dans un chat, courriers électroniques, etc. L'objectif est de cerner une problématique marketing en analysant des communautés qui peuvent orienter le chercheur vers des pistes de recherche ou de comprendre un phénomène peu exploré sur lequel les participants s'expriment en ligne (Kozinets *et al*., 2010).

Le principal objectif de la netnographie était de recenser l'ensemble des messages partagés ayant suscité un BAO négatif sur les réseaux sociaux et de noter les différents commentaires des répondants. Les étapes préconisées par Kozinets (2010) ont été respecté :

- *Entrée* : un groupe sur Facebook a été choisi *« Les bons plans de Tunisie : officiel »*. Ce groupe comporte principalement des membres tunisiens composant une communauté d'internautes à la recherche de bons plans. Le groupe a été choisi compte tenu de nombre évolutif de membres, du flux d'information régulier, du trafic important et de la variété de messages ayant créé des BAO négatifs. Il est dédié au partage de bons plans, astuces, idées, promotions mais aussi un lieu pour discuter des « *mauvais plans* ».
- *Collecte des données* : plusieurs messages négatifs ont été partagés par les membres. Nous avons analysé les différents commentaires postés par les membres pour comprendre leurs réactions. Les messages négatifs choisis tournaient autour de produits, de marques, de chaines télévisées ou d'employés (généralement des vendeurs) ayant suscité des réactions négatives de la part des consommateurs.
- *Analyse des données et interprétation* : les messages ont été classés pour retenir les messages ayant créé un BAO plutôt négatif. Les différents commentaires représentatifs des réactions des consommateurs et de leurs intentions suite à leur prise de connaissance de l'information partagés ont également étaient classés et analysés.
- *Validation par les participants et éthique* : les participants ont été contactés pour discuter des principaux résultats ressortis et les valider.

Suite à cette étape, il était possible de cerner les grandes lignes déterminantes de l'intention de boycott suite à un BAO électronique négatif. Certaines variables culturelles ont également été ressorties. Pour aller plus en profondeur, des participants ont été recrutés pour une deuxième méthode de recherche qualitative : les réunions de groupe.

3.2 Réunions de groupe thématiques

Après avoir recensé l'ensemble des commentaires négatifs des internautes, des membres ont été contactés pour organiser des réunions de groupe. Deux groupes ont été formés, composés respectivement de neuf et huit membres. Les deux groupes comportaient des membres assez hétérogènes d'un point de vue âge, sexe, profession et niveau d'instruction (Tableau 1). Les réunions en groupe avaient une durée moyenne de 60 à 75 minutes et tournaient autour de quatre axes :

- Discuter des messages ayant suscité un BAO électronique négatif récemment ;
- Comprendre les raisons derrière cette perception négative ;
- Explorer les différentes conséquences de cette perception ;
- Le boycott, ses motivations « culturelles ».

Tableau 1. Caractéristiques de l'échantillon qualitatif

	Code répondant	Genre	Age	Profession
Focus group 1	**R1.1**	Homme	18 ans	Etudiant
	R1.2	Homme	42 ans	Cadre moyen
	R1.3	Femme	36 ans	Ingénieur
	R1.4	Homme	44 ans	Enseignant
	R.1.5	Femme	22 ans	Etudiante
	R.1.6	Femme	27 ans	Enseignante
	R.1.7	Femme	20 ans	Etudiante
	R.1.8	Homme	32 ans	Sans emploi
	R.1.9	Femme	30 ans	Commerciale
Focus group 2	**R2.1**	Femme	29 ans	Enseignante
	R.2.2	Homme	38 ans	Chef d'entreprise
	R.2.3	Femme	28 ans	Sans emploi
	R.2.4	Homme	49 ans	Cadre dans une banque
	R.2.5	Homme	30 ans	Technicien
	R.2.6	Homme	19 ans	Etudiant
	R.2.7	Femme	22 ans	Etudiante
	R.2.8	Femme	47 ans	Employé dans un ministère

Les groupes ont été animés autour des axes de discussion cités précédemment. Les deux groupes ont évoqué plusieurs messages ayant suscité des BAO négatifs, ont révélé les raisons pour lesquelles ils ont considéré ces messages comme négatifs, ont mentionné des répercussions de ces BAO négatifs sur leurs comportements, en donnant des exemples, et ont fini par parler de leurs intentions de boycott envers certains produits et marques. Les motivations culturelles ont été explorées au fur et à mesure qu'ils expliquaient leurs différentes perceptions négatives et les répercussions sur leur attitude envers certaines marques. Les discussions ont été enregistrées et retranscrites.

Nous avons analysé le corpus ressorti de la netnographie et des réunions de groupe. L'analyse était thématique et a été faite manuellement. Le codage s'est réalisé sur trois étapes (Miles et Huberman, 2003) : (1) codage *invivo* ouvert pour faire ressortir tous les thèmes sans prise en considération des relations hiérarchies entre eux ; (2) codage axial durant lequel nous avons réalisé un aller-retour entre la littérature et les thèmes ressortis au codage ouvert, principalement pour réexaminer les variables culturelles dans la littérature et le rapport avec le BAO négatif d'une part et l'intention de boycott d'autre part ; (3) codage sélectif pour une réorganisation finale des thèmes et une hiérarchisation thématique logique.

4. Résultats

La figure 1 résume les principaux résultats ressortis de l'analyse thématique. Les résultats mettent en avant le rôle du BAO électronique négatif dans la détermination du comportement du consommateur hors ligne et, plus précisément, de son intention de boycott. Ils mettent également en lumière le rôle principal joué par les variables culturelles aussi bien lors de la perception du message ayant suscité un BAO sur les réseaux sociaux que dans la détermination de l'intention de boycott de certaines marques, produits, lieux ou entreprises ayant fait l'objet de ce BAO.

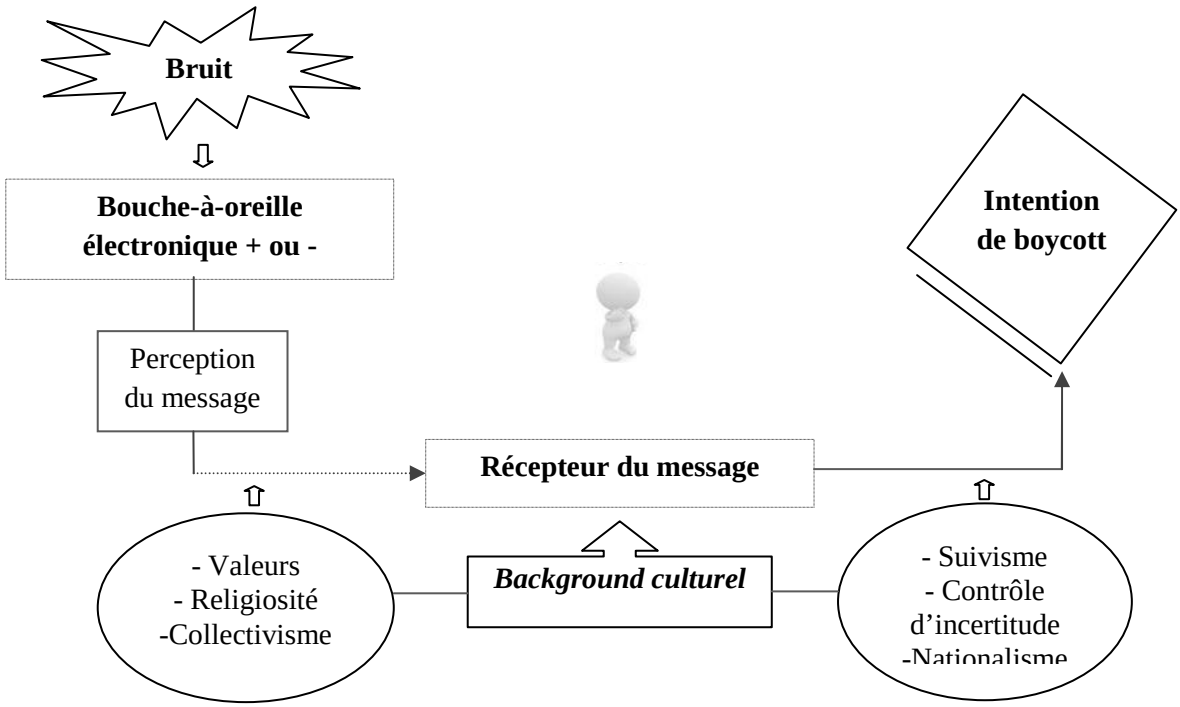

Figure 1. BAO électronique et intention de boycott : rôle des variables culturelles

4.1 Rôle du BAO électronique dans la détermination du boycott

A l'origine de l'intention de participation de boycott, le BAO électronique représente l'élément précurseur de cette décision du consommateur. De prime abord, il convient de préciser que la majorité des répondants s'accorde à dire que les informations transmises et partagées sur les réseaux sociaux ont tendance à influencer leurs décisions.

> « *Vu que nous sommes tout le temps connectés sur Facebook, toutes les actualités et les appels au boycott sont facilement partagés entre les membres et de manière instantanée. Quand je lis des commentaires négatifs, je suis plus enclin à participer à l'action de boycott* » (R1.3, 36 ans).

Certains informants ont évoqué le rôle du BAO électronique négatif dans le processus de traitement de l'information et d'assimilation. En effet, au début de ce processus, des commentaires et des informations sont partagés. Le récepteur du message décode ce BAO négatif et prend une décision

qui peut se matérialiser à travers une intention de boycott. Enfin, vu qu'il est convaincu de son choix, il peut partager cet appel au boycott sur les réseaux sociaux et devient ainsi un relais actif.

> « *Quand je vois certains commentaires sur Facebook et appels au boycott parfois j'adhère à ces actions. Je fais ma propre analyse et je prends la décision en adhérant à l'action ou pas. Si je suis convaincu de la cause, je partage l'appel au boycott* » (R2.5, 30 ans).

Quelques interviewés ont mentionné le fait que la crédibilité du message transmis et/ou la personne qui partage ce message a une importance primordiale dans la prise de décision quant à l'intention de boycott.

> « *Avant de m'avancer dans une action, je m'assure que les faits sont repris de manière intègre et honnête. La source est importante dans mon choix* » (R1.4, 44 ans).

> « *On a tous un ami Facebook connu pour son sérieux et son sens de l'analyse et de critique. Quand il partage un appel au boycott, j'ai tendance à cliquer sur l'évènement partagé et à adhérer en considérant que les données partagées fiables et en me fiant à son interprétation* » (R2.7, 39 ans).

Il est important, pour la majorité des participants à l'enquête qualitative, de s'assurer que le message est bel et bien vrai, que la source du message est fiable, bien avant de s'engager dans de futures décisions. Ce résultat vient corroborer celui de Garrett (1987) qui met en avant l'importance de crédibilité du message favorise la participation au boycott. Pour assurer cette crédibilité, il est important que la personne ayant partagé cette information soit « fiable » et que les photos partagées soient bien réelles et non pas empruntées des banques d'images en ligne. Dans certains cas, des annonces mensongères peuvent être partagées par certaines pour toucher à la réputation de leurs concurrents. Certains consommateurs peuvent s'en rendre compte :

> *« J'ai déjà vu des publications où on a l'impression qu'il s'agit simplement d'une action d'un concurrent ! Beaucoup de restaurants par exemple créent de faux profils et racontent n'importe quoi rien que pour influencer les autres, les consommateurs ne sont pas dupes, parfois ça saute aux yeux qu'il s'agit d'une diffamation ! »* (R.1.4, 44 ans).

4.2. Variables culturelles et perception du BAO électronique

Les variables culturelles peuvent déterminer, en grande partie, la manière avec laquelle le consommateur perçoit le message publié par les autres et son interprétation. En effet, la majorité des informants sont fortement influencés par leurs valeurs lors de l'interprétation des messages ayant créé un BAO. A titre d'exemple, en examinant le groupe social étudié à la première phase exploratoire, à savoir la netnographie, certains membres sont plus touchés par les messages où on dénonce un évènement qui touche à un bien commun, tel que la destruction d'un arbre centenaire, tandis que d'autres n'en sont pas choqués et s'inquiètent plutôt de problèmes qui les touchent de plus près tels que le chômage ou les inégalités sociales. Les « collectivistes » auront, de ce fait, plus tendance à exprimer leur mécontentement par rapport à tout ce qui pourrait toucher au groupe auquel ils appartiennent, à la société.

> *« On en a marre de voir tous les jours nos plus beaux arbres centenaires abattus à la chaîne! Un arbre met des dizaines d'années, de génération en génération, à grandir, et à se développer pour nous offrir tous ses bienfaits. Il suffira de quelques minutes pour que la cupidité et la sauvagerie d'un commerçant décide de le sacrifier à ses intérêts mercantiles et d'en priver les générations futures » (voir lien :*

https://www.facebook.com/groups/plantesdinterieuretjardinsTunisie/permalink/10153934586884291/)

Par ailleurs, d'autres personnes attachées à leurs valeurs religieuses seraient plus sensibles à des messages touchant à la religion, ils sont plus enclins à les partager à leur tour. Les personnes « *acculturées* » n'y accorderaient pas autant d'attention.

> *« Ces chaînes télévisées qui osent diffuser des feuilletons durant le mois de Ramadan où l'on parle librement d'alcool, de concubinage et où les actrices sont presque nues… Il est tout à fait normal que je partagerai mon mécontentement, il faut que les autres le sachent, c'est inconcevable qu'on continue à les regarder »* (R.2.8, 47 ans).

4.3. Motivations « culturelles » de l'intention de boycott

La majorité des informants évoque que le type de boycott le plus répandu est l'expressif dans le sens où il est possible d'exprimer leur mécontentement voire leur colère à l'encontre d'un comportement d'une entreprise « incongruente » avec leur *background* culturel.

> « *Lorsque je décide de m'abstenir à aller à un salon de thé et ayant une intention de boycott c'est que je m'oppose à ce genre de pratique barbare qui consiste à arracher un arbre bicentenaire juste pour que ce salon de thé ait une vue dégagée* » (R1.2, 42 ans).

> *« Il y a une pétition à signer, il faut boycotter cet espace » (voir lien : https://www.facebook.com/groups/lesplandeTunis/search/?query=mirador)*

Plusieurs commentaires issus du forum de discussion et certains répondants des *focus groups* affirment que la principale raison qui motive au boycott est celle inhérente aux valeurs individuelles.

> « *Si j'accepte l'idée de boycotter un produit c'est que quelque part il existe un élément en contradiction avec mes valeurs personnelles* » (R1.9, 30 ans).

Certains répondants relèvent l'existence d'une distorsion entre les valeurs individuelles et les signaux transmis de l'entreprise. Cette distorsion a tendance à accroître l'intention de boycott.

> « *En constatant qu'il y a divergence entre mes valeurs personnelles et le message transmis, le degré de colère sera plus important vu que l'entreprise ou le point de vente a fait en sorte de ne pas me respecter. C'est une atteinte à ma personne. Je serai plus enclin à avoir une intention de boycott* » (R.1.2, 42 ans).

Certains répondants affirment qu'une des raisons potentielles motivant le boycott ou l'intention au boycott est le nationalisme dans le sens où l'identité culturelle nationale prévaut sur les considérations de la cible.

> « *J'aime mon pays et je trouve que certaines marques ou lieux reflètent notre identité nationale. Quand on les touche, on porte atteinte à notre croyance et amour pour ce pays* » (R.1.4, 44 ans).

L'exemple d'un opérateur de téléphonie mobile dont le nom était extrait du nom du pays ciblé « Tunisiana » en référence à la Tunisie. Lors d'une stratégie de *rebranding*, les clients se sont aperçus que l'opérateur n'est plus tunisien mais ayant une provenance du Moyen Orient et la dissociation de la symbolique du nom de l'entreprise a marqué certains clients qui ont lancé un appel au boycott. Le nationalisme apparait, de ce fait, comme une variable culturelle fondamentale dans la détermination du boycott suite à un BAO électronique négatif. Les individus se trouvent généralement touchés par tout message partagé où l'on met l'accent sur une entreprise ou une marque qui ne respecte pas leur amour pour la patrie.

> « *Pourquoi changer de nom ? C'était porteur d'un sens utilisé sciemment pour exprimer une identité nationale* » (R.2.1, 29 ans).

D'autres répondants évoquent un autre antécédent culturel à l'origine de l'intention au boycott qui est le bien être individuel ou social. Des actions engagées et socialement responsables sont lancées afin de préserver la nature et les droits du citoyen avant d'être consommateur.

> « *Un salon de thé la Phalène qui a envahi le trottoir en construisant une terrasse illégalement aux dépens du droit de passage du piéton dans une totale impunité de la part des autorités va à l'encontre de mes valeurs. Un appel au boycott a été lancé et j'ai participé un rassemblement devant ce salon de thé* » (R.2.8, 47 ans).

> « *Ça me rappelle ces derniers jours un autre salon de thé le Mirador qui a arraché un arbre bicentenaire juste pour avoir une vue dégagée. De quel droit il arrache un arbre de 200 ans ? C'est un massacre à la tronçonneuse ! Après nos efforts, il a été condamné à neuf mois de prison. Il ne faut pas se taire, il faut agir en boycottant pour faire réagir les autorités et faire hésiter ceux qui oseront toucher à la nature* » (R.2.1, 29 ans) (voir annexe 1).

Quelques participants mentionnent que parfois ils adhérent à des actions de boycott dans un souci de « suivisme » vu qu'ils appartiennent à des groupes sociaux et ne veulent pas déroger aux règles établies. Selon Kelman (1961), le suivisme est un des degrés les plus « légers » de conformisme et qui consiste à se soumettre à certaines actions collectives rien que pour éviter des désagréments tels que le rejet ou la répression.

> « *Parfois, je participe à une action car le groupe auquel j'appartiens le fait donc pour ne pas susciter des suspicions ou des interrogations j'adhère à l'action* » (R.1.1, 18 ans).

L'individu participe, dans certains cas, à une action de boycott rien que pour afficher son appartenance à un groupe qui dénonce des actions bien particulières, telles que la défense des droits des homosexuels, afficher son « ouverture d'esprit » sans que cela soit son véritable point de vue, il continue à suivre certains de ses amis sur les réseaux sociaux qui recherchent le « *m'as-tu vu* ? ».

> « *J'ai des amis qui ne croient pas à la cause du boycott mais le font juste pour être perçu comme leurs amis reconnus comme les défenseurs des droits des animaux ou de la nature qui eux aussi ne croient pas en cette cause car ils suivent des modèles jugés frimeuses* » (R.1.5, 22 ans).

D'autres antécédents ont été évoqués à savoir ceux ayant trait aux tabous et faisant intervenir des valeurs comme la pudeur et le respect d'autrui.

> « *Je me rappelle qu'au cours du mois saint de Ramadan, il y avait une forte audience avec des familles qui regardaient la télévision et une chaîne TV diffusait des feuilletons qui comportaient des contenus à connotation sexuelle. C'est inacceptable et incohérent avec notre culture arabo-musulmane et tunisienne. Ça nous a choqués à la maison et nous avons répondu par l'affirmative pour l'appel au boycott de la chaîne TV en question* » (R.2.4, 49 ans).

Une dernière variable culturelle ressort de l'analyse des propos des participants à l'enquête qualitative et qui semble clairement déterminer l'intention de boycott des consommateurs de certaines marques, produits ou entreprises : le contrôle d'incertitude. Selon Hofstede (1991), le contrôle d'incertitude est *« le degré d'inquiétude de ses habitants face aux situations inconnues ou incertaines. Ce sentiment s'exprime, entre autres, par le stress et le besoin de prévisibilité : un besoin de règles, écrites ou non »* (p.149-150). En effet, certains individus adhèrent à une action de boycott

par besoin de prévision, d'avoir des règles claires, des actions bien déterminées pour minimiser leur degré de méconnaissance de certaines situations.

> *« C'est rassurant d'avoir la possibilité de voir ce que les autres ont vécu, Facebook m'aide beaucoup dans ce sens, ça m'a déjà aidé à réduire le risque d'être arnaqué par des restaurants par exemple. Si le service était médiocre pour les autres, il le serait forcément pour moi. Je ne souhaite pas refaire la même expérience et l'expérience des autres m'éclaire et m'aide à prendre les bonnes décisions dans l'avenir »* (R.1.3, 36 ans).

5. Conclusion

Tous les jours, des millions de messages sont partagés sur la toile. Certains attirent l'attention des internautes plus que d'autres. Cela dépend, généralement, du degré d'importance que portent les individus au message partagé. Certains messages finissent par créer un BAO, positif ou négatif. A ce stade, des variables culturelles peuvent affecter la perception du message, telles que les valeurs, la religiosité, le collectivisme et l'acculturation. En effet, les valeurs de l'individu peuvent influencer la manière avec laquelle la personne perçoit le message. A titre d'exemple, certains sont attachés à certaines valeurs telles que le bien-être social et prêtent plus d'attention aux messages qui concernent les problématiques sociales (écologie, égalités sociales, etc.), tandis que d'autres individus attachés à leurs valeurs religieuses peuvent plutôt se trouver plus touchés par tout ce qui pourrait être à l'encontre de la religion (nudité, etc). Une fois le message perçu positivement ou négativement, les variables culturelles agissent, dans un deuxième temps, comme variables déterminantes des réactions des consommateurs suite à un BAO positif ou négatif. Certaines personnes sont plus « conformistes » que d'autres, auront tendance à suivre les autre par solidarité et agissent conformément aux autres membres de leur groupe de référence. Ils sont, de ce fait, plus sensibles aux actions communes comme le boycott. Certains s'engagent dans une action de boycott pour assurer un meilleur contrôle de risques liés à la consommation du produit ayant crée un BAO négatif, par souci de contrôle d'incertitude. Ils trouvent alors, dans le boycott, un moyen de prévision et de contrôle. Ils peuvent également être poussés par l'amour de leur patrie lorsqu'une entreprise touche à leur nationalisme, le consommateur s'engage dans des actions de boycott pour défendre sa nation et le bien du pays.

Les variables culturelles jouent, de ce fait un double rôle : un premier rôle concerne la perception du BAO électronique et un deuxième la réaction suite à ce BAO et la détermination de l'intention de boycott. Le présent travail de recherche apporte alors des réponses quant au rôle de la culture dans la détermination du boycott suite à un BAO électronique négatif. N'ayant pas de contrôle sur le BAO électronique, les entreprises sont tenues à comprendre la manière avec laquelle les consommateurs perçoivent, interprètent et répondent aux différents messages ayant suscité un BAO sur la toile. Elles peuvent engager des personnes pour surveiller de près les réactions des consommateurs sur les réseaux sociaux et intervenir avant que la propagation des messages. Par ailleurs, pour limiter le « suivisme » des consommateurs, elles peuvent jouer la carte de la transparence, apporter des éclaircissements, des explications et pourquoi pas des excuses pour arrêter la diffusion du message négatif avant la mobilisation des consommateurs autour d'actions comme le boycott. Réagir à temps est l'une des meilleures solutions que l'entreprise pourrait adopter pour répondre aux messages négatifs émis par ses clients. Par ailleurs, lors de la conception de ses campagnes de *buzz* marketing, les managers sont appelés à analyser l'ensemble des évènements ayant suscité un BAO en ligne pour choisir l'axe sur lequel ils pourront axer leur campagne.

Comme voies futures de recherche, il serait possible de suivre l'évolution de quelques évènements en ligne depuis leur apparition, à leur diffusion allant jusqu'à la mobilisation des consommateurs autour d'actions communes. Le processus étudié pour chaque évènement pourrait donner une idée plus claire sur la manière avec laquelle l'individu perçoit, interprète et analyse les messages émis par les autres. Une étude longitudinale pourrait également être intéressante et cela en interrogeant les consommateurs à plusieurs moments de leur vie et suivre l'évolution de leurs réactions face à un BAO négatif. Une étude interculturelle permettrait aussi de cerner le rôle des variables culturelles dans la détermination du boycott dans des cultures variées et maîtriser, de ce fait, l'ensemble des

variables pouvant intervenir dans la détermination des réactions des consommateurs suite à des BAO électroniques négatifs.

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Annexe 1 : Extrait de photos ayant suscité un BAO négatif sur les réseaux sociaux tunisiens

Annexe 1.1 Photos de l'appel au boycott de la pâtisserie et salon de thé « Mirador » ayant abattu un arbre

Crédit photos : https://www.facebook.com/groups/lesplandeTunis/search/?query=mirador

Annexe 1.2. Photos prises près la boulangerie et pâtisserie « le gourmet » pour dénoncer les déchets que le personnel jette sur les trottoirs

Crédit photo : https://www.facebook.com/groups/1008279892518211/search/?query=gourmet

Annexe 1.3. Photos de fromages moisis de deux marques tunisiennes de produits laitiers

Crédit photo :
https://www.facebook.com/photo.php?fbid=750173171755299&set=pcb.1026021427408722&type=3&theater&__mref=message_bubble

Regional Economic Integration in West Africa and Cocoa Beans Value Chain in Nigeria

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Abstract

The regional platforms put in place by the Economic Community of West African States (ECOWAS) are supposed to be able to proffer solutions to some of the challenges of the cocoa beans value chain in Nigeria. These challenges, *inter alia*, are low value addition and consequently low productivity- these hamper the performance of the cocoa beans value chain in Nigeria – a value chain regarded as strategic according to the Agricultural Transformation Agenda of Nigeria in 2010. In economic literature, inter-linkages amongst related or same industries are important for value addition which in turn is essential for maximising income gains and improving general living standards of all actors engaged in the entire production and trade processes in a value chain. The New Trade Theory explicates how intra-industry/intra-regional trade can give rise to the fragmentation of production processes that characterise value chains and how intra-regional trade can foster the needed value addition in a value chain. This current study is motivated by the need to assess the extent to which the Economic Community of West African States (ECOWAS) has fostered the performance of the cocoa beans value chain in Nigeria by creating the necessary forward and backward linkages between actors in the cocoa beans value chain in Nigeria and the rest of ECOWAS. The findings from descriptive statistics seem to suggest a weak performance on the part of ECOWAS thus calling for the need for intensified regional efforts to sufficiently bolster the performance of the cocoa beans value chain in Nigeria.

JEL Classification: C67; F14; F15

Keywords: Regional Economic Integration; ECOWAS; Cocoa Beans Value Chain; Nigeria

1.0 Introduction

Economic Integration (EI), an embodiment of custom unions, trade blocs and free trade, has an ultimate aim of fostering trade participation of Member countries and enhance economic performance and welfare of their citizenry in the long-run (Olayiwola, Osabuohien and Okodua, 2011). Baldwin and Venables (2004) noted that discriminatory trade policy is the defining characteristic of a regional integration arrangement. EI instruments could be in form of tariff or non-tariff measures. EI entails the partial or full removal of trade tariffs across national boundaries with the aim of lowering prices and fostering the welfare of citizens in the Member States (Dalimov, 2009).

The agricultural sector is of importance to ECOWAS Member states including the Nigerian economy as it contributes consistently about 75 percent to the non-oil exports of Nigeria (Adesina, 2012). In the bid to transform the agricultural sector of the country and use it to foster its economic growth, Nigeria embarked on an Agricultural Transformation Agenda - ATA in 2010. Some agricultural products were earmarked as priority commodities in order to achieve the objectives of the Transformation Agenda. One of the prioritised commodities is cocoa beans. However, recent literature such as United Nations Economic Commission for Africa (UNECA), Adesina (2012) and Ogunleye (2014) harped on the importance of paying attention to the entire value chain to deliver the income and other welfare gains to all actors rather than laying emphases on mere increases in production. The Agricultural Transformation Agenda noted cocoa beans value chain as a strategic commodity value chain that is expected to generate over 350,000 jobs in primary production,

plantation establishment and across its value chain in 2015. In the context of a regional economic community, cocoa beans value chain would imply that the production processes are fragmented across national borders within the region. For instance, within ECOWAS, production of cocoa beans may be done in Ghana, processing done in Benin and marketing and selling to final consumers done in Nigeria.

Nigeria is the fourth largest exporter of this commodity in the world after Cote d'Ivoire, Indonesia and Ghana, respectively. Despite the huge potentials of this commodity, it is characterised by low value addition and productivity which retard the gains of actors along its value chain (Ajetomobi, 2011; Nwachukwu *et al,* 2010). However, on the positive end, FMARD (2012) reported that notwithstanding the drop in production and yield, Nigeria remains the world's fourth largest exporter of cocoa beans.

The platforms created by ECOWAS are expected to be able to proffer solutions to some of the challenges of this sector. These platforms include the ECOWAS Trade Liberalisation Scheme (ETLS) meant to allow for free movement of goods, people and services and removal of trade barriers within this region; the ECOWAS Agricultural Policy (ECOWAP) meant to improve productivity and competitiveness of the agricultural sector of Member states. *Inter alia*, other platforms include the Regional Agricultural Investment Programme (RAIP) and the ECOWAS Bank for Investment and Development (EBID) and are meant to provide the needed funds for agriculture. These platforms are also expected to enhance the value chain in agriculture (United Nations Economic Commission for Africa – UNECA, 2012) including the cocoa beans value chain thus bringing about value addition and productivity increase. But to guarantee substantive value addition, there is the need for inter-linkages (forward and backward) amongst the cocoa industries within the region. The primary question this study raises is "to what extent is ECOWAS bringing about these inter-linkages within the region?" On the flip side, value chain proponents also opine that substantial value addition in a given value chain can give rise to increased intra-regional trade (Gor, Mbithi & Osoro, 2014; Meng, Fang and Yamano, 2012). In this vein, this study also seeks to know to what extent the value that is added in the Nigerian cocoa beans value chain is fostering intra-regional trade. This is an area still grossly underexplored in West Africa. Similar studies are those of Meng, Fang and Yamano (2012), Meng, Zhang, Guo and Fang (2012) both in China and the work of Putri, Sutopo, Prihawantara and Matheos (2015) on "value chain improvement for cocoa industry in Indonesia by input-output analysis" appears to be the most similar to this current study.

1.1 Research Objectives

The broad objective is to analyse the nexus of regional economic integration and cocoa beans value chain in Nigeria. The specific objectives are, to:

1. analyse the value-addition effect of regional economic integration on value chain of cocoa beans of Nigeria in the context of backward linkage;
2. analyse the value-addition effect of regional economic integration on value chain of cocoa beans of Nigeria in the context of forward linkage; and
3. estimate the impact of value addition of cocoa beans value chain on trade flows between Nigeria and ECOWAS.

2.0 Conceptual Framework

This section briefly illustrates the link between the theory adopted for this study and the broad objective of the study.

Intra-industry trade, as theorized by the new trade theorists, results from firms/ industries' abilities to internalize economies of scale thus paving the way for increasing returns to scale and imperfect competition. Given a monopolistic type of imperfect competition, an industry produces differentiated or unique products leading to an enlarged market, enlarged production scale and more varied products to consumers concentrated in a particular country. And given that each country produces varieties of that particular product, stemming from the love of consumers for varieties, a country exports its unique product to another country and imports the variety of the other country of that same product. In this way an intra-industry trade is created. This intra-industry trade, in recent times, is however more common with intermediate goods (OECD, 2014) thus giving room for specialization along better defined comparative advantages and providing wider options for producers to purchase a

given input that they may be incapable of producing consequently leading to fragmentation of production processes (Gonzalez and Holmes, 2011).

Some insights with regards the theory-objective nexus could also be garnered from other relevant theories such as the comparative advantage theory, heterogeneous firm theories and new economic geography/location theory.

3.0 Stylised Facts: Trend Analyses

Regional Economic Integration in ECOWAS: (A) Intra-regional trade flows and (B) the extent of trade facilitation, as indicators of the performance of ECOWAS

A) Intra-regional Trade Flows

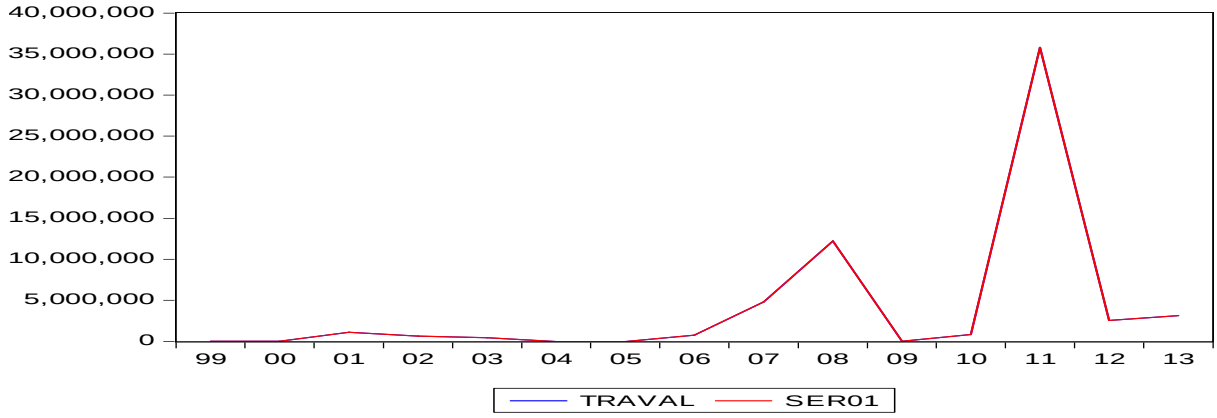

Figure 1: Trend in the Value of Nigeria-ECOWAS Cocoa Beans Trade Flows (TRAVAL) from 1999 to 2013

Source: Authors' computation from UN COMTRADE (2014)

B) Indicators of Trade Facilitation: 1) Infrastructure 2) Regulation

Table 1: Indicator of Infrastructure (Mobile cellular telephone per 100 people) and Regulation (Regulatory Quality)

	Mobile Cellular Subscriptions (per 100 people)								
Country	**98**	**00**	**02**	**04**	**06**	**08**	**10**	**12**	**14**
Cote d'Ivoire	**1**	**3**	**6**	**10**	**23**	**57**	**82**	**91**	**106**
Ghana	**0**	**1**	**2**	**8**	**24**	**50**	**72**	**101**	**115**
Indonesia	**1**	**2**	**5**	**14**	**28**	**60**	**88**	**114**	**126**
Nigeria	**0**	**0**	**1**	**7**	**23**	**42**	**55**	**67**	**78**
	Regulatory Quality								
Country	**98**	**00**	**02**	**04**	**06**	**08**	**10**	**12**	
Cote d'Ivoire	**-0.26**	**-0.54**	**-0.45**	**-0.96**	**-0.85**	**-0.89**	**-0.91**	**-0.77**	

Ghana	**-0.25**	**-0.10**	**-0.47**	**-0.35**	**-0.08**	**-0.04**	**0.12**	**0.12**	
Indonesia	**-0.26**	**-0.18**	**-0.64**	**-0.67**	**-0.34**	**-0.32**	**-0.39**	**-0.28**	
Nigeria	**-0.93**	**-0.74**	**-1.23**	**-1.32**	**-0.89**	**-0.78**	**-0.71**	**-0.72**	

Source: World Development Indicators and Worldwide Governance Indicators (2016)

Figure 1 shows an increased intra-regional flows in the second half of 2000s especially from 2006 till more recent times as compared with the first half suggesting an increased performance, in this respect, of ECOWAS in the second half till 2013. From table 1, the two indicators (infrastructure and regulation) show the need for more regional efforts on the part of ECOWAS to benefit the actors in the cocoa beans value chain in Nigeria as Nigeria's performance is relatively poor when compared to the performance of others. More regional efforts are needed because actors in the cocoa beans value chain in Nigeria need information about the intra-regional cocoa beans market and so need sufficient access to telecommunication. They also need supportive regulatory environment for their production and trade activities.

Cocoa Beans Value Chain in Nigeria

A) Mapping: As suggested by Kaplinsky and Morris

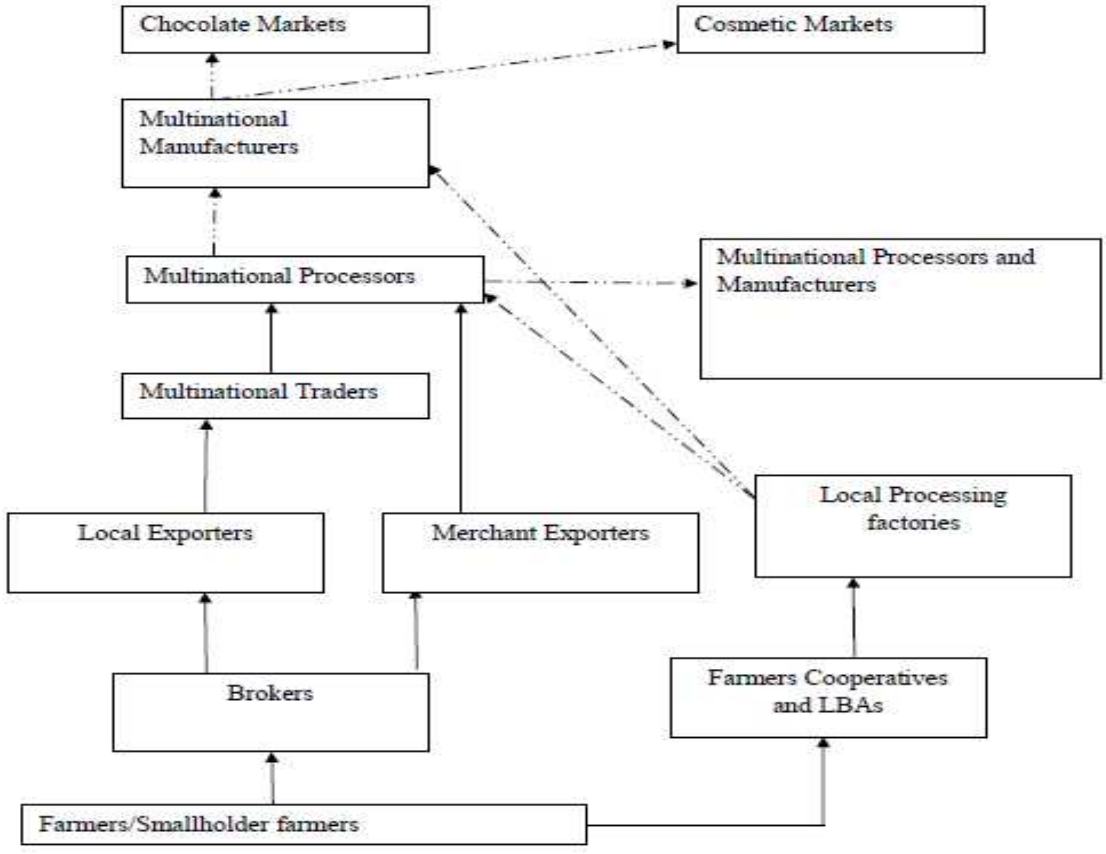

Fig. 2: The Nigeria's cocoa beans global value chain

Source: Adapted from Adewuyi, Babatunde & Bankole (2014)

B) *Comparative Performance Assessment Using Benchmark Data*

Kaplinsky and Morris (2002) opine that one of the ways to assess the performance of a product's value chain is to benchmark the production efficiency/productivity against leading firms/countries in that given value chain. In this respect, given that Cote d'Ivoire, Indonesia and Ghana are the world top three leaders in cocoa beans exports, their productivities (proxy by productivity per hectare/yield of cocoa) are compared to that of Nigeria using trend analysis.

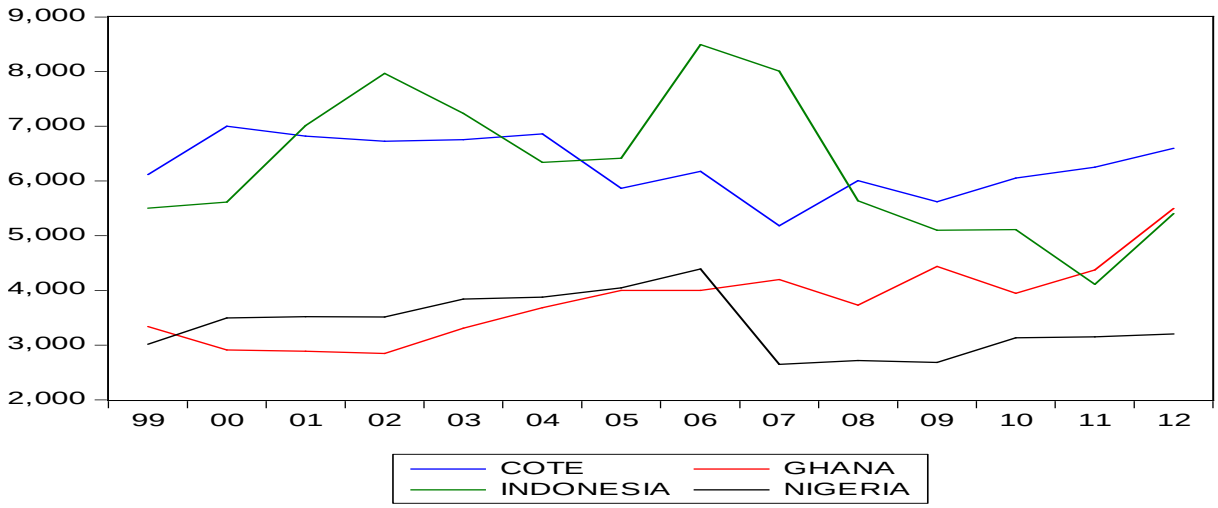

Figure 3: Trend in Value Chain Productivity

Source: Authors' computation from FAOSTAT (2014)

Fig. 3 also shows that Nigeria lags seriously behind others. Relating the Nigeria-ECOWAS trade flows (an indicator of economic integration) as presented in fig. 1 and the productivity of the cocoa beans value chain in Nigeria, in the first half of the 2000s, the trends showed a gradual and steady increase in the trade flows and productivity thus suggesting a positive relationship between them. However, in the second half of the 2000s up to 2013, the trend in the former fluctuated while that of the latter decreased sharply after 2007 thus showing an ambiguous relationship between the two.

From the stylized facts and trend analyses, some insights into the performance of ECOWAS and the cocoa beans value chain in Nigeria and the relationship between the two concepts have been garnered. Notwithstanding, there is the need to empirically estimate the relationship between them in order to corroborate the descriptive analysis done in this section. The Input-Output analytical technique – an inter-industry analysis -will be used for this purpose. The ECOWAS Input-Output table is the main source of data. The RAS technique – a biproportional matrix adjustment technique, is proposed, in order to circumvent the short falls associated with Leontief's basic input-output model. The Value Added in Trade (VAiT) will be used as the measure of the performance of the value chain while the Trade in Value Added (TiVA) will be used to measure the performance of regional economic integration. *A priori*, it is expected that regional economic integration will significantly foster the needed forward and backward linkages and that with the aid of regional efforts, the value added in trade in the Nigerian cocoa beans value chain should significantly increase intra-regional trade flows i.e. Nigeria-ECOWAS cocoa beans trade flows.

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Regional Development through Agricultural Financing Programmes - Brief Analysis of the SAPARD Programme Results in Romania (2000 – 2006) and of the Mechanisms and Support Instruments Implemented through the National Rural Development Programme (NRDP) (2007-2013)

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Abstract

The impact of the pre-accession assistance measures on the Romanian agriculture is yet a controversial topic, as the agricultural sector is one of the sectors with high growth and development potential at national level. Introducing special assistance programmes such as SAPARD, backed by the need to accomplish a series of structural reforms, proved to be a bold move whose effects still require a thorough analysis even after more than 10 years since their beginning. In this article, we have analyzed the impact of SAPARD programme on the agricultural sector in Romania 10 years after its closure, while also having made a reference to the NRDP Programme that followed, based on the statistical data available at national and European level. The conclusions, after analysis, highlighted the idea that introducing the SAPARD and NRDP programme in agriculture brought an invaluable contribution to the development of this sector.

Key words: *agriculture, accession period, Romania, SAPARD Programme, NRDP 2007 – 2013*

Introduction

On 1 January 2007, Romania acceded to the European Union (EU). The accession was a late stage demonstration of the Romania's involvement in the process of European integration. It also signaled the acceptance, by the majority of its European partners, of the progress Romania has made in its post-communist transformation from a state owned agriculture to a functioning market economy agriculture.

Reaching a workable agricultural system was has been a long process, which requiered painful reforms and a significant external aid for change. While various aspects of the country's post-communist political and economic development have received much scholarly attention, the academic analysis of Romania's SAPARD programme has been largely confined to occasional papers. Also no connection was done with the following NRDP programme (2007 – 2013) and its impact. (Papa Dimitriou & Phinnemore, 2008, p. 1-2)

Material and Method

In order to correctly identify the effects from SAPARD programme since the year 2000 (the date on which this financial programme was introduced) until the end of 2006 and for the subsequent programme (2007 – 2013) we conducted an analysis based on national statistics data, as available in the official reports.

This paper is based on a rich bibliographical study, where we have used information from the national reports of various agencies in the area (NIS), speciality papers and National strategies for rural development

European mechanisms and support instruments within the pre-accession period. The SAPARD Case

It is in the pre-accession context that the European Commission envisaged the creation of SAPARD Programme - a financial instrument offered by the European Union to help the candidate states (the countries which have submitted their application request to the European Union) in the pre-accession process in the area of agriculture and rural development.

The SAPARD Programme was seen as a lifeline for the Romanian agricultural system as it provided the much needed know-how and financial resources Romania's agriculture badly needed.

„The support granted by the Community for the period 2000-2006 through the SAPARD programme shall focus upon the actions destined to contribute to reaching the following general objectives proposed for the SAPARD programme: the implementation of the acquis communautaire concerning the common agricultural policy and related policies, protect the environment and policies related to the alimentation area and the regulations regarding consumer protection public health, animal and plants welfare and health;

This objective of Romania's strategy for EU integration for the agricultural sector, food industry, aquaculture and rural development is represented by the implementation of the acquis communautaire[i].

In a way Romania has outsourced its agricultural reforms by offering to the external bodies the tools and powers to regulate its reform dynamics, thus providing a way for local politicians to escape future political costs by pointing finger toward Brussels and omitting the fact that such a reform was badly needed especially due to the structural problems of the Romanian agriculture.

"The main factor that was decisive in the end to impose the rural development on the Romanian government agenda was the need for convergence with the EU policies, including the programming and the implementation of the **S**pecial **a**ccession **p**rogramme for **a**griculture and **r**ural **d**evelopment (SAPARD) of EU. As a notable element, we need to retain that there was no department for rural development within the framework of Agriculture and Forests Ministry before the beginning of SAPARD programming".[ii]

Unlike the other states that have become EU members in 2004, Romania's structural problems were much more acute. The excessive fragmentation of agricultural lands is a problem where EU cannot directly intervene, but only through the elaboration of programmes that could support the land concentration. Also, in Romania, in the pre-accession period, the number of subsistence farms and semi-subsistence was very big, a thing that persists even nowadays. Another dysfunctionality of Romania's agricultural sector was the big number of older farmers. A final structural aspect that is problematic was represented by the food industry, insufficiently developed in order to ensure a market for basic agricultural products.[iii]

The evaluation of the SAPARD funds implementation in figures

At the end of 2009, the total amount committed was EUR 1,354.929 for the entire Programme, resulting a commitment rate of 89.06% as compared to 2000 – 2006 allocations.

As regards the executed payments, by 31st of December 2009, the total amount is MEUR 1,348.016, resulting a consumption rate of 88.60% as compared to the 2000 – 2006 allocations[iv].

For the 10 measures accredited under SAPARD Programme, during 2009, the implementation of the contracted projects was continued by executing a number of 479 payment instalments to the beneficiaries of the SAPARD Programme reaching a total value of MEUR 69.272.

At the end of 2009, the total value of the financial commitments under SAPARD Programme was of MEUR 1,354.929, resulting in a coverage degree of 100% of AFA for 2000 – 2005 and of 32.04% for AFA 2006. As regards the consumption rate of the allocated funds, at the end of 2009, the total value of the payments executed to the beneficiaries of the SAPARD Programme was of MEUR

1,348.016, representing a consumption rate of 100% of AFA for 2000 – 2005 and of 29.22% for AFA 2006[v].

Until December 31st 2009, 4.316 projects were approved with a public value of MEUR 1,279.214, on the investment measures. Out of these projects 10.57% represent contracts under Measure 1.1, 0.46% represents contracts under Measure 1.2, 17.70% represent contracts under Measure 2.1, 44.11% are projects contracted under Measure 3.1, 0.07% are projects contracted under Measure 3.2, 0.02% are projects contracted under Measure 3.3, 24.44% are projects contracted under Measure 3.4 and 2.62% are projects contracted under Measure 3.5.[vi]

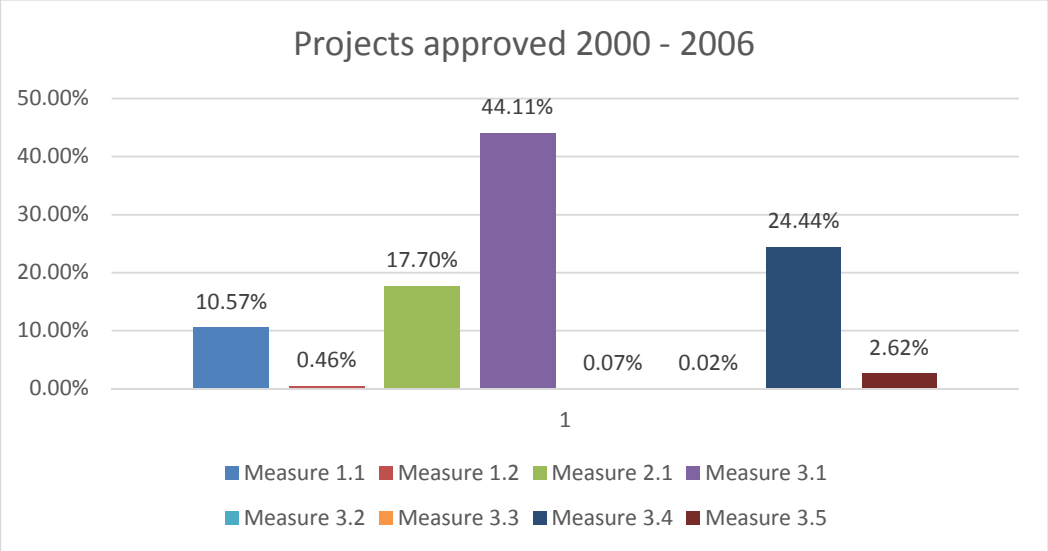

Figure 1: Projects approved during 2000 – 2006 (in %)
Source: Own calculus based upon *** *Final Report on Sapard Programme implementation in Romania* (2012), p. 199, available online at http://old.madr.ro/pages/dezvoltare_rurala/sapard/final-report-sapard2012-en.pdf Last visited on March 27th 2016

The public contracted value, afferent to the contracts on:

- ✓ Measure 1.1, was of MEUR 331.350, representing 25.90% out of the total commitments of the PARDF.
- ✓ Measure 1.2 the public contracted value was of MEUR 33.698 i.e. 2.63% out of the total commitments of the PARDF.
- ✓ Measure 2.1, the public contracted value was of MEUR 561.250 i.e. 43.87% out of the total commitments of the PARDF.
- ✓ Measure 3.1, the public contracted value was MEUR 223.405 i.e. 17.46% out of the total commitments.
- ✓ Measure 3.2, the public contracted value was MEUR 0.075 i.e. 0.01% out of the total commitments.
- ✓ Measure 3.3 the public contracted value was MEUR 0.014 i.e. 0.001% out of the total commitments.
- ✓ Measure 3.4, the public contracted value was MEUR 66.336 i.e. 5.19% out of the total commitments of the PARDF.
- ✓ Measure 3.5 the public contracted value was MEUR 63.08 i.e. 4.93% out of the total commitments[vii].

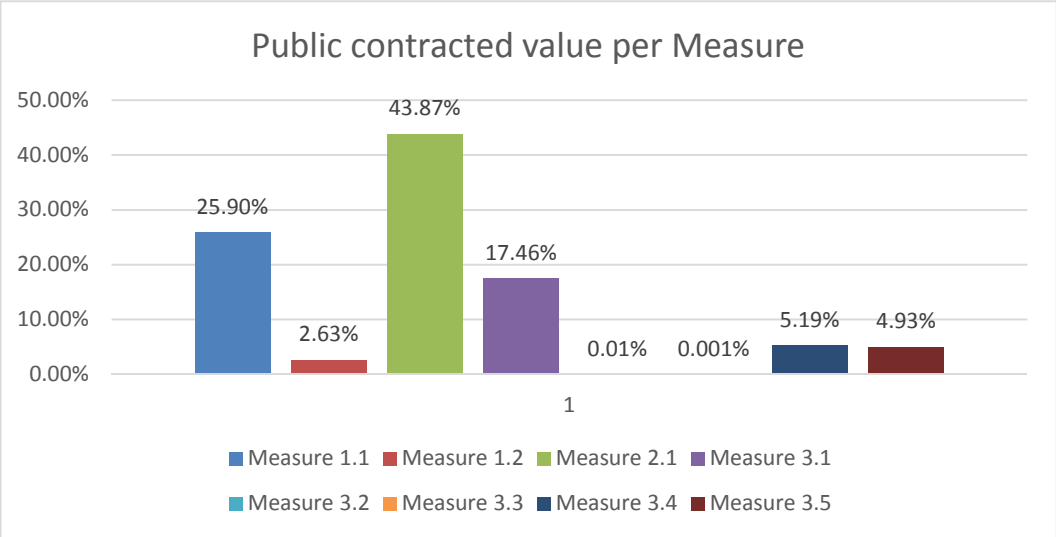

Figure 2: ***Public contracted value per Measure (in %)***
Source: Own calculus based upon *** *Final Report on Sapard Programme implementation in Romania* (2012), p. 200, available online at http://old.madr.ro/pages/dezvoltare_rurala/sapard/final-report-sapard2012-en.pdf Last visited on March 27th 2016

At the same time, by 31st December 2009, a number of 120 projects affected by natural disasters were approved, with a total public value of MEUR 71.439 on the investments measures. Out of these projects, 2.50% represented contracts on Measure 1.1, 69.17% represented contracts on Measure 2.1 and 25.83% represented contracts on Measure 3.1, respectively 2.50% were projects contracted on Measure 3.4.[viii]. The importance of the projects affected by natural disasters is given by the fact that they prove the real local need for this type of projects and the fact that the beneficiaries have done their best to have the projects succeeding. Moreover it is important to know, if we speak about a reduce absorption rate, that not all the projects were delayed due the low skills of those in charge or due to system problems but due to natural causes.

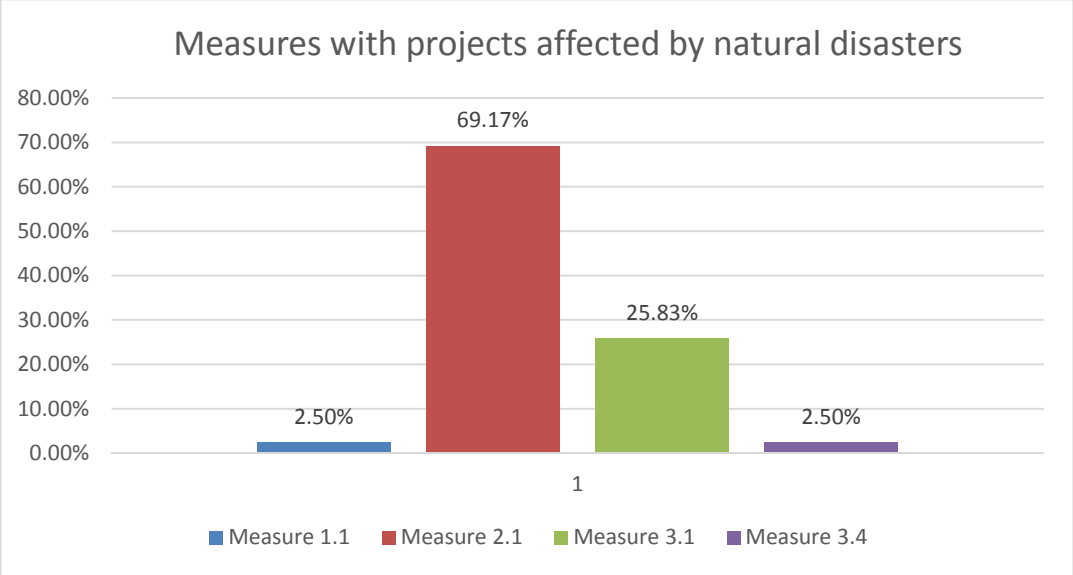

Figure 3: ***Measures with projects affected by natural disasters***
Source: *** *Final Report on Sapard Programme implementation in Romania* (2012), p. 199 - 200, available online at http://old.madr.ro/pages/dezvoltare_rurala/sapard/final-report-sapard2012-en.pdf Last visited on March 29th 2016

The contracted public value afferent to the contracts affected by disasters on Measure 1.1 was of MEUR 6.057, representing 8.48% from the total PARDF commitments. On Measure 2.1, the public contracted value was of MEUR 57.817, respectively 80.93% from the total PARDF commitments. On Measure 3.1, the public contracted value was of MEUR 7.133, respectively 9.98% from the total commitments and on Measure 3.4, the public contracted value was of MEUR 0.432, respectively 0.60% from the total PARDF commitments.[ix]

By December 31st 2009, 4,374 projects were finalized, out of which 450 on Measure 1.1, out of which 3 finalized projects being projects affected by natural disasters, 19 projects were finalized on Measure 1.2, 843 projects were finalized on Measure 2.1 out of which 83 finalized projects being projects affected by natural disasters, 1,916 projects on Measure 3.1 out of which 31 finalized projects being projects affected by natural disasters, 1,018 projects on Measure 3.4, out of which 3 finalized projects being projects affected by natural disasters, 113 projects on Measure 3.5, 5 projects on Measure 4.1 and 10 projects were finalized on Measure 4.2.

Out of 4,374 projects, 409 projects were finalized in 2009 as follows: 20 projects under Measure 1.1, 13 projects under Measure 1.2, 94 projects under Measure 2.1, 109 projects under Measure 3.1, 116 projects under Measure 3.4, 57 projects under Measure 3.5.[x].

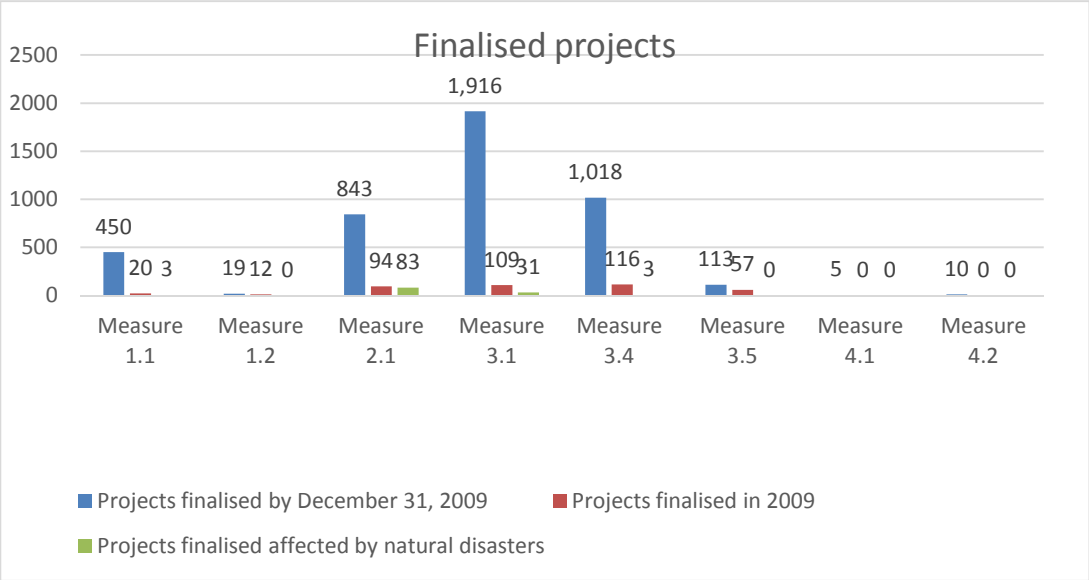

Figure 4: *Finalised projects*
Source: *** *Final Report on Sapard Programme implementation in Romania* (2012), p. 211, available online at http://old.madr.ro/pages/dezvoltare_rurala/sapard/final-report-sapard2012-en.pdf Last visited on March 27th 2016

The Romanian agricultural system 2007 – 2013. Evolution of communitarian support (in numbers)

At the end of the SAPARD Programme, the agriculture remained one of the most important branches of the Romanian economy with a contribution at the current GDP of approx. 6%. The weather conditions as well as the economic crisis generated fluctuations with a growth period in 2008 – 2013, interrupted in 2010 and 2012.

As regards the Community support the payments done in 2007 – 2014 period had a total of 9.09 billion EURO out of EAGF, EAFRD and the national budget, payments that prove and absorption rate of 81,17%. This is the reason why in the following pages I have done a a chart of the Communautarian asistance for the two pillars at Romania's level 2007-2013/2014.

Evaluation of community support trough Pillar I

The EU budget direct payments for which Romania was eligible went from 440 millions in 2007 (25% of the negotiated value) to 1.766 millions in 2016 (total amount). The used agricultural land is of 7.012.666 hectares and we add 2 millions hectares of grass land, thus resulting an elligible surface of 9 million hectars. UAA registered in Farms Register in 12th May 2006 was of 8.925.802 hectares[xi].

Table 1. Evolution of direct payments on surfaces during 2007-2014

year	Per surface direct payment value (SAPS+ PNDC 1)		SAPS		PNDC 1	
	euro	%	euro	%	euro	%
2007	97.55	100	50.55	100	47	100
2008	107.5	110.159	60.75	120.18	46.7	99.38
2009	115.8	118.667	71.12	140.69	44.6	94.98
2010	131	134.290	80.36	158.97	50.6	107.74
2011	133.1	136.453	100.7	199.11	32.5	69.06
2012	154.7	158.544	119.7	236.72	35	74.47
2013	160.2	164.193	139.2	275.31	21	44.68
2014	176.7	181.138	156.9	310.37	19.8	42.15

Source: APIA 2008-2015 Reports[xii]

Between 2007 and March 31st 2015 payments were done of approximatebly 7,33 billion EUROS from EAGF. If we report this at the allocated financial cellings we have an annual absorption rate of over 98%. This high absorption rate proves that the Romanian farmers are interested in accession the European funds, but also that the money they receive have contributed to their development[xiii].

Within the multinual financial framework 2007 – 2014 Romania had for EAGF a total of 11,82 billion euros, out of which 7,8 billion euros went to direct payment schemes, market measure and interventions financed trough EAGF and 3,02 billion euros destined to implement measures 211, 212, 214 and animal welfare (measure 215)[xiv]

At the end of 2013, in accordance with the official measure 68,12% of EAGF were absorbed in the analyzed period .

The total amount that APIA has done during 2007-2014 was of 9,09 billion euros of EAGF, EAFRD, national budgetin order to cofinance the support measures which elad to an absorption rate of 81,17%.[xv]

Table 2. Financial balance of Romania in relation with the European Union for CFM 2007-2015

Amounts received from the EU budget	Done 2007	Done 2008	Done 2009	Done 2010	Done 2011	Done 2012	Done 2013	Done 2014	Done 2015	Done 2007-2015at 31.03.2015
EAGF (billion euros)	0.01	0.46	0.58	0.66	0.77	0.99	1.17	1.33	1.28	7.25

Source :The convergence Programme 2015-2018

Evaluation of community support trough Pillar II

For the period analyzed in accordance with the provisions of the National Plan 2007-2013, Romania received from the European Commission of a financial support for the Pillar II of 8.022.504.745 euro, which represented 80,46% of the total public contribution.

Table3. Total public contribution according to NRDP 2007-2013, version from February 2008

Axis	**NRDP 2007-2013 –Approved versions February 2008**			
	Total public contribution			
	Total public contribution euro	**Contribution rate EAFRD (%)**	**EAFRD Amount 2007-2013 euro**	**% of total allocated to EAFRD**
Axis 1 – Increase of the competivity of agricultural and forestry sectors	3.967.311.581	80	3.173.849.264	40
Axis 2 – Improvement of the environment and rural area	2.293.413.375	82	1.880.598.967	23
Axis 3 –The quality of life in the rural area and the diversification of the rural economy	2.473.739.880	80	1.978.991.904	25
Axis LEADER	235.074.871	80	188.059.896	2
Technical assistance	376.119.793	80	300.895.834	4
Compensatory payments	625.136.100	80	500.108.880	6
Total	9.970.795.600	80,46	8.022.504.745	100

Source: NRDP 2007-2013, February 2008[xvi]

Since February 2008 until the autumn of 2014 the NRDP 2007 – 2013 suffered a total of 14 modification which affected the repartitions among axes:

Table 4. Total public contribution according to NRDP 2007-2013, version nr.14, September 2014

Axis	NRDP 2007-2013 - Version 14 September 2014				
	Total public contribution				
	Total public estimated 2007-2013 euro	Indicative average for the entire period	Applicable for the calculus of EAFRD payments 2007-2013	**EAFRD Amount 2007-2013 euro**	**% of total allocated to EAFRD**
Axis 1 – Increase of the competivity of agricultural and forestry sectors	3.048.543.554	88,81	95	2.707.446.638	33,75
Axis 2 – Improvement of the environment and rural area	2.947.951.688	86,32	95	2.544.568.978	31,72
Axis 3 –The quality of life in the rural area and the diversification of the rural economy	2.325.223.944	85,54	95	1.988.980.790	24,79
Axis LEADER	366.917.508	94,46	95	346.590.603	4,32
Technical assistance	132.008.738	91,58	95	120.895.835	1,51
Compensatory payments	392.527.376	80	80	314.021.901	3,91
Total	9.213.172.808	87,08		8.022.504.745	100,00

Source: Adaptation after NRDP 2007-2013, September 2014[xvii]

Version 14 of NRDP 2007-2013 has a total value for EAFRD smaller with 7,6% than that approved at the beginning of the programme.

Table 5. Total public contribution according to NRDP 2007-2013, version no.14, September 2014/version no.1, February 2008

Axis	**Value differences per axis V14/ V1 (euro)**	
	Total public contribution difference V14 /V1	**EAFDR amount 2007-2013 V14/ V1**
Axis 1 – Increase of the competivity of agricultural and forestry sectors	-918.768.027	-466.402.626
Axis 2 – Improvement of the environment and rural area	654.538.313	663.970.011
Axis 3 –The quality of life in the rural area and the diversification of the rural economy	-148.515.936	9.988.886
Axis LEADER	131.842.637	158.530.707
Technical assistance	-244.111.055	-179.999.999
Compensatory payments	-232.608.724	-186.086.979
Total	-757.622.792	0

Source: Adaptation after NRDP 2007-2013, version 14 and version February 2014

Conclusions

These 2 programmes have significantly contributed to the improvement of living standards in the rural area through investments in the rural infrastructure and by creating new possibilities of obtaining alternatives revenues. Also the funds granted to Romania in the pre-accession period have made the rural area to be a place with much better living conditions in comparison with the alternative where wouldn't have existed the financial support for eligible investments trough SAPARD and NRDP 2007-2013.

Another great advantage of these programmse was that it allowed to draft a real-time image of the deficiencies that any financing programme would encounter:

- the concentration, in the beginning of the programming period, of almost all activities at central level and the late setting up of an institutional framework adequate for ensuring the efficiency of implemented activities;
- rigid implementing procedures, the large amount of supportive documents solicited to applicants as well as their insufficient counseling by competent authorities lead to a difficult application submitting process;
- the long procedural dead-lines for the evaluation and selection of projects and authorization of payments;
- the low information level among the general public due to the insufficient publicity regarding the Programme's contents;
- the difficult access to consultancy services for projects elaboration and implementation, their high cost and many times lack of quality, together with the low functionality level of the National Agricultural Consultancy Agency;
- the high cost of credits needed for co-financing in the general context medium rentable agricultural and agricultural related activities, as well as the lack of guarantees for accessing these credits especially for small and medium enterprises and small farmers;
- the lack of interest and of viable strategies among commercial banks and other types of crediting bodies regarding agriculture and rural development financing;
- due to the existing economic down point, the economic actors registered state debts which blocked access to SAPARD financing;
- difficulties in proving ownership or usage rights concerning immovable goods (land, constructions facing modernization) due to on-going legal regulation of property and instability in this field which lead to numerous legal trials.[xviii]

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A Review of the Nigerian Economy from the Oil Windfall Perspective

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Abstract

Independent state since 1960 and member of OPEC since 1971, Nigeria is the largest oil producer in Africa and in 2014 exported in excess of 2.1 million bbl/d oil and 26 billion m^3 of natural gas. Globally, Nigeria ranks among the top five liquefied natural gas exporters and is the 9th exporting country. The oil and gas industry generally accounted for 75% of the government revenues and 95% of countries export revenue. This paper proposes to investigate evidence supporting the analytical concepts associated with oil windfall, which changed the predominantly agricultural Nigerian state into a major oil producing country. The aim is to critically analyse the oil windfall's impact on the structure and evolution of the Nigerian economy since 1960.

Keywords: Nigerian economy, windfall perspective.

Introduction

Although blessed with large non-renewable resources, Nigerian economy underperformed when compared with the resource-poor countries like Japan, Korea and Taiwan, (Sachs and Warner 1997). The Nigerian paradox of plenty (Adedokun 2012) is described by Auty (1993) as the resource curse. This curse is substantiated by Nigeria's GDP per capita (in constant 2000 dollars) which stood at USD 430 in 2004 compared to USD 444 in 1977 (World Bank 2010), despite periods of GDP growth (Figure 1).

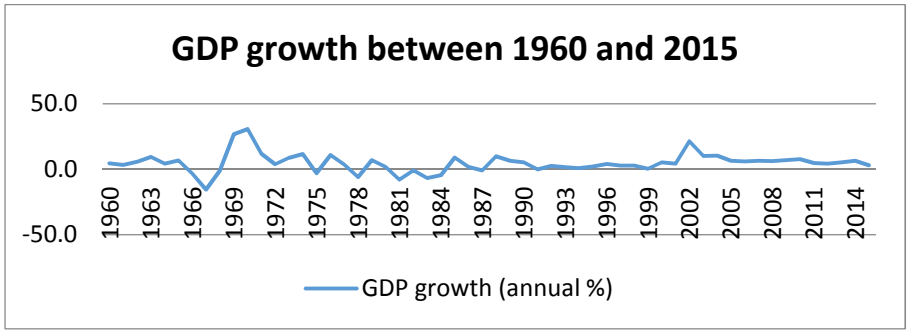

Figure 1: Nigerian GDP Growth during the period between 1997 and 2006, Source: The Conference Board (2015)

The poor performance contrasts with Nigeria's potential to make its mark as an emerging power and lift from poverty 80 million people by 2030 (National Intelligence Council 2012). Ramdoo (2012) argued that natural resources are not a curse, but rather the inability to translate natural resources into sustainable wealth.

The government's inability may be explained by the perverse effect of the oil rents on the political, economic and social environment. The rentier state theory (Mahdavy 1970) clearly applies to Nigeria (Mahler 2010), which in 2005 derived 70% of budget revenues and 95% of total exports from the oil and gas resources (The World Bank 2010).

The oil rents weakened the manufacturing sector and delayed formation of a strong middle class as foundation for democracy, having a stabilising effect on authoritarian rule (Ross 2004). The governments

maintained power by establishing low taxation regime for population, poor tax collection, energy subsidies, patronage networks and clientelism. These resulted in economic inefficiencies and impeded the overall socio economic development. Along with the political regime, the overall socio economic situation resulted in rent seeking behaviour (voracity effect) and weak government institutions not able to maintain political stability (Sala i Martin and Subramanian 2003).

Authoritarian civil and military rulers expanded government spending on security forces to maintain power and repressed political opposition (Mahler 2010), although Ross (2003) suggested that the Nigerian military spending remained lower compared to other African States.

Oil Windfall and Resource Allocation

According to Mahler (2010), the focus of Nigerian rulers was on maintaining authoritarian power, rather than violence, although violent conflicts escalated in Nigeria in the '70s and '80s. Collier and Hoffler (2002) suggested that Nigerian oil was a motive for conflict escalation because of rebels' temptation to take control of natural resources. In addition, the present poor Nigerian society believed that present poor generations should benefit from the resource windfall because they pay the social and environmental costs (Mahler 2010). The population's frustration reflected in theft and subsequent reduction of total oil production which decreased Nigeria's export revenues (Figure 2).

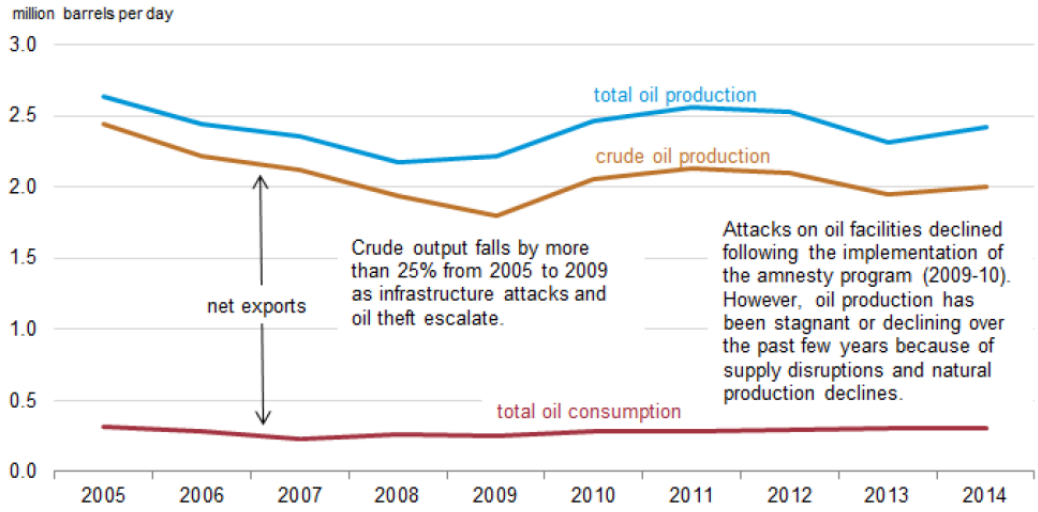

Figure 2: Petroleum and other liquids production and consumption in Nigeria, Source: EIA (2015) p. 5

Despite the high country risk, the risk-return balance remained positive, making Nigeria attractive for global investors (Figure 3).

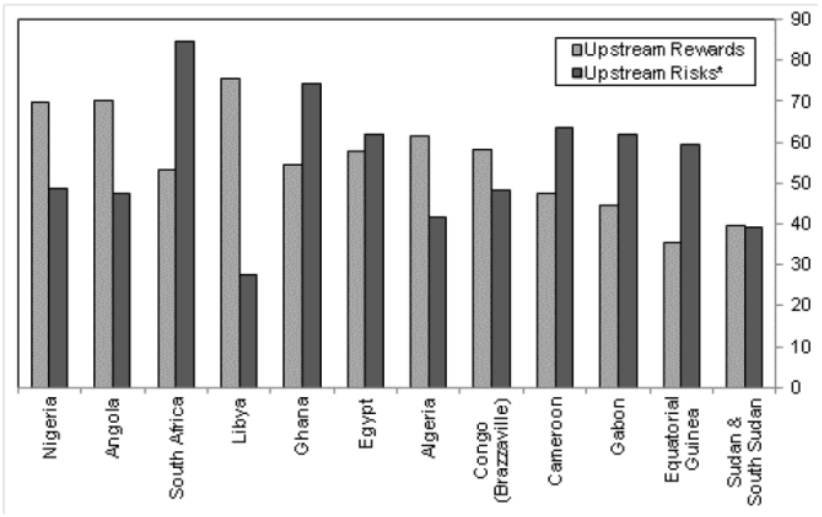

Figure 3: Upstream reward and risk scores on a 0 to 100 scale, Source: Business Monitor International (2013) p. 94

Nigeria needed foreign investments because the economy had scarce capital resources. The challenge was the resource management and the associated prioritisation of government policies. Baunsgaard et al (2012) suggested macro stability and development as Nigeria's priorities.

The challenge is depicted by the options ahead (Figure 4), concerning fiscal regime, government spending and investments and the management of the structural change associated with a potential foreign exchange windfall.

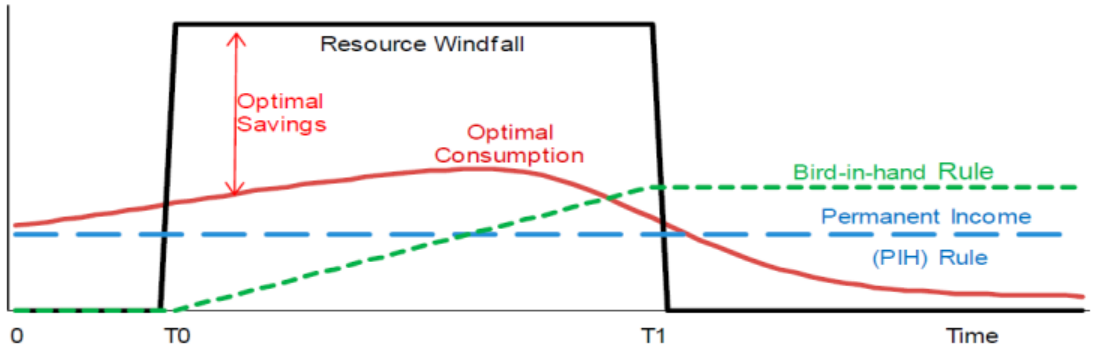

Figure 1: Incremental consumption from a resource windfall, Source: IMF (2012) p. 11

The above model refers to temporary resource windfall compared to the rather permanent Nigerian oil resources, but applies to the Nigerian case because the volatility of oil prices (Figure 5), which triggered revenue volatility.

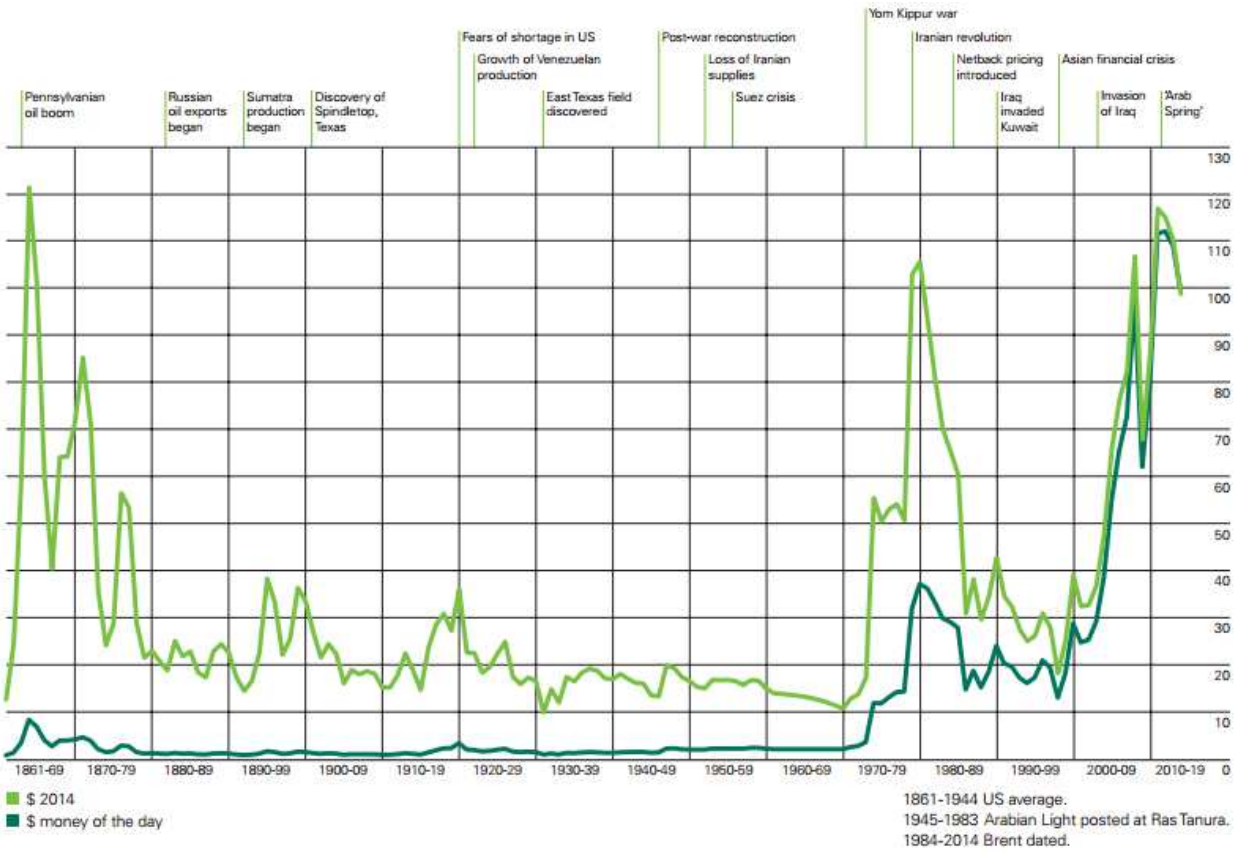

Figure 5: Crude oi prices 1861-2014 (USD/barrel), Source: British Petroleum (2015) p. 15

The revenue uncertainty (Figure 6) required resource allocation between consumption, domestic investment and financial savings (Van Der Ploeg and Venables 2010).

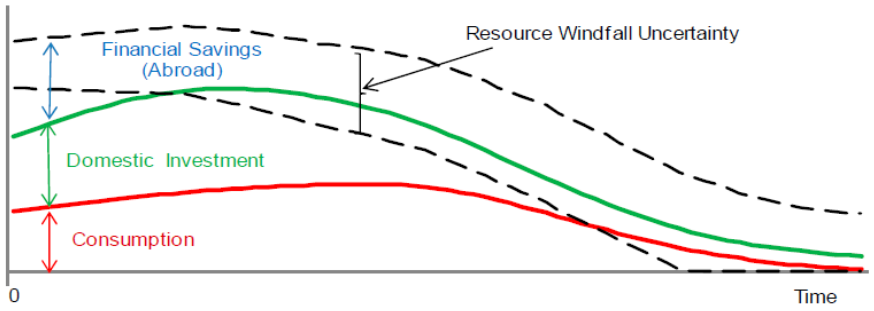

Figure 6: Incremental consumption and saving/investment from an uncertain resource windfall, Source: IMF (2012) p. 15

Nigeria adopted different macroeconomic approaches during the analysed period. During the early 1970s, the oil windfall surpluses were saved and invested abroad.

Given the potential of the Nigerian economy depicted by strong demographic growth and relatively weak development of the country in terms of infrastructure and GDP per capita, the government approach after 1974 was to flood the oil revenue into the Nigerian economy by increasing government expenditures during oil price hikes. This in turn determined large foreign exchange inflows which led to appreciation of the real exchange rate (RER), resulting in Dutch Disease (Van Der Ploeg 2011). The latter, together with the rent

seeking behaviour, determined a reduced economic growth of the non-oil sector (Figure 7), because commodities became too expensive for external markets following Naira's appreciation (The World Bank 2005).

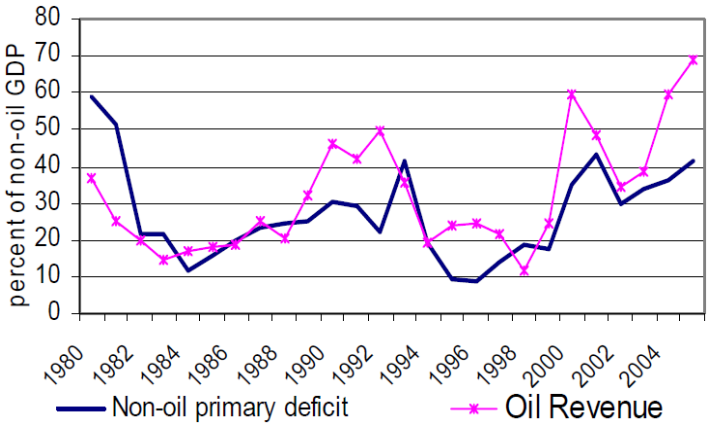

Figure 7: Trends in Non-oil primary deficit and Oil revenues, Source: Budina, Pang and Wijnbergen (2007) p. 7

The fall of oil prices during the early 1980s found Nigeria unable to realise satisfactory returns on the previous investments and to cut down its government spending. Nigeria consumed its foreign reserves and increased of net public debt (Figure 8) by lending from the international capital markets.

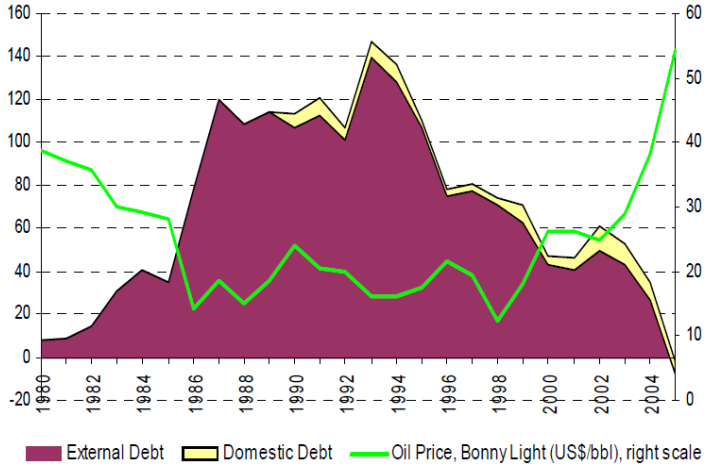

Figure 8: Oil Price and Net Public Debt (% of GDP), Source: Budina, Pang and Wijnbergen (2007) p. 6

As shown above, Nigeria was vulnerable to crude oil prices drop as it had already shrunk its agriculture and mining and became increasingly dependent on oil revenue (Figure 9).

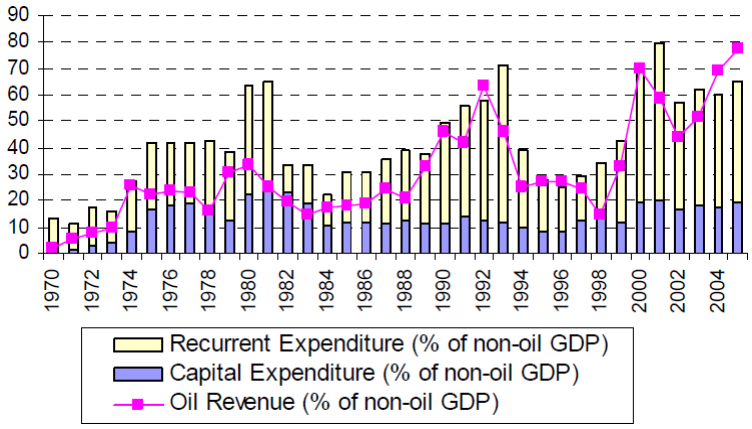

Figure 9: Expenditure and Oil Revenue (% of non-oil GDP), Source: Budina, Pang and Wijnbergen (2007) p. 5

During 1984-1993, the public debt to GDP ratio increased to 140%, primarily as a result of the exchange rate depreciation in 1986. During this period Nigeria faced a debt overhang problem, as the low oil prices determined the devaluation of the resource collaterals, undermining the credit quality of the new debt (Budina, Pang and Wijnbergen 2007). Nigeria was forced to restructure its sovereign debt (Das, Papaioannu and Trebesch 2012), which worsened the country's risk rating.

The volatility of oil revenue was the source of Nigerian macroeconomic instability. Instead of smoothing the effect of oil revenue volatility, the Nigerian policies amplified the macroeconomic volatility (Figure 10) because of the pro-cyclic government spending which included "White Elephants" projects.

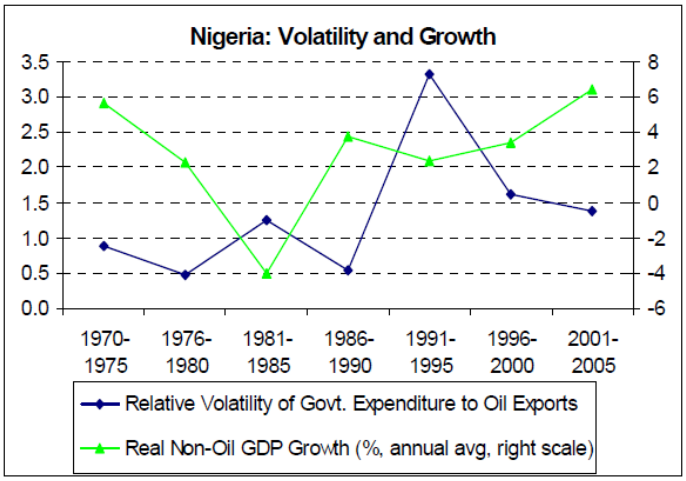

Figure 10: Expenditure volatility and Growth, Source: Budina, Pang and Wijnbergen (2007) p. 15

The economy picked up again after 2000, contemporaneous with the increase of oil prices. Nigeria began to park some of the windfall by establishing a sovereign wealth fund (SWF) and the oil price based fiscal rule (The World Bank 2005). The 2004-2007 period was characterised by coordination of fiscal, monetary and exchange rate regime and limited spending (Figure 11). This saving policy resulted in the reduction of the gross public debt to 31% of GDP in 2005.

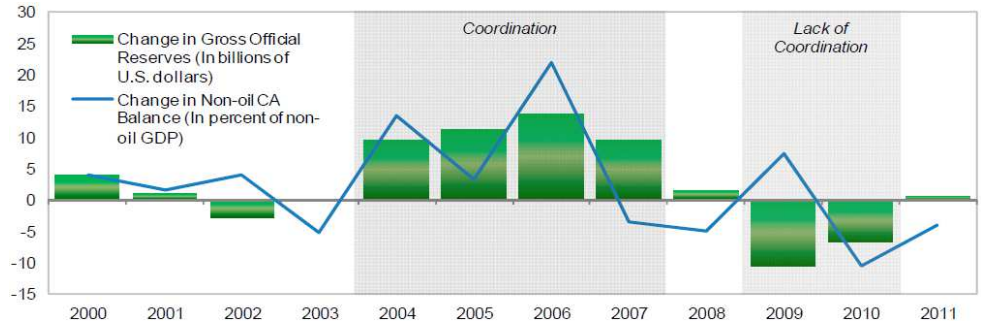

Figure 11: Nigerian external balance, Source: IMF (2012) p. 34

However, during this oil windfall period, the consolidated public expenditure continued to rise (Figure 12).

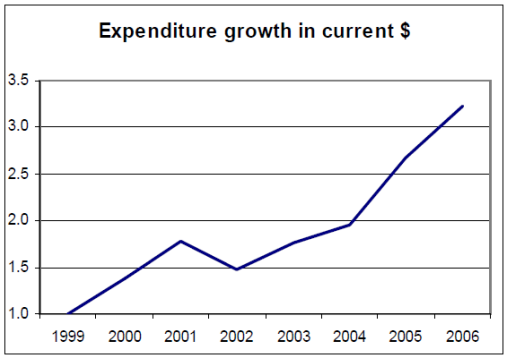

Figure 12: Growth in consolidated expenditure in USD, Source: Budina, Pang and Wijnbergen (2007) p. 9

In 2009-2010 the oil price rule and the stabilisation fund lost traction, leading to a lack of coordination (Figure 13).

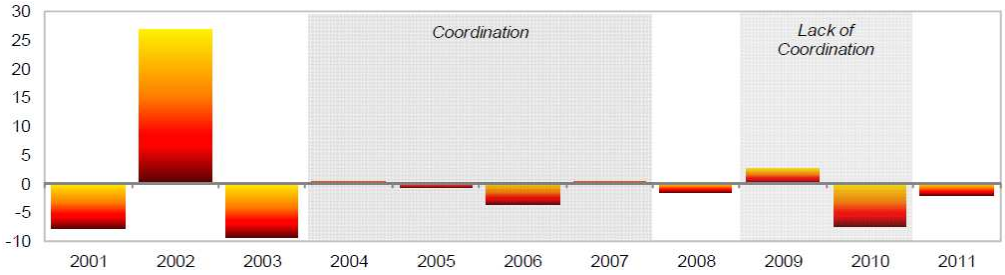

Figure 13: Change of non-oil primary balance (percentage of non-oil GDP), Source: IMF (2012) p. 34

By the end of 2013, the Excess Crude Account and SWF declined to USD 3 billion (IEA 2015) contemporaneous to high oil prices, showing the return to pro-cyclical approach.

Conclusions

During the analysed period, the structure of the Nigerian economy changed following the oil windfall. Nigeria became increasingly dependent on oil revenue and developed into a rentier state. The oil rents shaped the Nigerian political, economic and social environment. On the political side, oil rents had a stabilising effect on authoritarian rule. This was maintained by establishing low taxation regime for

population, poor tax collection, energy subsidies, patronage networks and clientelism, which impeded the socio economic development and led to economic inefficiencies. Social inequity triggered violent conflicts which decreased oil production and raised the country risk.

Even so, Nigeria remained attractive to foreign investors and had to manage the oil resources and capital inflows to achieve macro stability and development. The consumption, domestic investment and saving ratio were affected by the volatility of oil prices. Generally Nigeria adopted pro-cyclical measures by accelerating spending and investment during periods of high oil prices which lead to appreciation of the RER resulting in Dutch Disease, which suffocated the non-oil sector. The oil price downturns led to depreciation of Nigeria's collaterals, high interest borrowings and debt overhang.

Although Nigerian economy grew during the analysed period, the rate and sustainability of growth pose the question whether the oil windfall was a curse, rather than blessing.

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Satellite Health Accounts Models-Proposals for Romania

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Abstract

Starting from the Satellite Accounts System for Romania, other types of satellite health accounts may be developed, involving a rearrangement of the central classifications and a possible introduction of complementary elements. Health expenditures on different types of services, different types of health care providers, and according to financing source could be analyzed on sex and age groups. Age groups derive from the differentiation of the health services provided in the Romanian hospitals (0-1 years, newborns; 1-18 years, children; 18-65 years, adults; 65+, aged and old people). Health expenditures could be also analyzed relatively to the development regions of Romania. All these models of satellite health accounts that we suggest need highly specific and complex data for compilation, which can be achieved by specialized institutions such as the National Statistics Institute (and its branches) and other authorized institutions that have access to, and use on a regular basis the necessary data. Statistic data have not yet been published for such satellite account models.

Keywords: health satellite accounts, health expenditures, Romania.

Introduction

Values movement is universal, being present in enterprises, institutions, business groups, at the national and the international level. That is why we need to extend accounting calculations from the micro-economic level to the macro-economic level as stated by Tabără (2008).

Using statistics tools and data, The National Accounting System or The National Accounts System (SNA) aims at creating a complete digital representation of the national economy which, however, is sufficiently simplified to extract its fundamental aspects used particularly to achieve the forecast. Dobroţeanu and Feleagă (2004) observed that is obvious that besides the role the national accounts system plays to reflect the past activity and to help better understand the present economic phenomena, its side that allows exploring the future through forecasting, planning and economic policy is essential.

In June 2006 the European Council invited the European Union and its member states to extend the national accounts to the key issues of the sustainable development. Therefore, national accounts must be supplemented with integrated accounting which provides fully coherent data.

Use of Satellite Accounts

For some specific needs in terms of data, the best solution is to use separate satellite accounts. Satellite accounts can serve such data needs providing further details where necessary while removing unnecessary ones. They can extend the accounting framework by adding non-monetary information, such as information on pollution or environmental assets. They can change some basic concepts, extending for example the concept of capital formation, while introducing the expenditure on research, development or education as stated by European Parliament (1997).

Separate satellite accounts seem to be the best solution when it comes to certain specific data needs. The satellite accounts provide the opportunity of making connections between non-monetary statistics and the standard framework of the national accounts. In 2010, Costuleanu underlined that this link is possible if the classifications applied in the standard framework are used for these monetary statistics whenever there is a need for it.

When designing and compiling a satellite account, applying the concepts of the main framework for a specific purpose often results in the discovery of certain characteristics. From the point of view of their aim, these characteristics may be helpful, but they can also present previously unforeseen limitations.

Turning a satellite account which observes the main framework into a product meant for the data users may involve further stages. It is, however, possible to insert a general table with key indicators for several years. These key indicators might focus on the description of the size, the components and the development of the specific aspect involved, or may highlight the links with the national economy and with its major components. Further details and classifications which are relevant politically and analytically may also be added. Low added value details, or those whose compilation involves rather high costs, may be given up. Also, sustained efforts are needed to diminish the complexity of the tables, to increase the degree of simplicity and transparency for data users while certain standard accounting lay out details should be inserted in a separate table as suggested by European Parliament (2010).

The emphasis on the flexibility of the national accounts system is extended to allow total flexibility in relation to the number and the types of satellite accounts or other types of extended accounts that are being developed. The functional satellite accounts, especially those in the second category, allow new concepts and methods which are characterized by a higher degree of freedom than those in the main national accounts system, to be experimented. When a number of countries develop similar satellite accounts, experience exchanges may lead to improvements and to setting international trends in a particular field and, there might also arises the possibility of certain changes even within the central system as stated in 2008 by European Commission and partners.

As it has been already mentioned, a first set of satellite health accounts involves a rearrangement of the central classifications and a possible addition of complementary elements. Such satellite accounts may be taken as an extension of the key-sectors. They may be slightly different from the central system, though they do not change the basic concepts of the National Central system in depth. EU (2010) and the OECD-Eurostat-WHO partners (2011) forwarded satellite health account concepts starting from some main general principles, which are to be developed by each country according to their own needs and to the possibilities they have to get them.

Satellite Health Accounts Proposals for Romania

A first and extremely easy health satellite account that could be compiled for Romania is the one given as an example by the European Parliament (2010) and the European Council, that is key-statistics regarding health.

Starting from the Satellite Accounts System for Romania, other types of satellite health accounts may be developed and involve a rearrangement of the central classifications and a possible introduction of complementary elements.

One of the satellite health accounts that holds great informational value is the one that includes the total health expenditures, the current health expenditures and the creation of gross capital, related to the GDP, as well as the percentage of GDP allocated to health care over a time span, i.e. 2003-2009, extended, that we have developed and detailed in previous work by Costuleanu (2013). The variation of the value as parameter is constantly reported to the previous year (t-1).

Health expenditures on different types of services could be analysed on sex and age groups (Table 1). Age groups derive from the differentiation of the health services provided in the Romanian hospitals (0-1 years, newborn; 1-18 years, children; 18-65 years, adults; 65+, aged and old people). Such a classification, on different age groups though, is to be found in SCS 2000 and it refers strictly to the levels of household expenditures on health care as presented by OECD in 2000.

All these models of satellite health accounts that I suggest need highly specific and complex data for compilation, which can be achieved by specialized institutions such as the National Statistics Institute (and its branches) and other authorized institutions that have access to, and use on a regular basis the necessary data. Statistic data have not yet been published for such satellite account models.

Another way of detailing health expenditures as satellite accounts (that are recommended) is that dealing with different types of health care providers and that on age and gender groups (Table 2). Likewise, age groups derive from the specific provision of health care services in Romanian hospitals (0-1 years, newborn; 1-18 years, children; 18-65 years, adults; 65+ years, aged and old people).

Table 1: Satellite account model detailing the health expenses (millions RON, current prices) on types of services and on age and gender groups

Age groups / **Gender** / **Types of services**	**0-1 years**		**1-18 years**		**18-65 years**		**65+ years**	
	M	**F**	**M**	**F**	**M**	**F**	**M**	**F**
Curative and rehabilitation services								
Curative services								
Rehabilitation services								
Curative and inpatient rehabilitation services								
- Inpatient curatives services								
- Inpatient rehabilitation services								
Ambulatory curative and rehabilitation services								
- Ambulatory curative services out of which:								
Primary care and diagnosis services								
Ambulatory stomatology services								
Other specialised curative services								
Other ambulatory curative services								
- Ambulatory rehabilitation services								
Long term care services								
Inpatient long term care services								
Home assisted long term care services								
Ancillary care services								
Laboratory services								
Ambulance and non-emergency medical transportation services								
Other ancillary services								
Medical supplies provided to ambulatory patients								
Medicine and other non-durable medical supplies, out of which:								
- Drugs on prescription								
- Other non-durable medical supplies								
Therapeutic devices and other durable medical supplies, out of which:								

- Glasses and other vision devices								
- Orthopaedic and prosthetic devices								
- Hearing aids								
- Walking devices, including wheelchairs								
- Other durable medical devices								
Prevention and public health services								
Mother and child health, planning and family counselling								
School health services								
Prevention of communicable diseases								
Prevention of non-communicable diseases								
Other public health care services								
Health care management and health insurance services								
Public health management (excluding social security)								
Management, Operation and support activities of social security funds								
Non-specified medical services								
Current health expenditures								
Capital formation in the case of health care services providers								
Total health expenditures								
Research and development in health care								
Sanitary control (food, hygiene and drinking water)								
Environmental hygiene								
Management and provision of pecuniary benefits for health care								
The total of the pharmaceutical products and other non-durable medical supplies (those provided to inpatients included)								

This category also includes the detailing of the expenditures according to financing source and age and gender groups (Table 3). Age groups also derive from the specific provision of health services in Romanian hospitals (0-1 years, newborn; 1-18 years, children; 18-65 years, adults; 65+ years, aged and old people). The health satellite accounts could further link the expenditures on types of services (Table 1), types of health care providers (Table 2), financing sources of health care (Table 3), and Romania's development regions, correlated with the regional GDP, in correlation with Fig 1.

Table 2: Satellite account model: Health expenditures (millions RON, current prices) according to the type of health care providers and according to age and gender groups

Age groups / **Gender** / **Type of health care providers**	**0-1 years**		**1-18 years**		**18-65 years**		**65+ years**	
	M	**F**	**M**	**F**	**M**	**F**	**M**	**F**
Hospitals								
the public sector								
the private sector								
General hospitals								
Psychiatry and drug abuse hospitals								
Specialised hospitals (others than								

psychiatry and drug abuse hospitals)								
Heath care residential units								
the public sector								
the private sector								
Social and medical care units								
Residential units for mentally disabled people and treatment of drug abuse								
Other residential care units for disabled people								
Ambulatory medical services providers								
the public sector								
the private sector								
General practice and specialist surgeries								
the public sector								
the private sector								
Dental and oral health clinics								
the public sector								
the private sector								
Other types of surgery								
the public sector								
the private sector								
Ambulatory medical centres								
the public sector								
the private sector								
Medical laboratories and imaging diagnosis								
the public sector								
the private sector								
Home assisted service providers								
Other providers of ambulatory medical services, out of which:								
Ambulance and non-emergency medical transportation services								
- Blood and organs banks								
- Other ambulatory health care providers								
Medical supplies providers, retailers included								
the public sector								
the private sector								
Pharmacies								
the public sector								
the private sector								
Glasses and other vision supplies providers								
Hearing aids providers								
Medical devices, medicine and medical supplies providers								
Management and provision of public health programmes								
the public sector								
the private sector								

The general management of health and health insurances (the public sector)								
Public administration of health								
Social security funds								
The rest of the economic system								
Households that provide home assisted care services								
Other secondary providers of medical services								
The rest of the world								
Current health expenditures								

Table 3: Satellite account model: Health care expenditures (millions RON, current prices) according to the financing sources of health care and on age and gender groups

Age groups / **Gender** / **Financing sources of health care**	**0-1 years**		**1-18 years**		**18-65 years**		**65+ years**	
	M	**F**	**M**	**F**	**M**	**F**	**M**	**F**
Total public administration								
Public administration (not including social security funds)								
Central Administration								
The Ministry of Health								
Other ministries that hold their own sanitary network								
Local administrations (local budgets)								
Social Security Funds								
Total for the private sector								
Private insurance companies								
Direct health payments coming from households								
Nongovernmental Organizations (NGO-s) or non-profit institutions								
Corporations (others than health insurance companies)								
Sources that have not been classified somewhere else								
Total current expenditures								

Figure 1: Romania's development regions

As we have already mentioned, all these models of health satellite accounts require highly specific and complex data for compilation, and can be worked out only by specialized institutions such as the National Statistics Institute (and its subsidiaries) and other authorized institutions that have access to and use the necessary data, regularly.

However, the information they would provide be extremely valuable to make health care services more efficient for different age groups, each of them facing specific pathologies, and therefore, specific expenditures as stated by Costuleanu and Georgescu (2011).

At the same time, the above mentioned satellite accounts allow comparisons among various regions of the country, providing information which is useful for the local sanitary policies.

All satellite health accounts of the kind, along with the rearrangement of the central classifications and the introduction of the complementary elements they recommend, are linked to monetary data, being therefore integrated directly with the System of Satellite Account and the System of National Accounts as mentioned by Costuleanu et al (2012).

The second type of analysis based on satellite accounts mainly deals with alternative concepts to those in the SNA. Often, a series of alternative concepts can be used simultaneously. This second type of analysis satellite account may involve, similarly to the first type, changes of the central classifications, but for this second type the main stress falls on alternative concepts. The use of these alternative concepts may generate partial complementary aggregates, whose main aim is to complete the central system, as stated by Costuleanu et al (2011).

This type of functional satellite accounts mainly includes non-monetary data. We can therefore state that one of the main roles of the functional satellite accounts is to make the connection between the monetary data and the non-monetary data.

From the point of view health care services, the gross capital formation concretized in providing medical units with advanced technology medical equipment is highly important. Thus the health

account suggested as a model in Table 2 may be extended with a satellite account related to this aspect (Table 4).

Table 4: Satellite account models: Gross capital formation (%) concretized in furnishing the health care centres with advanced technology medical equipment.

Devices / Types of sanitary units	Devices (scanners) for:		Gamma devices	Devices for:				
	Computed tomography	Positron emission tomo-graphy (PET scanners)		Magnetic resonance (NMR)	Digital angiography (DSA devices)	Shredding kidney stones-litotriptor (LSI devices)	Radiation theraphy (RAD devices)	Mammograms
	% from gross capital	% from gross capital	% from gross capital	% from gross capital	% from gross capital	% from gross capital	% from gross capital	% from gross capital
Hospitals (institutes included, medical centres with hospital facilities)								
Health centres with hospital facilities								
Local health care centres								
Polyclinics								
Treatment and diagnosis centres								
Medical specialty centres								
Specialty ambulatories								
Ambulatory care units integrated to hospitals								
Health centres								
Civil medical societies								
Civil medical specialty societies								
Dental and oral health civil medical societies								

Surgeries (dental and oral health clinics not included)								
Dental and oral health clinics								
Medical laboratories								

Another health satellite account that we propose can be used to analyze the total number of consultations, the number of ambulatory consultations provided to patients, the number of treatments, the number of laboratory tests (paraclinical), the number of treatments per patient per type of healthcare cases, day-care treatments, person/days of hospitalization, the number of sick leave granted, all of them representing non-monetary data. If we add, however, the cost of the treatment per patient or the cost of the paraclinical exams per patient correlated with the current health expenditures then we introduce a link between non-monetary data and monetary data, a characteristic feature of the satellite accounts.

Conclusions

All these models of satellite health accounts that we suggest need highly specific and complex data for compilation, which can be achieved by specialized institutions such as the National Statistics Institute (and its branches) and other authorized institutions that have access to, and use on a regular basis the necessary data. Statistic data have not yet been published for such satellite account models.

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An Assessment of Parents Happiness and Awareness of the Effects of Mobile Devices on Children Social Communication Behaviours in Oman

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Abstract

This research aimed to assess the impacts of mobile devices on children's social communication behaviours in Oman. It endeavored to examine parents' awareness of the risks of mobile devices on children, and their happiness about their children uses of the mobile devices. To achieve this, the research carried out an exploratory case study on the Omani parents to assess their perspective on the effects of mobile devices on their children social communication behaviours. A detailed treatment of Parents Awareness and Happiness and their related predictors is presented using advance neural networks analysis.

Keywords: Social Communication, Mobile Effects, Children, Parents.

Introduction

The recent improvements in communication technology have enabled billions of users in the developed and developing parts of the globe to join those already using mobile devices (Mieczakowski et al., 2011). According to the statistics provided by (Stats, 2015) the internet users across the world are now 3,366,261,156 billion. In fact, mobile devices have put a great impact on individuals (example; teens, schools age, youth) to join this technological phenomenon. The usage of mobile devices has almost doubled over the past few years. According to (Statista, 2016) the number of mobile phone users worldwide in 2016 expected to reach 4.61 billion. Oman is one of those developing nations that have a vast penetration in using mobile devices. According to the Telecommunication Regulatory Authority in Oman (TRA, 2015); the total number of mobile subscribers has been 6,428,707 during 2015 in Oman, a figure that is almost double the total number of population.

Nowadays, most children acquire portable devices (example: laptop, smart phone, tablet, etc...) which can easily be connected to the World Wide Web (Buzzi, 2012). A study conducted in the United kingdom shows that almost one- third of the 3-4 years old go online "using a desktop PC, laptop or notebook , 6% go online via a tablet and 3% via a mobile phone". The use of mobile devices has created several problems for the people of different ages. The presence of mobile communication technology has affected the structure of human relationship (Turkle, 2012). "The mobile phones can interfere with human relationships, an effect that is prominent when individuals are discussing personally meaningful topics" (Przybylski and Weinstein, 2013). A mobile device encourages access to applications (Shuler, 2009) anytime and anywhere, which increasingly makes it difficult for parents to (physically) monitor their children's mobile device use (Campbell and Park, 2008). A study conducted by (Ravichandran, 2009) shows that the mobile usage weakens family relationships. Another study done by (Przybylski and Weinstein, 2013)says that the mobile devices have an effect on the quality of face to face interaction. The usage of smart phones has affected the psychological traits including social interaction, anxiety (Lee et al., 2014) . A study done by (Boxer et al., 2015) shows that technology has reduced the growth of children.

Parents are scarcely cognizant of the risks regarding the usage of mobile devices by their children and it is very crucial to make those parents aware of the impacts of mobile devices and internet in particular upon their children's social communication behavior. The parents' ability and willingness to monitor, share and control their children's use of online media has to face many challenges due to the portability of personalized and private nature of smart phones, which is entailed from the normal mobile phones. (Mascheroni and Ólafsson, 2014). In Sweden, young parents, aged between 25-45 years are providing their children with an accessibility to the internet via mobile devices (Holloway et al., 2013). Other studies show that parents are lesser concerned about their younger children using the internet than the older ones (McPake et al., 2010, Wagner, 2013, Brouwer et al., 2011).

More researches are needed to shed light on this issue and to investigate parents' role and perspective. There are many researches that focus on studying the usage of mobile devices by older children and teens, see for example (Holloway et al., 2013) but younger children are under researched especially with the risks associated with the use of mobile devices. Accordingly, this research assesses parents' awareness about the effects of mobile devices on their children's social communication behaviors. It also investigates their happiness of the use of their children of mobile devices. This problem is being viewed from parent's perspective, investigating children aged between (6-12) years.

Literature Review

The use of new electronic media by children and youth has been growing due to the entertainment and communication facilities provided by these devices. (Kirwil, 2011, Lange, 2014) show that the actual use of electronic devices already begins at the age of 7–11. The parents, guardians or the caretakers equip their children with those devices, assuming that these devices support their development, learning process and observation skills (Tomczyk and Wąsiński, 2014). Sometimes the reasons parents provide their children with smart phones is to persuade them to eat (Genc, 2014). There are obviously benefits and risks at the same time. The benefits may overcome the risks, and may not be recognized until years later (Rosenberg, 2013).

There are many risks or negative impacts associated with the use of mobile devices by children. "Cyberbullying" is one of them (Schrock and Boyd, 2008, Levy et al., 2012). Cyberbullying as a term is defined as "attempts to use emotional harm and social embarrassment through the use of instant messaging, email, social media, and text messages via cell phones." (Berson and Berson, 2002, Henson, 2012, Twyman et al., 2010). Another study done by (Mascheroni and Ólafsson, 2014) shows that younger children are exposed to a higher rate of harm (21%). Some other statistics show that the "smartphone users (17%) and tablet users (15%) have a greater experience of any form of cyber bullying than children who do not use mobile devices (8%)". Another study mentions that the social networks are responsible for creating an environment for cyberbullying especially for girls and young children (O'Neill and Dinh, 2015).

Another risk associated with the use of mobile device by children is "sexual messages". Prior studies showed that children are using mobile phone and internet to interact and search for sexual things (Lenhart, 2009, Livingstone, 2011). Sexual messaging can have "unintended consequences" and may result into hurtful or problematic practice for some children (Mascheroni and Ólafsson, 2014). There are also many additional risks related to the use of mobile devices. Some of them are ‘‘happy slapping" (Sieci, 2012, Chan et al., 2012) which means " aggressive or degrading video(s) are taken by a bystander and then forwarded to other people's phones or posted on a website" (Grigg, 2010), ‘‘cyber baiting" (Davison and Stein, 2014, Nixon, 2014) which means "the intention of harassment" (JIOW, 2015), ‘‘hating" (Delgado and Stefancic, 2014), "improper use of media in education" (Chudý et al., 2015, Glassman and Burbidge, 2014), "perilous contacts through the internet" (Blau, 2011), "child grooming" (Nair, 2006). On the other hand, young users of social media use internet not only to communicate with the known people, but also with the unknown, and this could lead to the possibility of sharing sensitive data with them such as: age, location of residence, e-mail address,

personal pictures, profession, hobbies and other confidential information (Tomczyk and Kopecký, 2016).

In this research, the aim is assess the effects of mobile devices on children social communication behaviors\skills. Several studies focused on assessing social communication skills among children with autism or other special needs in general (Hansen et al., 2014, Nesterova et al., 2015, Shukla-Mehta et al., 2009). In order to assess the impacts of mobile devices on children social communication skills/behaviors, Table 1 summarizes and describes the list of social skills and behaviors found from the literature.

Table 1: Social Communication Behaviors\ Skills

Social Communication Skill	Description	Reference
Language Skills	**Refers to children writing, speaking, reading and listening skills in their respective native language.**	**(Kersner and Wright, 2013)**
Grammar and Spelling	**Refers to children Grammar and Spelling skills in their respective native language.**	**(Kemp et al., 2014)**
Description	**Refers to children ability to describe what they want easily and clearly.**	**(Kersner and Wright, 2013)**
Talking	**Refers to children ability to talk with their peers and friends easily**	**(Kersner and Wright, 2013)**
Loneliness	**Refers to children ability to stay in group.**	**(Li and Lam, 2013)**
Alertness	**Refers to children seems to be absent minded when we talk to them\her.**	**(Foreman et al., 2014)**
Reaction	**Refers to children reaction when someone speaks to him\her.**	**(Grimshaw et al., 2007, Korat and Shamir, 2007)**
Social	**Refers to children ability to participate in social event like Eid and birthdays.**	**(Ravichandran, 2009)**
Freedom	**Refers to children ability to speak freely in social gathering or to say 'No' easily when don't want something.**	**(Benjamin, 2014)**
Fluency	**Refers to children ability to use mix-language when talking (e.g. Arabic and English) or to use new words when talk.**	**(Bishop and Norbury, 2005)**

Scholars have varied opinions about the effects of mobile devices on children social communication skills and behaviors. According to (Hourcade et al., 2013), the social interaction among children improves when using tablet rather than while reading books especially in the storytelling activities. In addition, using mobile applications has a potential to support "children's creative writing skills in order to motivate them to complete their writing tasks" (Kanala et al., 2013). Also (Kirkorian et al., 2008) mentions that the use of mobile devices by children could improve their social skills. On the other hand, a recent study done by (Genc, 2014), surveyed parents on the use of smartphones by their preschool children. Parents with a positive opinion and attitude towards smartphones said that it was

a source of improvement for the children's motor and cognitive skills, visual memory, and their adaptation to technology. While parents with a negative opinion said that it may cause a physical or mental problem in the future as they fear that their children will be introverted, will have an isolated life, or would be affected by harmful radiation.

Some studies have reported negative effects, since the use of some features in mobile devices such as animation could cause "distraction to reading comprehension and could divert the children's attention away from learning." (Grimshaw et al., 2007, Korat and Shamir, 2007). Apparently, the reaction of children would be somehow slower when using mobile devices and their reading skills could also be affected. Some parents confided that they are uncomfortable with the use of smartphones by their children. In addition, some parents mentioned that using these types of devices could affect the improvement or grooming of the kids. Therefore, the use of mobile devices should not be preferred by the children over their physical and developmental actions or social relationships or while communicating "with peers, family members, or teachers". Additionally and when children use e-book for learning, they recall few details due to the additional distracted features provided in the e-book such as games and Wi-Fi (Chiong et al., 2012).

On the other hand, according to (Radesky et al., 2015), the interaction between parents and children during mealtime could prevent children from a number of issues, such as obesity (Hammons and Fiese, 2011), asthma (Fiese et al., 2011) and adolescent behavioral risks (Skeer and Ballard, 2013). The presence of mobile devices during this time could mitigate these benefits (Coon et al., 2001). Generally, mobile devices affect a parent-child interaction and is ought to be studied further to understand the effects of their usage upon the parent-child engagement in a lifelike context (Radesky et al., 2015).

Research Methodology

This research started with a general literature review in an aim to define the research objectives and questions. It carried out an exploratory case study on the Omani parents to assess their perspective on the effects of mobile devices on their children social communication behaviors. In parallel, a more focused literature review was carried out to develop a survey instrument. The research instrument has been designed based on the literature review and research objectives. Afterwards, the survey validity was conducted in two stages. The first stage was "Face Validation", in which the questionnaire templates were distributed among Information Systems experts or other department's experts to collect some comments about whether the questions effectively captured the topic under investigation (Are survey questions understandable or confusing). The second stage was "Pilot Survey Test", in which the survey questions were distributed to 10 parents in the college to test the data for any statistically weak questions. The questionnaires were refined based upon the outcomes of the survey validation stage in order to match all the comments which were provided previously.

The questionnaire was divided into different sections to achieve different aims. The questionnaire template has been designed in four sections to emphasize a better understanding and easy way of completion. It begins with demographic (Background Information) questions of the parents; including relationship of the participant to the children, age, education, income level, marital status and number of children corresponding to their ages. The second section is about parents' usage of mobile devices to assess if they are a mobile device user, number and types of mobile devices they own, how often they change a mobile device, and finally the amount of time they spend while using the mobile devices. The third section is the same as the second section but asks questions about the children and their usage of mobile devices. The aim of sections 2 and 3 is to assess the fluency of parents and children in using mobile devices (though this is beyond the scope of this paper). The last section is divided into two main parts: 1) social communication skills to survey parents take on the effects of mobile devices on their children social communication skills/behaviors, 2) Parents' awareness about the effects of mobile devices on their children social communication skills/behaviors.

Findings

Neural networks (non-linear statistics (Baxt and Skora, 1996)) is comparatively a new mathematical approach for recognizing the perceptive patterns in data (Coats and Fant, 1993). It is capable of understanding complex relations in a data set. Since it tries to mimic the human brain, its performance is considered superior to the traditional causal explanatory models (Chong et al., 2013). The neural network modeling has been successfully applied in predicting bank bankruptcy, loan assessment and many other domains. Here, the study aimed to use neural networks analysis to assess key variables as possible predictors of the study main variables (Parents' Happiness and Parents' Awareness). Tables 3, 4 define key variables that have been tested.

Table 3: Parents' happiness and independent variables

Dependent Variables	Independent Variables	Question No.
Parents' Happiness	**Gender of parents**	**Q2**
	Age of parents	**Q3**
	Education Level of parents	**Q4**
	Income Level of parents	**Q5**
	Number of hours spent by parents in using mobile devices	**Q13**
	Number of hours spent by children in using mobile devices	**Q19**
	My children's language skills are progressing well .	**Q21_1**
	My children's grammar and spelling skills are progressing well.	**Q21_2**
	My children are able to describe whatever they want to easily and clearly.	**Q21_3**
	My children are able to talk with their peers and friends easily.	**Q21_4**
	My children like to stay in groups.	**Q21_5**
	My children often seem to be absent- minded when we talk to them.	**Q21_6**
	My children's reaction is not slow when we start talking to them.	**Q21_7**
	My children like to participate in social events like Eid and birthdays.	**Q21_8**
	My children speak freely at social gatherings.	**Q21_9**
	My children are able to say 'No' easily when they don't want something.	**Q21_10**
	My children use multi-languages while talking. (e.g. Arabic and English)	**Q21_11**

	My children always use new words while talking.	**Q21_12**
	It is normal that my children own mobile devices.	**Q23_1**
	I feel safe when my children use mobile devices when I am not with them.	**Q23_2**
	It is normal that my children have access to social networks via mobile device.	**Q23_3**
	It is normal that my children play online games via mobile devices.	**Q23_4**
	It is good for a specific age of children to use and own mobile devices.	**Q23_5**
	It is okay that parents do not allow their children to use mobile devices.	**Q23_6**
	It is okay to allow the Wi-Fi network being connected to my children's mobile device all the time.	**Q23_7**
	I feel safe when my children share personal photos via social networks.	**Q23_8**
	I feel safe when my children contact strangers.	**Q23_9**
	I talk with my children about mobile devices' risks.	**Q23_10**
	Parent Mobile Fluency	**PMF**
	Children Mobile Fluency	**CMF**
	Parents' Awareness	**PA**

Parents' Happiness

Here we explore how parents perceive several issues that are seen to affect their happiness regarding the usage of mobile devices by their children. The dependent variable is presented in Q24 in which it is being asked about the parents' happiness for their children using the mobile devices. On the other hand, many independent variables may have an effect on parents' happiness in order to achieve the study objectives. Table 3 represents all 31 independent variables. After performing the neural networks analysis, table 4 shows each variable with its importance to the base variable. The variables are in ascending order among which the first variable has the highest importance. The test, "It is normal that my children own mobile devices," scored the highest importance. More details are in table 4. All the variables with an importance level of 44.4% and above was selected for a second test that aims to rank the top variables against each other. Results are presented in Table 5.

Table 4: The Results of Neural Networks Tests (Parents' happiness as dependent variable)

Variables	Normalized Importance	Importance
It is normal that my children own mobile devices , Q23_1	100.0%	.066
It is okay that parent do not allow their children to use mobile devices. Q23_6	96.9%	.064
My children often seem to be absent- minded when we talk to them. Q21_6	96.3%	.064
My children's reaction is not slow when we start talking to them .Q21_7	95.9%	.064
It is normal that my children play online games via mobile devices. Q23_4	91.9%	.061
My children's grammar and spelling skills are progressing well. Q21_2	91.8%	.061
I feel safe when my children share personal photos via social networks .Q23_8	77.3%	.051
My children are able to talk with their peers and friends easily. Q21_4	71.0%	.047
I feel safe when my children use mobile devices when I am not with them. Q23_2	69.8%	.046
It is okay to allow the Wi-Fi network being connected to my children's mobile device all the time. Q23_7	68.9%	.046
My children's language skills are progressing well. Q21_1	66.7%	.044
My children like to stay in groups .Q21_5	59.4%	.039
My children are able to say 'No' easily when they don't want something. Q21_10	50.3%	.033
I talk with my children about mobile devices' risks. Q23_10	49.8%	.033
Age of Parents	46.3%	.031
Parents' Awareness	44.4%	.029
My children like to participate in social events like Eid and birthdays .Q21_8	39.5%	.026
Gender of Parents	39.2%	.026
Number of hours spent by parents	38.3%	.025
My children use multi-languages while talking .(e.g. Arabic and English) Q21_11	35.8%	.024

It is normal that my children can access social networks via mobile device. Q23_3	**31.5%**	**.021**
I feel safe when my children contact strangers .Q23_9	**22.8%**	**.015**
Education Level of parents	**22.3%**	**.015**
Parent Mobile Fluency	**18.3%**	**.012**
My children speak freely at the social gatherings. Q21_9	**16.3%**	**.011**
Number of hours spent by children	**13.9%**	**.009**
It is good for a specific age of children to use and own mobile devices. Q23_5	**12.2%**	**.008**
My children are able to describe whatever they want easily and clearly. Q21_3	**12.0%**	**.008**
Income level of parents	**10.9%**	**.007**
My children always use new words while talking. Q21_12	**10.0%**	**.007**
Children Mobile Fluency	**5.0%**	**.003**

As shown in table 5, the first variable has a stronger relationship with the base variable, "I feel safe when my children use mobile devices when I am not with them," and it scored the highest level of importance rather than the others with the normalized importance of 100%. Secondly, "My children like to stay in groups", scored the second highest importance level, while the others were with the normalized importance level of 75.6%. On the other hand, "My children often seem to be absent minded when we talk to them" scored the least among others. More details are in table 5. A comprehensive diagram for the top sixteen variables is provided in Figure 10, which shows the top sixteen predictors with the highest percentages.

Table 5: Top sixteen vaiables

Independent Variables	**Normalized Importance**	**Importance**
I feel safe when my children use mobile devices when I am not with them. Q23_2	**100.0%**	**.150**
My children like to stay in groups. Q21_5	**75.6%**	**.113**
It is okay to allow the Wi-Fi network being connected to my children's mobile device all the time. Q23_7	**75.0%**	**.112**
It is normal that my children own mobile devices. Q23_1	**67.6%**	**.101**
It is okay that parents do not allow their children to use mobile devices .Q23_6	**54.8%**	**.082**
Parents' Awareness	**47.9%**	**.072**
My children's language skills are progressing well. Q21_1	**44.9%**	**.067**

I talk with my children about mobile devices' risks .Q23_10	**32.3%**	**.048**
Age of Parents	**31.6%**	**.047**
My children's grammar and spelling skills are progressing well. Q21_2	**27.0%**	**.040**
My children are able to say 'No' easily when they don't want something .Q21_10	**24.6%**	**.037**
My children are able to talk with their peers and friends easily. Q21_4	**23.0%**	**.034**
I feel safe when my children share personal photos via social networks .Q23_8	**19.6%**	**.029**
My children's reaction is not slow when we start talking to them. Q21_7	**19.2%**	**.029**
It is normal that my children play online games via mobile devices. Q23_4	**14.3%**	**.021**
My children often seem to be absent -minded when we talk to them .Q21_6	**11.0%**	**.017**

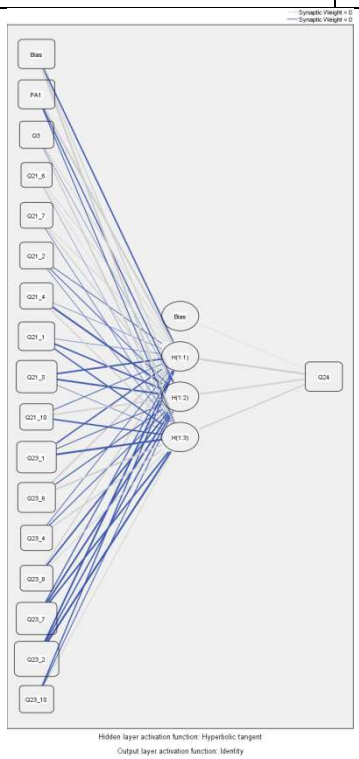

Figure 10: Relationship between (Parents' Happiness) and Independent Variables

Parents' Awareness

This section explores the variables influencing upon the awareness of the parents regarding the effects of mobile devices on children. The base variable asked about parents' awareness regarding the effects of mobile devices on their children. Table 6 presents the chosen eight dependent variables.

Table 6: Parents' Awareness and Independent Variables

Dependent Variable	Independent Variables
Parents' Awareness	**Children Mobile Fluency**
	Age of parents
	Parent Mobile Fluency
	Number of hours spent by children while using mobile devices
	Income Level
	Education Level
	Number of hours spent by parents while using mobile devices
	Gender of parents

Table 7 illustrates the results of neural network test. The variables are in ascending order. The first variables have the highest importance among others. For this test, "the number of hours spent by parents" scored the highest percentage followed by the income level and age of parents. On the other hand, parent mobile fluency was the least important among other variables. More details are in table 7. A comprehensive diagram for this test is provided in Figure 11, which shows the relationship between the base and dependent variables.

Table 7: The Results of Neural Networks Tests (Parents' Awareness as dependent variable)

Independent Variables	Normalized Importance	Importance
Number of hours spent by parents while using mobile devices (Q13)	**100.0%**	**.230**
Income Level of Parents(Q5)	**92.6%**	**.213**
Age of parents (Q3)	**78.5%**	**.181**
Number of hours spent by children while using mobile devices (Q19)	**60.0%**	**.138**
Education Level of Parents(Q4)	**38.4%**	**.088**

Gender of parents (Q2)	**26.5%**	**.061**
Children Mobile Fluency (CMF)	**20.6%**	**.047**
Parent Mobile Fluency (PMF)	**17.9%**	**.041**

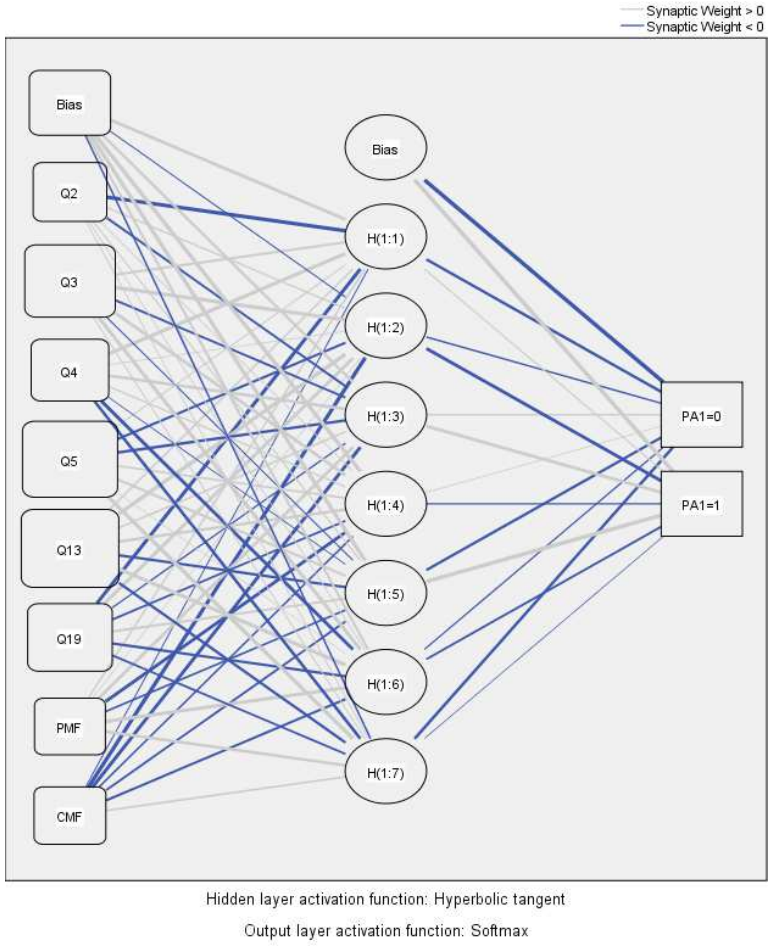

Figure 11: Relationship between (Parent Awareness) and independent variables

Discussion

The first and utmost objective of this research was to assess the happiness and awareness of parents in Oman about mobile devices' usage and impacts upon their children. Parents Happiness and Parents Awareness were analyzed previously. Figure 12 shows a comprehensive model for both variables and its predictors, and Table 8 describes each of these predictors. As observed, only one common variable affects both variables, and that is the age of parents. The change in the age of parents may have an effect on parents' happiness and awareness. In other words, the age of parents is more likely to affect their awareness and happiness on their children's' usage of mobile devices.

Table 8: Each Indicator with Description

No.	predictors	Description
1	Sense of Safety	Parent feels safe when their children use mobile devices when parent not with them
2	Loneliness	
3	Wi-Fi Approval	Parent feels safe when their children connect mobile devices to Wi-Fi Network
4	Mobile Approval	It is normal that children own mobile devices
5	Mobile Ban	It is okay that parents do not allow their children to use mobile devices
6	Language Skills	Children's language skills are progressing well
7	Talk about mobile devices risks	Parent talks with my children about mobile devices' risks
8	Grammar and spelling kills	Children's Grammar and spelling kills
9	Freedom skills	Children are able to say 'No' easily when they don't want something
10	Talking skills	Children are able to talk with their peers and friends easily
11	Sense of Safety (share personal photos)	Parent feels safe that their children share personal photos via mobile devices
12	Reaction skills	Children's reaction is not slow when we start talking to them
13	Online Games Approval	Parent feels normal that their children play online games via mobile devices
14	Alertness skills	Children often seem to be absent -minded when we talk to

		them
15	**Parents' Hours**	**Number of hours spent by parents while using mobile devices**
16	**Income Level**	**Income level of parent**
17	**Children's Hours**	**Number of hours spent by children while using mobile devices**
18	**Education Level**	**Education level of parent**
19	**Gender**	**Gender of parent**
20	**CMF**	**Children mobile fluency**
21	**PMF**	**Parent mobile fluency**
22	**Age**	**Age of parent**

Other interpretations are as follows:

- The awareness of the parents about the effects of mobile devices' usage among children influences their happiness.
- Parents who feel safe regarding their children's use of mobile devices when not with them are more likely to be happy about their children using the mobile phones.
- Parents whose children like to stay in groups are more likely to be happy regarding their children mobile devices' usage. d
- Parents who allow their children to connect to the Wi-Fi network all the time are more likely to be happy regarding their children mobile devices' usage.
- Number of hours spent by parent has an impact upon their awareness regarding the effect of mobile devices used by their children.
- Parents' income level and age has an effect upon their awareness regarding the effect of mobile devices used by their children.

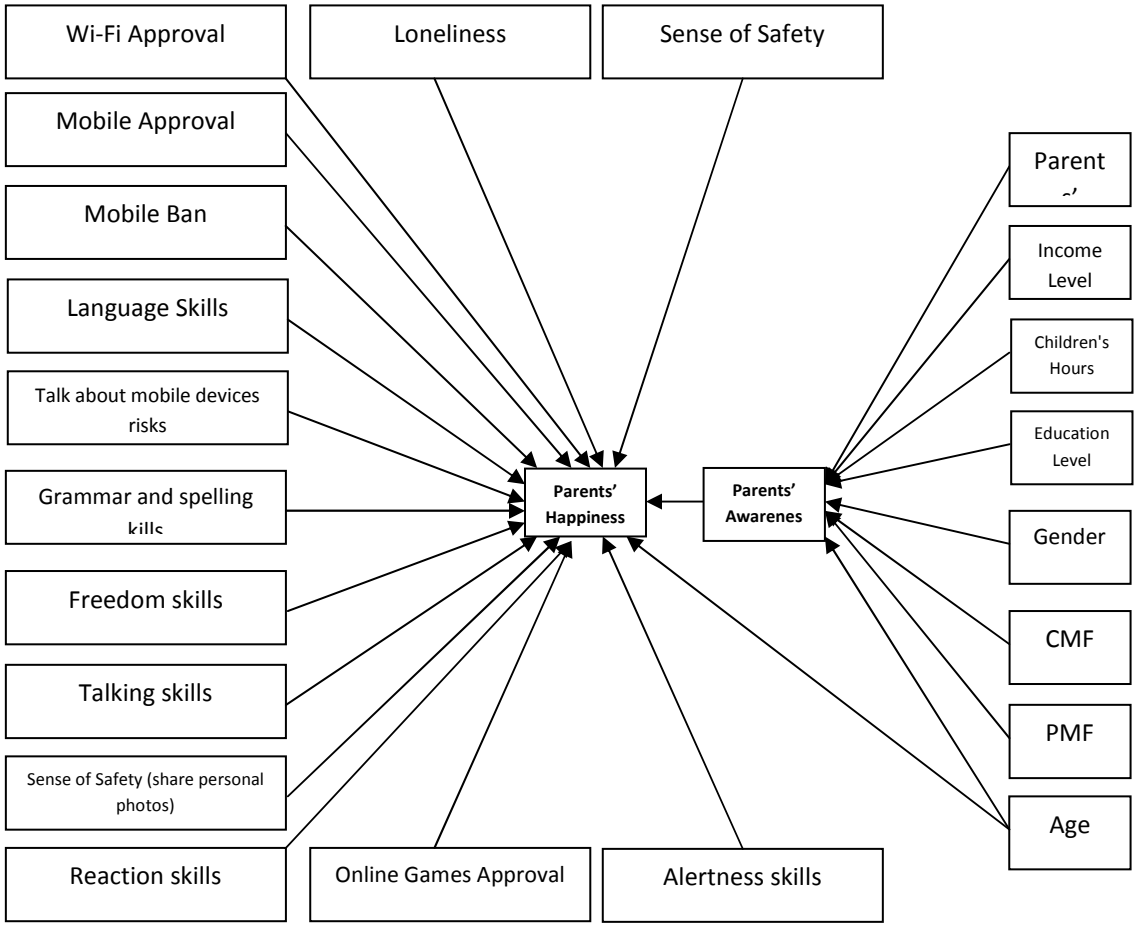

Figure 12: Parents Mobile Happiness and Awareness Model

Another related aim of the study was to identify the social communication effects of mobile devices on children in Oman. Table 8 shows the social skills that are ranked by parents.

Table 8: Ranking of social communication skills of children

No.	**Statement**	**Rank**	**Percentage**
1	**Children Social Effect 8: Social**	**1**	**80.5%**
2	**Children Social Effect 9: Freedom**	**2**	**75.1%**
3	**Children Social Effect 4: Talking**	**3**	**69.7%**
4	**Children Social Effect 3: Description**	**4**	**63.2%**
5	**Children Social Effect 1: Language Skills**	**5**	**61.7%**
6	**Children Social Effect 5: Loneliness**	**6**	**60.6%**

7	**Children Social Effect 8: Social**	**7**	**58.3%**
8	**Children Social Effect 7: Reaction**	**8**	**55.6%**
9	**Children Social Effect 2: Grammar and Spelling**	**9**	**52.5%**
10	**Children Social Effect 10: Fluency**	**10**	**46.3**
11	**Children Social Effect 10: Fluency**	**11**	**34.5%**
12	**Children Social Effect 6: Alertness**	**12**	**24.5%**

Recommendation

The last question in the questionnaire was a 'Yes' or 'No' question of which participants was asked if they are happy about their children usage of mobile devices. Interestingly, more than half (52.1%) of the parents have answered "Yes", while the rest (47.9%) answered "No". The parents may have a mixed opinion about their children's mobile use. Although the reaction of the parents to their children's social communication skills was positive in general, still 47.9% are not happy. The reason could be that parents might have felt reluctant to honestly answer the social communication section which may signal a failure in supervision. Another reason could be that parents were forced to give their children mobile devices. It could also be a mean for parents to gain peace of mind, social status, or as a social pressure from their own peers and relatives. In all cases, such discrepancies in the findings urge us to treat the results carefully. It is highly recommended for future work to apply not only the quantitative but also a qualitative method in order to assess and observe parents' perception of mobile devices' usage among their children.

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EA Innovations in Managing Public Sectors: Issues & Challenges

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Abstract

Enterprise Architecture (EA) has been identified as one of the prime initiative towards public sector transformation. EA implementation innovates public sector management. However, building upon several public sector agencies that had implemented these initiatives, it was reported as unfavourable in sustaining EA practices. This study aims to i. identify related issues and challenges towards sustainability of EA implementation and ii. to identify factors that influence sustainability of EA practices. Through qualitative approach, six related issues were discerned and six key factors were established in sustaining EA practices in the construction of EA governance framework. With regards to the practical implication, this paper can serve as reference in establishing EA initiatives in the public sector.

Keywords: Enterprise Architecture, EA Management, public sector, sustainability, issues and challenges

1. Introduction

Public sectors are increasingly aware of the importance of employing E-government to improve the delivery of public services to the people (Sebastian & Supriya 2013). This becomes the main agenda towards transformation of public sector service delivery. According to Malaysian Public Sector ICT Strategic Plan 2011-2015, ICT transformation agenda planned to support four ICT Strategic Thrust that is i. Enhancing Service Delivery ii. Connected Government iii. Good Governance and iv. Sustainable and Resilient ICT. In order to transform, this four strategic thrust that consists of business and IT driven need to be aligned. This can be achieved by embarking Enterprise Architecture (EA) practices. According to Waseda University World E-Government Ranking Government, EA is relevance with the transformational government goals to ensure efficient government management by improvement of interactions with business, citizens and within the government agencies (Obi & Iwasaki 2010).

Most developed nations have embarked on this phenomena in recent years because without EA an organisation will risk being uncompetitive, ineffective, inefficient, and lack resilience to challenges from and within the environment. Thus, EA brings innovation in managing Public Sectors (MAMPU 2015; Nikpay et al. 2015). However, organisation becoming complex over the year due to rapid development of technology and vast number and complexity of information systems in running operations (Seppanen et al., 2009). This includes public sector towards more responsive service to the citizens and businesses. To manage the interrelationships and growing demands on business agility, EA act as an innovation mechanism to overcome this complexity by aligning between business and IT (Iyamu & Mphahlele 2014; Seppanen et al. 2009; Aier & Schelp 2010). Prior to this, EA is a structured approach used to manage and define an organisation across different domains. It is often used as a practice to help transform the organisation through understanding, reconciling and planning across the Business, Data, Application and Technology domains (MAMPU 2015; Nikpay et al. 2015). According to the result of the research being conducted among CIO in the public sector,

Whole of Government (WoG) approach is through EA (MAMPU 2016). EA act as an ecosystem enabler (MAMPU 2016). This ecosystem enabler is needed to support the implementation of IT Strategic Thrust.

To date, EA is implemented in five public sector agencies in Malaysia. Malaysian Public Sector has come out with an initiative called 1 Government Enterprise Architecture or 1GovEA. 1GovEA act as a blueprint to improve consistent and comprehensive Digital Government service delivery. However, based on the maturity assessment conducted by MAMPU in 2014, to sustain EA practices faced some issues and challenges (MAMPU 2015). Thus, EA approaches receive major criticisms due to frequent changes in processes, landscape, practices and procedures of government and governance (Van Der Raadt et al. 2010; Maheshwari et al. 2011; Janssen 2012).

This paper aims to identify and categorise the issues and challenge of EA management in public sector organisations since less attention is given in this area in the existing academic publications. In this study, first, the literature was studied to find out the enterprise architecture definition criteria and followed by conducting case studies of five public sector organisations that have implemented EA. Then the experts' opinion was gathered to validate the factors that affect the sustainability of EA practices in public sector organisations.

The following sections in this paper are organized as follows; Section 2, describes the literature review, which focuses on EA and the public sector EA. Section 3 describes the research methodology used for this study. Section 4 reports the result and analysis of the findings. Finally, Section 5 concludes and provides recommendations for further research on this research area.

2. Literature Review

This section explains the reviews of current literatures which consist of two sub-sections; EA and public sector EA.

2.1 Enterprise Architecture (EA)

EA is an approach for an organisation to plan strategically to facilitate in decision making process through systematic arrangement. It also can act as a blueprint for organisations to achieve current and future business objectives by alignment of strategy with business and technology. EA is concerned with a systematic arrangement of different business processes, procedures, standards, rules and regulations, information systems and technical infrastructure of current information and expected future transformations and goals (Maheshwari et al. 2011; Janssen 2012; Van Der Raadt et al. 2010). EA function basically being defined as organizational functions as a whole that interrelate through formal (governance) and informal (collaboration) processes in the enterprise, domain, project, and operational levels (Van Der Raadt et al. 2010). Therefore, in a wider perspective, EA is a holistic approach that not only limited to IT but also align with the business.

2.2 Public Sector EA

Increasingly, EA in public sector efforts are part of Electronic Government (EGOV) programs conducted by national and other levels of governments. A major application area for the Government EA (GEA) practice, Electronic Government (EGOV) is defined as strategic use of Information and Communication Technology (ICT) by governments to enable transformation in service delivery, relationships with key stakeholders, and internal working and management in government (Ojo et al. 2011).

One reason for the increasing prominence of GEA as a management and technology practice in government is its association with the transformational government goals (Ojo et al. 2011). GEA can be viewed as a practice or an artefact. As a practice, it enables rigorous description, design and

analysis of organizational structures that span the boundaries of different organizations. As an artefact, it comprises principles, methods and models used to design and implement organizational structures, business processes, and information systems and infrastructure of an enterprise (Ojo et al. 2011). According to (Jahani et al. 2010), architectures can cover a range from general architecture for the whole government to very specific for a certain organization in one particular domain. The unique differences in the governmental environment compared to corporate enterprises have also stirred a discussion of what could and should be best practice of using EA in the public (Klischewski 2014).

3. Research Methodology

As a whole, appropriate research methodology creates platform to have a proper activity in relevance area and it guides the researchers in the right direction. This research framework focuses on issues and challenges of EA implementation. Target studies are selected by searching on reliable databases, including: science direct, springer, IEEE, and ACM. The intended papers were selected by using the related search keywords, including "Enterprise Architecture Implementation", "Enterprise Architecture Issues", "Enterprise Architecture Implementation Challenges", "sustainability" and reading the whole parts of them in order to obtain appropriate studies. This study aim is to collect current issues on EA implementation based on a defined research framework especially in current decade. According to Kumar (2011), the main focus of qualitative study is to understand, explain, explore, discover and clarify situations, feelings, perceptions, attitudes, values, beliefs and experiences of a group of people. Hence, this study is using a qualitative approach to identify related issues and challenges towards sustainability of EA implementation and categorized the issues and challenges according to factors that influence sustainability. The main questions of this study are:

i. What are the innovations in managing in public sector organisations through EA?

ii. From i., what are the common issue and challenges in practicing EA?

This study was started with literature review and it is followed by conducting case studies using focus group interviews techniques and finally gathering the experts' opinion. **Figure 1** shows the process in conducting this study.

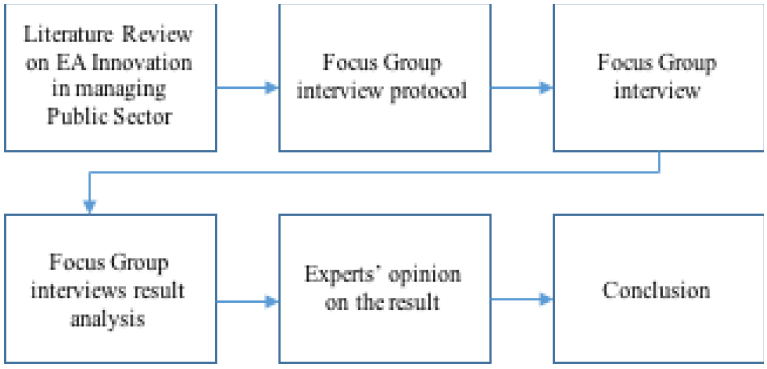

Fig. 1: The study process

The proses started by reviewing the existing literature that related to EA implementation in organisations to search for issues and challenges in sustaining the practices. From the literature, the protocol of the focus group interviews is created includes the component of heading, instructions, questionnaires, thank you statement and logs.

Next, five public sector organisations were selected as a case study for focus group interview session. The selection of public sector organisations is based on the agency that already implement EA initiatives. From each selected organisation, the EA expert and EA practitioner were identified as interviewees for the focus group interview. These interviewees were selected based on their experience and deep understanding in EA implementation in their organisation. **Table 1** indicates the selected public sector organisation characteristics and the interviewees' roles in the organisation.

Table 1: Organisations' characteristic

Organisation	**Type of organisation**	**Interviewees' role in organisation**
Organisation 1	Government agency	- Head of Administration Department - Head of IT Unit - Executive of IT
Organisation 2	Government agency	- Head of Strategic Department - Head of IT Unit - Executive of IT
Organisation 3	Ministry	- Head of Strategic Department - Head of IT Unit - Executive of IT
Organisation 4	Ministry	- Head of Strategic Department - Head of IT Unit - Executive of IT
Organisation 5	Government agency	- Head of Strategic Department - Head of IT Unit - Executive of IT

Then, the focus group interview sessions were conducted and the interviews were recorded. Subsequently, the result of the interviews was analysed by the researcher. Afterward, experts' opinions were inquired in categorizing the analysed results to come out with the conclusion. **Table 2** depicts the experts' characteristic based on their years of experience in the public sector, experience related and roles in their current organisations.

Table 2: Characteristic of Expert

Expert	**Years of experience in public sector**	**Experience related**	**Roles in current organisations**
Expert 1	35 years	- IT Managers in five Malaysia's Government agencies - Lead consultant for information management and strategies in 8 years - Team leader for more than	- Senior Lead consultant for Strategies in Malaysia's public sector

Expert	Years of experience in public sector	Experience related	Roles in current organisations
		10 information management and EA projects	
Expert 2	25 years	- IT Managers in 4 Malaysia's Government agencies - Team leader for more than 5 system development project and 4 EA project	- IT Expert (Information Management and EA in Malaysia's public sector)
Expert 3	11 years	- IT Executives in Malaysia's Government agencies - Team member for more than 4 strategic planning project and 2 EA project	- IT Expert (Information Management and EA in Malaysia's public sector)

4. Result and Analysis

This section represents collected information about EA implementation in the public sector based on the defined research method. The analysis is based on interview sessions conducted with the five public sector agencies that implemented EA.

4.1 EA implementation in Public Sector Organisations

One of the main problems an enterprise has to face today is sustainability in an dynamic environment (Schoenherr & Aier 2005). The interviews revealed that the public sector organisations have issues and challenges to sustain EA implementation in their organisations. **Table 3** depicted the analysed results of the focus group interviews in issues and challenges to sustain EA implementation their organizations.

Table 3: Analysed result of the interviews

Organisation	Issues and Challenges
Organisation 1	i. No mandate from government ii. No proper governance iii. No EA tool to maintain EA document
Organisation 2	i. Lack of EA awareness ii. Lack of readiness iii. Limited knowledge and skills on EA among the team iv. No EA tool to maintain EA document

Organisation	Issues and Challenges
Organisation 3	i. No mandate from government ii. Limited knowledge and skills on EA among the team iii. No proper governance
Organisation 4	i. Limited knowledge and skills on EA among the team ii. No proper governance iii. Lack of readiness
Organisation 5	i. No proper governance ii. Lack of EA awareness iii. Lack of readiness

From the Table 3, further categorization of issues and challenges to sustain EA implementation the public sector based on experts' opinions has been described in Section 4.2.

4.2 EA implementation and sustainability

From the analysed result of the interview, experts' opinion is gathered to identify factors that affect sustainability of EA implementation in organisation. The experts' dictated that factors such as i. governance ii. knowledge and skills iii. mandate iv. readiness v. awareness and vi. tools are the main factors towards sustainability of EA implementation in public sector agencies. Researchers that stated the factors in issues and challenges in sustaining EA implementation are listed in **Table 4**.

Table 4: Factors in Issues and Challenges

Factors	**Researchers**
Governance	(Seppanen et al. 2009; Iyamu & Mphahlele 2014; Kaisler et al. 2005; Sugumaran & Al-khaja 2014)
Knowledge and Skills	(Seppanen et al. 2009; Kaisler et al. 2005; Ahuja 2008; Bakar 2013)
Mandate	(Bente et al. 2012b; Janssen & Hjort-Madsen 2007)
Readiness	(Jahani et al. 2010)
Awareness	(Ahuja 2008)
Tools	(Becker et al. 2011; Bente et al. 2012a; Buckl et al. 2010)

From Table 4, six factors identified support sustainability of EA implementation in public sector organisations (Ahuja 2008; Aier & Schelp 2010; Bakar 2013; Simon et al. 2014).

5. Conclusions

To conclude, this paper identifies six factors that contribute towards sustainability of EA implementation in public sector agencies from interview of focus group from five Malaysian's public sector organisations that already implement EA and by gathering experts' opinion in classifying the factors from issues and challenges derived upon.

To date, most EA implementation faces major issues and challenges in sustaining the practices. Prior to this, to sustain EA practices, organisation need to consider the factors identified. This study has no claim to be complete. Further research is required to extend the findings. However, at this present stage, this paper can serve Malaysia's Public Sector and other practitioners as a reference in considering the factors before implementing EA in their organisation. From an academic perspective, this paper represents a theory for identifying issues and challenges towards sustaining EA practices in public sector organisations.

6. Acknowledgement

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The Impact of IT Infrastructure Flexibility on Strategic Utilization of Information Systems: Systematic Review

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Abstract

Hardware, software, network and data are a part of the components required in IT infrastructure in an organization for their day-to-day operation. Any changes, demands, requests, customizations, etc. from customers towards certain product/services, changing direction or business objectives, to accommodate the technological invention and innovation and also to follow current trends, it can be done and fulfilled easily, efficiently and effectively if their IT infrastructure is flexible. Furthermore, to compete with other organizations, the organization itself must ensure which information systems should be in place and/or which one to be maintained. This leads the managers or decision makers to maximize their ability, capability, wisely and strategically use of information systems in assisting them to direct, evaluate, guide and suggest for better decision making. Therefore, this study attempts to identify the determinants of strategic utilization of information systems. Literally, most researcher identified determinants of any subject matters via literature review processes. The mechanism in capturing determinants during literature review processes is varies to one another among researchers. Mainly in this study, the researchers decided to use systematic review as it is one of the best ways for the researchers to dig and evaluates which of the dimensions best suit both dependent variables (DV) and independent variables (IV). In the process of systematic review, five (5) components involved, such as problem formulation; literature search; data evaluation; data analysis; and interpretation of results. Respective variable findings was drawn using schematic and it is lead the researchers to decide which dimension best to represent respective variable.

Keywords: systematic review, IT infrastructure flexibility, strategic utilization of information systems, phrase, literature

1 Introduction

The dependency of Information technology (IT) can be seen in various scopes and functions in an organization in order to support their daily business functions. The organization will always ensure that their IT infrastructure workable at any time. This is to ensure that there will be no transaction distortions and they able to achieve high return on investment (ROI), to some extend, some organization willing to spend some amount of money in order to ensure that their IT infrastructure is in tip top condition. IT infrastructure is classified into two (2), such technical (Duncan, 1995) and human IT infrastructure (Byrd & Turner, 2000 & 2001 & Chanopas, Krairit & Khang, 2006). In extend, Byrd & Turner (2000) and Duncan (1995) mention that technical IT infrastructure shall consist of the hardware and operating systems (platform technology), network technologies, data and application software. Meanwhile, human IT infrastructure is all about human and organizational skills, expertise, competencies, knowledge, commitments, values, norms and organizational structure (Byrd & Turner, 2000). However, Fink & Neumann (2009), developed a multidimensional definition of IT infrastructure which with addition of process IT infrastructure. Thus, they had identified a range of physical and managerial capabilities as the dimensions under this concept.

The demands of using IT infrastructure force it to be flexible to their user whenever required. To become flexible, IT infrastructure shall cater all three (3) concepts mention above accordingly. Yearly studies done and paper produced a report on this concept across disciplines. In the beginning studies conducted by Duncan (1995), Chung, Rainer & Lewis (2003), Fink & Neumann (2009), Byrd & Turner (2000 & 2001), Zhang & Ziegelmayer (2009), Chung et. al. (2005), Bush, Tiwana & Rai (2010), Sirkemaa (2002), Bhatt et al. (2010), Masrek & Jusoff (2009), Zainon & Salleh (2011) etc., there are four (4) dimensions, such compatibility, modularity, connectivity and IT personnel had been

discussed throughout the years. However, studies by Gholami, Kaviani & Zabihi (2003) and Chanopas, Krairit & Khang (2006) found additional of five dimensions such scalability, continuity, rapidity, facility and modernity.

An organization may use either Electronic systems (e-commerce) or Mobile commerce systems (m-commerce); Transaction Processing Systems (TPS); Management Information Systems (MIS); and Decision Support Systems (DSS) to support their business operation and to achieve their business goals and all these are examples of Information systems (IS). Limited studies conducted on strategic use in the context of IS. Masrek, Jamaludin & Hashim (2009) proposed conceptual framework for studying the effect of technological, organizational and environmental factors on strategic utilization of information systems. Meanwhile, unpublished thesis by Jamaludin (1996), was investigating factors that influence strategic utilization of information resources (SUIR). Thus, both studies introduced dimension such as product differentiation, cost leadership and growth advantage as a part of the concept of strategic use of IS.

Overall, in this systematic review, the researchers intended to find the following objectives:

1. To structuring the overview of strategic utilization of information systems.
2. To structuring the overview of IT infrastructure flexibility.

The rest of this paper is section as follows. Section 2 introduces the research methodology. Section 3 provides the systematic review findings. Section 4 ends the paper with a discussion and conclusion.

2 Methodology

At the beginning of getting the idea about the topic, researchers are doing traditional or conventional way of literature review. The process of search, collect and read those literatures in getting glasses or surface idea about the research topic is sufficient at that point of time. To streamline further as which concept, variables and dimensions to choose, systematic review found to be suitable in this study.

To create maximization and optimization in new and existing literature collections, we adopt the work from (Cooper & Hedges, 2009) and it is widely used i.e. (Kobus & Westner, 2015). Table 1 shows the stages of systematic review.

Table 1: Stages of Systematic Review

Stages	Details
Problem formulation	Research items are retrieved, examined, and archived using pre-defined keyword search in electronic databases
Literature search	Non-relevant research items are excluded from further analysis (as the database-driven search approach might return non-relevant results)
Data Evaluation	Remaining research items are categorized
Data Analysis	Emerging themes of research are determined
Interpretation of Results	The validity of research is described

2.1 Literature Retrieval

In the process of searching and retrieved, this study focused on peer-reviewed journals and conferences on selected online databases that have been decided earlier. List of searches focus by online databases is shown in Table 2.

Table 2: Searching Focus by Online Databases

Search Focus	Searched Online Databases
Journals	ACM Digital Library, ProQuest, Emerald Insight, ScienceDirect, Scopus, Web Of Science, Wiley Online Library, Google, Google Scholar
Conferences	IEEE Xplore, Google, Google Scholar

Upon deciding which online databases to use, the researchers set several phrases to use during the searching process. The phrase is based on the theme that reflect the concept of this study. For the journals and conference papers or proceeding papers, the searching was derived not using any solid keywords, combination of keyword and string such AND, OR, "", '-', '+' etc. In this case, the researchers more prefer to use phrases that reflect the topic of the study. For the first (1st) and second (2nd) iteration, the researchers use phrases that related to the independent variable (IV) while phase that related to the dependent variable (DV) was during the third (3rd) iteration. Thus, the searching was done three (3) iterations with different phase. Below is the list of phrases that researchers used in this study:

Table 3: The List of Phase Used during the Searching

Iterations	Phase
1st	IT Infrastructure
	Technology Infrastructure
	System Infrastructure
	Physical Infrastructure
	IS Infrastructure
2nd	Information Technology Infrastructure Flexibility
	IT Infrastructure Flexibility
	Information Systems Infrastructure Flexibility
	IS Infrastructure Flexibility
	Information Technology Architecture Flexibility
	IT Architecture Flexibility
	Information Systems Architecture Flexibility
	IS Architecture Flexibility
3rd	Strategic Use of Information System
	Strategic Use of Information Technology
	Competitive Advantage of Information System
	Competitive Advantage of Information Technology
	Strategic Utilization of Information System
	Strategic Utilization of Information Technology

2.2 Literature Exclusion

In this systematic review searching or query, the researchers do not eliminate the use of abbreviation of certain words such "IT" for Information Technology and "IS" for Information System and this is also had been done by (Kobus & Westner, 2015).All words and abbreviations are used to give a higher probability of getting any closer journal or conference papers or proceeding papers that most matched the searching.

No matter which online databases are used, the same search strategy was applied across these three (3) iterations. Whenever there were no results, another or broader phrase search was used as shown in Table 3. The extensive use of broader keyword is necessary during the searching. After all, any journal or conference papers or proceeding papers were excluded when the researchers found not relevant for the study. According to (Kobus & Westner, 2015), all these journal or conference papers or proceeding papers can be considered not relevant whenever at least one of the following criteria was applied:

Table 4: Criteria in Filtering the Searching

Criteria	Explanations
1	Its main focus is not on strategic in the context of the Utilization of IS and flexibility in organization's IT Infrastructure
2	Its main focus is not on the Utilization of IS with sub-focus on strategic and flexibility in organization's IT Infrastructure
3	Its length is 2 pages or less
4	It does not apply any of Strategic Utilization of Information Systems or IT Infrastructure Flexibility point of view
5	It has no original content (e.g. syllabus of study in any program offer, proposals describing only planned research, foreword in any conferences or seminars) or resulted in a journal

2.3 Literature Categorization

After applying the above criteria as in Table 4, leaving 472 journals or conference papers or proceeding papers to proceed with the literature categorization. All relevant and matched journal or conference papers or proceeding papers were kept and managed accordingly. Each group of phase that had been set earlier was used at each online database. Upon filtering and exclusion, each literature was managed and labelled respectively by dedicated folder as illustrated in the figure 2 below:

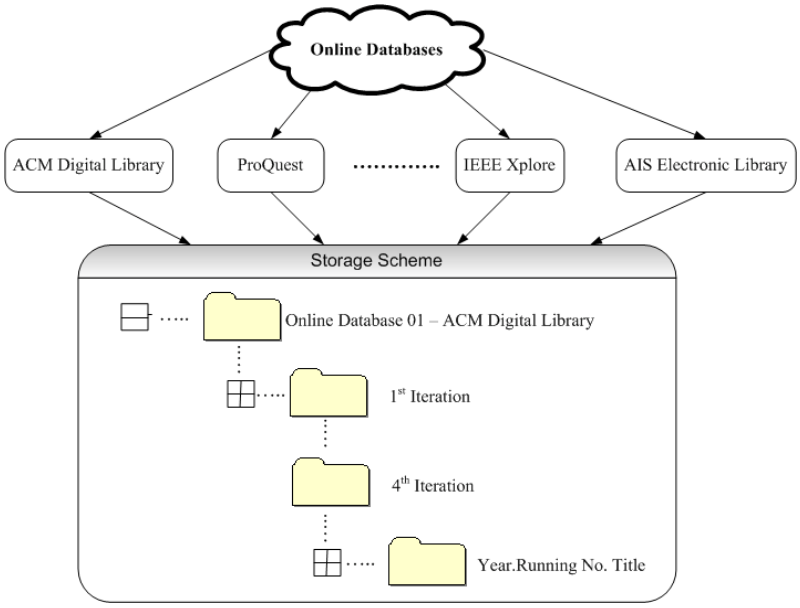

Figure 1: Literature Management

The next phase is extracting the key point at each literature. The main purposes are to identify the dimensions of strategic utilization of information systems and the dimensions of IT infrastructure flexibility. In order to capture and identify those dimensions, the researchers follow (Dibbern, Goles, Hirschheim and Jayatilaka, 2004) as also adopted by (Kobus & Westner, 2015)and little enhancement has been made. Originally, the categorization of items is reference theory; research approach; research type; data gathering and data analysis. Field of the literature and country has been add-up with this note taking.

3 Results

3.1 descriptive analysis: selection of relevant literature

The search resulted in a total of 472 journals or conference papers or proceeding papers were extracted for three consecutive months and the breakdown by iteration is shown in Table 5. All this literature is initially in scope for literature review. On top of that, all these literatures was being examined, archived and analyzed their relevancy in order to identify the dimensions of strategic utilization of information systems and the dimensions of IT infrastructure flexibility.

Table 5: The Breakdown by Iteration

Searching Area	Online Database									
	ACM Digital Library	**ProQuest**	**Emerald Insight**	**IEEE Xplore**	**ScienceDirect**	**Scopus**	**Web Of Science**	**Wiley Online Library**	**Google**	**Google Scholar**
1st Iteration	6	6	12	4	7	2	0	2	14	13
2nd Iteration	13	35	17	21	36	4	6	6	27	43
3rd Iteration	17	5	63	25	55	3	3	*	16	11

* Pdf file cannot open

3.2 the dimensions of variables

Using the literature categorization by (Dibbern, Goles, Hirschheim and Jayatilaka, 2004), researchers able to identify every dimension respectively. As mention above, the first (1st) and second (2nd) iteration were searching the independent variable (IV) while the dependent variable (DV) was during the third (3rd) iteration. At first, researchers used the generic template or form to fill-up information according to the literature categorization. Based on this form, researcher transforms into a table and diagram (was inspired and shared by one of the friends in the Facebook Doctorate Support Group) which appropriate to get a clearer picture on the selection of the dimensions. The summary of the DV is shown in Figure 4 and the IV is shown in Table 6 respectively. The results show only some part or most prominent authors and not from all literatures. With the use of systematic review exercise, it helps researchers a lot in framing and confirming which dimensions to use for the study.

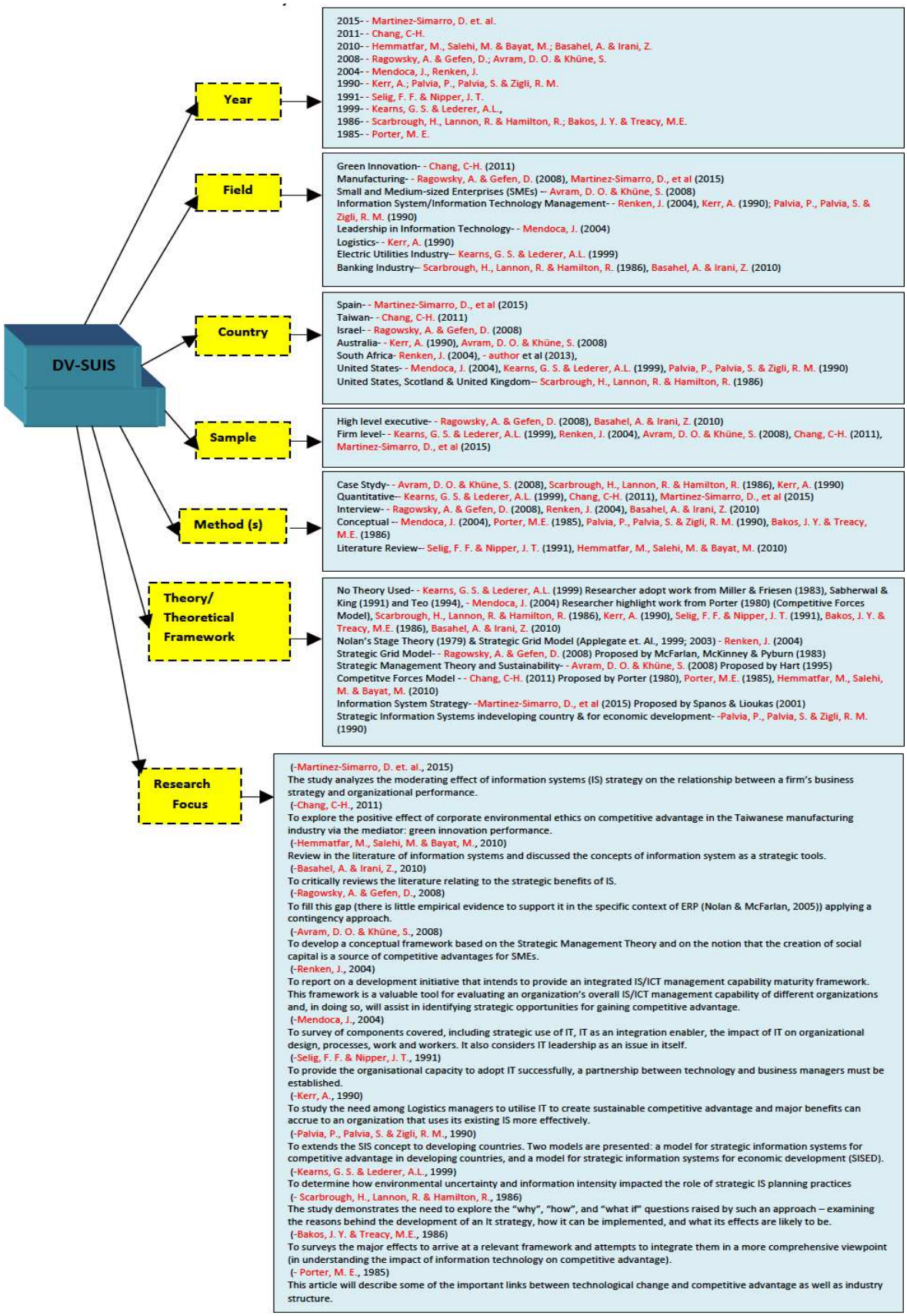

Figure 2: The Summary of Dimension for the Dependent Variable (DV)

Table 6: The Summary of Dimension for the Independent Variable (IV)

Author(s)	Human IT Infrastructure				Technical IT Infrastructure				Process IT Infrastructure	
	Business Knowledge/Skills	Management Knowledge/Skills	Technical Knowledge/Skills	Technology Knowledge/Skills	IT Modularity	IT Compatibility	IT Connectivity	IT Continuity	Range of Managerial Capabilities	Range of Physical Capabilities
Byrd & Turner, 2000	✓	✓	✓	✓		✓	✓			
Byrd & Turner, 2001	✓.		✓	✓		✓	✓			
Sirkemaa, 2002							✓			
Chen, 2003	✓		✓							
Chung, Rainer & Lewis, 2003					✓	✓	✓			
Chung et. al., 2005			✓	✓	✓	✓	✓			
Chanopas, Krairit & Khang, 2006			✓	✓	✓	✓	✓	✓		
Fink & Neumann, 2009	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gholami, Kaviani & Zabihi, 2009			✓	✓	✓	✓	✓	✓		
Zhang, Li & Ziegelmayer, 2009			✓	✓	✓	✓	✓			
G. Bhatt et al., 2010					✓	✓				
Bush, Tiwana & Rai, 2010					✓	✓	✓			

4 Discussion & Conclusion

The selection of the dimensions for the DV and IV was basically derived from the results of the systematic review conducted. By doing the systematic review, researchers get clearer picture on the evolution of each variable; which field has adapted and adopted the concept; what type of methodology that other researchers did etc. To understand the whole concepts of the study, researchers needs 360 degree view about it. The motivation of the study was captured too thru this systematic review.

The hassle in doing systematic review is where the researchers required to captured every single process involved. More over, the researchers also shall be able to identified important components or section in articles they read and note it down. This is due to some articles discussed the dimension in narrative methods while others prefer in schematic way. Currency and relevancy are a part of criteria to look into while choosing those dimensions for the DV and IV at the end. Perhaps, this approach also shall be able to search and identify the reasons behind all “how” and “why” in the study.

The approach or method used here is best suit for any who will like to undergo quantitative study. It is important to identify first the IV and DV involved between concept where no matter what researchers will like to find out in their study which either to measure the difference, correlation or factors that influence between concept.

Based on the systematic review conducted, the choice of these dependent variables to form the framework is taken from the previous works by (Masrek, Jamaludin & Hashim, 2009; Jamaludin, 1996), which are product/service differentiation; cost leadership and growth advantage. While for

independent variable in this study will measure the dimensions of IT infrastructure flexibility, such Human, Technical and Process IT infrastructure (Masrek, Jamaludin & Hashim, 2009; Jamaludin, 1996; Hilhorst, Ribbers, Heck & Smits, 2008; Duncan, 1995; Chung, Rainer & Lewis, 2003; Fink & Neumann, 2009; Byrd & Turner, 2000; Byrd & Turner, 2001; Zhang, Li & Ziegelmayer, 2009; Chung et al., 2005; Bush, Tiwana & Rai, 2010; Sirkemaa, 2002; Bhatt et al., 2010; Masrek & Jusoff, 2009; Zainon & Salleh, 2011; Gholami, Kaviani & Zabihi, 2009; Chanopas, Krairit & Khang, 2006) etc.

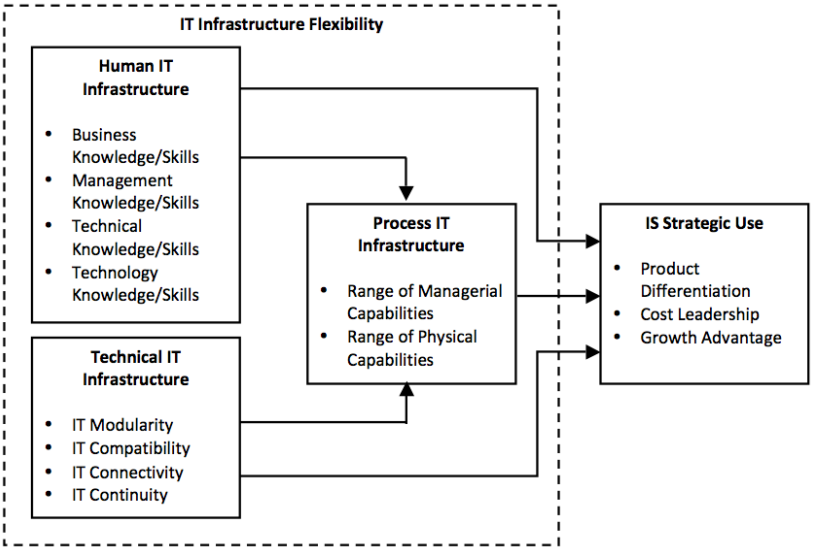

Figure 3: Conceptual Framework

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Impact Assessment and Consumer Behavior: Russian Evidence

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Abstract

In the article impact assessment as an instrument of economic policy has been analyzed in terms of the basic institutional concepts and notions of theory of routine behavior. Neither European nor Russian assessment practice is not complied with these principles. In detail results of two laws concerning consumer behavior were examined: consumer protection in case of content services and anti-smoking law. The first regulation problem was resolved not by the intervention of the legislator but by cellular carriers. The second law actually turned to be low-performing. We suggest the need to implement behavioral principles in the impact assessment of drafts to improve the procedure performance.

Keywords: consumer behavior, anti-smoking law, impact assessment

Introduction

In recent years, the approach to economic policy has been changing. The successes of the behavioral sciences, increased demand on the economic policy performance and the accelerating pace of social change have led to the fact that the economic policy as a set of norms, institutions, and texts begin to shift from the declarative approach and focus on a set of procedures.

To understand the general regularities and general relationships there is a need to focus on the procedures of human behavior, in which the government tries to interfere for the purpose of regulation of economic activity.

Samples of behavior (in the scientific literature - memes (Wilkins (1998), Olney (1998), Brodie (2009)) as a strategy of behavior are developed not by themselves, but in the context of the existing socio-economic system. Features of memes are determined on the basis of typical for this community configuration of social institutions Those memes, which are the behavioral implementation of affirmations (routines), correspond to social conditions and are constitutive for them, become meta-routines. Groups of consumption memes which are well adapted to the conditions prevailing in the society due to their effectiveness are easy to expand and form the core of behavioral strategies, which are typical for the variant of social structure. On the one hand, the economic system and the system of relationships in it define existing meta-routines. On the other hand, a set of typical patterns of behavior, their everyday adhering and implementation in the behavior of the overwhelming mass of citizens is the essence of the socio-economic system.

Routine as a Basis of Consumer Behavior

In institutional economics the following understanding of four interrelated concepts (the routine, rules, norms and institutions) has developed.

1. Routine as the way of compact storage of knowledge and skills required for everyday human activities, mostly unconscious response patterns of behavior.

2. Norms as regulations on possible ways of behavior in the most general terms.

3. Rules as a sequence of actions in the particular choice situations aiming the elimination of the uncertainty of the reaction from other people or nature.

4. Institutions (according to D. North (1990)) as rules of the interaction in society, supplemented by enforcement mechanisms.

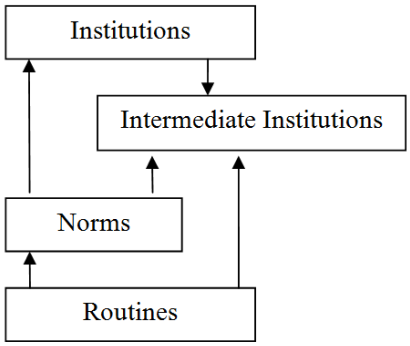

Fig. 1. Interconnections between routines, norms and institutions

From this set of definitions the logic of the evolution of relations in the socio-economic system does not follow. Revealing the logic of the genesis and evolution of the principles of our behavior, we are intended to make clear some other points of difference between the concepts. The logical connection of institutions, norms and routines is displayed in Fig. 1.

The starting point for the building of a system of relations "institution - norm - routine" is, of course, the routine. As conditions change and the subject hits in an unfamiliar situation, she produces a behavioral strategy which played over and over again in case of initial success and of repetitions of situations. This behavior is observed by other individuals, is reproduced by themselves and is expected from the rest of others. Thus, the new, but already routinized, behavior becomes a norm. Existing and occurring institutions are adjusted to this norm. We do not exclude the reverse process. By changing formal institutions (regulatory framework and supporting agencies (Dukart, Ryzhkova (2013)) the norm can be changed, followed by a possible modification of the routine. More likely a revolutionary change in the institutions will not lead to the formation of new “more progressive” standards and routines, but to the emergence of duality in its performance. In parallel with formal institution a new informal intermediate institution will appear which will be designed to reconcile the existing norm and routine to the changed formal conditions. Therefore it is necessary to change formal institutions very slowly, trying to avoid conflicts with the basic patterns of behavior, which are common for the society.

Impact Assessment and Anti-Smoking Law

The inevitable consequence of the approach to behavior as a set of memes and routines is the idea of possibility of goal-oriented behavior shaping under government control. In this regard, there is a bunch of recently published papers on the normative approach to legal regulation in the framework of libertarian paternalism. It is the so-called “nudge” approach which can be described as “the development of public policy in such a way as to push individuals to the best choice without restricting their freedom.” (Hausman (2010), Thaler and Sunstein (2008), Kapelyushnikov (2013)). Recently lawmakers go from a naive belief in the literal fulfillment of new laws to their comprehension as the system prior to the approval in attempt to consider the functioning of the future rules and mechanisms for changing the current behavior (existing meta-routine). In particular, the mentioned processes start to be implemented in such a novel direction as the Impact Assessment (IA). In Europe this practice has existed since the late of

XX century so that there is considerable experience accumulated in regulating expertise. For Russia it is a new practice.

After the analysis of the European Commission webpage and the webpage of the Department of Regulatory Impact Assessment of the Ministry of Economic Development of the Russian Federation a number of relevant conclusions can be made. Firstly, these regulatory bodies are more often focused on organizational routines, which are analyzed using conventional methods of foresight. The need for "nudge" arises only for legislative acts aiming the change of individual behavior. Secondly, the behavioral approach can be found in the documents of the regulatory body extremely rare if not to say as exception. Third, recently IA has become a platform for business support in their opposition to the Russian authorities (see Official Publication of Ministry of Economic Development of the Russian Federation "Business performance as a reflection …" and "IA has become a barrier for a number of pernicious laws for business").

In particular, there are some European Commission documents containing "nudge". First of all it is Health-Enhancing Physical Activity policy (HEPA), which unfortunately pay not so much attention to the change of daily routines (only in sections "Schemes promoting active movement to school and work", "Promoting cycling and walking", "Improvement of infrastructure of active recreation", "Scheme promoting physical activity in the workplace").

In Russia in 2010 there was introduced a procedure for regulatory impact assessment (see "On general principles of organization of legislative (representative) and executive bodies"), and was established a Department of Regulatory Impact Assessment in the Ministry of Economic Development. Analysis of assessment rules (see "Rules of regulatory impact assessment") suggests that procedure spell out by the law is a behavioral treatment, but conclusions of Department of Regulatory Impact Assessment in Ministry published on its website provide a structure simplified to consultations. In particular, main disadvantages are shallow analysis, the lack of systematicity in bringing stakeholders to negotiations (the neglect of the interests of all stakeholders), and disregard for the calculation procedures.

Since the establishment of the Commission, laws concerning consumer behavior were evaluated in the following areas (on each see the reference section to the commission conclusion below):

1. Gambling;

2. Drug returns;

3. Exchange and return of consumer goods;

4. Disposal of goods;

5. Transportation accessibility to disabled;

and a number of others.

Below we provide the story of two bills in the field of consumer behavior that were evaluated and got commission conclusion, and for which is already possible to estimate the approximate social effect.

The first concerns the solution to the problem of content services by mobile operators (Federal Law 23.07.2013 No 229-FZ). Prior to the passage of the law the common practice in Russia was to provide unnecessary content services from mobile operators, payment of bills of which was carried out automatically and inobservably for the consumer. In accordance with the change in the law there were

introduced the norm of the possibility of establishing a special account from which the payment for continent services would be made. That makes the routine of the content order more difficult, and thus prevents consumer from accidental and inadvertent operations. The comments made in the conclusion of the IA concerning the unique interpretation of user confirmation actions for receiving content services, was eliminated in the final version of document, leaving the operators the opportunity to come up with a new scheme by which the consumer can still receive unnecessary services. Using the tools of the theory of consumer behavior routine, it is possible to suggest a clearly defined procedure of content services order for all mobile providers with access to a common database of content providers. But after a consideration of the problem in depth, it becomes obvious that with the help of smartphones and network exchange resources such as Play Market (Android) and the App Store (iOS), sale of content via the mobile operator makes no sense any more. As a result, by 2016 the main channels of "involuntary" sales of content services have been blocked. In addition, operators have introduced a free service "prohibition of content services."

The second concerns the another Russian law "On the protection of the health of citizens from tobacco smoke and the consequences of tobacco consumption" (hereinafter - the Law). The Law is intended to fight a bad habit, and thus applied methods should be behavioral. Indeed, the main emphasis is on gradual decline of the number of legal smoking areas, which should lead to inconvenience for smokers and, presumably, breaking bad habit. Additionally advertising and display of cigarettes at shops are prohibited, accompanied by rationing the number of cigarette packs in stores. Violation of the rules prescribed in the Law involves penalties, both for persons and corporate entities. Reading the Law, other regulations, and discussion in the media gives the impression that, in spite of the 17-month preparation process, the draft was not ready to be signed into law.

In particular, the IA conclusion indicates that there are no provisions leading to unreasonable costs of business entities, while the equipment which satisfies the Law requirements concerning the room for smoking costs between 100000 and 400000 rubles (1500 to 6000 USD), and the price of the "No-smoking" sign is 170 rubles (2,5 USD), and it must be located at the entrance to each nonsmoking room. Thus the total cost of implementation of the Law for the owners of buildings is huge.

Since the adoption of the Law additional restrictions were issued for example a decree to reduce the level of toxic substances in tobacco. Also it is necessary to have marking in black on a cigarette pack, saying about the harmful effects of cigarettes to health. The second side of the pack should contain other special inscriptions: photos of diseased human organs and warning labels. Also the production and sale of cigarettes with other types of products are prohibited, and it is decided to move tobacco kiosks from the shops and public places over a distance of three meters. It is hoped, that the use of these methods will help to combat smoking for at least one per cent of smokers.

The adopted anti-smoking law contains "nudge" in an unrevealed form: at the moment 40 % of Russians are smokers, but they were not invited to any procedure of IA thus had not been able to define and defend their interests.

And the most important thing. Prior to the introduction of the Law, smoking in a public place was accompanied by social condemnation. Condemnation was legalized, but procedurally, nothing has changed. It is possible to hold liable smokers to a fine only if an executive authority representative, a police officer or a local police inspector caught her at the time of the offense. CCTV footage as the evidence obtained in violation of the law, cannot be used in court. Therefore, to punish the lawbreaker is very difficult (Ermakova (2013). According to the Russian survey data at the time of the introduction of the Law, 67 % of respondents expressed doubts about its usefulness.

Preliminary Results of Anti-Smoking Regulation

Publications on the Internet are full of impressive quitting percentage after the introduction of the Law. But we turn to the data of big Russian sociological surveys. The effectiveness of anti-smoking campaign was measured a year after the introduction of the Law by the Public Opinion Foundation poll. From April 22, 2012 to October 5, 2014 the number of ex-smokers increased by 2%, which is in a range of statistical error. But there was an increase in the number of people who believe that the harm of smoking is exaggerated. Compared to 2008 the number of non-heavy smoker decreased (by 23%), while heavy smokers (more than 20 cigarettes a day) did not change their behavior. The vast majority of smokers (2/3) take into account the interests of non-smokers, more often in the variant that they try not to smoke or move aside in the presence of non-smokers (10%). Only 6% of smokers comply with the Law (do not smoke in prohibited for smoking places and smoking in specially equipped areas). It is difficult to determine whether they do so under the influence of the Law, or on its own convictions.

In general smokers reveal positive attitude to the anti-smoking restrictions. 50% of smokers agree with the necessity of innovation. In this sense, we cannot say that the Law causes a significant resonance in society. Of the 33% of smoking respondents, only 37% are against the Law. Thus, the Law infringes on the interests of only 12% of Russians.

The most painful measures for smokers were rising prices for tobacco products, bans on smoking in long-distance passenger trains, the ban on smoking in cafes, restaurants, bars and canteens, ban on the sale of cigarettes in shops less than 50 square meters. It all is despite the fact that 26% of respondents believe all the measures are necessary and correct. Yet the vast majority of smokers (55%) and approximately the same share of non-smokers (45%) believe that fundamentally nothing has changed after the introduction of the Law. And 69% of smokers do not feel that after the Law something has changed in their lives, and the remaining 31% felt only a change in the cost of cigarettes.

In the near future in Russia it is planned to monitor the ingredients of tobacco, to raise gradually the tobacco excise. Advertising of tobacco products will be prohibited completely.

At the same time, respondents of the nationwide survey suggest the following, in their opinion, effective measures:

1. Educational work with children and youth, organizing their leisure activities (5%);

2. A complete ban on the production and sale of tobacco products (4%);

3. Provision of affordable treatment for tobacco addicted people (1%);

4. Sale of harmless cigarettes, and search for an alternative to tobacco smoking (1%);

5. Provision of monetary and nonmonetary incentives for nonsmokers (less than 1%).

Most of these measures are mentioned indirectly in the Law, but up to now it is only intentions.

In parallel, there is an adjustment of all market agents to the anti-smoking law. Manufacturers introduced a number of innovations aimed at reducing harmful effects of cigarettes to consumers (new filters, flavors simulating the smell of natural tobacco leaf, reconstituted tobacco leaf, etc.). Producers of substitutes for cigarettes were intensified. Among them are producers of special drugs, antidepressants, gum and

patches, anti-tobacco bracelets, special medical treatments (acupuncture, massage, psychotherapy). We should also mention the appearance of electronic cigarettes and nontobacco evaporators.

Conclusion

There was a unique situation with anti-smoking law. In general, society supports the Law. Even directly affected smokers agree that it is a good idea to force people to give up smoking. Nevertheless, the dynamics of smokers and changes in their behavior suggest the lack of a significant effect of the Law.

In this case the theory of consumer behavior routine may offer to substitute one routine by another, and it is necessary to examine what needs (including psychological and behavioral) are satisfied by smoking pattern. It is necessary to develop a set of habits and measures for their implementation that will replace smoking. I suggest that economic incentives (penalties) are not the only tools that should be taken into account. Physiological (as well as sedative and antidiarrhetic), psychological and social effects matter and also should be involved in the routine maintaining process. And it is unfortunate that these aspects were not taken into account at the stage of the impact assessment.

In any case, the use of behavioral techniques and "nudge" in the world and domestic practice of policy-making is fragmental. According to the analysis of regulations and IA it can be concluded that government is not able to reconcile the views of different stakeholders, and therefore cannot avoid infringement of the interests of particular groups. Until there is no effective mechanism for such coordination, it is not much use in "nudge" as in an element of government policy.

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New Media's Influence on Societies: The Conflict Between Government And Public in Turkey

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Abstract

The media in Turkey has long been under the surveillance of government economically and politically. Turkish mass media since its foundation in the late 19th century has aimed to gain its role as the fourth estate in the Turkish political scene. During the period between 1980 and 2000, Turkish media grew more and more liberal and was able to express discontent publicly exercising its checks and balances function. After 2000, under the governance of Justice and Development Party (AKP), the media began to be the subject of widespread pressures. Digital media, as a developing platform in Turkey for expressing rights and freedoms, got its share by the government's restrictions, as well. Since the uncontrollability of the new media posed another threat for the stability of governments, attempts on restricting it became a regular practice in many parts of the world. This study claims that the restrictions imposed on new media violate both freedom of expression and free speech, and this leads to a weakening of democracy. The banning of social networking sites such as YouTube, Google Sites, and others raises questions about the functionality of democracy, since these platforms provide a venue that is widely used around the world to express alternative and dissenting views. Blocking access to websites also represents a serious infringement on freedom of speech and does not befit a democratic society.

Keywords: New media, censorship, government, public,Turkey.

Introduction

Censorship is a way for government to "protect" society from what the government thinks is inappropriate. Wherever media is present, censorship will be involved. Censorship is no longer limited to traditional media such as print media and TV. With the invention of Internet, the impact of censorship is felt much more strongly with regard to new media related resources of information and communication. The main argument of the governments in regulating the new media is to prevent negative effect of certain speech or expression on the Net, such as the ones threatening national security or consisting obscenity, child pornography, libel, etc. On the other hand, the counter arguments states that freedom of speech and expressions are the fundamental rights of all citizens, and therefore, people have the right to be free from governmental control that inhibits thoughts, ideas, and free expression.

During the 1990's when the expansion of the Internet started, countries were already passing legislation on Internet censorship. According to Cohen (1997, p.12), at around that time, more than 30 countries had enacted Internet specific censorship legislation. The main motivations of governments in regulating Internet include the desire to protect children, public morals, public safety, political objectives, and to silence racists and hate speech. Despite variations in policy, types of governance and divergent approaches in adherence to international human rights treaties, restrictions on Internet access and content seemed to be increasing worldwide at the end of 1990s (Cohen, 1997); it is now even more so. "One might think that the government does not understand the differences between other media, such as television, and the Internet. The Internet is an interactive experience in which the user selects what he or she will view. Also, the technology of the Internet does not allow people who post information to control who receive it. Overall, the Internet is an extremely different form of media, but that fact should not subject it different censorship laws" (Bitso, Fourie and Bothma, 2012).

The Internet is a social, cultural, commercial, educational, and entertainment global communications system whose legitimate purpose is to benefit and empower online users, also lowering the barriers for the creation and the distribution of content throughout the world. It is also the largest global

communication network with invisible boundaries (Akdeniz & Altiparmak, 2008). Within this context, nobody owns and governs the Internet (Cohen, 1997). It is universally accepted that information and communication technologies can significantly increase the exercise of human rights and fundamental freedoms, while they may also negatively affect these rights, freedoms and values, such as the disrespect for private life and secrecy of correspondence, and the dignity of human beings (Akdeniz & Altiparmak, 2008).

Turkey ranks among the top five countries with the highest social media usage. According to 2016 statistics, the number of Internet users has increased to 46 million in the country, showing a penetration of 58%, which was 45% in 2011 and only 13.9% in 2005. The current figure marks a sharp increase, compared to past. According to the results of ICT Usage Survey in Households and Individuals carried out in April 2015, 69.5 % of households have access to the Internet at home. By looking out this picture, it can be claimed that with high internet, mobile and social platform penetration, "social media satisfies Turkey's hyper-connected largely young population, yet at various times their usage antagonises ruling elites. This has resulted in (often temporary) efforts to close these platforms, even though they are not just used as news sources, but also forums to discuss and follow sport, entertainment and other normal everyday pastimes" (Doğramacı & Radcliffe, 2015). This study accepts the media freedom to report on news without restriction or censorship as one of the defining qualities of a liberal democratic system and proposes to examine the restrictions on the digital media as a new form of censorship; this hence is the violation of media freedom in Turkey. The article will also discuss Turkish public's reactions to censorship, with recommendations of alternative tools that can be used in place of government bans on new media.

Literature Review

Most of those who favor governments' restrictions on new media claim that "information over the Internet is controlled because open communication technology carries a certain amount of potentially harmful or illegal content. The fear is that it can be used as a vehicle for criminal activities and terrorism" (Cohen 1997). On the other hand, those opposing the restrictions believe that the main reason for the co-option of Internet infrastructure to effect filtering is political. "Whether the filtering of content in China and Iran or the wholesale blocking of traffic in Myanmar (also known as Burma) or in Egypt, filtering as a form of censorship seeks to influence the spread of ideas and to limit communication within the global community" (Bailey & Labovitz, 2011).

Since the growth of the Internet has created opportunities for cyber hackers and criminals, some arguments support the censorship of new media to fight cyber-crimes (Bihani & Hamilton, 2009). Within this context, cybersecurity gains more importance for governments as well as private companies and individuals. There are different reasons shown by governments all around the world to censor the new media. Although the intensity and types of Internet censorship may differ from one country to another, there are some concerns common to many countries. According to Cohen (1997), these ones are; "national security (weapons' making, illegal drugs and protection from terrorism), protection of minors (abuse, forms of marketing, violence and pornography), protection of human dignity (incitement to racial hatred or discrimination), economic security (fraud, pirating of credit cards), information security (malicious hacking), protection of privacy (unauthorized communication of personalized data, electronic harassment, spamming), protection of reputation (defamation, unlawful comparative advertising), intellectual property (the unauthorized distribution of copyrighted works such as music, software, books, etc.)."

New media regulation is put into practice in a different way by different countries. While China and Iran can be classified as having worst Internet censors with strict monitoring of an email and other forms of Internet communication which make impossible to send anonymous email messages. In China, filtering software is also used, and a wide spectrum of information resources are subject to censorship, such as websites, blogs, chat sessions, Internet telephony calls (Dorman 2005; Bambauer 2009; Warf 2011).

There are harsh methods used for censorship including Internet blackouts and Denial of Service attacks, prison sentences and intimidation of journalists, bloggers and Internet content creators (Warf 2011).

In Iran, transmissions of text messages on mobile phones are blocked on different occasions to disrupt protests. Iranian government also disrupts social networking sites such as Facebook in order to prevent the ability of Iranians to share information and to organize protests. Moreover, Internet communications are under the surveillance of the government, and that surveillance may have contributed to the arrests of dissidents (Calingaert, 2010). New media measures in Australia, on the other hand, because of country's strict regulations against pornography, can be compared with politically focused censorship in China. Many types of content other than pornography are affected by censorship such as gaming websites. There are different legislation supporting censorship and especially protection on pornography and child pornography in Australia. Similar to Australia, the focus of restrictions on new media is on pornography and specifically child pornography, as well as the protection of rights, namely intellectual property and copyright, in Finland. In Singapore, the rationale for censorship is based on moral grounds and especially protection against pornography. There are different guidelines used to decide on websites to be blocked; these are influenced by where websites originated from (e.g. from home versus an institution) and who is accessing the information (i.e. younger or older people). Universities have been reported to maintain different Internet servers for staff and students. Although classified as a democratic country, United Kingdom exerts strict control on Internet because of the concern of national security. Although a democratic country, the United Kingdom seems to have very strict rules on Internet censorship and especially Internet surveillance, owing to a strong concern for national security. Deep-packet inspection technology is used in the country and surveillance includes the use of mobiles and YouTube. The legislation governing the issues related to Internet censorship has been accepted, and the government is in the phase of forming further legislation to regulate more specific issues including national security, data protection and privacy (Bitso, Fourie and Bothma, 2012).

As underlined, regulation of the new media is mostly done with motivations of protecting national security or protection of children from unwanted material surfaced on the Net. Internet is a different type of medium because of its characteristics. If we assume that all citizens of the world shall have a right to access information, then blocking mechanisms and other ways used by governments to control new media may have negative consequences on their knowledge, their ability for decision-making, educational opportunities and insights in e.g. other religions and ideologies.

Media Freedom and Public Opinion

In democratic societies, governments need to take public's views, expectations, and recommendations into consideration in order to be effective and successful governments. *WorldPublicOpinion.org* conducted a survey in October 2008 with 20,512 respondents around the world including 22 nations; China, India, the United States, Indonesia, Nigeria, Russia, Argentina, Azerbaijan, Britain, Egypt, France, Iran, Jordan, Kenya, Mexico, Peru, Poland, South Korea, Thailand, Turkey, Ukraine, and the Palestinian territories. The aim of the survey was to measure worldwide public opinion on media freedoms. The most important finding of the survey was the majority's support for the media to be free to publish news and ideas without government control." While 81% of the respondents found this argument "important," 53% of them thought it was "very important." On the issue of Internet censorship, on average 62% of participants stated "people should have the right to read whatever is on the Internet." On the other hand, 30% of them said that the government should have the right to "prevent people from having access to some things on the Internet." The majority of public opinion (51%) held the view that they would like their media to have more freedom, while only 14% favored less freedom. The survey also questioned how free the media are in the participants' own countries. Across all nations polled, a majority said that media in their country have either "a lot" of freedom (30% across countries) or "some" freedom (41%). In five of the countries including Turkey, support for more media freedom is the most common response, but not a majority. In Russia (39%), Ukraine (45%), Turkey (38%), Thailand (44%) and India (36%), the publics seem to recognize that media freedom is at least somewhat limited; they also said that media freedom was

important, but a majority of the people were not demanding more (*December 2008 Report* of *World Public Opinion* and *the Universal Declaration of Human Rights*).

In another series of survey done by "Kadir Has University's Turkey Research Center" titled *Social and Political Trends in Turkey*, the findings concerning democracy, freedom, and media show that levels of discontent remain high. In the last five years, a gradual decline detected on the perceptions of Turkish public regarding the situation for democracy, freedom of thought, and freedom of the media in the country. 2015 results of the survey indicate that when asked whether they think "There is free speech in Turkey", the rate of participants saying "Yes" went down from 30.8% to 27.5%, while those saying "Yes" to "The media in Turkey is free" went down from 38.5% to 24.6%, compared to the previous year. On the other hand, only 20% of respondents believe that "Turkey is a democratic country" as opposed to 30.3% of them stating "Democracy is getting weaker." This opinion of Turkish public seems to be confirmed globally as well. The Freedom House changed Turkey's press freedom status from "partly free" to "not free" in 2015, and in 2016, the status of the country is still "not free." And according to the 2016 World Press Freedom Index, Turkey ranked 151st of 180 countries.

Media Freedom and Censorship in Turkey

The efforts to curb discussion and press freedom in Turkey are not a new phenomenon. The regulation of the media is made with the implementation of various laws and legislations in the country. Article 28 of the Turkish Constitution states, "the press is free and shall not be censored." But the judiciary of Turkey can censor all media outlets under constitutional provisions and loosely interpreted laws, especially on the grounds of "protecting basic characteristics of the Republic" and "safeguarding the indivisible integrity of the State with its territory and nation." Guarantees provided by the Constitution are eroded time to time by confining provisions in the Criminal Code, Criminal Procedure Code, and anti-terrorism laws, leaving discretion to prosecutors and judges.

Turkey's legal framework regulating the freedom of expression and freedom of press, consists of the Press Law (The 2004 Press Law No. 5187) and the Law on the Establishment of Radio and Television Enterprises and Their Broadcasts (the RTÜK Law). Broadcasting of Turkey is regulated under the supervision of the Radio Television Supreme Council (RTÜK), which was established by the Radio and Television Law (Law No. 3984) in April, 1994. The issued law regulates private broadcasting and to control compliance of broadcasts with legal framework, while the RTÜK is responsible for assigning frequencies and issuing broadcasting permits and licences to private companies. The Council also holds an authority of giving penalties (for breaching the legal framework) to the broadcasters, which may range from warning to the suspension of the TV and radio channels (OpenNet Initiative, 2010).

Everyone should have a right to access information in democratic societies and states have a responsibility to provide citizens' access to the Internet is guaranteed. Internet access policies, defined by governments, should be in line with the requirements of Article 19 of the Universal Declaration of Human Rights as well as Article 19 of the International Covenant on Civil and Political Rights and (where applicable) with Article 10 of the European Convention on Human Rights. While certain countries and international organizations, such as the United Nations, may recognize Internet access as inherent to the right to free expression, some other governments have adopted policies to block access to the Internet (OSCE Report on Freedom of Expression on the Internet).

New media is regulated with older laws as well as the new laws enacted specifically to control the digital media in Turkey. Law No. 5651 (also known as the Internet Law of Turkey) was passed by the Turkish government in May 2007 to regulate crimes committed via the Internet (Freedom House, 2011). The law governs "the regulation of publications on the Internet and fighting crimes committed through these publications." According to the law, the Telecommunications Communication Presidency (TIB) was authorised to execute court orders to block websites and to issue blocking orders for the content providers

in or outside Turkey for committing crimes such as child pornography, encouraging drugs and, especially, crimes against Ataturk.

The 2004 Press Law No. 5187 repealed the former Press Law No. 5680 and its amendments, which brought Internet broadcasting under the press legislation, meaning that websites and Internet service providers' monitoring standards were criticized for being incompatible with the characteristics of the Internet (OpenNet Initiative, 2010).

RTÜK (Radio and Television Supreme Council) and a new governmental association, TIB (Telecommunications Communication Presidency), can impose bans on Internet sites without prior judicial approval, if the offending Web site hosts content that is illegal under Turkish law and is hosted outside Turkey, or a Web site contains sexual abuse of children or obscenity and its host resides in Turkey. The Information and Communication Technologies Authority and the TIB, which it oversees, act as the regulators for all of these Technologies. However, the fact that board members are government appointees is a potential threat to the authority's independence, and its decision-making process is not transparent. TIB also oversees the application of the country's website-blocking law, and is often criticized by pressure groups for a lack of transparency (Freedom House, 2011).

The RTÜK, and a new governmental association, Telecommunication and Transmission Authority are authorized to ban Internet websites without prior judicial approval, on the following conditions:

"(i) if the 87 offending Web site hosts content that is illegal under Turkish law and is hosted outside Turkey, or (ii) a Web site contains sexual abuse of children or obscenity and its host resides in Turkey. They also focus on crimes against Mustafa Kemal Atatürk, the offering or promotion of prostitution, provision of place and opportunity for gambling, unauthorized online gambling and betting, sexual abuse of children, encouragement of suicide, supplying of drugs that are dangerous for health, and facilitation of the abuse of drugs" (OpenNet Iniatitive, 2010).

In addition to these, they may block websites for the following:

"downloading of MP3 and movies in violation of copyright laws, insults against state organs and private persons, crimes related to terrorism, violation of trademark regulations, unfair trade regulated under the Turkish Commercial Code, violation of Articles 24, 25, 26, and 28 of the Constitution (freedoms of religion, expression, thought, and freedom of press)" (Ibid.).

All Internet traffic passes through Turk Telecom's infrastructure, allowing centralized control over online content and facilitating the implementation of shutdown decisions. The government attempts to regulate the Internet through bans applied by government regulatory bodies such as the Turkish Information and Communication Technology Authority, and the recent Internet law, which became effective in February 2014. The law authorized the telecommunications authority (TIB) to block any website within 4 hours without first seeking a court ruling, and requires Internet providers to store all data on web users' activities for two years and make it available to the authorities upon request (Letsch, 2014). The law allows the blocking of entire sites, not just pages, by court order. With this law, social networks have, on occasion, had their access revoked.

Since 2007, the blocking of social platforms in Turkey has occurred on separate occasions, mostly because of a circulation of incendiary or offensive content to Turkey or to Turks.The blanket ruling of the Turkish Information and Communication Technology Authority led to the banning of YouTube, first in 2010. The YouTube ban came into effect after the release of several videos related to anti-secular speeches made by several prominent AKP figures, including Prime Minister Tayyip Erdoğan and President Abdullah Gül. The ban was lifted several times by different courts but enacted by other district courts. People found ways of bypassing the ban using proxy sites and the prime minister even declared that he could access YouTube. The ban was lifted close to the general elections of June 2011. Yet the government silently introduced a blanket filter in August 2011 that affected every Internet user in Turkey

(*Today's Zaman*, 2011). The aim of the government, as it was argued, was to protect young children from sex, drugs, and violence on the Internet. The protesters interpreted the move as anti-democratic, because it would operate as a blanket ban covering everyone without their consent. Due to protests on the ban, the government took a step back and made filtering voluntary. Examples of websites being blocked in 2011 and early 2012 include the media streaming service Livestream, pastebin.com, popular file sharing services Rapidshare.com and Fileserve.com, Wix.com (a popular website builder owned by an Israeli company), Blogspot (based on a request by the satellite television provider Digiturk; according to Digiturk Blogger was being used to distribute material it holds the broadcast rights to), as well as Google Apps hosted websites, including all Google App Engine powered websites and some of the Google services. Today there are thousands of sites that can be seen from the rest of the world but not from Turkey, because government agencies block them (*Hurriyet Daily News*, 2011).

On 24 January 2014, the Turkish government cut the access to SoundCloud website after a user named "haramzadeler" (*"illegal ones" in Turkish*) uploaded seven secretly recorded phone call tapes which expose private conversations between the Prime Minister Erdoğan and others, including: Erdoğan Bayraktar, local politicians, some businessmen, PM's daughter Sümeyye Erdoğan and his son Bilal Erdoğan (Hogan, 2014).

On 20 March 2014, Twitter was closed as a result of court order stating that "protection measures" be applied to the service. This followed earlier remarks by Prime Minister Tayyip Erdogan who was sworn to "eradicate Twitter" allegations of corruption in his inner circle (*PC World*, 2014). At around the same time, Google Public DNS was also blocked, and doing that, Turkey became the first country ever to ban Google DNS (Arlı & Özçelik, 2014). A week later on March 27, YouTube was blocked one more time because of revealing a secret National Security meeting conversation among Head of Turkish Intelligence Hakan Fidan, Turkish Foreign Minister Ahmet Davutoğlu, and others, plotting "false flag" operations in Syria. While Prime Minister Erdoğan argued that the leak was "villainous"; Davutoğlu called it "a cyber attack against the Turkish Republic" and "a declaration of war against the Turkish state and our nation" (*Today's Zaman*, 2014).

Twitter ban was lifted by the constitutional court of Turkey on April 2nd, ruling "the embargo is the violation of freedom of expression and individual rights ." Prime Minister Erdoğan commented on ruling by stating that he does not respect the court's ruling. YouTube ban remained effective in the country by June 1st, 2014. It was reported that in the second half of 2014, Twitter received more requests from Turkey – through Government channels of by court order – to remove content, than from any other country; and complied with nearly half of those requests (Doğramacı & Radcliffe, 2015).

In the third quarter of 2015, *Bianet* recorded a strengthening of attacks on the opposition media during AKP interim government, with the censorship of 101 websites, 40 Twitter accounts, 178 news; attacks against 21 journalists, three media organs, and one printing house; civil pursuits against 28 journalists; and the six-fold increase of arrests of media representatives, with 24 journalists and 9 distributors imprisoned (*Bianet*, 2015).

Another problematic area in Turkish media is media ownership. 70% of the media, including national newspapers, radio and TV stations are owned by few cross-media groups in Turkey. The activities of these conglomerates expand to other sectors beyond media such as tourism, finance, automotive, construction and banking. And in order to protect their business interests, these media groups adopt a government friendly approach in reporting and broadcasting. On the other hand, knowing this vulnerability of the media, the government does not avoid using the financial and other leverage it holds over media owners to influence coverage of politically sensitive issues. As a result of the pressure, several dozen journalists, including prominent columnists, lost their jobs and those who remained had to operate in a climate of increasing self-censorship and media polarization (Freedom House, 2015). Within this context, self-censorship also has become a common practice in Turkish media.

The mechanisms used by the government to control the new media in Turkey have a chilling effect on freedom of expression, which is one of the founding principles of democracy. As in the case of YouTube, blocking websites could be incompatible with Article 10, and could be regarded as a serious infringement on freedom of speech, and too far-reaching than reasonably necessary in a democratic society. The fact that society may find speech harmful and offensive should not be a sufficient reason for suppressing that content, such as in the case of YouTube. In fact, such speech and content may be protected by Article 10, ECHR, and the related jurisprudence of the European Court of Human Rights. It is obvious that the illegal content does not vanish as a result of blocking access to websites. Those who live outside Turkey or those who know how to access YouTube and other banned websites from within Turkey can still access the suspected content (OSCE Report on Freedom of Expression the Internet). Banning socially useful websites is also damaging for political expression. These sites provide a venue that is popular across the world for alternative and opposition views.

Conclusion

Preventing public's access to information is a violation of fundamental rights and freedoms while the states have a responsibility to provide citizens' access to the information. With the opportunities provided by technology, the technicalities of access bans can be overcome using a number of alternatives already available. This inconsistency decreases the position of the laws and legislations issued to regulate the Internet, in the eyes of society, while the censorship itself harms the image of countries as democratic nations.

Based on legal and procedural deficiencies related to Law No. 5651 in practice, it is advised that the Turkish government should amend this Internet Law in line with international standards on freedom of expression, independence and pluralism of the media, and the free flow of information. Media Association of Turkey (2010) suggests that "this process of amendment should be conducted via a transparent, participatory and pluralistic method that respects the right of adults to freedom of thought and access to all forms of Internet content." In a parliamentary system, public opinion is an important check on political power. Therefore, the opinions of public should also be taken into consideration during the revision process of the law.

The establishment of the Courts dealing only with the cases of Internet affairs is also important. There is also a need for judges, prosecutors and experts educated in new media law.

Courts specializing in Internet affairs must be established. Internet journalism should be defined and its journalists should be recognized and fully accredited by public institutions and establishments. Courts dedicated to the Internet are a necessity, along with judges, prosecutors and expert witnesses who specialize in online affairs.

The future of Turkey as a democratic country will depend on to what extent the government will value the concerns and criticisms made for protection of fundamental rights and freedoms. Turkish society also has to decide on how much balance of security and freedom of expression is right for their nation. Media, on the other hand, should act as the fourth estate by exercising its check and balances function in the country.

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Determination of the Amount of Maintenance Obligations in the Czech Republic

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Abstract

Maintenance debts in the Czech Republic are constantly on the rise. Political parties strive to find a way to deal with this issue. Also, the Czech Republic is one of the few European countries with no minimum child maintenance amount. Seven years ago, the Ministry of Justice under the leadership of Minister Kovářová only introduced tables as recommended materials for parents and for courts in their decision-making. At present, these tables are not in use. For this reason, Minister of Labour and Social Affairs, Michaela Marksová (ČSSD) submitted to the government a draft act on so-called "advance maintenance" which suggests that the government would cover maintenance for a common child to one of the parents, to whom the other parent owes alimony. This draft was rejected by the opposition and even by single mothers. The objective of the present article is to draw the attention to maintenance obligation issues and, based on statistical data, to analyze the actual maintenance obligations of fathers and mothers in the Czech Republic.

Key words: maintenance obligations – support – social system – family law

1. Modification of the Maintenance Obligation in the Legislation

The basic source of legislation modification of family law is the Charter of Fundamental Rights and Freedoms, which enshrines the legal protection of parenthood and the family, provides special protection to children and adolescents, and special care and protection to pregnant women. Before the law, children born within marriage and out of wedlock are equal.

Another important source is the Convention on the Rights of a Child, in our country published under no. 104/1991 Coll.

By the effectiveness of the new Civil Code no. 89/2012 Coll., the Family Act no. 91/1998 Coll. lost its effectiveness. Legislation modification of family law is therefore incorporated into the new Civil Code. (Munsterova, Hedvicakova, Pozdilkova, 2016)

2. Terms and Conditions Relating to the Maintenance Obligation of Parents to Children

Maintenance obligation of parents to children is the most important and the most significant type of maintenance obligations, the law ranks this obligation in first place among other kinds of maintenance obligations. (Munsterova, Hedvicakova, Pozdilkova, 2016)

When determining the maintenance, financial circumstances of the debtor are crucial. The concept became part of the Act through the amendment from 1998 and it is also part of the new Civil Code. The Act is based on the fact that when evaluating financial circumstances of parents, it cannot be based solely on factual proved income, but it is necessary to assess and take account of the overall property situation of the liable parent and the manner of their life. The Court in that case therefore evaluates ownership of movable and immovable assets, overall way of life e.g. expensive hobbies, spending on expensive holidays etc.

This statutory criterion therefore allows the courts during determining the maintenance to also take into account any property acquired by inheritance, restitution, prize etc.

For a liable parent who is e.g. unemployed although working illegally, the court has the opportunity to evaluate their earnings ratio of the so-called fictions. The court in similar cases is based on the so-called notional income of the liable parent in a way that in collaboration with other government agencies demonstrates the potential income of the parent with regard to their level of educational attainment, health status, duration of current practice, etc.

In determining the amount of maintenance, the court is obliged to take account of obligations of the liable parent, i.e. credits, loans etc. These commitments of the liable parent, however, do not have a significant influence on determining the amount of maintenance obligation of a minor, because the performance of maintenance obligation is legally considered as a priority claim with respect to the protection of minor children.

The Act also obliges the courts to take into account the fact that a liable person personally cares for the minor and the extent to which they do so.

In judicial practice it is generally argued regarding a child at an early age, the maintenance obligation of a parent who personally cares for the child, is completely compensated by personal care. For this reason, the court does not determine the maintenance obligatory to a parent to whom the child was entrusted to education.

The amendment to the Family Act of 1998 introduced the institutes of shared and joint custody of parents of minor children into the family law regulation.

The new Civil Code took over this legislation and continues to provide that the court may entrust a child to one of the parents, or shared custody or joint custody.

Raising a child jointly after divorce essentially means nothing other than the relationships to the child are not specifically defined. Raising a child jointly is based on the fact that parents even after the divorce, jointly live and raise a child as well as take care of them. For this reason, courts usually do not provide maintenance obligations for the child.

Scientific debates however differ the views on this issue, some authors tend to believe that the approval of such agreement is not possible, they argue that shared care basically means that the situation of a child is actually not regulated and also draw attention to the pressing issue in the case of performing an enforcement.

A different situation arises in the case of a decision on shared custody by parents of a minor child. Placing a child in a shared care means that after a certain period of time the child is in education of one parent and in the next period of time in the education of the other parent. These periods of time may be in the order of days, and for smaller children up to weeks or months.

In terms of determining maintenance, in these cases, there isn't a uniform practice and opinion on how it should be performed. The Act does not expressly state anywhere how to decide on maintenance in the case of shared custody, same as it is not provided with joint care.

If the court finds out comparable asset situation with both parents, the court usually doesn't determine the maintenance. In the case of greatly differing earnings ratios, the court determines the maintenance in different amounts, as possible by the financial circumstances of the liable parent.

3. Average Amount of Maintenance and Support in the Czech Republic

"Following the Czech Statistical Office, 57 percent of divorces are represented by marriages with minor children. Thirty-nine to fifty percent of the parents fail to pay maintenance. According to the Ministry of Labour and Social Affairs, unpaid alimonies concern around 55 thousand Czech children. However, these data omit an essential component – i.e. partners who only break up after making children together, without any agreement on maintenance payments. For this reason, Lucie Asenová, Chairwoman of Incomplete Families Association, reckons that actually up to 90 thousand children are affected by this issue every year. Sledova (2015).

To improve the current situation, Minister of Labour and Social Affairs, Michaela Marksová (ČSSD) submitted to the government a draft act on so-called "advance alimony" which suggests that the government would cover maintenance for a common child to one of the parents, owed by the other parent..

However, this proposal is rejected by the opposition and even by single mothers. Based on it, they would only get in on the money after nine months.

The following Table 1 specify the Average amount of maintenance and support in 2010 - 2014.

Tab. 1: Average amount of maintenance and support in 2014: In case of divorce - the following have the duty to support and maintain

Age of the child in years	Maintenance and support	2010 (CZK)	2011 (CZK)	2012 (CZK)	2013 (CZK)	2014 (CZK)
- 5	Mother	986	1,083	1,188	1,272	1,340
	Father	2,634	2,650	2,704	2,770	2,836
6 - 10	Mother	1,250	1,275	1,352	1,325	1,550
	Father	2,842	2,987	3,051	3,087	3,204
11 - 14	Mother	1,485	1,513	1,606	1,623	1,650
	Father	3,144	3,137	3,397	3,463	3,569
15 - 18	Mother	1,802	1,870	1,872	1,824	1,971
	Father	3,444	3,572	3,618	3,777	3,866

Source: Ministry of Justice, Czech Statistical Office (2016)

If we focus on the average values of maintenance in the Czech Republic in 2010 and 2014, we see a slight increase both on mothers' and on fathers' side. The average maintenance in 2010 amounted to CZK 1,381 = EUR 54.60 for mothers and to CZK 3,016 = EUR 119 for fathers based on the exchange rate in 2010 (exchange rate of the Czech National Bank in 2010 was 1 EUR = 25.29 CZK). In 2014, the average maintenance amounted to CZK 1627.75 = EUR for mothers 59 and CZK 3,368.75 = EUR 122 for fathers (exchange rate in 2014 was 1 EUR = 27.533 CZK).

In total, debts on maintenance reached CZK 13 billion in 2013. The Czech Republic has, as one of the last European countries, no minimum child maintenance amount in place.

Seven years ago, the Ministry of Justice only presented the following tables as recommended materials for parents and for courts in their decision-making. However, the tables in principle are currently not in use. Some parents argue with them as proof, however, for courts this document is not binding and generally they are not governed by it. (Munsterova, Hedvicakova, Pozdilkova, 2016)

If a parent fails to pay maintenance for a child and no consent can be achieved, the other parent has only two possibilities:

- to file a proposal for execution of judgement at the relevant District Court relevant to is/her residence;

- if the other parent of the child has failed to pay maintenance for 4 subsequent months, a criminal charge can be brought against him/her for evading the maintenance obligation; in this case, the parent in question may be sentenced to imprisonment without parole.

4. Discussion and Conclusion

The present paper has outlined the some key problems of determining the amount of maintenance obligations in the Czech Republic. As one of the last countries of the European Union, the Czech Republic has no minimum amount for maintenance in place.

Further research will explore the minimum amounts of maintenance in the various European Union member countries and subsequently, they will be compared with the average wage of in the relevant country. Following research will also evaluate these data in the view of the Human Development Index. Authors will also be concerned with methods of suppressing failure to pay maintenance applied by the various EU member countries with possible application in the Czech Republic.

Another area that could improve the current situation is the availability of administrative databases and the possibility of connection and information on the sub-characteristics of the divorced (information about the use of time, maintenance, monitoring the divorced after another marriage). Munsterova, M., Hedvicakova, M., Pozdilkova, A. (2016)

If a country's economy is supposed to grow, it also needs to address the issue of maintenance obligations.

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Learning Business Process Management through Serious Games: Feedbacks on the usage of INNOV8

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Abstract

The Business process concept plays a major role in the Information System (IS) domain. Business Process Management (BPM) approaches offer languages, methods and tools for modeling, execution and optimizing business processes. However, these approaches are often difficult to understand by the learners. In particular, the modeling phase often remains abstract, not consensual and complex to implement in real settings. In order to better motivate BPM learners, several BPM's Serious Games (SG) has been developed in recent years. But few studies have evaluated game based educational methods for the BPM learning. This paper presents a feedback on the SG INNOV8 use in BPM teaching. INNOV8's evaluation was conducted within the course: "Information System Design," proposed to Master students. The feedback from the students and teachers were quite positive. Nevertheless, the study shows a low potential of the game for novice students in this field.

Keywords: Serious Games, Innovation in learning, Flow, Business Process Management

Introduction

Today, Serious Games (SGs) are known as a new and promising instructional method for educational institutions (Michael et al. 2006) (Aarseth 2005).

SGs are video or computer games designed for training or educational purposes (Alvarez 2007). SGs are used as a means of meeting learning objectives such as training, simulation, education, promotion, communication, etc. They are adopted in the Environments for Human Learning (EHL) by combining machine-mediated learning, simulation, use of emotions and professionalism. Thanks to the combination of seriousness and fun, the motivation and perceived ability of individuals to process complex information or to repeat behaviors have been improved (Kebritchi et al., 2010).

In recent years, the field of SGs has grown exponentially and has been used in a wide range of application areas like management, health care, defense, industry, civil security, military training, computer science, Information system and science (Kato et al., 2008)

In the Information System (IS) field many serious games, have been developed such as INNOV8[1] and iseamethod[2] for Business Process Management (BPM), SharkWorld[3] for Project Management and Keep an Eye[4] for corporate security awareness.

Despite the variety of the developed SG, to the best of our knowledge, only a few studies have been conducted to assess the games' degree of efficiency in achieving the implied added value in IS learning (Michel et al., 2010; Boughzala et al., 2013). The use of such SGs requires a theoretical framework to evaluate their strengths and weaknesses.

This paper tries to bridge this research gap by providing a feedback on the use of INNOV8, a SG developed by IBM BPM for Business Process Management learning. We aim to answer "partially" to the following questions of our research program:

- Is it appropriate to use SGs to teach BPM concepts?
- To what extend does SG contribute to BPM advanced learning?
- How to integrate SGs in the DM learning?

This experiment was conducted in the context of the course "Information System Design" taught in Master I of a French Business School. INNOV8 was designed to train students and employees to process modeling and optimization. We aimed to enhance the conventional course learning methodology, namely: core modeling concepts presentation, readings and case studies, in order to study the potential contributions of this SG. We have adopted three theoretical frameworks spanning the pedagogical, psychology and aesthetic dimension in order to assess the SG INNOV8.

The remainder of the paper is organized as follows. In section 2, we present the literature review related to SGs area: definitions, related works on SGs related to the BPM domain and learning theories for SGs evaluation. In section 3, we introduce the method adopted in this research to conduct the experiments. Section 4 describes the tested INNOV8 module: Smarter customer service. In section 5, we present the research findings. In section 6, we discuss the findings and we introduce a methodology to integrate INNOV8 in the BPMN learning. The conclusion discusses contributions, limitations and future research directions.

1. Background and Related Work

1.1. learning through Serious Games

There are several SG definitions in the literature. SGs are a kind of “computer games designed for training or educational purposes” (Kebritchi et al., 2010). SGs are games “in which education (in its various forms) is the primary goal, rather than entertainment” (Michael and Chen, 2005) to deliver engaging interactive media to support learning in its broadest sense. Alvarez (2007, p. 25) defines SGs as “*computer applications having as original intention to combine both serious aspects […], with fun aspects from video games. Such an association is achieved by providing a learning scenario corresponding, from a programming point of view, to implement a decor (sound and graphics), story and suitable rules; therefore it moves away from restricting the game to entertainment*.”
The main goal is to operate the entertaining aspect of video games to facilitate the learning of serious concepts which are traditionally taught with conventional teaching or training methods.

Several studies have analyzed the contributions of SG for learning (Michel et al. 2009) (Corti 2006) (Gee 2003) (Karoulis 2005). The success of these training schemes is linked in particular to their captivating and entertaining in nature. These factors are particularly important on a target learners accustomed from an early age to handle technological tools and video games. This intensive use games and technology have led to the concept of learning by the video game: Digital Game-Based Learning (DGBL) (Prensky, 2001).

(Ribeiro et al. 2012) have specifically analyzed the contributions of the SG to the field of BPM. They show that traditional ways of learning (courses, exercises, case studies, etc.) have several limitations. Indeed, BPM environments offer simplistic simulations of business processes do not take into account possible interactions of users during these simulations and their interfaces are generally complex and abstract learners requiring training (West, 2010). Thus SG are seen as a promising approach to learning and simulation of business processes due to the immediate experience feedback, active participation in the game and simulation of real business situations (Fu, 2009).

1.2. theoretical frameworks for sg assessment

According to (Yusuf, 2010), three main dimensions were used for the evaluation of SG namely: the educational dimension where learning theories are considered, the psychological dimension that represents the factors that make it challenging and attractive game, and IT perspective specifying the tools and technologies to improve the efficiency of learning.

In this section we present the main theoretical frameworks that we have selected for the evaluation of the above dimensions.

1.2.1. Pedagogical dimension: Bloom's taxonomy (Bloom et al, 1956.)

In this framework, the fundamental aspect of learning is to ensure that learners do not just expect to memorize learning, but must be able to apply them and make judgments about the subject area. The assessment of learning techniques, according to the classification of Bloom, to ensure that learning is effective, is measured through six criteria for which the learner's capabilities are enabled:

- **Knowledge**: The learner can recall information,
- **Understanding**: The learner can explain and predict,
- **Application**: the learner can solve problems and use information,
- **Analysis**: the learner can observe patterns and understand concepts,
- **Synthesis**: the learner can create a new structure, assemble several elements to form a whole,
- **Evaluation**: the student can compare and make judgments about the value of ideas or materials.
-

1.2.2. Psychological dimension: The optimal experience (flow or state)

(Csikszentmihalyi and Patton, 1997) define the concept of "flow" as the subjective state of feeling good. The flow often occurs when there is a perception of a balance between personal skills and the demand for the task. This theory is increasingly present in the scientific and professional literature concerning the creation of video games, for causing flow state is exactly what designers seeking to provide players: this helps to increase both their pleasure and their persistence in the game. Often the concepts proposed to evaluate the flow are strongly linked to the "entertainment", "fun" and "enjoyment" concepts. (Heutte et al., 2014)

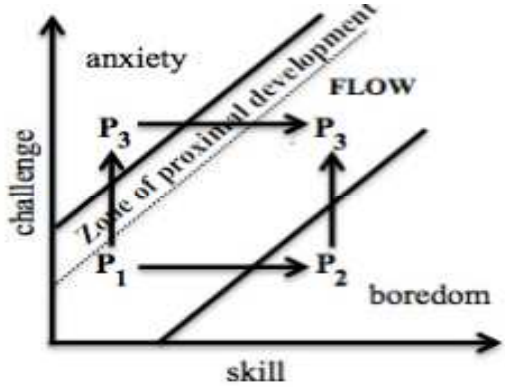

Figure 1: The extended three-channel model of flow skills (Csikszentmihalyi, 1990)

1.2.3. Aesthetic dimension: evaluation of learning tools (Almerico et al., 2004)

It corresponds to the artifact component supporting the actions of players. These components are typically used to assess the aesthetic dimension of learning tools.

Table 1: Sample evaluation criteria learning tools

CRITERIA	COMPONENTS
Scripting	Definition of pedagogical scenario
Graphic Information	art, drawings, diagrams, displays, graphics information
Interaction	demonstrations, experimentation, group discussions
Multimedia	Animation, Sound, Video
Text information	Arguments, recommendations, definitions, rules

These theoretical frameworks have been mobilized in the assessment of SG INNOV8 used in our experiment.

2. Methodology

2.1 sample

A total of 249 Master I students participated in this research project, which was conducted during the last session of the course "Information System Design" in a French business school. The students were involved in a test in situ (see section 2.2).

The conventional format of the course involves small groups of students (N = 50), which interact with teachers in solving modeling exercises and in case studies analyses.

As can be seen in Table 2, the average age of students is 22 years, there were slightly more females in the sample and 81, 52% of students have used an SG as part of their curriculum.

Table 2: Sample

VARIABLE	RATE
Total participants	249
Gender : Males Females	 109 (43,77) 140 (56,22 %)
Average age	22 ans
Experience with SG	203 (81,52%)

2.2 serious game selection: INNOV8

INNOV8 is an SG developed by IBM in 2007 as part of their "Academic Initiative" program. IBM has developed a second version in 2009 used by many universities worldwide. Version 2.0, which was selected in our experiment, is a 3D game for business process modeling[1] and optimization. INNOV8 offers to the learner an avatar to meet various stakeholders of a fictitious company "After Inc" and to collect different information from the multiple company services. It is a single-user system, where the player takes the role of a consultant who has to model and reconfigure the process of a call center to optimize the company business processes (see Figure 1).

[1] with Business Process Model and Notation (BPMN). www.bpmn.org

Figure 1: INNOV8 screenshot

In order to achieve its mission, the player has to complete certain tasks and collect information from other actors from different departments of the company, throughout the scenario, the player has to:

- Choose the right strategy to meet specific needs,
- Choose the budget to be allocated to different sectors of the company,
- Reconfigure a process to achieve specific goals,
- Interview company employees to get information

The player controls his character, while other characters are present in the company. Advices are given to the learner throughout the scenario, such that finding documents or interviewing other virtual employees. In most cases, following these dialogues, important information is communicated to the user in order to make decisions. Information provided during the interviews is very often keys to find the optimal solution to the problem. Indeed, it is often necessary to find a tradeoff i.e. a tradeoff between the number of employees to be assigned to a certain task and the level of their skills under a budget constraint. Afterwards the player's decisions are simulated (3 attempts) before submitting its response. A non-optimal solution impacts on the entire business process.

2.3 procedure

The teachers involved in this experiment informed their students about the Serious Game session. Students were asked to form groups of four to five, and the game rules were explained by the teachers. The link between INNOV8 and the lecture material of the last course was also highlighted to legitimize the use of this SG. Each student group was provided with one copy of INNOV8. A time limit of 90 min was imposed.

Teachers observed and recorded comments during the session without intervening to assist learners. At the end of session, learners were invited to complete a survey to assess pedagogical, aesthetic and psychological (Flow) dimensions of the SG.
A debriefing session on this experiment was carried out by teachers of each group to discuss the acquired knowledge, clarify links with the theoretical courses and practical exercises as well as to collect learner's feedback on the SG.

2.4 measures

All measurements were made in the same way: a list of items for which respondents were asked if they were "strongly agree" or "not at all agree" according to a Likert scale in five steps.

For the evaluation of educational benefits of the use of SG, we were mainly based on the update of Bloom's taxonomy (Anderson et al., 2001) which is among the most widely used framework for describing learning objectives.

We adopted a list of action verbs (see Table 3) based on Bloom's taxonomy proposed by (Almerico et al., 2004; Illinois Central College, 2011) to assess the pedagogical dimension of the SG.

Table 3: Action based learning (Almerico et al., 2004; Illinois Central College, 2011)

ACTION LEARNING	
CATEGORIES IN BLOOM TAXONOMY	**ILLUSTRATIVE VERBES**
Remember (knowledge)	Define, describe, find, watch, match, connect, reproduce, select
Understand	Compare, convert, demonstrate, discuss, explore, generalize, interpret, reformulate
Apply	Illustrate, interpret, select, classify, resolve
Analyze	Compare, deduce, discover, explain, identify
Assess	Argue, choose, discuss, decide, justify
Create	Design, imagine, predict, plan

To assess the technological dimension, we have adopted the criteria proposed by (Carvalho et al, 2015), namely: graphic design, interaction with onscreen user, multimedia and text illustrations.
To measure the flow, we relied on a scale of 18-item proposed by (Kiili et al., 2014). These items were derived from the GameFlow survey (Kiili et al., 2008) and the FSS-2 survey (Fournier et al., 2007).

This survey is organized in 9 dimensions: the challenge, clarity of objectives, feedback, playability, concentration, time distortion, the rewarding experience, self-loss of consciousness and the sense of control.

3. Results

3.1.1. "flow" Assessment

Table 4 shows that the dimensions "challenge" and "self-consciousness of loss" have been well evaluated. Although the "playability" dimension shows the lowest average, learners were captivated and totally immersed in the experimental session and showed significant ownership of their accomplishments.

Table 4: Assessment of the Flow

Flow dimensions	Mean	SD
The challenge	**4,46**	**0,73**
Clarity of objectives	**3,66**	**0,83**
The feedbacks	**3,84**	**0,89**
Concentration	**3,45**	**0,87**
Gameplay	**3,1**	**0,98**
The rewarding	**3,74**	**0,99**
Time distorsion	**3,71**	**0,81**
The sense of control	**3,5**	**1,11**
The loss of self-awareness (Immersion)	**4,05**	**0,73**

3.1.2. Learning assessement

The learning dimension of the SG was well assessed by the learners. The responses were quite homogeneous. Learners appreciated the mission as it corresponds to a professional situation. The reconfiguration of the company's business process was particularly appreciated by learners (M = 4.38; SD = 0.47).

Table 5: Assessing learning

Bloom's taxonomy Criteria	Mean	SD
Remember (knowledge)	**4,11**	**0,66**
Understand	**3,66**	**0,83**
Apply	**4,05**	**0,73**
Analyze	**3,9**	**0,6**
Rate	**3,94**	**0,58**
Create	**4,38**	**0,47**

3.1.3. Aesthetic dimension assessment

We found that the aesthetic aspects and especially the graphics and multimedia dimensions were not well evaluated. The learners are used to video games with sophisticated design. Nonetheless, textual illustrations and user interaction were well evaluated. Learner found that the navigation across the virtual universe of the company After Inc was quite easy.]

Table 6: assessment of the aesthetic aspects of the SG

Aesthetic aspect of the game	Mean	SD
Graphics	**2,1**	**0,5**
Interaction with users	**2,9**	**0,4**
MultiMedia	**2,1**	**0,6**
Textual illustration	**3,9**	**0,5**

4. Discussion

This research study sought to ascertain whether INNOV8 triggered higher levels of learning and flow amongst learners compared to 'conventional' tutorial activity, whereby students might do casework, resolve modeling exercises. Our results indicate that the use of SG resulted in increased levels of learning and flow.

The analyses of our results clearly show the suitability of the SG as a learning device suitable for new generation of learners. The use of SG proved relevant in the context of the IS design course. We analyze in this section our experimental results and we compare them with the theoretical framework discussed in Section 1.

4.1. the serious game as a catalyst learning by doing

The main contribution of the SG usage was a clear learner's involvement in the scenario of the game i.e. we have noticed that learners were asking questions, exchanging within their group, debating to choose the right Business process configuration. These aspects are essential in the theoretical framework of learning (Kolb and Kolb, 2005) as well as in Bloom's taxonomy.

Table 7: Comparison of research results to Bloom's taxonomy (Bloom et al, 1956.)

Criteria	Evaluation	Illustration
Knowledge	Yes	The player is called to remember the information provided by the players to continue the game.
Comprehension	Yes	The player explains his choice modeling to optimize business processes.
Application	Yes	Design choices are applied taking into account several parameters (call costs, many operators ...) to improve the center's performance.
Analysis	No	
Synthesis	No	
Evaluation	Yes	The game includes a progress bar indicating the learner where he stands in relation to the purpose of his mission. The last stage of the game during which the learner varied certain indicators to improve the performance of the call center, assesses knowledge of the learner, stating the success or failure of his mission.

This evaluation highlights that INNOV8 offers integrated functionality allowing the learner to use the knowledge presented by the players of the game to offer a business process design template which is then applied to optimize the processes of the call center. Thus criteria: knowledge, understanding and application of taxonomy are covered.

The evaluation of the taxonomy criterion is also taken into account since the learner is assessed throughout the game via a progress bar as well as an assessment indicating the success or failure of his mission.

We note the lack of features on the criteria for analysis and synthesis of taxonomy. In fact, the game does not explicitly generalize and synthesize the results of the mission.

4.2. the serious game as a catalyst of motivation

The pleasure of playing leads to enjoying learning. The results showed a strong commitment and a strong interest of learners in the use of Serious Games as part of this course.
However the video aspects, graphics and sound, have been developed in recent years, learners have been disappointed in comparison with the games they used to practice outside the classroom. Some learners were very disappointed by the graphics aspects.. However, they prefer this mode of learning, in which they are active, compared to traditional modes in which they are generally passive.

4.3 the serious game has to be integrated within a conventional course format

INNOV8 was appreciated in the context of applying the theoretical concepts of IS design concepts. However, the game did not provide theoretical knowledge. Thus, we have imagined a new course design method in order to integrate this SG within the IS design course. We have therefore proposed the following agenda (see figure 2).

The SG will be used in two distinct periods of training. First, after the introduction of Business Process Management theoretical concepts. This first experience of the SG will be the opportunity for the learner to discover, through this virtual environment, the various concepts and models studied during the first stage of the course. This will initiate the reconfiguration and process optimization through its first virtual junior consultant experience. After this introduction to SI consulting business, exercise sessions and case studies will be conducted in small groups to deepen some aspects of the audit, reconfiguration and optimization process. This group work, will allow participants to be active in their learning and learning by doing. In the final stage of training, when the learner has acquired extensive knowledge on process management, the Serious Game is used again. This second experience of SG allows for virtually live the learner a mission organization consultancy entrusted to him and to better understand that during the initiation phase, the activities performed to optimize the faulty process (in the case of INNOV8, the call center).

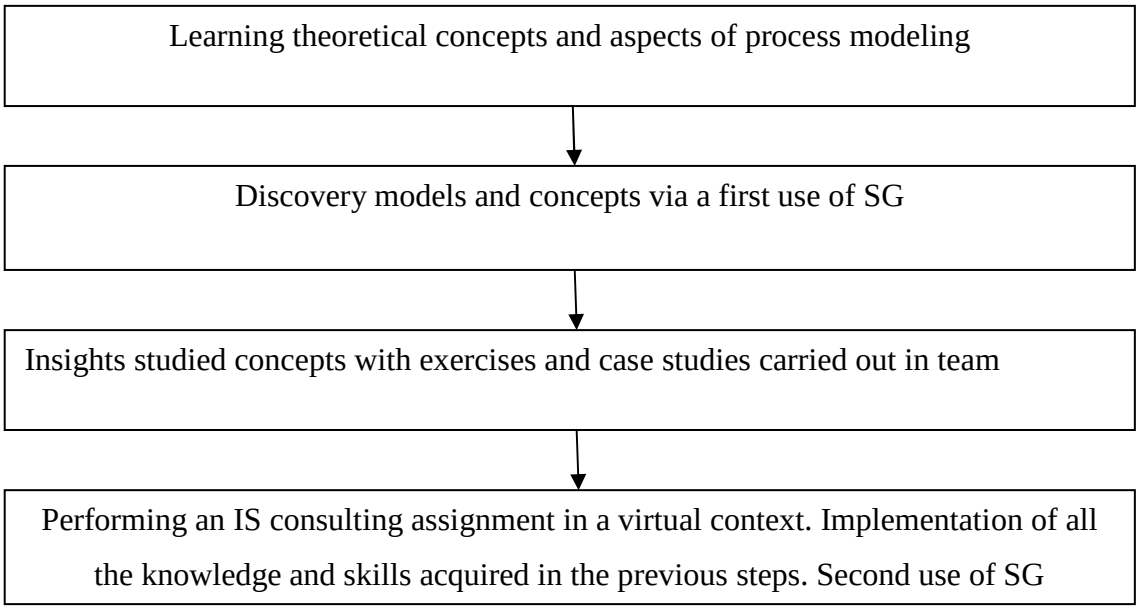

Figure 2: Design of an educational process that integrates the use of INNOV8

5. Conclusion

Companies are looking for professionalism and business knowledge for young graduates, in order to be operational more quickly. Furthermore the learners appreciate learning sessions that are close to professional situations.

The results of our experiments confirmed that it is useful to use SGs as a complementary learning material to theoretical. SGs allow learners to be active in their learning and to develop other skills through role playing close to their future carrier.

These observations could not be generalized to all communities of learners. Cultural characteristics, for example, probably have an impact on the key success factors of these devices. Scientific assessments we have today are in experimental stage. They are often made within a class or a small group of learners. As a future research direction, we plan to assess the SGs for educational purposes on a larger scale, in a regional or national.

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Legal and Economic Aspects of E-Commerce in the Czech Republic

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Abstract

The number of persons utilizing internet and mobile shopping is increasing in global extent. Thus, for companies the internet is becoming a competitive advantage and a possibility to raise their income. The extent of fraudulent conduct rises hand in hand with the growing volume of e-commerce, and the legal conditions of e-commerce require precise definition. The first part of the present article is focused on the legal regulation of e-commerce in the Czech Republic. The following parts outline the situation in the European Union and actual application of e-commerce in the Czech Republic. The objective of the present article is to introduce the research in the area of legal regulation of e-commerce, especially focusing on legal requirements imposed on e-shop operators. Further on, the key terms of "consumer" and "operator" are outlined. A more detailed insight is dedicated to consumer's right to withdraw from a contract and operator's information duty.

Key words: e-commerce, law, legal regulation, trend, e-shop

1. Introduction

Electronic commerce can be called a phenomenon of nowadays that is tightly related to the development of information and telecommunication technology.

Since the early 1990s when the term 'electronic commerce' was first coined, the U.S. has significantly developed its e-commerce market and is undoubtedly a pioneer and a leader in e-commerce. (Zhang at all, 2016). Czech e-commerce is one of the most progressive in Europe.

The literature on ICT as an enabler of growth is vast, extending from aggregates (Jorgenson and Stiroh, 1999 and Chou et al., 2014) and investments in hardware to more disaggregated studies on selected groups of firms (Black and Lynch, 2001, Brynjolfsson and Hitt, 2003 and Bartelsman, 2010 and 2013; Van Reenen et al., 2010). ICT is considered a potential means of improving the quality of production factors. (Martin Falk, M., Hagsten, E., 2015)

Hand in hand with market globalization, commercial companies are mainly active in the area of e-commerce, unlike in the past when most transactions took place based on consumer contracts.

Also, a constantly rising amount of households are using internet-based commerce to satisfy their various needs. The emerging number of e-shops and thus the rising trust in this commercial platform also relates to the growing quality of e-shops, which is proportional to and depending on not only the technical aspects but specifically on the legislative framework.

The term "e-commerce" generally expresses enterprising by means of electronic technologies and includes commercial transactions between natural and legal persons, while such transactions are based on electronic data processing and transfer. An undisputable benefit of concluding such contracts is the fact that the need for contemporary presence at the same place and at the same time is eliminated. Logically, conclusion of contracts is accelerated and the related costs are decreasing.

2. Legal Regulation of E-Commerce

As far as the legal regulation on the so-called "European level" is regarded, especially important is Directive no. 2000/31/EC on certain legal aspects of information society services, in particular electronic commerce. Interestingly, the actual Directive does not define the term of "e-commerce". "Information society services" specified under Article 2 (a) of Transparency Directive no. 98/34/EC,

regulating information society services, include services typically provided against remuneration, remotely, by means of an electronic device for data processing and storage and upon individual request of the service recipient. Excluded from the Directive's scope of application are: sales of goods or provision of services off-line such as legal or medical consultancy, voice telephone services or direct marketing by telephone or fax, television and radio broadcasting etc. (1)

Another important regulation is Directive no. 1999/7/EC on the protection of consumers in respect of distance contracts that are regulated in the Czech Republic by the New Civil Code.

The New Civil Code regulates distance contracts under Sections 1,820 to 1,827 and 1,829 to1,840. In general, the legal regulation corresponds to the previous Civil Code, however, it is far more detailed.

From theoretic point of view, the area of electronic commerce represents a specific form of concluding contracts using technical means. However, the legal substance of such a contract remains the same as if the contract were concluded for instance in writing.

Two conditions must be met for an electronic legal act to be recognized as an act executed in written form. It must be obvious who is entering into it and its content must be explicit. These legal requirements are important in case of a dispute with regards to the evidence position of potential plaintiff. From the process perspective, there is an important refutable presumption of reliability of records on legal acts concluded in an electronic system provided that these records are executed systematically, in sequence and protected against changes.

(1) – see Article 1 (5) Directive 98/34/EC

As for distance contracts, the law requires entrepreneurs to meet their information duty. 1) This duty is anchored in Section 1,811 et seq., New Civil Code. Prior to concluding a contract, mostly before clicking a “Buy” icon, an entrepreneur must specify legally required information, i.e. his address, telephone number or contact information and specification of goods or service, price, method of payment and delivery, delivery costs and information on titles established by faulty performance, information on possible withdrawal from the contract etc.

By law, the information duty also includes Commercial Terms and Conditions and Complaint Regulations. Both documents constitute indispensable parts of internet commerce and every visitor of an e-shop must have free access to information included therein. Thus, the seller must meet his legal obligations applicable to the character of goods sold, services provided and business model operated. In addition, entrepreneurs running an activity subject to special regulation under special legal rules are obliged to comply with other specific requirements. As an example we can mention internet pharmacy providers or virtual mobile telecommunication network operators.

A key element of the regulation of distance contracts in the New Civil Code is consumer’s above-stated right to withdraw from the contract within 14 days following the conclusion and, in the event of a purchase agreement, following goods receipt (Section 1,829, Para 1, Letter a). Such withdrawal may take place without reason. At the same time, if the consumer has not been made aware of his right to withdraw from the contract, the consumer may withdraw from the contract within one year plus 14 days following contract conclusion, as stipulated by Section 1,829 Para 2, New Civil Code. However, if the consumer has been made aware of his right to withdraw from the contract within this period, the fourteen-day period for withdrawal commences on the day when the consumer received this information.

By withdrawing from the contract, the consumer becomes liable for sending or delivering the received goods back to the entrepreneur, doing so without undue delay but no later than 14 days following the withdrawal from the contract. At the same time, the entrepreneur is liable for returning all funds including delivery costs received based on the contract, back to the consumer, doing so within 14 days following the withdrawal.

However, in certain cases, the legislator logically limits the possibility of withdrawal, concretely under Section 1,837, New Civil Code. Most frequently, these are cases when the goods are custom

made, i.e. adapted to consumer's requirements or fitted to his person. The same applies to deliveries in enclosed packaging, unwrapped by the consumer, which cannot be repacked for hygienic reasons, goods subject to fast deterioration etc.

According to the provisions of Section 419, New Civil Code, every person concluding a contract or otherwise dealing with an entrepreneur, outside their own entrepreneurial activity or independent vocational activity, is considered a consumer.

An entrepreneur is considered every person carrying out an entrepreneurial activity on thein own account and responsibility by trading or by a similar manner, with the objective to do so constantly and in order to achieve profit (Section 420, New Civil Code).

Consumer contracts are considered all contracts with consumer acting on the one side and entrepreneur on the other side. This means in principle all contracts where consumer and entrepreneurs act as contracting parties; thus, a consumer contract may be for instance a purchase agreement, a lease agreement or even an innominate ("unnamed") agreement.

In the Czech Republic, there are almost 37 thousand e-shops active on the market. Unfortunately, not all of their operators have good knowledge of the legal regulations for internet entrepreneurship. Thus, entrepreneurs risk severe fines. This is certainly partially also caused by the New Civil Code that is generally considered a relatively complicated text, difficult to grasp even by lawyers, not talking about the lay public.

Entrepreneurs' unnecessary banal mistakes represent a relatively high risk. The situation is further complicated by the constantly changing development of legislature that requires permanent monitoring.

3. Current situation in the Czech Republic

In 2015, more than 3.1 million Czech households (73 percent) were furnished with a computer and internet access. For the first time in 2015, more individuals used the internet than the computer. *"As for the number of internet users in adult population, in 2014 the Czech Republic even outran the EU28 average. This was due to the fact that the internet was used by 79.7 percent of the Czech population between 16 and 74 years of age, while at the same time the EU average was 78.0 percent."*

Also, the number of people using the internet for shopping increases year by year. In the second quarter of 2015, almost 3.7 million inhabitants reported that they had effectuated a purchase transaction via internet in the precedent 12 months. "*The most lucrative target group in the long-term for e-shops are women on their maternity leave. Around 65 percent of them shop via internet. Only less than 14 percent of them reported that they had never shopped via internet,*" says Romana Malečková. The most frequently reported categories of goods purchased via internet are clothes, shoes and fashion accessories, tickets for sports and cultural events, cosmetics, electronic devices and air tickets. Czech Statistical Office (2015)

Czech shopping portal Heureka states that this year confirmed the long-term predictions indicating a consolidation of the number of e-shops on the Czech market. While in previous years the number of e-shops was rising, according to Heureka currently there are around 36,800 of them on the Czech market, which represents a decrease by 1 percent as compared to 2014.

"*Compared to other European countries, there are three times as many e-shops operating in the Czech market, so in this regard the market is already saturated. But it does not mean that the on-line market will no longer grow. There is still potential of e-commerce in the Czech Republic, the market forces will just regroup,*" said Tomáš Breverman in his comment on the situation. Channel World (2015)

The Electronic Commerce Association (APEK) and the shopping guide Heureka.cz state that the turnover of Czech e-commerce in 2015 rose significantly and achieved roughly CZK 81 billion (see tab. 1), increasing its proportion on Czech retail by one percentage point up to 8.1 percent. Czech

Statistical Office (2015)

Tab. 1. Estimated trend of Czech e-commerce from 2014 to 2016, Source: Channel World (2016)

	2014	**2015 (est.)**	**2016 (est.)*** **
E-commerce turnover	CZK 67 billion	CZK 81 billion*	CZK 95-100 billion
Interim growth	15.5 percent	21-26 percent**	20-25 percent

** estimate by APEK and Heureka.cz,** estimate of the percentage of growth depending on the source: data APEK/Heureka.cz a Acomware, *** estimate by Acomware*

If we focus on the composition of e-shops in the Czech Republic, then more than a half of the Czech turnover is covered by e-shops with household electronics, mobile phones and IT equipment. Also DIY and gardening, fashion and hobby products are becoming more and more popular. The overall interest in children's goods is rising. The fastest growing segment on Heureka are pharmacies.

4. Discussion and Conclusion

The first part of the present paper described the legislative conditions of e-commerce in the Czech Republic, showing a growing trend despite a slow-down as compared to previous years. According to first estimates for 2015, for the first time in the history, the number of e-shops will slightly decrease by approximately 1 percent. However, with respect to the total number of e-shops, the Czech Republic ranks among EU leading countries. The total e-commerce turnover figures are sharply rising and another increase is expected, although this may be due to economic development because the Czech economy is facing expansion.

Based on an analysis of the development of e-commerce in the Czech Republic and in the EU, authors are realizing a survey with the objective to identify differences in e-commerce in the various Czech regions and to address their compliance with legal aspects of e-commerce. Since the research mainly addresses the legal aspects of e-commerce in the Czech Republic, a major part of the questionnaire survey is focused on legal compliance of e-commerce.

The objective of the survey is to examine a sample of 50 websites focused on sales of electronic devices as these rank among the most sold goods on the internet. Companies will be selected for the survey by means of pre-defined goods entered into the web-based comparison portal Heureka, which ranks among the most popular search engines in the Czech Republic. The selected e-shops will be examined from legal point of view, focusing on e-shop operators' compliance with statutory requirements, i.e. compliance with and complexity of information duty, provision of personal data protection, information on possible goods return and/or withdrawal from purchase contract and publishing of claim handling rules and commercial terms and conditions.

Previous observation of the problem area of concern incites a number of questions to be examined, especially concerning the need for and actual realization of examination of potential failures by operators, legal consequences of such failures and subsequent sanctions related to the breach of mandatory legal provisions. Another question that could be examined is for instance possible arrangement of contractual penalty in e-commerce. According to the nowadays' legislation, contractual penalty cannot be stipulated by commercial terms and conditions but it may be arranged by telephone in the event that customer refuses to receive goods. In another part of the survey, authors will also address the evidence position of potential plaintiff concerning legal requirements of accepting evidence in the form of telephone call records.

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Proposals to Improve the Satisfaction of Senior Citizens at the Municipality Level. Research Results

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Abstract

The aim of the study is to identify what measures may lead to an improvement of the satisfaction of senior citizens at three levels: individual, corporate, and municipality. Part of the research is then concerned with the sources of information used by the senior citizens in the places of their residence. These results indicate that it is the quality of services offered to senior citizens in the place of their residence that affects considerably the satisfaction of elderly people. Thus, the municipalities may employ relatively easy procedures to help improve the senior citizens' quality of and satisfaction with life, provided that they concentrate on their real needs. Important and positive finding is that senior citizens, too, are interested in work on the improvement of the quality of their standard of living. Volunteering with the involvement of the senior citizens offers an opportunity for the municipalities with emphasis on a better access to information. Lucky are those who know the benefits of old age when they are young as well as those who can keep the blessings of youth when they grow old. (Johann Wolfgang von Goethe). Well, a happy old age no doubt includes a proactive, positive approach to life and care for other people that may be equally or even more in need as the present research has also shown.

Keywords: Demographic ageing of society, Age management, Satisfaction of seniors, Active ageing, Municipality level

Introduction

The present study aims to identify what measures may lead to an *improvement of the satisfaction of senior citizens at three levels:* individual, corporate, and municipality. Intentionally, two South Moravian municipalities have been chosen to compare the requirements, expectations, and needs of the senior citizens living in Brno, a city with a population of several hundreds of thousands, with those of the elderly people living in a small town of Vyškov. The study brings the first results of an enquiry among senior citizens asking them to suggest improvements of their lives at three levels. The second part of the research is then concerned with the sources of information used by the senior citizens in the places of their residence. These results indicate that it is the quality of services offered to senior citizens in the place of their residence that affects considerably the satisfaction of elderly people. However, of interest were also the reflections of senior citizens on the perception of their own contributions and activities that could help increase their satisfaction with life.

The first part of the study summarises the ageing forms and the changes accompanying elderly people, and formulates a concept of satisfactory and active ageing while the second part presents the initial results of a research focusing on suggestions by senior citizens that would lead to an improvement in the satisfaction of elderly people and to identifying the sources of information for senior citizens.

Ageing

According to Jaro Křivohlavý (2002), the span of human lifetime can be divided into three periods. The age of an infant and that of an adult with the last period being that of aging. Aging may be viewed from different angles. Jaro Křivohlavý (2011), for one, regards ageing as the third stage of life in which an individual's personality and culture becomes fully mature and developed able to pass

on the cultural heritage. He also compares ageing to a water flow beginning as a small stream and eventually reaching the sea.

A different point of view is that of Jana Mlýnková (2011), who says that ageing is a process characterised by degenerative changes taking place in the cells. The science concerned with ageing is called gerontology, which is thought of as born with the publishing of Senescence, the Last Half of Life by G. Stanley Hall.

Rostislav Čevela (2012) speaks of three forms of ageing:
Successful ageing and healthful (active) ageing – the physical and mental health condition is up to the requirements of a given situation, which ensures satisfaction, self-fulfilment, and participation long into advanced age. Important here are the activities offered and the provision of space for self-fulfilment including employment.

Normal ageing and old age – during this type of ageing, one can observe imbalance between the health and functional conditions. Imbalance also appears between the psychic needs and the requirements of the environment or the social and economic opportunities. This results in insufficient satisfaction, self-fulfilment, or participation.

Pathologic ageing – the health and functional conditions, adaptation, satisfaction and self-fulfilment are much worse than those of a majority of their peers in the same situation. Diseases, functional deterioration, are considerably more frequent or appearing sooner, often accompanied by resignation. In cases of pathologic ageing, poverty may also play a significant role. Such condition is also much aggravated by more serious major diseases such as Alzheimer's disease and cancer. Negative impacts may also come from the immediate neighbourhood triggered by tragic events such as losing a partner. The problems of pathologic ageing may be intensified by worse ability to communicate with the neighbourhood or to make new social contacts. Lacking may also be the support or helpfulness of the closest persons. Pathologic ageing is also mentioned by Eva Malíková (2011), who says that it is manifested by degraded self-sufficiency.

Old age is accompanied by a number of changes. Venglářová (2007) describes these at three levels: physical, psychical, a social (tab. 1).

Tab. 1: Ageing conditioned changes

PHYSICAL CHANGES	PSYCHICAL CHANGES	SOCIAL CHANGES
➢ muscle mass reduction	➢ memory deterioration	➢ retirement
➢ changes in thermoregulation	➢ difficult acquiring of new knowledge	➢ change of lifestyle
➢ changes in sensory activity	➢ incredulity	➢ moving
➢ degenerative sensory changes	➢ lower self-confidence	➢ loss of near persons
➢ cardiopulmonary changes	➢ suggestibility	➢ loneliness
➢ changes in the digestive system (digestion, defecation)	➢ emotional instability	➢ financial difficulties
➢ changes in urinating	➢ changes in perception	
➢ changes in sexual activity	➢ deterioration of judgement	

Source: Venglářová (2007, p. 12)

The above changes may lead to many young people assuming a negative attitude towards ageing and, by transferring this attitude to old people, causing them to perceive themselves and their old age negatively (Rašticová, Kolářová, 2015). Some people also keep viewing ageing negatively for the whole lifetime until their own old age. Positive psychology is an approach that tries to see each stage in life including old age in a positive framework. According to Křivohlavý (2011), one of the objectives of positive psychology should be to help people avoid the situations that could negatively influence the quality of their lives, in other words, to help them subjectively experience well-being.

Satisfactory ageing

Outstanding psychologist Vaillant (2002), asked himself: *What helps people experience happiness in old age?* Based on the results of his research, he formulated seven major factors thanks to which senior citizens may feel happier and which are necessary for satisfactory ageing:

- ability to adapt to changing conditions
- education
- faithful partner
- non-smoking
- moderate consumption of alcohol
- sufficient physical exercise
- reasonable weight

Using the above seven factors, he then divided elderly people into four groups. The first group is formed by *the happy and healthy*, the second by the *sad and ill*, the third one by *the prematurely dead*, while the fourth group is a melange of well-being and sorrow, health, pain, satisfaction, and resignation. Slezáčková (2013) says that, if one wishes to belong to the happy and healthy group, one cannot rely on his or her genetic predisposition, but has to do something for it adding that, in the old age, we are actually getting back what we have experienced before.

The length of employment in ageing people is also discussed. There are two different points of view to this problematic. One is the senior´s perspective, the other one is the macroeconomic point of view. If the Czech Republic's economy is to be growing, and the pension system stable, the potential of older employees will have to be used, too. This will necessitate changes in the way the employers view their elderly employees and their professional capacity (Rašticová et al., 2013, see also Putnová, 2014). Daniela Spirkova and Beate Stehlikova (2015) pointed out that creation of condition for sustainable development in the European areas puts increased demands also on industry innovation, research and education. As proved by Spirkova et al. (2015) the crucial factor for an enterprise to be successful is social capital and social innovation.

Another recent concept employed to investigate the satisfaction of senior citizens is *active ageing*. According to Dagmar Dvořáčková (2012), this is a term adopted by the World Health Organization in late 1990's. This is a concept used in a sense broader that just healthy ageing being based on the principles of the UN organization for senior citizens, which can succinctly be characterized as: independence, self-fulfilment, participation in society, dignity, and care. Active ageing also involves respecting the rights of elderly people and their participation in public elections. By this concept, senior citizens form a highly diversified group. It is, therefore, very important that they should be provided with what is called an *enabling environment*, that is, environment in which elderly people can lead a better life as it is adapted to better suit their needs. In this connection, the World Health Organisation speaks about: *barrier-free zones, flexible working hours, part-time jobs, and security* both at work and in public spaces. Society should be prepared to accept that senior citizens need much more time than other people to come to terms with some things. Auxiliary measures and services should also be available to improve the mobility of elderly people. The idea of active ageing should be the future solution for senior citizens with an aim to preserve self-sufficiency and independence. The quality of life of an individual depends on his or her conduct while being young, which may, for example, affect the family life (see also Mikušová, Rašticová, 2015).

At present, active ageing is a major issue in the academic world, too. The quality of active ageing can be measured by an index of active ageing consisting of twenty items divided into four categories (Štěpánková, 2014). Educational activities gain the upper hand being offered to senior citizens in an increasing measure. The most favourite is the concept of the *University of the Third Age* (U3A) or academy of the third age. In both cities (Brno and Vyškov), a wide range of U3A or other such programmes are offered.

The method

To achieve the research goal, questionnaire enquiry was used. Data were collected in autumn 2015 in two localities of the southeast part of the Czech Republic, the city of Brno and the town of Vyškov. From 121 respondents addressed at random in seniors' clubs and libraries 111 filled-in questionnaires were received.

The research sample consisted of 111 senior citizens including 32% men and 68% women, the average respondent age being 67.7 years, about one half (59%) of the respondents living in Brno and one half of them (41%) in Vyškov.

Research Results

To find out what can be done to *improve the satisfaction of elderly people at different levels*, the respondents were asked, based on their own previous experience, to freely associate and fill in answers to several levels:

- at the individual level, that is, as viewed by the respondent
- at the corporate level
- at the municipality level

Tab. 2: Suggestions to improve the satisfaction of elderly people at three levels

INDIVIDUAL	CORPORATE	MUNICIPALITY
Helping others, volunteering (38)	Reunions of former colleagues (34)	Increase in pensions (28)
More activities by senior citizens themselves (22)	Equal opportunities across generations of employees (20)	Access to information (25)
Consideration for others (8)	Contributions to health treatment (13)	Free transport (20)
Spending more time on others and proactive activities (6)	Convalescent stays (11)	More events for senior citizens (17)
Active listening to those in need (6)	Products (services) of companies should be: - of good quality (11) - available in v regions (8) - affordable (7)	Barrier free access and availability of shops (16)
		Care for senior citizens (13)
		City and town cleaning (12)
		Safety in city and town (11)
		Low-rise trams (7)
		More retirement homes (5)

Source: author's own research

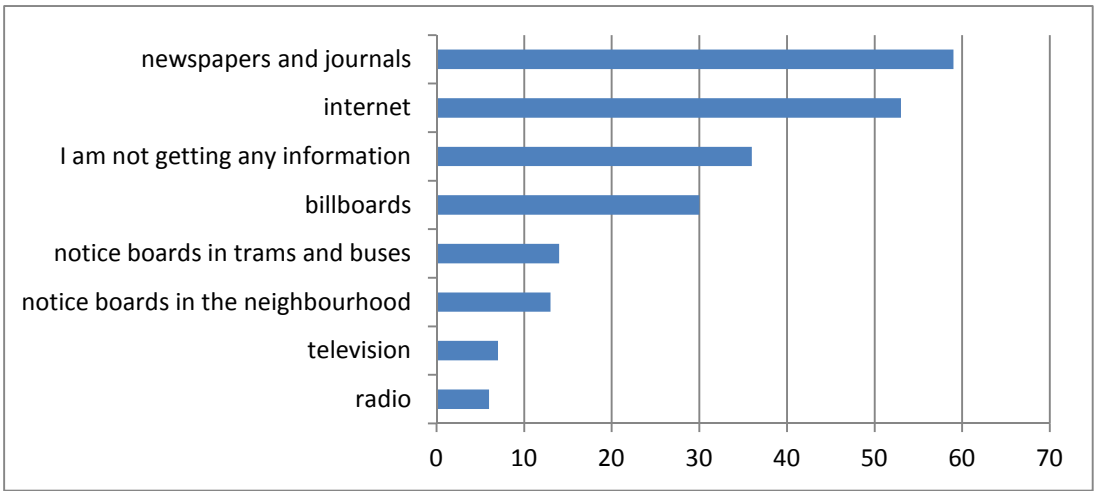
The results imply that the most suggestions for improving the standard of life and satisfaction from the respondents were addressed to the municipalities. Although increase in pension seems to be the most frequent wish among the pensioners, it cannot be fulfilled at the municipality level. As an inspiration to the municipality on the other hand, may serve the requirement of a better access to information mentioned by the respondents twenty-five times or the wish for more events organized for elderly people and barrier-free access. Judging by the list of wishes and needs of the respondents, these are the active ones showing interest in public affairs and wishing to stay in contact with their city or town.

Asked about the needs that might be met by companies and enterprises, the respondents most often mentioned reunions of former employees and colleagues, which also reflects the structure of the sample consisting of senior citizens no longer employed and thus lacking contact with their former

colleagues, which can only be made at reunions. Other wishes that might be met by companies such as contributions to health treatment and convalescent stays seem to involve still employed rather than retired senior citizens. Remarkable is the frequent demand for equal opportunities, which could signify motivation to stay employed even longer provided that equal conditions were set across generations. However, verifying this hypothesis would require further detailed enquiries using interviews or focus groups. Often, the respondents voiced their requirements concerning the quality and availability of products, which again confirms that the respondents view the companies as customers rather than former employees.

Very inspiring for all the parties involved are then the respondents' statements reflecting what could be made better for elderly people at the individual level, in other words, what they themselves could do to improve the quality of their own lives. Most of the respondents mentioned volunteering and helping the others, active listening to and consideration for the others as activities by which the senior citizen themselves could improve the quality of life.

As part of the enquiry, also information sources were studied used most frequently by senior citizens. In some aspects, the results were surprising (see Graph 1).



Source: author's own research

Graph 1: Most frequent information sources used by senior citizens

According to the results of the investigation, the most frequent information channel is still newspapers, mentioned almost sixty times. As positive can be seen the fact that about as frequently the senior citizens (aged 67 on average) find information on the fastest channel, that is, the Internet. However, a large percentage of respondents also admitted having no information source. Surprising is also that the respondents do not regard television and the radio as the main information channel.

Summary

The active ageing issues are dynamic, changing along with the changing senior generation, legislation, economic situation of the country and the particular region. As senior citizens form the most heterogeneous population group, it is difficult if not impossible to formulate clearly the needs applying to all of them. Neither was this the ambition of this research. In it, we focused on identifying the needs of a clearly defined group of senior citizens depending on the setting of different measures in two selected municipalities – the city of Brno and the town of Vyškov. Although, for reasons stated above, the results cannot be generalized, we are convinced that the basic needs and wishes formulated by the senior citizens investigated apply across the entire group of senior citizens from different countries. These needs include: helping others, volunteering, reunions with former colleagues, and access to information. Contacts and relations with other people are areas most reduced after retirement. A number of researches (cit.) have also confirmed that it is loneliness rather than financial or health issues that elderly people suffer most from. The need for access to

information is typical of all active beings that seek active or at least passive involvement in what is going on about them.

Thus, the municipalities may employ relatively easy procedures to help improve the senior citizens' quality of and satisfaction with life, provided that they concentrate on their real needs. Important and positive finding is that senior citizens, too, are interested in work on the improvement of the quality of their standard of living. Volunteering with the involvement of the senior citizens offers an opportunity for the municipalities with emphasis on a better access to information.

Lucky are those who know the benefits of old age when they are young as well as those who can keep the blessings of youth when they grow old. (Johann Wolfgang von Goethe). Well, a happy old age no doubt includes a proactive, positive approach to life and care for other people that may be equally or even more in need as the present research has also shown.

Acknowledgements

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L'impact du Bouche a Oreille Electronique sur L'état Emotionnel : Proposition d'un Cadre Conceptuel

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Résumé

Cette étude examine comment le Bouche à Oreille électronique - positif ou négatif- peut influencer l'état émotionnel, l'attitude et l'intention d'achat du récepteur. Nous avons mené une recherche exploratoire documentaire qui nous a permis de mieux expliquer le comportement du consommateur en ligne. La revue de la littérature en marketing, nous a permis d'établir un cadre conceptuel mettant en relief la relation entre le BAO électronique et les variables comportementales à savoir l'état émotionnel, l'attitude et l'intention d'achat des consommateurs en ligne.

Mots clés : Bouche à Oreille électronique ; émotions ; attitude ; intention d'achat.

Abstract:

This study examines how receiving negative and positive word-of-mouth from satisfied and dissatisfied customers influences the potential customer behavior. This work aims to study the relationship between the Word Of Mouth (WOM) received through social networks and behavioral variables such as emotions, attitude and the receiver's purchase intention. We have conducted an exploratory research. This study allows explaining customer behavior online. After a marketing literature, we have established our conceptual model and hypotheses studying the relationship between the different variables.

Key words: E-WOM; emotions; attitude; purchase intention.

Introduction :

Les études menées sur la communication en ligne sont nombreuses (Iacobucci, 2007, Mayzlin et Godes, 2004 ; O'Connor, 2008…). Les réseaux ne sont pas nouveaux en marketing et la communication interpersonnelle revêt une importance de plus en plus évidente. Cependant, plusieurs études ont mis l'accent sur le concept du Bouche à Oreille et les manifestations de sa diffusion. Avec l'arrivée de l'Internet et plus récemment les réseaux sociaux (Facebook, Twitter, instgram…), on parle désormais de la puissance, l'étendue ainsi que l'intensité et la rapidité du Bouche à Oreille (BAO).

Notre recherche s'attèle à répondre à une question essentielle : Dans quelle mesure la réception du BAO à travers les réseaux sociaux influence-t-elle les émotions, l'attitude ainsi que l'intention d'achat du récepteur ? Ce travail présente un intérêt théorique à savoir la mise en évidence, sur un plan conceptuel, de l'impact potentiel que peut causer la transmission du BAO à travers les réseaux sociaux sur l'état émotionnel de l'internaute-consommateur, son attitude et son intention d'achat. En effet, nous considérons que ce genre de relations n'a pas été suffisamment investigué dans la littérature et plus particulièrement l'impact du BAO électronique sur l'état émotionnel de l'internaute.

Après avoir éclairci le cadre théorique de notre recherche, nous proposons un cadre conceptuel. Certaines pistes de recherches sont finalement proposées.

1. Cadre Théorique de la Recherche

1.1 Le Bouche à Oreille (BAO) et le Bouche à Oreille électronique (e WOM)

Le bouche à oreille (BAO) est un phénomène qui ne date pas d'aujourd'hui. C'est un outil marketing de plus en plus utilisé par les entreprises dans la remontée des informations (Kaltz et al 1955). Il représente aussi un moyen efficace d'obtenir une évaluation des services et des informations utiles à partir d'autres clients expérimentés dans un délai assez court (Mazzarol, et al, 2007). D'autres auteurs définissent le BAO comme une forme de communication informelle qui peut avoir un impact positif ou négatif sur les caractéristiques d'un produit ou d'un service (Helm, 2000).

Le BAO permet aux consommateurs de partager des informations et de faire des évaluations qui guident d'autres acheteurs directs dans leur choix de produits ou de services (Litvin et al. 2008). Par ailleurs, le BAO positif augmente la probabilité d'achat ; tandis que le BAO négatif crée plutôt l'effet contraire (Setiawan, 2014). Cet outil apparait comme étant le résultat d'expériences de consommation vécues par un individu avec un produit (Mayzlin et Godes, 2004).

Les consommateurs fondent leurs décisions sur les commentaires fournis par les expériences d'achat ou de consommation rapportées par leur entourage (Luo et Zhong, 2015). Aujourd'hui, un client mécontent peut partager son expérience négative avec une douzaine de consommateurs dans son entourage direct, et il peut influencer des milliers de pairs au sein des réseaux sociaux tels que Facebook, Twitter, et Myspace (O'Connor, 2008). Le BAO électronique (e WOM) est considéré comme un support fiable et une source d'information impartiale. Il est soutenu que le BAO électronique influence les attentes des consommateurs, leurs préférences et leurs attitudes, et affecte leurs décisions d'achat (Litvin et al. 2008; Luo et Zhong, 2015). Le BAO électronique peut se propager via des plateformes d'opinion, des forums de discussion, il se manifeste à travers le boycott des sites Web ou des sites permettant la communication entre consommateurs (Hennig-Thurau et al. 2004). Il implique la participation des acteurs dont le comportement est motivé par diverses raisons, en particulier le désir d'interactions sociales et le maintien des liens sociaux, la jouissance des activités en ligne, le soutien affectif, l'altruisme, l'identification, le sentiment de la solidarité, l'entraide ou l'estime de soi (Hennig-Thurau et al. 2004; Munar et Jacobsen, 2014).

Le BAO électronique diffère du BAO traditionnel principalement par sa commodité, sa portée et sa vitesse d'interaction (Luo et Zhong, 2015; Serra Cantallops et Salvi, 2014). Contrairement au BAO traditionnel, qui traduit habituellement les préoccupations et les opinions exprimées par des connaissances (par exemple, les amis, les collègues, et la famille), le BAO électronique est souvent traduit par des commentaires en ligne qui sont générés par des sources inconnues (Xie et al. 2011). Cependant, les réseaux comme Facebook, Twitter, Instagram… sont souvent formés par les amis, la famille, ce qui donne une certaine crédibilité aux commentaires par rapport au contenu. Ainsi, le réseau social Facebook, par exemple, élargit les cercles sociaux des consommateurs et augmente la fréquence, et la durée de contact interpersonnel (Luo et Zhong, 2015). Luo et Zhong (2015) soulignent le rôle des relations et des interactions sociales à travers le Bouche à Oreille Electronique sur le réseau social. Le BAO électronique influence les attitudes et la décision des consommateurs en ligne établissant, ainsi, des liens sociaux forts (Luo et Zhong, 2015). Cette forme de communication donne un aperçu sur la façon dont les consommateurs utilisent l'information en ligne pour aider une personne à la prise de décision d'un achat par l'utilisation de notes en ligne (Sparks et Browning, 2011), des médias sociaux (Brown et al. 2007), des agents de recommandation en ligne (Gershoff et al. 2003), et des forums en ligne (Harrison-Walker, 2001).

Beaucoup d'études antérieures ont traité la relation classique entre le BAO traditionnel et les émotions, l'attitude et l'intention d'achat. Nous cherchons a travers notre étude à nous focaliser sur le lien existant entre ces variables, mais, dans e contexte des réseaux sociaux et plus particulièrement, nous chercherons à explorer comment le consommateur se comporte face à la réception d'un BAO autour d'un produit sur les réseaux sociaux.

1.2 Le BAO a un potentiel émotionnel :

Laurence Graillot (1998) stipule que les émotions peuvent diriger le processus de prise de décision de l'individu et influencer ses réactions comportementales. Ainsi, selon l'auteur, une même émotion peut avoir des effets différents sur plusieurs personnes et même sur la même personne dans différentes situations. Les émotions peuvent exercer une influence sur la contraction des muscles du visage, sur le corps de l'individu, sur les systèmes de la circulation sanguine et respiratoire, sur l'activité électrique du cerveau. Traditionnellement, les émotions sont observées comme étant des états particuliers de la conscience. En effet, les individus qui vivent des émotions assez intenses réalisent que leur expérience vécue ne correspond pas à un état ordinaire de la conscience (Izard, 1977).

Westbrook et Olivier (1991) soulignent que « *l'émotion fait référence à l'ensemble des réponses émotionnelles provoquées pendant l'usage d'un produit ou des expériences de consommation et lors de l'achat* ». La transmission du BAO par l'émetteur a des antécédents émotionnels car une émotion positive ou négative peut contribuer à la transmission du BAO (Sweeney et Soutar, 2001). On peut affirmer, dès lors, que l'acte de la transmission du BAO réveille les souvenirs émotionnels de l'émetteur et ramène les émotions ressenties au moment de l'expérience originale (Soderlûnd et Rosergren, 2007).

1.3 Le récepteur du BAO électronique et son évaluation de l'émetteur

La transmission du BAO fournit au récepteur des informations sur l'état émotionnel de l'émetteur. Par exemple, des informations concernant une expérience négative sont susceptibles de laisser croire que l'émetteur se sent mal. Lorsqu'il parle de son expérience, l'émetteur transmet des signaux supplémentaires tels que les expressions faciales, les gestes, le ton de la voix qui peuvent informer sur son état émotionnel (Soderlûnd, 2006). Le récepteur utilise ces signaux pour évaluer l'état émotionnel de l'émetteur (Soderlûnd et Rosergren, 2007). Cette évaluation sert à équilibrer la relation entre l'individu et son environnement en identifiant dans quelle mesure l'émetteur se sent bien ou mal. Les individus sont très habiles pour traiter des informations exprimées par le visage (Soderlûnd et Rosergren, 2007).

En ligne, on ne parle plus d'expressions faciales, de gestes, du ton de la voix, on parle désormais d'émoticons –Smiley- qui représentent des mimiques faciales comme des sourires, des clins d'œil, des moues de colères ou de tristesse ; ces émoticons (figure1) sont souvent utilisées dans les discussions en ligne et les réseaux sociaux (Marcoccia, 2000).

On trouve aussi, dans les forums en ligne, des ponctuations expressives comme par exemple -doubler le point d'exclamation ou le point d'interrogation- (Luzzatti et al, 2002; Anis, 2000). Les émotions en ligne peuvent aussi se traduire par le langage figuratif et l'utilisation de métaphores permettant d'adjoindre une dimension émotionnelle aux écrits numériques (Delfino & Manca, 2007). Les études empiriques ont montré que l'évaluation de l'observateur de l'état émotionnel d'une personne est corrélée avec l'état émotionnel de la personne qui affiche ces émotions (Harker et Keltner, 2001 ; Neumann et Strack, 2000).

2. Le Cadre Conceptuel de la Recherche

2.1 Evaluation de l'état émotionnel en ligne

Les individus ont tendance à partager des histoires, des nouvelles et des opinions car celles-ci contiennent des informations utiles (Berger et Milkman, 2012). Par exemple, les internautes cherchent à partager leurs expériences vécues dans des restaurants ou encore la somme qui a été payée pour un produit ou un service. Ce comportement permet à d'autres individus d'économiser de l'argent ou de trouver un bon plan pour manger mieux. Par ailleurs, le fait de partager un contenu utile peut permettre d'aider les autres à être mieux informés pour améliorer leurs connaissances (Wojnicki et Godes 2008), à instaurer une valeur d'échange social (Homans 1958) ou encore, à générer la réciprocité (Fehr, Kirchsteiger et Riedl 1998).

Les aspects émotionnels de contenu peuvent également affecter la personne avec qui le contenu est partagé (Heath, Bell et Sternberg, 2001). Les individus discutent beaucoup de leurs expériences émotionnelles avec les autres, et les clients véhiculent d'avantage de BAO en cas de satisfaction ou d'insatisfaction (Anderson et Eugene 1998). Les gens peuvent aussi partager un contenu émotionnellement chargé afin de donner un sens à leurs expériences, de réduire la dissonance, ou d'approfondir les liens sociaux (Peters et Kashima 2007;. Rime et al 1991).

Toutefois, les auteurs affirment que l'émotion est contagieuse surtout quand il s'agit de situations sociales dans le sens où un individu est facilement influencé par l'émotion de la personne avec qui il interagit (Neumann et Strack, 2000). Certains auteurs mettent en évidence aussi le lien entre le comportement affiché par l'émetteur et les émotions ressenties par le récepteur à travers les mimiques faciales du visage de l'émetteur, les phrases et les mots utilisés ou même la ponctuation. Tous ces réactions peuvent traduire un certain état émotionnel (Hess et al, 1998). En fait, Ces mimiques faciales sont représentées graphiquement en ligne et permettent au récepteur d'évaluer l'état émotionnel de l'émetteur (Derks et al, 2007; Marcoccia, 2000).

Certains auteurs trouvent également que cette vision reposant sur un jugement automatique (automaticity-based view) de l'activité musculaire ou des mimiques faciales laisse peu de place à l'activité cognitive du récepteur. C'est pour cette raison, qu'on admet que les émotions du récepteur sont aussi fondées sur l'activité cognitive de l'évaluation qu'il fait de l'état émotionnel de la personne stimuli. Ainsi, et comme le confirment Hsee et al. (1990), notre prise de conscience, qu'une personne se trouve dans un état émotionnel particulier, pourrait finir par nous mettre dans le même état émotionnel (une sorte d'effet de contagion). Les auteurs mettent, donc, en évidence la relation causale qui existerait entre l'évaluation du récepteur de l'état émotionnel de l'émetteur et ses propres émotions ; le lien entre le stimulus et la réaction émotionnelle est ainsi médiatisé par l'évaluation (Soderlûnd et Rosergren, 2007). Nous posons donc l'hypothèse suivante :

H_1 : L'évaluation du récepteur de l'état émotionnel de l'émetteur à travers les réseaux sociaux a un impact sur ses émotions.

2.2 *Emotion et Attitude du récepteur en ligne*

Quand un objet particulier évoque certaines émotions, il est clair que ces émotions peuvent induire un certain jugement (Pham, 2004). Cet impact que peuvent causer les émotions sur les jugements fait référence à la notion d'« Affect infusion ». Deux mécanismes sont issus de cet état : l'affect-information se rapportant à l'état émotionnel par rapport à cet objet et l'« l Affect-priming » supportant que les émotions ont une influence directe sur les jugements (Forgas et George, 2001). Les émotions suggérées par le produit influencent l'attitude envers celui-ci (Brown et al, 1998). Certaines recherches montrent que les émotions ont un impact direct sur l'attitude. Cet impact a été aussi confirmé dans de nombreuses études portant sur la communication. Par exemple, les émotions créées par une personne influencent l'évaluation de la marque ou l'objet annoncé (Soderlûnd et Rosergren, 2007). Plus encore, les recherches ont montré aussi une forte relation entre l'attitude du récepteur à travers un BAO électronique et les émotions ressenties par ce dernier. D'après ces résultats et suivant la logique d'« affect infusion » mentionnée précédemment, nous pouvons avancer l'hypothèse suivante :

H_2 : Les émotions ressenties par le récepteur membre du réseau social ont un impact sur son attitude envers le produit objet du BAO.

2.3 *Attitude et intention d'achat du récepteur en ligne*

L'attitude du consommateur n'est pas directement corrélée avec son comportement mais plutôt avec son intention (Soderlund et Rosengren, 2007). Les attitudes et les autres évaluations, comme la satisfaction du client, affectent les intentions d'achat et l'intention de ré-achat (Lucas, 2003). Les

travaux empiriques confirment que l'attitude du récepteur envers une entreprise qui fait l'objet du BAO est positivement associée avec son intention d'achat.

Dans la littérature sur le BAO électronique, l'intention d'achat est la variable la plus souvent étudiée. Les attitudes des clients envers les produits résultent des commentaires en ligne des internautes (Bateineh, 2015). Généralement, les recommandations des clients sont positivement associées avec les intentions d'achat, et peuvent affecter leurs choix (Chang & Chin, 2010). Les critiques et les commentaires des clients sont, dès lors, extrêmement importants pour les commerçants en ligne. La qualité et la quantité de ces informations en ligne influencent positivement les intentions d'achat du client (Do-Hyung et al. 2007). D'où nous pouvons postuler l'hypothèse suivante :

H_3 : L'attitude du récepteur envers le produit qui fait l'objet du BAO a un impact sur son intention d'achat de ce produit.

La figure 1 présente le cadre conceptuel issu des relations entre les variables que nous avons présentées :

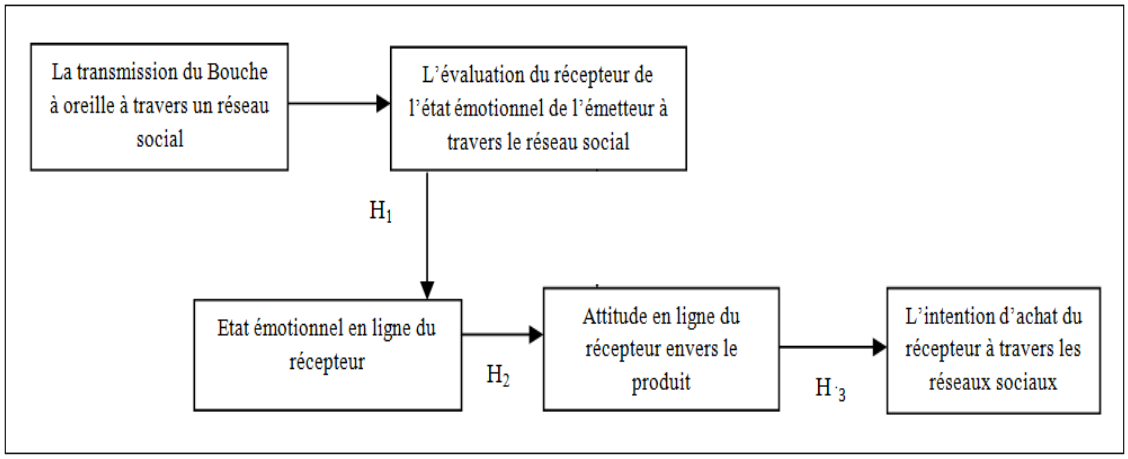

Figure 1 : Modèle conceptuel de la recherche

3 Conclusion et Recommandations :

Dans le cadre de cette recherche, nous avons exploré l'impact du BAO à travers les réseaux sociaux sur les émotions, l'attitude et l'intention d'achat du consommateur en ligne. Une étude documentaire a permis de proposer un cadre conceptuel permettant de mieux cerner la relation causale entre le BAO électronique et le comportement du consommateur.

Nombreux sont les auteurs à avoir démontré l'efficacité du BAO comme une source de communication et de partage d'informations sur un produit, un service ou une marque. Cette efficacité peut se mesurer par l'influence du BAO sur l'opinion et la représentation qu'un consommateur peut se faire d'un produit.

Malgré l'importance de plus en plus grande des achats en ligne qui se manifeste à travers l'apparition des nouveaux sites (i-e les deals), nous pouvons déplorer l'absence d'études académiques sur l'impact de la communication en ligne sur le comportement du consommateur.

En guise de conclusion, certaines pistes de recherche peuvent paraitre particulièrement prometteuses.

Il serait ainsi intéressant de mener une nétnographie afin d'observer l'état émotionnel du consommateur à travers les réseaux sociaux.

Une recherche quantitative permettra certainement de tester la validité du modèle proposé.

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Inflation under the Influence of Deflation Pressures

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Abstract

This article provides a Czech and European overview of the inflation versus deflation debate which has captured the attention of the economics profession in the years following the US housing bubble. Euro area annual inflation was -0.2 % in February 2016, down from 0.3 % in January 2016. A year earlier, the rate was -0.3 %. Deflation can be, under certain conditions, for the real economy significantly greater threat than classic inflation as we know it. There is therefore not deflation as deflation. A mere drop in prices is not yet a problem. Problems occur in a situation where there is a decline in prices caused by a decrease in the volume of money in the economy, a credit contraction and similar phenomena. A similar situation is always connected with the economic recession and all negative phenomena that accompany it. The development of inflation in the Czech Republic and in the European Union will depend on the further economic development of important macroeconomic indicators (mainly GDP). The goal of this paper is evaluation of the current economic situation in the Czech Republic and in the EU with regard to the inflation.

Key words: inflation, deflation, European Union, consumer price indices

1. Introduction

During the post-crisis period, economic performance has been highly heterogenous across the euro area. While some economies rebounded quickly after the 2009 output collapse, others are undergoing a protracted further decline as part of an extensive deleveraging process. At the same time, inflation has been subdued throughout the whole of the euro area and intra-euro-area exchange rates have hardly moved. (Kushinov et all, 2016)

Inflation targeting has attracted attention to researchers and policy makers since the first attempt in New Zealand in 1990.

For high-income or developed countries, the significant motive of monetary authority to choose inflation targeting is the desire to keep or enhance anti-inflation credibility, and inflation targeting could be a natural option under more floats with the absence of nominal exchange rate anchor. On the other hand, low-income or developing countries with the large size of public debts are not likely to choose inflation targeting, so that fiscal fragility would discourage monetary authority to adopt restrictive monetary policy under inflation targeting. (Ismailov at all, 2016)

Well-anchored inflation expectations have become a key indicator for the credibility of a central bank’s inflation target. Since the outbreak of the financial crisis, the (de-)anchoring of long-term U.S. inflation expectations has been under debate. (Strohsal, et all, 2016)

According to Selgin (1997, p. 14) Zero inflationist' neglect of the alternative of secular deflation, along with their failure to consider the implications of productivity changes, has led them to embrace a faulty monetary policy ideal. In model economies where productivity does not change, it is relatively easy to make the case that zero inflation (that is, a constant price level) is consistent with keeping real economic activity on or close to its efficient and 'natural' path. But in reality productivity is constancy changing, generally for the better. In the real world, a lithe secular deflation, along with upward movements in the price level mirroring adverse supply shocks, would be better than zero inflation.

The goal of this paper is evaluation of the current economic situation in the Czech Republic and in the EU with regard to the inflation.

2. Measuring Inflation

In general, inflation is the growth of price level over a certain period of time. As a statistical concept, inflation is based, etc.) and services (in the areas of repair, housing, household on measuring net changes in prices using consumer price indices (CPI). Price indices measure the price level of a selected basket containing representative products and services (about 710 items) in two compared periods. The weights of individual price representatives in the consumer basket correspond to the share of a given kind of consumption which they represent in total household consumption. The consumer basket comprises foodstuffs (food, beverages and tobacco), other goods (clothing, furniture, household utensils, miscellaneous chemist's and small articles, goods for transport and leisure, personal care goodsrunning, health and social care, transport, leisure, education, catering and accommodation, personal care and financial services).

Inflation rate is a percentage increase in consumer price indices (CPI). (Czech statistical Office, 2016)

3. Actual situation in Czech Republic

Consumer prices in Czech Republic increased 0.5 percent year-on-year in February 2016, following a 0.6 growth in January and in line with market expectations. Upward pressure came from: alcoholic beverages and tobacco (+0.3 percent), housing and utilities (+0.2 percent) and recreation and culture (+0.2 percent). In contrast, prices went down for food and non-alcoholic beverages (-0.2 percent) and transport (-0.2 percent). Month-on-month, inflation rate was recorded at 0.1 percent. Inflation Rate in Czech Republic averaged 4.61 percent from 1993 until 2016, reaching an all time high of 21.90 percent in February of 1993 and a record low of -0.40 percent in January of 2003. Inflation Rate in Czech Republic is reported by the Czech Statistical Office. (Trading Economics, 2016)

Tab. 1. Inflation in Czech Republic, Source: Czech statistical Office (2016a)

Year															
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
3.9	4.7	1.8	0.1	2.8	1.9	2.5	2.8	6.3	1.0	1.5	1.9	3.3	1.4	0.4	0.3

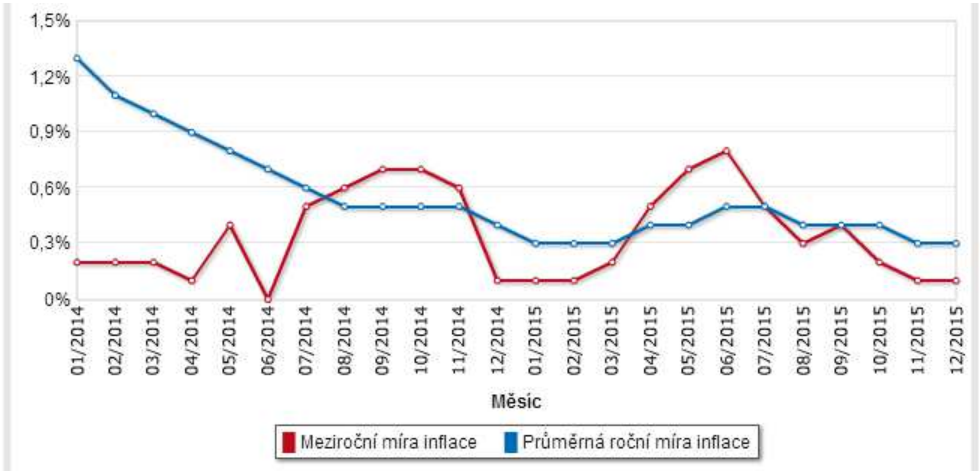


Fig. 1: Inflation in percentage in the Czech Republic, Source: Czech statistical Office (2016b)

4. Situation in EU

Euro area annual inflation was -0.2 % in February 2016, down from 0.3 % in January 2016. A year earlier, the rate was -0.3 %. The flash estimate of February, published on 29 February 2016, was -0.2 %.

Looking at the main components (see Fig. 2) of euro area inflation, services had the highest annual rate in February (0.9 %, compared with 1.2 % in January), followed by non-energy industrial goods (0.7 %, stable compared with January), food, alcohol & tobacco (0.6 %, compared with 1.0 % in January) and energy (-8.1 %, compared with -5.4 % in January). (Eurostat, 2016)

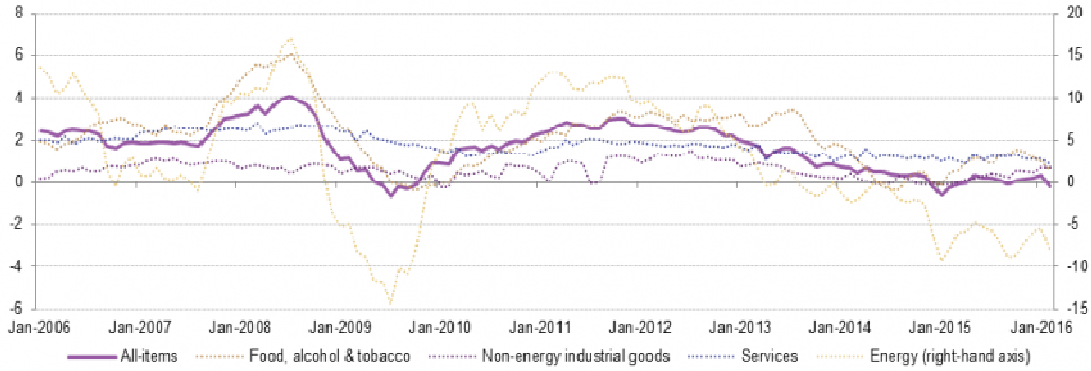
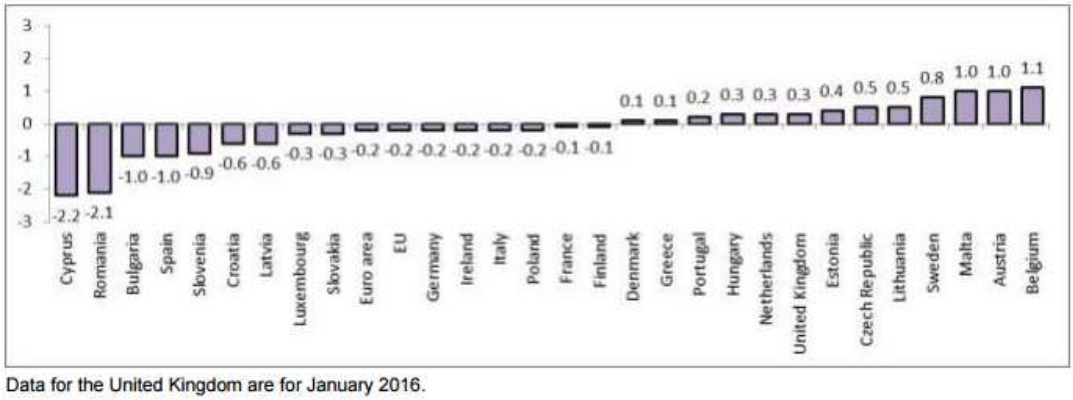


Fig. 2. Euro area annual inflation and its main components, 2006-February-2016, Source: Eurostat (2016)

These figures come from Eurostat, the statistical office of the European Union. In February 2016, negative annual rates were observed in fifteen Member States (See Fig. 3). The lowest annual rates were registered in Cyprus (-2.2%) and Romania (-2.1%). The highest annual rates were recorded in Belgium (1.1%), Austria and Malta (both 1.0%). Compared with January 2016, annual inflation fell in twenty Member States, remained stable in one and rose in six. The largest upward impacts to euro area annual inflation came from restaurants and cafes (+0.13 percentage points), rents (+0.08 pp) and fruit (+0.06 pp), while fuels for transport (-0.49 pp), heating oil (-0.24 pp) and gas (-0.10 pp) had the biggest downward impacts. (Eurostat, 2016a)



Data for the United Kingdom are for January 2016.

Fig. 3. Annual inflation rates (%) in February 2016, in ascending order, Source: Eurostat, (2016a)

5. The Impacts of Deflation

Among the most important consequences of deflation are generally cited as follows (some economists disagree with them, especially with the first point): households are postponing

consumption in the deflation, companies will lay off in the deflation, labour productivity growth, the decline in bank lending and deflation, deflation as a result of the economic growth, confiscatory deflation etc. (Kohout, 2013, Šíma, 2002)

6. Discussion

The inflation target of the Czech Republic and the EU is 2 %. From the above it is necessary to consider whether the current level of inflation is in the Czech Republic and in the EU really so bad as the individual states present and whether it is necessary to target inflation. In the further research it is necessary to examine the actions of the central banks focused on the strengthening or weakening of the currency. In the Czech Republic will be investigated the effects of the intervention measures of the Czech National Bank on the depreciation of the crown and their consequences on the economy of the Czech Republic.

A hypothetical, unconventional tool of monetary policy that involves printing large sums of money and distributing it to the public in order to stimulate the economy. Helicopter drop is largely a metaphor for unconventional measures to jumpstart the economy during deflationary periods. While "helicopter drop" was first mentioned by noted economist Milton Friedman, it gained popularity after Ben Bernanke made a passing reference to it in a November 2002 speech, when he was a new Federal Reserve governor. (Komarek, 2016)

7. Conclusion

As was mentioned above, deflation can be, under certain conditions, for the real economy significantly greater threat than classic inflation as we know it. There is therefore not deflation as deflation. A mere drop in prices is not yet a problem. Problems occur in a situation where there is a decline in prices caused by a decrease in the volume of money in the economy, a credit contraction and similar phenomena. A similar situation is always connected with the economic recession and all negative phenomena that accompany it. The development of inflation in the Czech Republic and in the European Union will depend on the further economic development of important macroeconomic indicators (mainly GDP).

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Ensuring Of Health Care Services In The Hradec Kralove Region

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Abstract

Healthcare is currently facing a shortage of physicians and nurses, on the supply side. The demand side expects an increase in the burden in future years, associated with specific types of diseases such as chronic diseases or neurodegenerative diseases related to the population aging.The aim of this paper is to analyse the state of health services in the Hradec Kralove Region. In 2013 the age structure of the population of Hradec Kralove Region differed to the nationwide structure mostly in higher proportions of the population aged 65+. In the region we can expect a growing number of deaths in the following groups: circulatory system diseases, neoplasms, respiratory diseases, infectious and parasitic diseases, blood diseases, diseases of the genitourinary system, endocrine diseases, intellectual and behavioural disorders, diseases of the nervous system, birth defects, muscle and connective tissue diseases. Therefore, more attention is paid to one of the fields in which there are future expectations of increased demand, specifically to cover the care in the field of urology.

Keywords: Healthcare, supply, demand, Hradec Kralove Region.

Introduction

Healthcare markets shows within their supply and demand certain specifics involving the expected behaviour of physicians, uncertainty of the final product and the terms of the offer (Arrow, 1963). The definition of healthcare under the Act 372/2011 Coll. on healthcare services and terms and conditions of their provision (Healthcare Services Act) says that it is a set of activities and measures undertaken by individuals for the purpose of:

1. prevention, detection and elimination of the disease, defect or health condition (hereinafter the "disease"),

2. maintaining, restoring or improving the health and functional condition,

3. sustaining and prolonging life and alleviating suffering,

4. helping reproduction and childbirth,

5. assessment of health condition,

preventive, diagnostic, therapeutic, medical rehabilitation, nursing or other medical procedures performed by medical staff (hereinafter referred to as "medical procedure") for the same purpose.

Individual demand for healthcare is unpredictable due to ignorance of their own health condition, as part of the population it is much more predictable. Furthermore it is irregular, probably increasing with age and intensive in the case of pain or illness. The demand also shows external benefits (social interest in the healthcare of individuals as well as the population as a whole). Specifics of the offer are reflected in its limited flexibility and competition. Generally, the offer on perfectly competitive markets is characterised by free entry into the industry, but in healthcare it isn't like that, in healthcare it is typical that the performance of the medical profession is tied and regulated to the

licensing, and the training of medical personnel is costly and challenging in the content. The limited competition varies between different market segments and providers compete among themselves and also with other sectors for available resources. A physician acts as a service provider affecting the cost, amount of the services and their structure.

The theory of health markets is developed further in 1972 by M. Grossman. It singles out health as a separate item of human capital and calls it health capital (HC). His model of demand for healthcare is based on the argument that human capital as the set of knowledge and experience acquired by education and practice increases productivity in the labour market and beyond, while HC determines the number of days that can be used for work or non-market activities (e.g. rest). Demand for healthcare therefore is not the primary demand according to Grossman, but it is derived from the demand for HC (Grossman, 1972). In the Czech Republic the findings of Grossman's model can be applied sparingly because it is a country with compulsory health insurance. Visiting the doctors is routinely perceived as a financial investment in your own health.

Furthermore, this issue was dealt by S. J. Mushkin, who tracks the results of state investments in the health and education of the population. He argues that it is pointless to examine investments in health care at the level of individuals, since the biggest changes in mortality and morbidity occurs in the context of societal conventions or state-run programs (Mushkin, 1962). In this case, individuals have no obligation of choice according to their preferences. The expenditure is either directed by the state authority such as health insurance, or it is socially unacceptable not to carry out the investment.

The aim of this paper is to analyse the state of health services in the Hradec Kralove region, focusing on one of the fields in which the future expectations foresee increased demand due to the expected increase in treated illnesses. The specification of demand for the amount of services, physicians and beds in various fields is based on several factors. It is the health situation of the population, which will be characterised by the development of deaths among the major groups of diseases and the number of hospitalised patients in the Hradec Kralove Region. Furthermore, the efficiency of the care, for example, an average treatment time, which will be analysed on the supply side..

1. Methods

The basic methods used for data processing include creation of time lines from publicly available sources such as National Register of reproductive health or Czech Statistical Office (CSO). Based on the existence of time lines, the value for the future period is then determined using linear prediction methods. In case of fluctuations in the time lines, the place of trend change in time line is determined using Simple Moving Averages, linear trend and Exponential Moving Averages and the prediction is developed then from that point. A Simple Moving Average (SMA) is calculated based on the relationship:
$SMA=(I_1+I_2+ ... +I_n)/N$, where
n – is the length of the reference period,
I – is the indicator used to calculate the average,
N – is the length of the period.

Exponential Moving Average (EMA) is calculated based on the relationship:
$EMA = I_n * K + EMA_{n-1} * (1 - K)$
EMA - Exponential Moving Average for *n* period,
n - is the length of the reference period,
I_n – is the indicator used to calculate the average,
K – is the proportion of the number 2 and number of monitored periods +1.

The calculations were performed using MS Excel, where the linear trend was calculated using the Lintrend function. The suitability of the linear model will be verified by the determination coefficient, which reflects the strength of the monitored variables dependence.

2. Analysis of the current condition of the population in the Hradec Kralove Region

The age structure of the population of the Hradec Kralove Region differed to the nationwide structure in 2013 primarily with a higher share of population aged 65+ (Table 1). The Hradec Kralove Region is afflicted by the so called demographic ageing, i.e. the process during which the age structure of the population is gradually changing in a way that the proportion of people over 65 years increases and the proportion of people younger than 15 years decreases. I.e. the older age groups grow relatively faster than the population as a unit. This problem is topical in the entire Czech Republic and across Europe.

Tab. 1: Percentage of population age groups in the Hradec Kralove Region and the Czech Republic

Age	HK		CZ	
0-14	82,276	14.90%	157,7455	15.00%
15-64	367,934	66.70%	7,109,420	67.60%
65+	101,699	18.40%	1,825,544	17.40%
Total	551,909	100%	10,512,419	100%

Source: (CSO, 2015)

The ageing population in the Hradec Kralove Region as well as the entire Czech Republic is suggested by the increase of the average age of the population (the arithmetic average age of all individuals in the given population). It continues to grow and in the period 2002-2013 in the Hradec Kralove Region it increased by 2.4 years. Compared to the whole country the value of the average age is permanently higher, and the difference is rather widening.

The existing demographic data could be summarised into the following basic trends:

- Total population of the Hradec Kralove Region has decreased by 10,000 inhabitants since 1980. Current status (by December 31, 2013) is 551,909 inhabitants. For the past 33 years there is a 2% change.
- Population growth is consistently below the national average.
- The largest population growth in the years 2002-2013 was recorded in 2007 in the amount of 2,569 individuals. The main reason for this increase was the migration balance.
- Ageing population affects the Hradec Kralove Region very negatively and it is above the national average comparison. The proportion of people older than 65 years is over 18%.
- The age index exceeded 100% in 2005, it is consistently higher than in other regions, except for the capital city of Prague and Zlin Region.

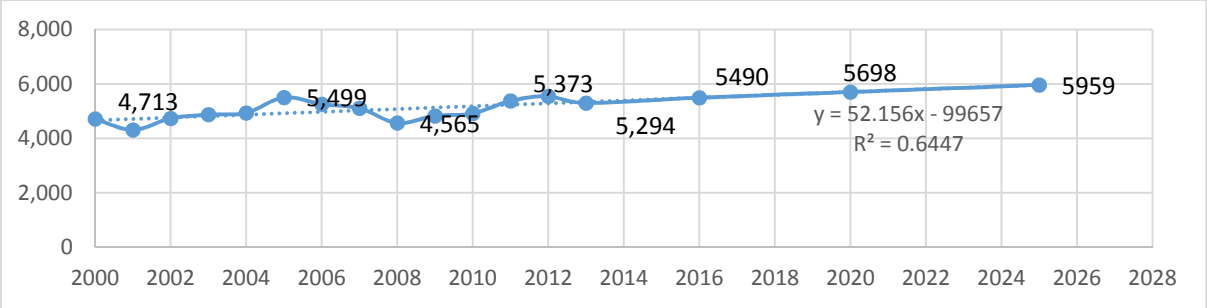
Compared to the computed values of 2015, an increasing number of deaths in the following groups can be expected in the Region: neoplasms, respiratory diseases, infectious and parasitic diseases, blood diseases, diseases of the genitourinary system, endocrine diseases, intellectual and behavioural disorders, diseases of the nervous system, birth defects, muscle and connective tissue diseases. Conversely, a decline is expected in these groups: diseases of the nervous, circulatory system, digestive system diseases, certain conditions originating in the perinatal period. The decrease is also reflected in the total number of patients.

3. Demand and supply of healthcare in the Hradec Kralove Region

Specification of the demand for number of services, amount of physicians and beds in various fields is based on several factors. This is a health status of the population. Furthermore, the efficiency of the care, i.e., for example, an average treatment time, which will be analysed on the supply side within the individual fields.

3.1 The market situation in the field of urology

Development of the number of hospitalisations in the field of urology in the Czech Republic shows a rising trend. In 2012, there were 81,682 patients. For 2025, the assumption is up to 89,557 patients (IHIS, 2015). On the contrary the number of deaths decrease, between 2000 and 2012 the reduction was by more than 200 people. The prediction also assumes further radical reduction. Namely: the situation in the Hradec Kralove Region shows that the numbers of admissions to hospital beds will grow, in 2025 nearly 6,000 patients are expected (Graph 1).



Graph 1 Development of the number of hospitalised patients, inpatient care in hospitals in the urology department

Source: own calculations based on the data from National Register of reproductive health

3.2 Analysis of the supply of care in the field of urology in the Hradec Kralove Region

Health care supply is specified by the number of physicians, number of departments, beds, their usage and capacity.

The hospital urology department has a stabilised number of departments, decreasing number of beds, as well as decreasing number of physicians. When looking at the total number of physicians in the region and their ten-year age group, the increase in groups from 50+ years is apparent. A clear decline is in the group of up to 29 years and in the remaining two categories, the numbers were variably developed with the decline in the past few years. The numbers of physicians, therefore seem to be sufficient for the next ten years, but after this period, while maintaining the trend, a fundamental lack of physicians is going to apparent (Table 1).

Tab. 1: Physicians according to the main field of activity – Urology

	up to 29	30 - 39	40 - 49	50 - 59	60 - 69	over 70	Total
2000	6	11	11	2	1	1	32
2001	4	13	11	3	1	1	33
2002	3	12	11	3	2	0	31
2003	3	11	13	3	2	0	32
2004	4	10	12	5	2	0	33
2005	6	12	10	6	3	0	37
2006	4	13	10	7	3	0	37
2007	6	13	10	7	3	0	39
2008	4	13	11	7	4	0	39
2009	3	15	8	11	3	0	40
2010	3	14	8	12	4	1	42

2011	3	12	9	12	5	1	42
2012	4	11	9	12	4	1	41
2013	2	9	12	11	4	1	39
2016	2.7	12.1	8.7	15.4	5.5	0.8	45.1
2020	2.1	12.1	8.0	18.9	6.5	0.9	48.5
2025	1.4	12.1	7.1	23.2	7.8	1.1	52.8

Source: own calculations based on the data from National Register of reproductive health

Physician transition index between groups indicates stabilisation of the numbers in relation to the transition between the groups. Index 3 which is in the age group of 30-39 indicates that the numbers of physicians are secured not only by transition from the previous group (the value would be at level 2, since the graduates in the age interval of 25-30 years appear in the category up to 29 years for the monitored period), but also by the arrival of more physicians from elsewhere (table 2).

Tab. 2: Index of physician transition between groups in the field of urology

	30 - 39	**40 - 49**	**50 - 59**	**60 - 69**	**over 70**
2000/2010	2.3	0.7	1.1	2.0	1.0
2001/2011	3.0	0.7	1.1	1.7	1.0
2002/2012	3.7	0.8	1.1	1.3	0.5
2003/2013	3.0	1.1	0.9	1.3	0.5
average	3.0	0.8	1.0	1.6	0.8

Source: own calculations based on the data from National Register of reproductive health

Nearly all age groups have the index around 1, which indicates the stability of the field, physicians from the urology field even come from other regions. Only in the highest age category is the value lower than 1, which may be caused by retirements.

Inpatient care in the hospitals in the HK Region is specific by the declining number of treatment days, decreasing average time of treatment, reduction in the use of beds and bed capacity. Occupancy of beds in 2013 was at a value of 57.5% (Table 3). If other circumstances in the field do not particularly change, the occupancy of beds will continue to decline, therefore it is advisable to consider a reduction in beds. In 2008 the number of days of treatment significantly decreased so did the annual bed occupancy. Average treatment time within the prediction came very low, up to the value of 2. The decreases over the monitored period were up by 100%, which may be influenced by the number of one-day performances.

Tab. 3: Inpatient care in hospitals - number of treatment days, the capacity of beds and occupancy of beds in urology

	Number of treatment days	**Average length of treatment**	**Annual bed occupancy**	**Beds**	**Annual capacity of beds**	**Occupancy of beds**
2000	29,279	6.2	42340	116	42340	69,2%
2001	25,472	5.9	42,340	116	42,340	60.2%
2002	26,496	5.6	42,340	116	42,340	62.6%
2003	26,391	5.4	42,340	116	42,340	62.3%
2004	26,691	5.4	42,340	116	42,340	63.0%
2005	28,446	5.2	42,340	116	42,340	67.2%

2006	26,300	5.0	42,340	116	42,340	62.1%
2007	26,087	5.1	42,340	116	42,340	61.6%
2008	21,190	4.6	40,880	112	40,880	51.8
2009	21,642	4.5	40,150	110	40,150	53.9%
2010	22,039	4.5	39,420	108	39,420	55.9%
2011	21,293	4	39,420	108	39,420	54.0%
2012	21,774	3.9	37,960	104	37,960	57.4%
2013	21,403	4	37,230	102	37,230	57.5%
2016	19,368	3.3	34,936	108	39,594	51.6%
2020	17,478	2.6	31,807	100	36,604	48.1%
2025	15,115	1.8	27,896	90	32,867	43.8%

Source: own calculations based on the data from National Register of reproductive health

Based on the above data it is possible to model several scenarios of further development. Scenario 1 - maintaining the number of beds would be related to the following successive assumptions:

- maintaining the availability of care in the region in the current range,
- decrease in bed occupancy
- the same need of the medical personnel,
- decline in revenue from insurance company
- economic non-efficiency growth, ...

Should there be a decision about reduction in the number of beds and the number of departments - Scenario number 2, it is expected:

- reduction in the availability of care in the region in the current range,
- increase in the utilisation of beds
- reduced need for medical staff,
- economic non-efficiency growth.

The latest variant forms Scenario 3 - reducing the number of beds and the preservation of the number of departments, i.e.:

- change in the availability of care in the region in the current range,
- increase in the utilisation of beds
- reduced need for medical staff,
- maintaining the current administration to maintain the number of departments, economic efficiency will not change so radically as in the previous variant, at the same time the availability of services will not be reduced so much.

4. Summary and Discussion

Development of the number of hospitalisations in the field of urology in the Czech Republic is growing, on the contrary the number of deaths decrease. The numbers of hospitalised patients in hospital beds in the Hradec Kralove Region increases. The development of the number of physicians in curative preventive care and hospital care varies. While in outpatient care the trend shows stagnation, in hospital care it declines. All with the views over the following ten years. By looking at the age groups of physicians in increments of ten years there is an obvious increase in the 50+ years groups. There is a clear decline in the group up to 29 years. The number of physicians, therefore, seem to be sufficient for the next ten years, but after this period, while maintaining the trend, a

fundamental lack of physicians will appear. Another monitored outcome was the number of beds and their utilisation.

The number of beds for the period 2000-2014 decreased by 12 beds. Utilisation was at a value of 57.5% in 2013, which, given the assumptions of a possible increase in the number of patients represents a fair value providing some reserve. Hospital departments in the urology field has a stable number.

Conclusion and Future Research

The market for health services and means shows certain specific and more recently also changes in supply and demand, due to the demographic development, technology development and economic development (Marešová et al., 2015). The aim of this paper was to analyse the status of health services in the Hradec Kralove Region, focusing on one of the fields in which the future expectations foresee an increased demand due to the expected increase in treated illnesses. An analysis of the field of urology showed that over the next ten years, the demand is covered in terms of the number of beds and in terms of a sufficient number of physicians. However, the next season requires us to deal timely with the security of personnel, particularly because the age group of physicians up to 39 years shows a gradual decline. It will also be necessary to conduct interviews with doctors in various fields and to propose cost-saving measures

Acknowledgement

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Apiculture – An Opportunity for the Romanian Agri-Food Production

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Abstract

Romania has an important potential in producing honey, a high quality of apicultural products and the favorable conditions for ecological production, which can constitute market advantages on the global market for apicultural products. Recent development of the national apiculture sector through European and national financing must be followed by investments in quality and modern processing units, which can ensure an added value to exported products. Fragmentation of production and insufficient marketing of the products are the weak points of the local sector. The tradition and continuity of the honey production, exports towards traditional external partners, the opening of new markets, ecological production or the diversity of the range of products are the opportunities from which local beekeepers can benefit in the next period. This paper is an analysis of the Romanian sector and proposes future development directions which can ensure a high degree of competiveness for local production on the international market.

Keywords: apiculture, market, opportunities, Romania

Introduction

The production of bee honey represents a traditional activity on Romanian territory, being a part of the culture and history of our civilization. Archeological findings and a large number of places with an apicultural resonance are proof of the continuity of apiculture in Romania.

According to Codex Alimentarius (1981), "Honey is the natural sweet substance produced by honey bees from the nectar of plants or from secretions of living parts of plants or excretions of plant sucking insects on the living parts of plants, which the bees collect, transform by combining with specific substances of their own, deposit, dehydrate, store and leave in the honey comb to ripen and mature". Bee honey is a food with special nutritional properties, with proven therapeutic characteristics, used in alternative and complementary medicine or in traditional Romanian treatments. Historical proof concerning the use of honey as medicine is presented on Sumerian clay tablets, emblazoned 5000 years ago, which mention that honey is a remedy for skin ulcers (Georgescu, 2009). Manyi–Loh, Clarke and Ndip (2011) present the nutritional and therapeutic effects of honey on the consumer, caused by the anti-microbe and anti-inflammatory action and the high anti-oxidant potential, being recommended as alternative to modern medical treatment.

Tan et al. (2009), make a comparative study concerning the anti-bacterial properties of the tualang honey types (*Koompassia excelsa)* and manuka, suggesting that the Malaysian product can be used as alternative therapeutic treatment against some microorganisms, especially *A. baumannii and S. maltophilia.*

Lusby, Coombes and Wilkinson (2002), evaluate the potential use of honey in the treatment of wounds and skin burns, emphasizing its anti-inflammatory and immunostimulant action, reduction of infection and facilitating of healing for burns, ulcers and other skin wounds. Outside the therapeutic properties, honey is a food used for human consumption due to its high sugar composition (carbohydrates –fructose and glucose and over 25 types of saccharides), small quantities of proteins, enzymes, amino-acids, minerals, oligoelements, vitamins, aromatic components and polyphenols. According to Bogdanov et al., (2007), honey has a variety of positive nutritional and health effects, if consumed at higher doses of 50 to 80 g per intake.

International Honey Production and Trade

According to FAO data, the global honey production, in a slight increase between 2009-2012, is estimated at 1.5 million tons, of which over 400,000 tons are traded on the international market. The main global honey producers in 2012 were China (436,000 tons), Turkey (88,162 tons), Argentina (75,500 tons) and the Ukraine (70,134 tons). With a quantity of 23.062 tons of honey produced, Romania occupied the 17th position in the global hierarchy (table 1). Europe and South-East Asia dominated the honey global market, being confronted in the last period with the massive loss of bee colonies (CDD - Colony Collapse Disorder) caused by stress of bees, epidemics, irrational use of chemical treatment on agriculture cultures. According to Dumitrescu's research (CRPCIS, 2012), although presently we can observe a balancing of the global commercial balance, the global honey market will be confronted with an offer deficit, caused by unfavorable climate changes, CDD manifested in the US and spectacular growth of demand in China and India. The evolution of global honey trade is presented in tables 1 and 2 (in the case of blank positions there are no data in the statistics consulted).

Table 1. Importers for natural honey (ITC Code product 0409) (USD)

Region/Country	2011	2012	2013	2014	2015
World	1,699,082	1,737,754	2,017,109	2,290,249	-
United States of America	387,255	416,003	481,081	561,543	605,325
Germany	277,955	291,269	331,859	322,029	324,804
France	107,695	92,81	113,22	153,619	127,474
United Kingdom	136,819	107,575	126,422	132,78	125,27
Japan	117,662	105,382	116,268	120,196	117,56
Italy	57,967	56,116	75,188	91,183	84,515
Saudi Arabia	52,443	62,016	66,422	83,414	-
Belgium	56,77	55,841	68,048	77,641	90,207
Spain	43,559	48,292	53,047	61,181	72,8
China	12,906	26,208	42,932	58,612	74,74

(Source Author, by using Interantional Trade Center Data, Trademap 2016)

The main importing areas are America (US), European Union, Asia (Japan and China) and the Middle East (Saudi Arabia). Between 2002 – 2011 China reduced the export volume, because of anti-dumping measures imposed by the US and the interdictions on community market caused by the presence of antibiotics in the honey (Chloramphenicol). Starting with 2012 a revival of Chinese honey exports is noticed, with an improvement in honey quality, illustrated also by the lack of notifications from the RASFF in the past 3 years (RASFF, 2016).

Table 2. Exporters for natural honey (ITC Code product 0409) (USD)

Region/Country	2011	2012	2013	2014	2015
World	1,700,086	1,767,513	2,076,628	2,333,213	-
China	201,375	215,051	246,55	260,263	288,668
Argentina	223,553	215,147	212,637	204,438	
New Zealand	87,089	103,892	140,174	168,191	247,504
Germany	120,716	129,527	140,444	151,12	129,483
Mexico	90,359	101,497	112,352	147,037	155,986
Viet Nam	67,141	58,131	89,966	132,974	-
Spain	79,184	79,843	91,483	120,428	103,699
Brazil	70,869	52,348	54,124	98,576	81,72
Ukraine	27,821	31,113	52,972	93,198	-

Hungary	60,117	63,501	90,467	92,066	74,942
India	76,226	59,882	75,718	77,196	121,918
Belgium	54,621	54,773	72,888	73,063	83,321
Romania	41,23	44,593	54,572	53,919	46,032

(Source Author, by using International Trade Center Data, Trademap 2016)

The US covers almost half of the internal consumption by local production. EU is a net honey importer, because the european production only covers 61,6 % of its consumption. The level of community consumption has been constant throughout the years, with an average of 0,70 kg/capita. The percentage of Romanian imports on the global market is negligible, their value being of 6,176 USD, representing around 0.26 % of global imports.

Global honey exports have reached a value of 2.3 million USD in 2014, the main exporting countries being China, Argentina and New Zealand. Romania occupied position 13 in the exporting countries globally, with a quantity of around 46,000 tons (table 2).

Quality Conditions for Honey. Notifications for Honey Products on the Community Market

The quality conditions for honey are established in the Codex Norms Alimentarius Standard for Honey (Codex STAN 12/1991, Rev 1987, 2001), which also precise the two honey categories differentiated according to production modalities –Blossom honey (nectar honey), produced based on the nectar of plants and honeydew honey, which comes mainly from excretions of plant sucking insects (*Hemiptera*) on the living parts of plants or secretions of living parts of plants.

The standard specifies the main physical, chemical and microbiological components of honey, the sampling and control methods, regulations concerning food contaminators, (heavy metals, residues and veterinary medicaments), hygiene conditions of the products and particular specifications concerning the labeling of products, which complete the general regulations of General Standard for the Labeling of Pre-packaged Foods (CODEX STAN 1-1985).

In the European Union, regulations concerning the quality of honey are described in Directive 2001/110/CE concerning honey, which states, additional to Codex STAN 12/1991, the honey categories according to the manner of production (honey with honeycomb, honey with honeycomb pieces or honeycomb, drained honey, pressed honey or filtered honey) and defined honey destined for agri-food industry. Both regulations, the international and the community one, contain details concerning the obligatory specifications on the label concerning the type of honey (floral or vegetal), regional origin, territorial or topographic, specific quality criteria.

The composition and quality of the honey are influenced by botanic origin, processing methods, storage and trading used. According to Food Protection and Defense Institute (2016), being a relatively expensive product, specialty literature signals a series of actions for defrauding honey (dilution, substitution, adding of foreign components, unauthorized medical treatment, wrong labeling, or forgings), coming especially from China or the near East. The Rapid Alert System for Food and Feed (RASFF) has notified in the period 2000-2016 a number of 304 products from the honey and royal jelly categories, with a maximum of 44 products signaled as being not according access to the European market in 2003 (figure 1).

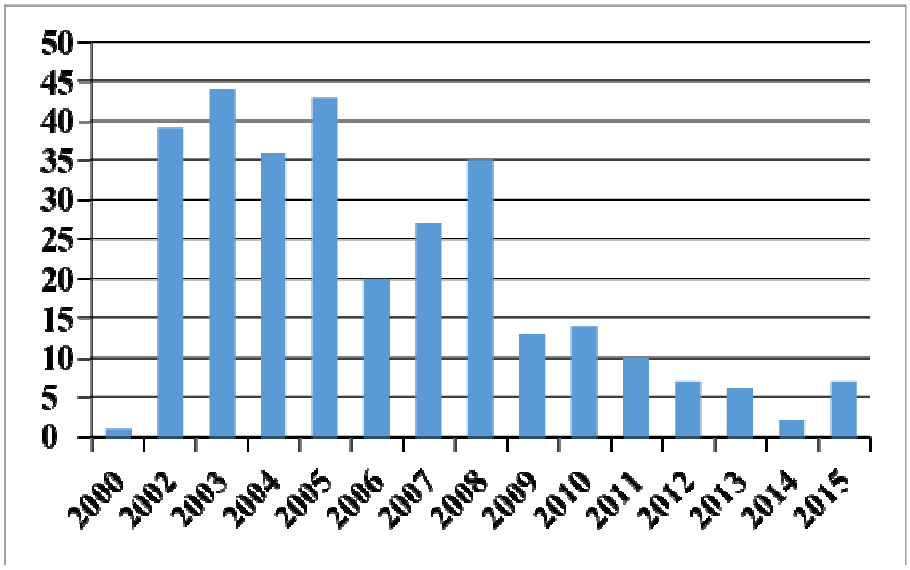

Figure 1. RASFF notifications of honey and royal jelly
(Source Author, by using RASFF Data, 2016)

The main typed of notifications made in the community system have been notifications, followed by alerts, border rejection and information for follow up (figure 2). The most alerts have been addressed to honey products which have presented in their composition contaminants in the category of unauthorized antibiotics, used for treatment of bee populations.

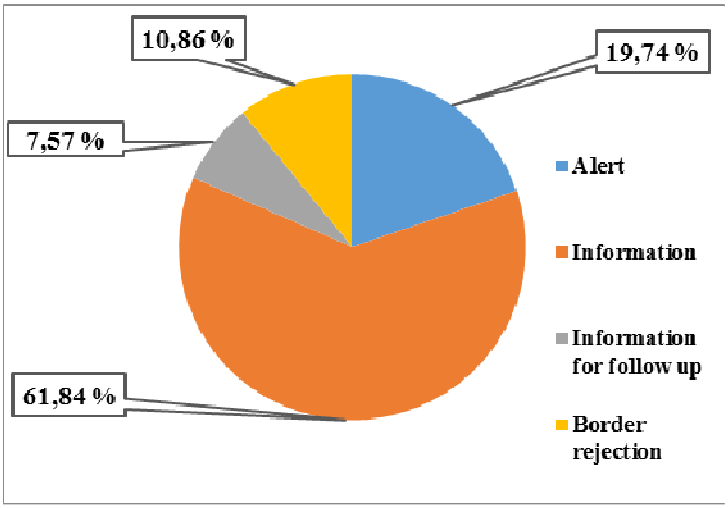

Figure 2. Categories of notifications from RASFF for honey and royal jelly products
(Source Author, by using RASFF Data, 2016)

The border rejections, most for honey coming from China, have had as a cause the presence of antibiotics, more frequently erythromycin or in some cases, the not accordingly packaging or hygiene for transports from the Ukraine. Honey is a natural product, in which the presence of contaminants is strictly

limited and the presence of food additives or other ingredients not specific for honey is strictly forbidden. Chinese products are the ones with the most notifications in the analyzed period, representing over 20% of the total registered in the community. Other states which have produced not according shipments of honey have been Argentina, Ukraine, Portugal or Turkey (figure 3).

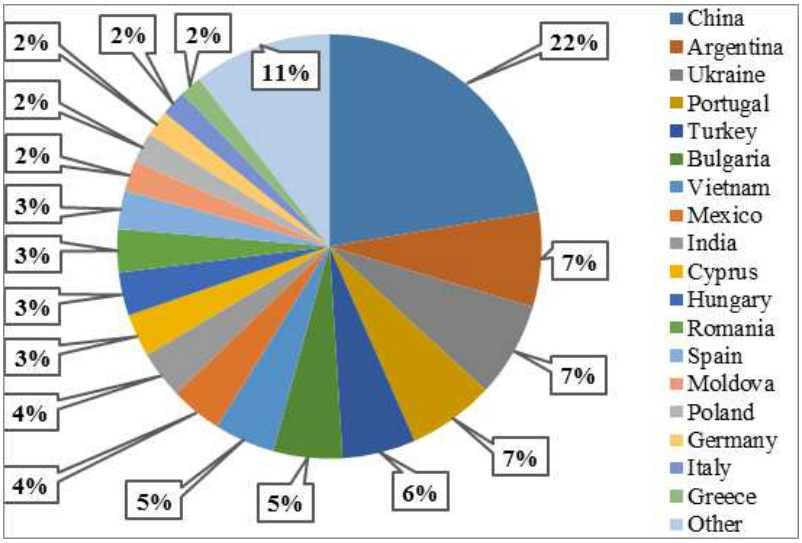

Figure 3. Geographical areas from which come honey and royal jelly products notified by the RASFF
(Source Author, by using RASFF data, 2016)

Romania generally is a safe production area for honey products, being relatively few notifications concerning it on the community market (table 3). Thus, between 2002- 2006 there have been 10 notifications issued by member states, of which 2 alerts and 8 notifications, all signaling the presence of unauthorized medicine in the shipments of Romanian honey exported to European partners. The community integration has brought new regulations in local honey production, after 2007 being no more notifications concerning the Romanian honey products. Romania has transmitted just 2 notifications of the border rejection type in the community network, concerning honey shipments in the Republic of Moldavia, respectively for absence of health certificate (2013) and unsuitable transport conditions (rusty and deteriorated barrels) for honey from Moldova (2014).

Table 3. RASFF notifications regarding honey and royal jelly

Year	Notifications	Country/ notifications	Categories of notifications and nonconformities
2002	3	Italy /2 I Austria /1 A	Information (I) - sulphathiazole unauthorized (67 µg/kg - ppb) - oxytetracycline unauthorized (18 mg/kg - ppm) in acacia and lime honey Alert (A) - streptomycin unauthorized (165 µg/kg – ppb)
2003	3	United Kingdom/2 I Denmark/1A	Information - prohibited substance chloramphenicol residues of veterinary medicinal products (0.3µg/kg – ppb) from Moldova and Romania - streptomycin unauthorized (200 µg/kg - ppb) Alert - prohibited substance - chloramphenicol (0.5 - 1.6 µg/kg - ppb) in acacia honey from Hungary and from Romania
2004	3	Germany/2 I	Information - streptomycin unauthorized (72 µg/kg - ppb)

		Sweden/ 1I	- streptomycin unauthorized (0.15 mg/kg - ppm) - sulphathiazole unauthorized in acacia honey (125 µg/kg - ppb)
2006	1	Hungary/1 I	Information - streptomycin unauthorized (47.7 µg/kg - ppb)

(Source Author, by using RASFF Data, 2016)

Honey Production and Trade for Romania

According to FAO data (2016), in the EU the main honey producers are Spain, Romania, Hungary and Germany, which cumulated make for 50% of the community honey production. Imported quantities also come from Russia, Ukraine, which sum up to 40% of the European apiculture.
Romanian apiculture uses bees from the *Apis Mellifera L family*, local breed *Apis Mellifera Carpatica*, well adapted to local climate conditions, but also import breeds, especially the *Buckfast* hybrid, *Apis mellifera carnica*, *Apis mellifera lingustica* or *Apis mellifera caucasica*. According to Iordache (2015), the protection and improvement of the local bee breed is necessary as is avoiding import breeds which are not as well adapted to climate conditions and can lead to the dependency of Romanian beekeepers on foreign breeds.

According to Ministry of Agriculture and Rural Development MARD (2016) data surfaces cultivated with technical plants at the disposal of beekeepers in 2015 were of 1.062.416 ha for sunflower, 435.872 ha for canola and 2.297 ha for coriander, easily decreasing from previous years. In 2015 MARD (2016) census registered in the 42 counties of the country 1,585,531 bee families, unevenly distributed in industrial units (20,027l families, companies and private associations (57,590 families) and family farms (1,507,151 bee families). The opinion of specialists is that the market in Romania is far from reaching maximum capacity, the available melliferos potential being able to ensure the development of a bee population between 1,800,000 families (Călin, 2010) and 2,700.000 families (Banu, 2016).

The National Apiculture Program (2008-2010) lead to a revitalizing of the apiculture sector, by subsidizing the associative beekeeper forms to purchase biological material to repopulate the bee population, respectively for the prophylaxis and virosis control. The organization forms in the honey production sector are mainly represented by associations and cooperatives, the number of groups of producers being the smallest. In the purchasing, processing and trading fields 19 companies activated organized under the form of Ltd (figure 4).

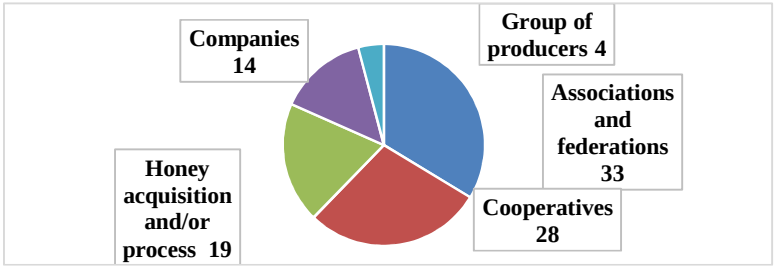

Figure 4. Organizing form of producers of apiculture in Romania (2015)
(Source Author, using the MADR Data, 2016)

The quantity of honey produced in 2015 has been evaluated at about 35 tons, on which over half has been sold to industrial processors (figure 5). Around 30% of the production has been destined for home consumption, a quantity of around 5 tons being deposited for later consumption.

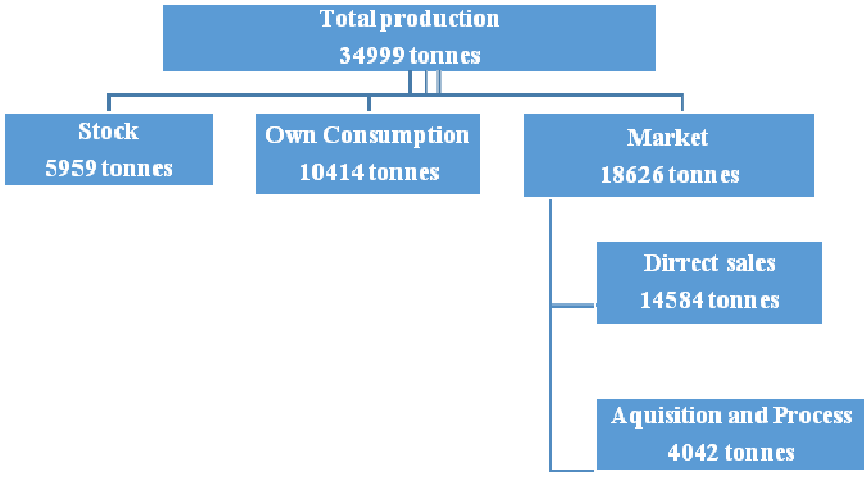

Figure 5. Romanian production of honey (2015) and its destination
(Source Author, using MARD Data, 2016)

Out of the 42 counties of Romania, the most productive is Vâlcea, with a honey production of over 4 tons, followed by Dâmbovița and Mureș. The last positions in the national classification are occupied by Argeș, Covasna and Bucharest County (figure 6).

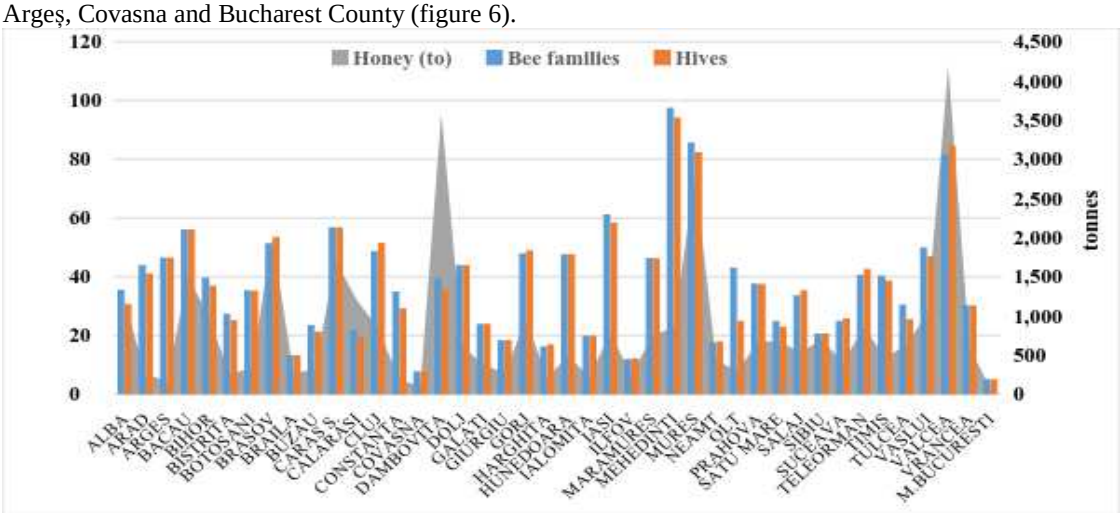

Figure 6. Bee families, hives and honey production, by county
(Source Author, by using MARD Data, 2016)

Romania honey production presents a constant growing tendency in the past years, fluctuations caused by climate conditions. National support programs for the apiculture sector have lead to the increase of the number of bee families and to a growing evolution of honey production.

Even if after the joining of the community space there has been a significant increase of annual consumption per capita, which evolved from around 0.5 kg in 2007 to 0,7 kg in 2014, Romania remains below the average of occidental Europe (5 kg Denmark 1,5-2 kg Germany, 1,5 kg Benelux), important stocks being made for export.

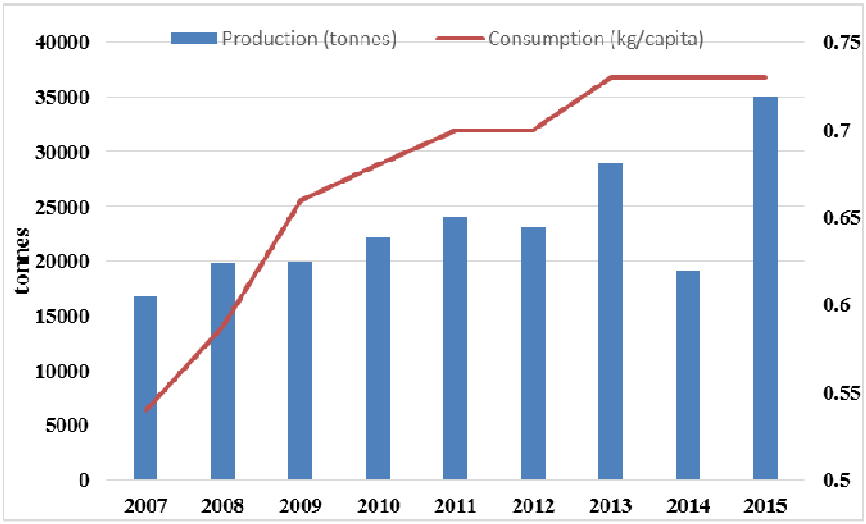

Figure 7. Romania honey production and consumption
(Source Author, by using NIS data, 2016)

Romania's external honey trade presents an excedentary balance, the export surpassing the import significantly, the latter being insignificant (figure 8).

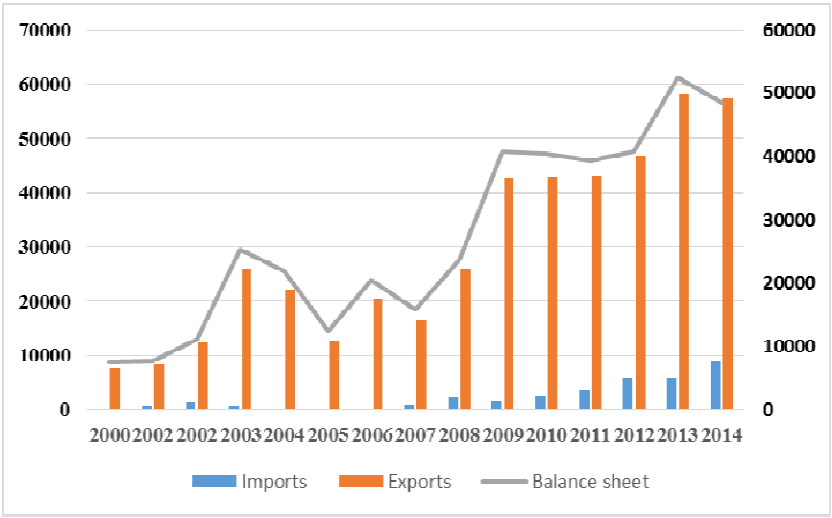

Figure 8. External honey trade of Romania (thousands USD)
(Source Author, by using NIS data, 2016)

The main commercial partners of Romania are the Member States, where honey is exported at prices varying between 2.5 and 3.5 euro/kg, according to honey type (monoflower, poliflower or honeydew). Romanian farmers do not know how to take advantage of market opportunities, the added value of honey products being relatively reduced due to trasports made mostly in bulk (Dumitrescu, 2012).

The value of honey exports, made by the main commercial partners, is presented in table 2. Although a slight stagnation or even a small reduction of global honey quantities exported by Romania in the last 3 years can be observed, mainly caused by decrease of internal production (on reasons of unfavorable

climate), prognosis can be optimistic taking into account the increase in demand registered in the trade with China and in some community states.

Table 2. Romanian honey exports, per commercial partner (thousands USD)

	2011	2012	2013	2014	2015
World	41,230	44,593	54,572	53,919	46,032
Germany	21522	21363	29537	26037	20904
Italy	4319	4919	6769	9351	8875
France	1691	2557	4560	5204	3448
Spain	1156	2584	1867	1732	2614
Poland	1950	1639	1904	1546	2280
Austria	2143	2710	2689	2289	2087
United Kingdom	3674	3212	3243	2236	1835
Japan	2243	2539	1571	2387	1257
Belgium	623	0	41	6	682
Israel	362	721	551	653	597
China	44	185	80	112	497
Switzerland	5	276	173	195	224
Luxembourg	0	0	0	1376	133
Netherlands	1063	583	646	102	117
Slovenia	0	0	86	89	81
Hungary	11	256	0	69	76
Canada	54	56	51	48	71
Bulgaria	0	0	0	106	62
Croatia	0	0	0	46	43
Slovakia	0	6	41	48	40
USA	101	29	51	42	25

(Source International Trade Statistics - Trade MAP, 2016)

Germany is the main destination of local honey exports, covering almost half of the total Romanian exports. Spain, Sweden and Poland are the Member States in which an increase of value of the products exported in the last years can be noticed. China registers a spectacular evolution of honey products import from Romania, with an increase in value of 10 times in the last 5 years. According to the Report made by the Romanian Center for Promotion of Commerce and Foreign Investments (Dumitrescu, 2012), the potential markets for selling Romanian honey products can be separated in 4 categories, according to the value of realized exports and the average annual export increase demand of Romania: growing markets (Germany, Great Britain, Italy, Austria, Poland, France, USA, Czech Republic, Canada, Switzerland, Luxemburg, Sweden); stagnating markets (Spain, Japan, Belgium), decreasing markets (Greece, Hungary, Singapore), new markets with high potential for local honey products (Slovakia, Israel, China, Kuwait). Romania can use the opportunities existing on the international markets, by growing the product offer to the high potential partners and covering the demand for traditional partners. Orienting towards ecologic production can represent a potential advantage for our countries.

Conclusions

Romania has natural advantages favorable to a superior quality honey production, which can be valued by the export of honey products on growing markets. Redressing primary production through community and governmental support by national programs destined for apiculture (PNA 2008-2010, PNA 2011-2013, respectively PNA 2014-2016) has created the necessary basis for production and for an important surplus for export. Investments in packaging and modern processing, which must continue, can lead to the increase of the quality of exported products, a bigger diversity of types of products and to an added value of the products exported in retail packaging, destined to the final consumer. The ecologic honey production can constitute an opportunity for the local sector, in the conditions of a possible stagnation of global market and of a fierce competition from emerging economies. The internal market presents high potential and retail opportunity for honey products made by Romanian beekeepers which must not be neglected, taking into account the present relatively low consumption, versus to other European states, and the growth tendency registered in the last period.

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Study Regarding the Tourist Traffic in the Danube Delta through Forecasting the Last Two Years

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Abstract

Tourism exploits the natural and human potential of a country, enriching them continually, satisfying multiple human motivations. It has a multiplier effect, introducing unprecedented economic cycle sides such as landscape (for "consumption" which is to go to the site), hospitality, solicitude and information (geographical, cultural, historical, culinary, artistic etc). We consider the implications and considerations highlight the economic importance of tourism in that it is a means of diversifying economic structures; means of exploiting resources; creator and user of national income; creator of new jobs; stimulating investment. Seasonality is the dominant feature of tourist activity and should be considered in formulating marketing policy. Seasonality of tourism demand is an objective reality that deeply marks the entire activity of the entities involved in tourism. Thus, in this paper we analyzed the movement of tourists in the Danube Delta in recent years, using the moving average method geometric mean and the method of arithmetic mean, and applying formulas specific, we tried to predict who will be the number of tourists who will visit Danube Delta over the next two years.

Keywords: tourists, geometric mean method, analyzing tourist movement, seasonality coefficient

Introduction

The territory of the Danube Delta Biosphere Reserve, bordered by law, has a total area of about 580,000 hectares and is located in southeastern Romania, including the Danube Delta proper, lake complex Razim-Sinoe, Danube estuary to the Cotul Pisicii including floodplain Somova-Parcheş, Sărături-Murighiol lake and coastal and marine area between isobaths of 20 m (Fig. 1) (Creţu Romeo Cătălin, 2012). Reserve geographical position is defined by the following geographical coordinates: 28 ° 10'50 "(Cotul Pisicii) and 29 ° 42'45" (Sulina) east; 45 ° 27 '(Chilia, km 43) and 44 ° 20'40 "(Cape Midia) north.

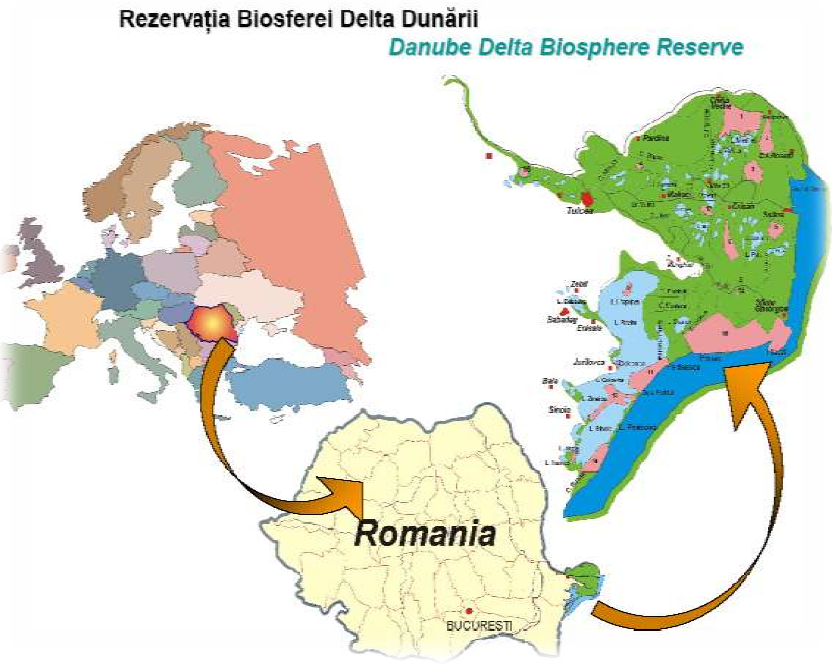


Fig 1: Danube Delta Biosphere Reserve - location

Of the total area of the site, more than half (312,440 ha) is the natural ecosystems of aquatic and terrestrial included in the list of areas with heritage value universal (Convention Natural Heritage UNESCO World) and those intended for ecological restoration areas that constitute public domain national interest. The rest of the dammed areas include areas for fishery, agriculture and forestry (80,000 hectares) under Law 18/1991 areas, including areas of land privately or publicly owned local interest in the towns or municipalities (about 29,000 hectares) and a marine buffer zone of about 103,000 hectares (Danube Delta Biosphere Reservation - "Report on the state of the environment in the Danube Delta Biosphere Reserve in 2014").

Danube Delta Biosphere Reserve on agricultural land represents a ratio of 12.9%, for a total of 61 453 ha. The area of 61 453 ha of agricultural land, 39 947 ha (64%) are dammed and drained agricultural areas within Danube Delta, 10,617 ha (17.3%) are dammed and drained agricultural premises located along Sf . George, the rest being the continental levees, levees shore of inland river system, river-marine and deltaic plain in flood-free regime (Alecu Ioan Niculae, Constantin Marian, 2006). The structure of agricultural land use, has the largest share of arable land (63%), followed by natural meadows (36.7%). The vineyards and orchards occupies significant private lands of the inhabitants.

The Research Method

As a research method we used in this study, the series of values ordered in relation to the succession of periods / moments of time, forming time series. It is the raw material, processed by statistical methods or specific econometrics, can highlight issues repeatable analogies conditioning benchmarks (Pecican Eugen Ștefan, 2007).

Characterization time series with seasonal component

A time series that contains seasonal effect is present:

$$y_t = y_{tT} + y_{tS} + y_{tR}$$

Seasonal variations can occur within a year or even a shorter period of time, such as month, week or day. To measure the seasonal effect can cause deviations seasonal seasonality indices.
Deviations seasonal measures the average deviations of each season the trend and take positive and negative values, so the amount deviations seasonal for all seasons to be zero (Philip Kotler, Gary Armstrong, John Saunders, Veronica Wong, 1998).
Seasonality indices measured on average, how often deviates variable, each season, the trend and have values above par or below par so that their product is equal to 1 (Merce, E., et. a., 2010).
To determine seasonal deviations follow ***the next steps***:
1. Remove the values of the time series (yt) trend component (y_{tT}) determined by the moving average method or by an analytical method.

$$y_t - y_{tT} = y_{tS} + y_{tR}$$

The Method of Moving Averages

It is used especially when fluctuations time series regular (seasonal or cyclical) to smooth evolution.
Long-term trend is determined as averages, calculated in so many words (m), how many there is a complete oscillation.

Mobile environments are called, sliding it permanently in calculating such average, leave out the first term of the previous average and placed next term.

If moving averages are calculated for example five terms, each term will include the adjusted value of the time, the two terms preceding and following two terms.

$$y_{tTMM} = \frac{y_{t-2} + y_{t-1} + y_t + y_{t+1} + y_{t+2}}{5}, \quad t = \overline{3, n-2}$$

In general, if the averages are calculated from (m) terms (m, odd number) will be lost by calculating averages (m-1) and each adjusted value terms will be located next to a value recorded.

If moving averages are calculated from (m) terms (m, even number), then the average values are between the real terms and will cross levels, thus adjusted by calculating the average of the averages.
2. For each season separately calculate the average results obtained in step 1. Thus, by averaging removes most of the residual variations. These averaged m seasons, measured differences versus trend line, given the seasonal component.

3. Seasonal deviations will be calculated from values obtained in the second step adjusted so that their sum is zero.

$$\left(\sum_{k=1}^{m} y_{Sk} = 0 \right)$$

To determine the seasonality indices, the methodology is similar, going through **the steps**:

a. Remove the trend component:

$$\frac{y_t}{y_{tT}} = y_{tS} \cdot y_{tR}$$

b. Calculate for each season, the average results from point 1, eliminating the residual variations.
c. seasonality indices are determined from averages obtained in step 2, adjusted so that the average index is equal to 1.

Results and Discussions

The most accurate results are obtained when using the geometric mean calculations. However, for ease of calculations, often using the arithmetic mean (Honţuş Adelaida Cristina, Toma Dinu Adrian, Beciu Silviu, 2015).

Once you determine deviations or indications seasonal seasonality seasonally adjusted time series will be [(y_t-y_{Sk}) misalignments and y_t/y_{Sk} indices]. The results thus obtained will contain only the secular trend component (y_{tT})and residual component (y_{tR}).

By deseasonalisation obtain: yt – ySk = ytT + ytR

or yt / ySk = ytT + ytR.

Determine the long-term trend, applying a mechanical method or analytical (Honţuş Adelaida Cristina, Tindeche Cristiana, Alina Marcuță, Marcuță Liviu, 2014).

In predicting phenomena affected by seasonality correct the trend forecasted levels:
- ✓ seasonal deviations;
- ✓ seasonality indices (***The seasonality of tourism activity).

After determining the deviation seasonal forecasting steps are:

a. For the series seasonally adjusted ($y_t - y_{Sk} = y_{tT} + y_{tR}$) to determine the trend (y_{tT}), using a mechanical method or assay.

b. For the next period, is projected trend component $y_{(n+p)T}$.

c. Gather the predicted values seasons with seasonal deviations (y_{Sk}) to obtain the final prediction:

$$y_{(n+p)} = y_{(n+p)T} + y_{Sk}$$

If the seasonal factor was measured by ***indices of seasonality***, then follow the next steps for forecasting:

a. For the series seasonally adjusted ($y_t / y_{Sk} = y_{tT} + y_{tR}$) to determine the trend (y_{tT}), using a mechanical method or assay.

b. For the next period, is projected trend component. $y_{(n+p)T}$.

c. Correct (by multiplication) values predicted by season, with hints of seasonality (y_{Sk}) to obtain the final prediction:

$$y_{(n+p)} = y_{(n+p)T} \cdot y_{Sk}$$

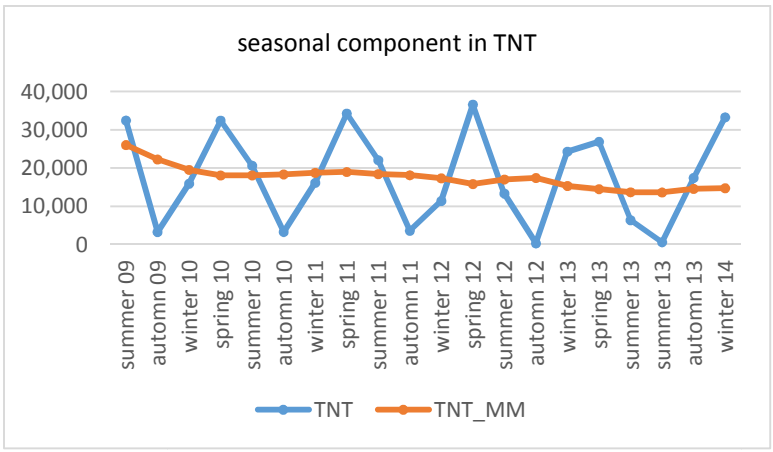


Fig. 2: Component seasonal TNT [Total number of tourists (Romanian + foreigners)]

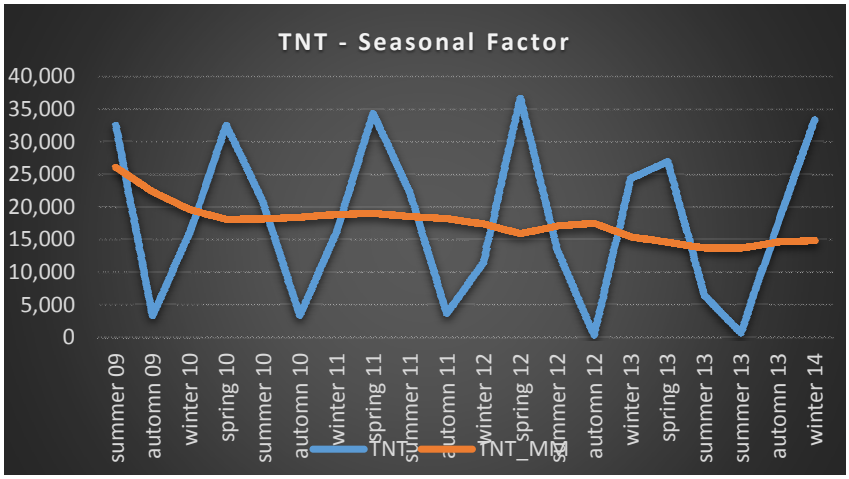


Fig. 3: TNT seasonal factor [Total number of tourists (Romanian + foreigners)]

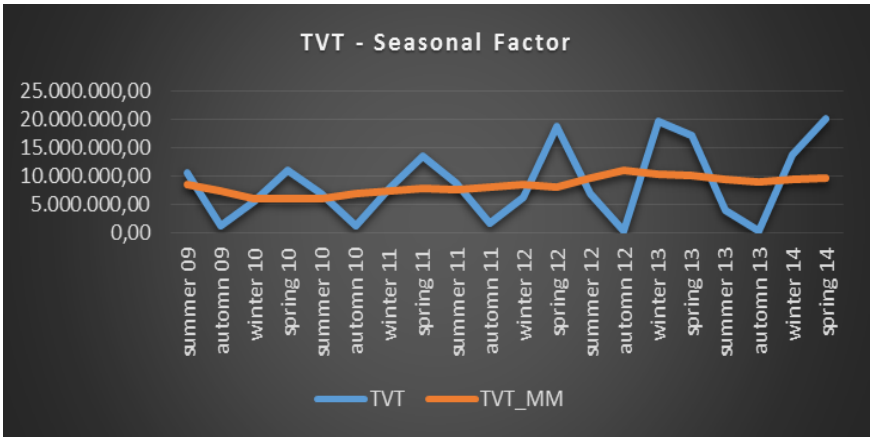


Fig. 4: TVT seasonal factor (Total revenues from tourism)

Table 1: Step 1 Calculation

	Romanian	Foreign	TNT
Mean	11502.70833	6903.333333	18406.04167
Standard Error	2187.756753	1128.644955	2755.957044
Median	6133	6229	16793
Standard Deviation	10717.77545	5529.208479	13501.37702
Sample Variance	114870710.7	30572146.41	182287181.5
Kurtosis	-0.77177217	0.559913696	-1.34898963
Skewness	0.75417785	0.822856431	0.162050762
Range	34476	21420	41963
Minimum	247	14	316
Maximum	34723	21434	42279
Sum	276065	165680	441745
Confidence Level (95.0%)	4525.719657	2334.779975	5701.131514

Source: Own calculations

Table 2: Step 2 Calculation

	INNROM	*INNSTR*	*TINN*
Mean	24823.89583	21436.66667	46260.5625
Standard Error	4518.742215	4368.606986	6890.745863
Median	13175.5	15512	41959
Standard Deviation	22137.22541	21401.716	33757.62262
Sample Variance	490056748.9	458033447.9	1139577085
Kurtosis	-1.12057133	2.152768193	-1.338998943
Skewness	0.615921035	1.484962137	0.146754197
Range	68828.5	85680	99873
Minimum	617.5	56	824.5
Maximum	69446	85736	100697.5
Sum	595773.5	514480	1110253.5
Confidence Level (95.0%)	9347.730472	9037.152088	14254.59387

Source: Own calculations

Table3: Step 3. Calculation

	VEROM	*VESTR*	*TVT*
Mean	4109811.958	4314784.644	8424596.602
Standard Error	738855.7601	943311.2359	1306446.705
Median	2235268.5	2777250.483	7208508.184
Standard Deviation	3619639.212	4621262.393	6400255.606
Sample Variance	1.31018E+13	2.13561E+13	4.09633E+13
Kurtosis	-1.209332414	2.237218318	-0.997392389
Skewness	0.580877397	1.582893583	0.364446481
Range	11007620	18173756.16	19785005.47
Minimum	103740	11878.272	146170.032
Maximum	11111360	18185634.43	19931175.5
Sum	98635487	103554831.4	202190318.4
Confidence Level (95.0%)	1528439.591	1951387.967	2702590.919

Source: Own calculations

```
. summarize TNT, detail

                            TNT
-------------------------------------------------------------
      Percentiles      Smallest
 1%           316            316
 5%           638            638
10%           741            741       Obs                  24
25%          5006           3301       Sum of Wgt.          24

50%         16793                      Mean           18406.04
                        Largest        Std. Dev.      13501.38
75%       32447.5          34277
90%         36296          36296       Variance       1.82e+08
95%         36613          36613       Skewness       .1517414
99%         42279          42279       Kurtosis       1.676116
```

Fig. 5: Summarize TNT [Total number of tourists (Romanian + foreigners)], detail

```
. summarize TVT, detail
```

TVT

	Percentiles	Smallest		
1%	146170	146170		
5%	281758.3	281758.3		
10%	353338.4	353338.4	Obs	24
25%	2639121	1082271	Sum of Wgt.	24
50%	7208508		Mean	8424597
		Largest	Std. Dev.	6400256
75%	1.35e+07	1.69e+07		
90%	1.86e+07	1.86e+07	Variance	4.10e+13
95%	1.94e+07	1.94e+07	Skewness	.3412612
99%	1.99e+07	1.99e+07	Kurtosis	1.958617

Fig. 6: Summarize TVT (Total revenues from tourism), detail

```
. summarize TINN, detail
```

TINN

	Percentiles	Smallest		
1%	824.5	824.5		
5%	1616	1616		
10%	1938	1938	Obs	24
25%	14196	6602	Sum of Wgt.	24
50%	41959		Mean	46260.56
		Largest	Std. Dev.	33757.62
75%	75524.5	86244.5		
90%	92941	92941	Variance	1.14e+09
95%	99744.5	99744.5	Skewness	.137418
99%	100697.5	100697.5	Kurtosis	1.684143

Fig. 7: Summarize TINN [Total number of overnight stays (tourists Romanian + foreign tourists)], detail

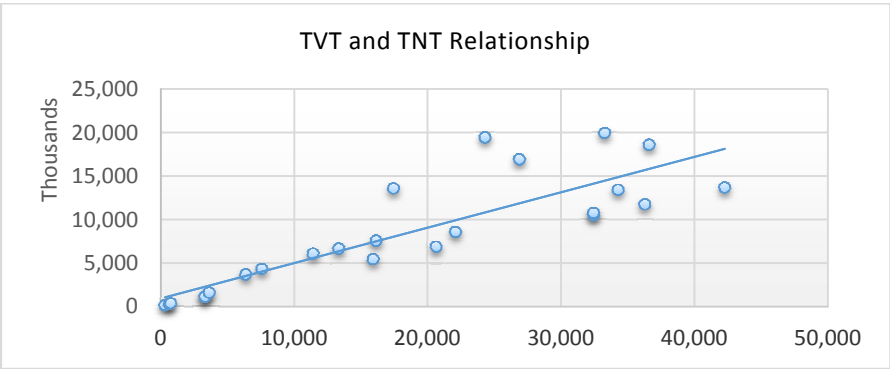


Fig. 8: Relationship between TVT (Total income from tourism) and TNT [Total number of tourists (Romanian + foreigners)]

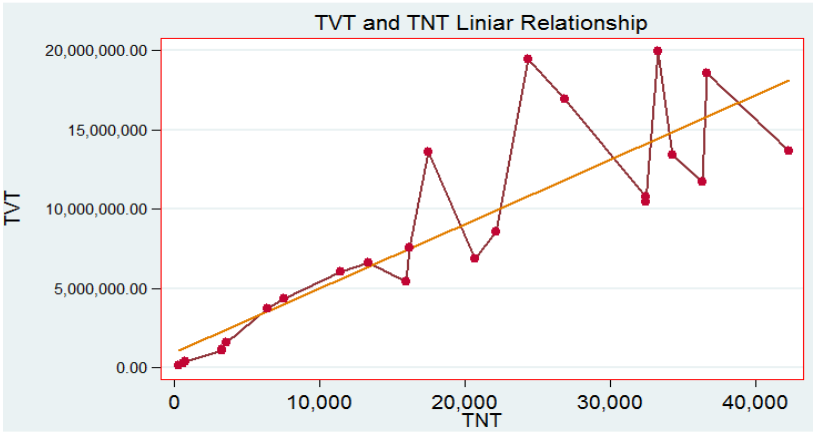


Fig. 9: Linear Relationship between TVT and TNT

Table4: Step 4. Calculation

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.858307043					
R Square	0.73669098					
Adjusted R Square	0.724722388					
Standard Error	3358016.026					
Observations	24					
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	1	6.94077E+14	6.9408E+14	61.5520182	8.1473E-08	
Residual	22	2.48078E+14	1.1276E+13			
Total	23	9.42155E+14				
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	935622.4649	1175168.433	0.79616031	0.43444641	-1501527.7	3372772.63
TNT	406.8758657	51.86098742	7.84550943	8.1473E-08	299.322761	514.428971

Source: Own calculations

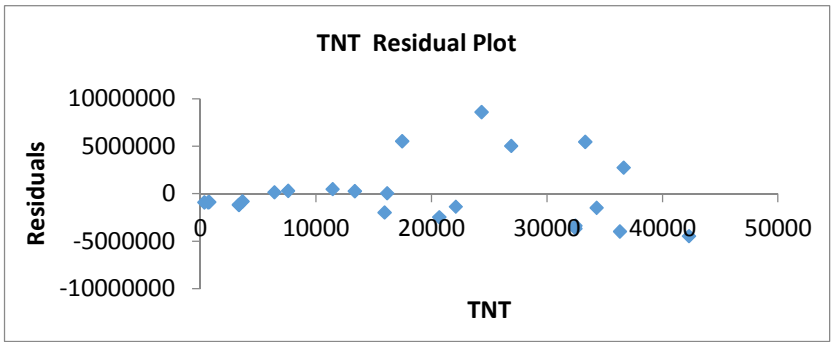


Fig. 10: TNT - Residual Plot

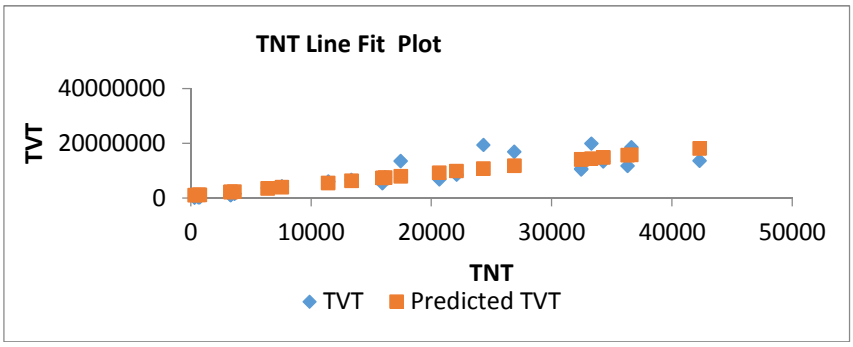


Fig. 11: TNT - Line Fit Plot

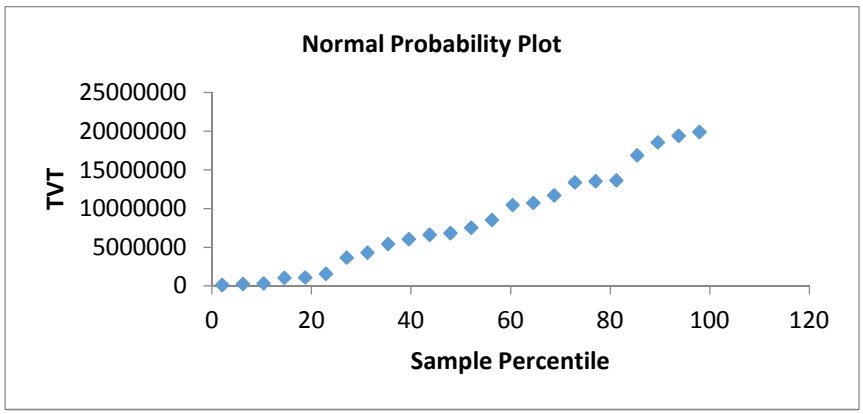


Fig. 12: Normal Probability Plot

```
. regress TVT TNT
```

Source	SS	df	MS	Number of obs	=	24
				F(1, 22)	=	61.55
Model	6.9408e+14	1	6.9408e+14	Prob > F	=	0.0000
Residual	2.4808e+14	22	1.1276e+1	R-squared	=	0.7367
				Adj R-squared	=	0.7247
Total	9.4216e+14	23	4.0963e+13	Root MSE	=	3.4e+06

TVT	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
TNT	406.8759	51.86099	7.85	0.000	299.3228	514.429
_cons	935622.5	1175168	0.80	0.434	-1501528	3372773

Fig. 13: Regress between TVT and TNT

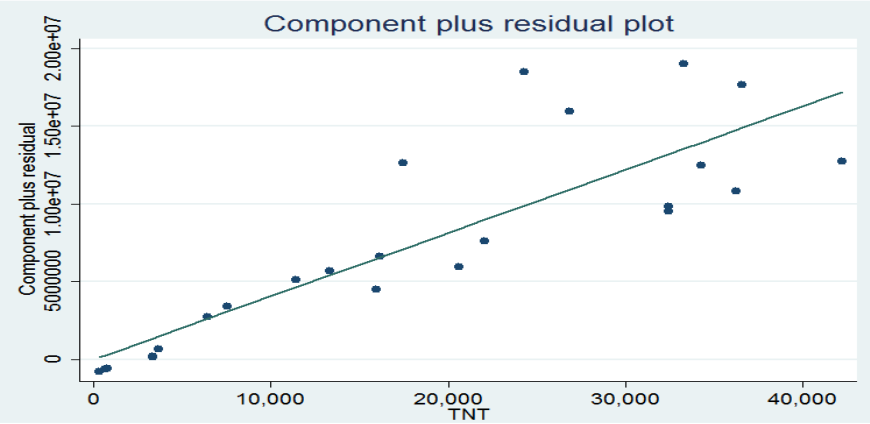


Fig. 14: Component plus residual plot

Table 5: Movement of Romanian and foreign tourists in the Danube Delta

No	Year	Season	Romanian	Foreign	Total number of tourists
24	2009	the autumn	29.845	6.451	**36.296**
23	2009	summer	34.723	7.556	**42.279**
22	2009	spring	27.349	5.101	**32.450**
21	2009	winter	1.934	1.367	**3.301**
20	2010	the autumn	6.453	9.472	15.925
19	2010	summer	23.981	8.464	32.445
18	2010	spring	14.842	5.809	20.651
17	2010	winter	1.605	1.705	3.310
16	2011	the autumn	5.813	10.330	16.143
15	2011	summer	24.374	9.903	34.277
14	2011	spring	16.077	6.007	22.084
13	2011	winter	1.782	1.843	3.625
12	2012	the autumn	4.908	6.510	11.418
11	2012	summer	20.189	16.424	36.613
10	2012	spring	8.045	5.304	13.349
9	2012	winter	247	69	316
8	2013	the autumn	2.882	21.434	24.316
7	2013	summer	14.189	12.693	26.882
6	2013	spring	4.166	2.221	6.387
5	2013	winter	624	14	638
4	2014	the autumn	4.336	13.107	17.443
3	2014	summer	21.639	11.650	33.289
2	2014	spring	5.378	2.189	7.567
1	2014	winter	684	57	741

Source: Statistical data INSSE, https: //statistics.insse.ro

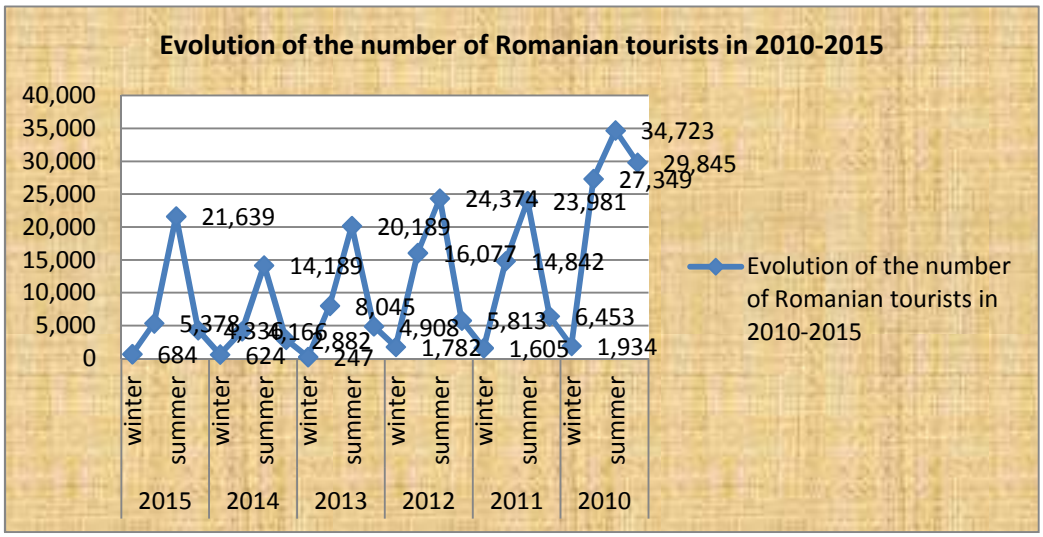
Conclusions

One of the problems which must cope managers of tourist reception, is the seasonality of tourism. The causes of seasonality can be natural (the seasons, weather conditions, variety and attractiveness of cultural values, frequency of events (fairs, festivals, etc., economical and organizational (structure of school and university, holiday schemes, increasing duration of free time and the redistribution of its habits , etc.

The analysis of data resulting projected a decline of Romanian tourists in the next two years on the 4 seasons / seasons, as follows:

Determine the Romanian forecast for the years 2016-2017 using seasonal indices.

Thus, in order to estimate the number of tourists in the Danube Delta region was use features seasonal component of time series method. This method was applied to a data series, representing the number of Romanian tourists who visited Delta in 2010-2015.



As can be seen from the graph above, the number of tourists visiting Delta is fluctuating depending on the season. Thus, the peak is reached in the summer season and winter season is recorded in a relatively small number of tourists. So we are dealing with a chronological series with seasonal effect. Also, in this graph we can see a downtrend in the number of tourists during the analyzed period. Such seasonal component of time series and trend component can be modeled as follows:

$$y_t = y_{tT} + y_{tS} + y_{tR}$$

Where: y_t - chronological number, the number of tourists in season (*t*)
y_{tT} - trend component of the time series
y_{tS} - seasonal component
y_{tR} - residual component,

yt - serie cronologica, numarul de turisti in anotimpul t
ytT – componenta de trend a seriei cronologice
YtS – componenta sezoniera
YtR – componenta reziduala

Our chronological series decomposition results in three components are presented in Table 6.

Table 6: Outlook for the Romanian tourists

Series chronological number of Romanian tourists	Trend	Seasonality + residue (seasonal deviations)	Seasonality + residue (seasonal indices)	Geometric Mean seasonality	Seasonal indices
0	**1**	**2**	**3**	**4**	**5**
684	20539	6810	1,3316	1,1096	**1,8623**
5.378	16272	-14338	0,1189	0,0965	**0,1619**
21.639	13366	-6913	0,4828	0,5042	**0,8462**
4.336	11761	12220	2,0390	2,3350	**3,9188**
32.037	11640	3202	1,2751	**0,1260**	**1,0000**
624	11609	-10004	0,1383	0,5958	
4.166	11813	-6000	0,4921		
14.189	11989	12385	2,0330		
2.882	11898	4179	1,3512		
21.861	11262	-9480	0,1582		
247	9735	-4827	0,5042		
8.045	8539	11650	2,3643		
20.189	8094	-49	0,9939		
4.908	7091	-6844	0,0348		
33.389	5856	-2974	0,4922		
1.782	5418	8771	2,6188		
16.077	5647	-1481	0,7377		
24.374	6760	-6136	0,0923		
5.813	7843	-3507	0,5529		
48.046	8002	13637	2,7043		

Source: Own calculations

In the no 1 column, the trend component was calculated using the moving average method. In general, long-term trend (trend) is determined as averages, calculated in so many words (m), how many there is a complete oscillation (in our case, four terms as seasonal fluctuations occurs every four years). Being an even number of terms (four), mean values are between real terms, in which case we will cross levels, adjusted by computing environments.

$$y_{tTMM} = \frac{\frac{y_{t-2}}{2} + y_{t-1} + y_t + y_{t+1} + \frac{y_{t+2}}{2}}{4}$$

In the column number 2 is seasonal and the residual component calculated as the excess of the actual values and the trend component. $y_{tS} + y_{tR} = y_t - y_{tT}$

This method is used in our estimate if we use seasonal deviations.

If, however, embroider, seasonal indices, the seasonal component and the residual value is calculated as the ratio of relations and the trend component.

$y_{tS} + y_{tR} = \frac{y_t}{y_{tT}}$. Results are shown in column 3.

As a general rule, to measure the seasonal effect can cause deviations seasonal (measured on average deviations of each season the trend) or indices of seasonality (measured on average, how often deviates variable, each season, the trend) . Both methods are correct, just as in practice to not work with negative values are used usually estimate using seasonal indices.

In our estimates, we still use the seasonality indices. They have values above par or below par so that their product is equal to 1. So in columns 4 and 5 we calculated four indices of seasonality regarding each quarter, their media and their product geometry. Averaging each season it was done in order to eliminate residual variations. The table below geometric mean and the arithmetic was not chosen in order to obtain the most accurate results. It can be seen simply as their product is equal to 1.

Indices are below par levels below seasonal trend and seasonal indexes above unit are above trend levels. Such activity is recorded in peak summer months (with seasonal index value of 3.9188), while the lowest activity was recorded in the winter months, with seasonal index value of only 0.1619.

More specifically, seasonality indices thus obtained show that, on average, arrivals of tourists during the summer and fall is above long-term trend of 291.88% and 86.23%, while during the winter and spring; arrivals of tourists are below the trend line with 83.81% and 15.38%. As seen fluctuations in the number of tourists per season are very high.

Table 7: The final calculation for the number of Romanian tourists

Seasonal indices	Seasonally adjusted series	t	Trend estimate	Estimate * seasonal indices
6	**7**	**8**	**9**	**10**
0,8462	35268	0	35268	29845
3,9188	8861	1	33918	132918
1,8623	14686	2	32569	60652
0,1619	11944	3	31219	5055
0,8462	7626	4	29869	25276
3,9188	6120	5	28519	111761
1,8623	7970	6	27170	50598
0,1619	9912	7	25820	4181
0,8462	6869	8	24470	20707
3,9188	6220	9	23120	90604
1,8623	8633	10	21771	40543
0,1619	11005	11	20421	3307
0,8462	5800	12	19071	16139
3,9188	5152	13	17721	69446
1,8623	4320	14	16372	30489
0,1619	1525	15	15022	2432
0,8462	3406	16	13672	11570
3,9188	3621	17	12323	48289
1,8623	2237	18	10973	20435

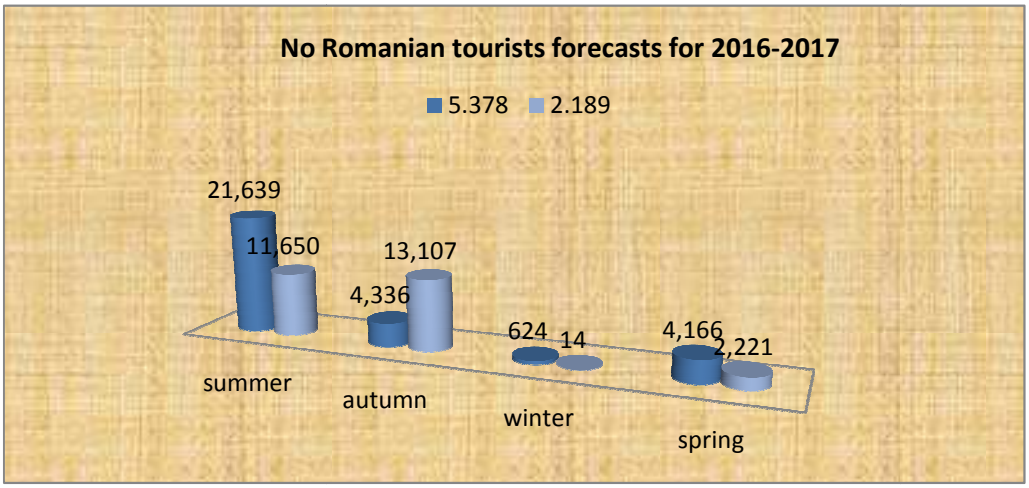
0,1619	3854	19	9623	1558
0,8462	5124	20	8273	7001
3,9188	5522	21	6924	27132
1,8623	2888	22	5574	10380
0,1619	4224	23	4224	684
0,8462		1	33918	**28.703**
3,9188		2	32569	**127.629**
1,8623		3	31219	**58.138**
0,1619		4	29869	**4.837**
0,8462		5	28519	**24.134**
3,9188		6	27170	**106.471**
1,8623		7	25820	**48.084**
0,1619		8	24470	**3.962**

Source: Own calculations

Table no 7 using seasonal indices calculated in Table no 6, presents the results of their estimates on the number of Romanian tourists. Thus, in column number 6 are taken seasonal indices calculated in the previous step and column no. Seven series seasonally adjusted values are calculated as the ratio between the actual number of tourists related to a period (column 0) and seasonal index for the period (column 6). (Example: 29845 / 0.8462 = 35268).

Column number 9 shows the results of our own estimates for each period in the past (in order to test, validate their results by comparing their estimates with actual data) and our forecasters for future periods (next two years). The periods listed are numbered from 0 to 23, and the next period of 1 to 8 (column no 8). It specifies that the results thus obtained only contain long-term trend component. It was a decrease in the number of tourists as a general trend.

To take into account in our forecasts, and the phenomenon of seasonality, we corrected (by multiplication) levels predicted value indices seasonal trend, column No. 10 providing our final estimates on the number of Romanian tourists.



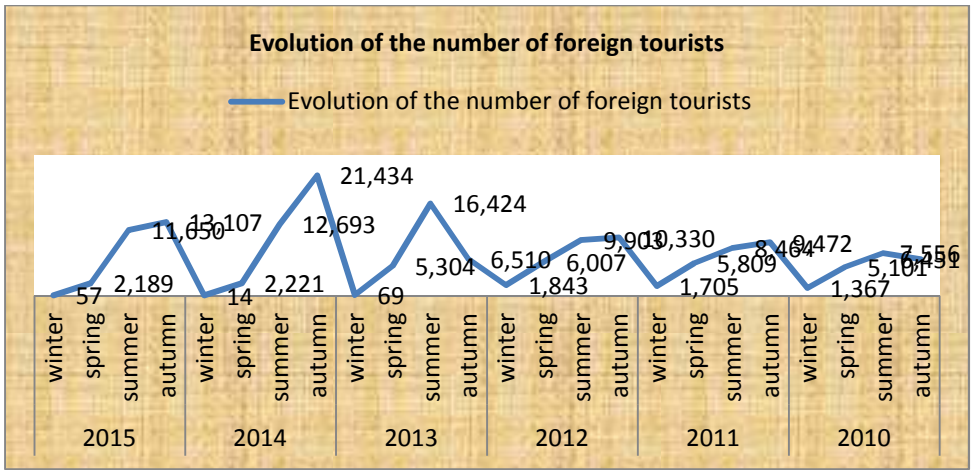
Forecasted data resulting from the analysis (mean) a decrease in the number of Romanian tourists in the next two years on the 4 seasons / seasons (table 8), as follows:

Table 8: Outlook final Romanian tourists

Season	year 2016	year 2017
Spring	28.703	24.134
Summer	127.629	106.471
The autumn	58.138	48.084
Winter	4.837	3.962

Source: Own calculations

And if foreign tourists, the trend is downwards, the situation is similar and presenting follows:



A feature of the series number of foreign tourists is fluctuation high from one period to another, which makes modeling this type of series you have to make value increased seasonal component and therefore a precision lower our estimates .

Table 9: Calculate the number of foreign tourists

Series chronological number of foreign tourists	Trend	Seasonality + residue	Seasonality + residue	Geometric Mean seasonality	Seasonal indices
0	**1**	**2**	**3**	**4**	**5**
57	5496	-395	0,9281	0,6600	**1,2631**
2.189	5988	-4621	0,2283	0,0462	**0,0883**
11.650	6190	3283	1,5303	1,5353	**2,9385**
13.107	6320	2144	1,3392	1,5933	**3,0495**
27.003	6470	-661	0,8979	**0,0745**	**1,0000**
14	6757	-5052	0,2523	0,5225	
2.221	6962	3369	1,4839		
12.693	7004	2900	1,4140		
21.434	6543	-536	0,9180		
36.362	6881	-5038	0,2678		
69	7608	-1098	0,8557		
5.304	7299	9126	2,2503		
16.424	8942	-3638	0,5931		

6.510	10341	-10272	0,0067		
28.307	9490	11944	2,2587		
1.843	9097	3596	1,3952		
6.007	8050	-5829	0,2759		
9.903	6878	-6864	0,0020		
10.330	6744	6363	1,9435		
28.083	6745	4905	1,7271		

Source: Own calculations

As mentioned above, subunit seasonal indices represent levels below trend and seasonal indexes above unit are above trend levels. Thus, in this case all peak activity is recorded in the summer months (with seasonal index value of 3.0495), and the worst records all activity in the winter months, with seasonal index value of only 0.0883.

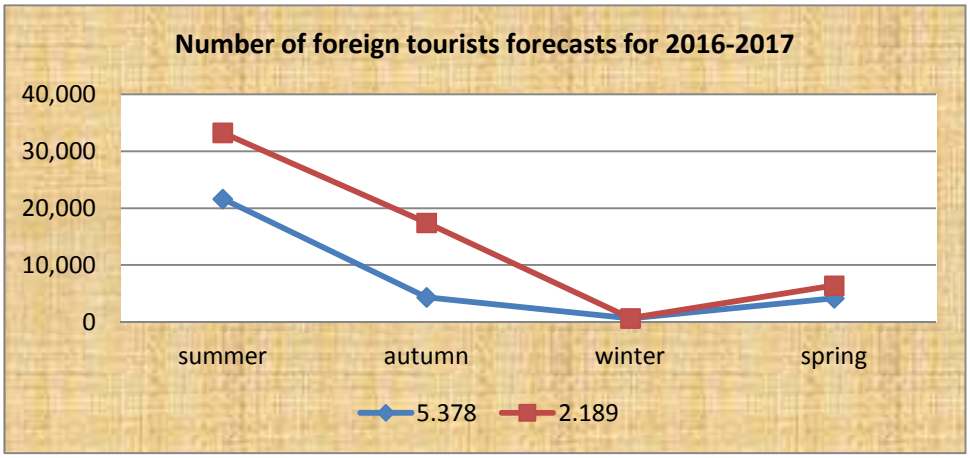
More specifically, seasonality indices thus obtained show that, on average, arrivals of tourists during the summer, fall, spring is above the long-term trend of 204.95%, 26.31%, and 123 respectively, 85%, and in the winter, arrivals of tourists are below the trend line of 91.17% (basically are almost nonexistent). Seasonal values of these indices come to confirm once more very large fluctuations in the number of foreign tourists from one period to another.

Table10: Outlook for the number of Romanian tourists

Seasonal indices	Seasonally adjusted series	t	Trend estimate	Estimate * seasonal indices
6	**7**	**8**	**9**	**10**
2,9385	2195	0	2195	6451
3,0495	2478	1	2128	6489
1,2631	4038	2	2061	2603
0,0883	15473	3	1993	176
2,9385	3223	4	1926	5659
3,0495	2775	5	1858	5667
1,2631	4599	6	1791	2262
0,0883	19299	7	1724	152
2,9385	3515	8	1656	4867
3,0495	3247	9	1589	4845
1,2631	4756	10	1521	1922
0,0883	20861	11	1454	128
2,9385	2215	12	1387	4074
3,0495	5386	13	1319	4023
1,2631	4199	14	1252	1581
0,0883	781	15	1184	105
2,9385	7294	16	1117	3282
3,0495	4162	17	1050	3201

1,2631	1758	18	982	1241
0,0883	158	19	915	81
2,9385	4461	20	847	2490
3,0495	3820	21	780	2379
1,2631	1733	22	713	900
0,0883	645	23	645	57
2,9385		1	2128	6253
3,0495		2	2061	6284
1,2631		3	1993	2518
0,0883		4	1926	170
2,9385		5	1858	5461
3,0495		6	1791	5462
1,2631		7	1724	2177
0,0883		8	1656	146

Source: Own calculations



As can be seen from our estimates for the next two years, the number of foreign tourists will still be very small compared to the number of Romanian tourists and fluctuation from one period to another remain very high (even higher-season, but very small summer-fall) as in the case of Romanian tourists. Also, as in the case of Romanian tourists for the period 2016-2017 will see a decrease in the number of foreign tourists compared with the average of previous years.

Table 11: Final prediction number of foreign tourists

Season	Year 2016	Year 2017
Spring	6.253	5.641
Summer	6.284	5.462
The autumn	2.518	2.177
Winter	170	146

Source: Own calculations

The forecasts are worrying. The number of Romanian and foreign tourists will decrease compared with the average of previous years. To counteract this downtrend imposed a series of measures for the future: improving the quality of services provided, infrastructure development, improve

communications, increase quality of life, knowledge of the needs of tourists, which are constantly changing, the opportunities for European funds.

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Study on the Organizational Resistance to Innovation

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Abstract

The research results presented in this article refer to the implication of changing the non innovation or less innovative organizations in to innovative ones. Innovation is one of the most important characteristic for organizations worldwide in current market situation in a globalized economy. Globalization brings fierce competition and strict challenges with meeting the ever-increasing market and customer needs and expectations. Although everybody agrees that without innovation you cannot be competitive and you cannot exist on the market, there is still a resistance to change. Our aim with this research is to help managers to pas the initial resistance to innovation and to adopt innovation as a key element in their organizations. We have identified the main causes of organizational resistance to innovation and offered solutions to overpass this resistance. The results of the research can also be useful for future research and we consider that this part of innovation resistance aspects, both from customer and organization point of view, should be investigated more thoroughly.

Keywords: Innovation, change, resistance to innovation, change to innovation, organization resistance.

Introduction

The current business environment, in a globalized economy, demands new approach from organizations, in order to be competitive, profitable or event to resist on the market. In various studies, like in Maier (2015), the response to the new requirements is to consider innovation as a key element for organization, but innovation is not an easy thing, it requires some changes in the organization culture and there will be always some adversities to the changing process.

In the same time innovation is one of the most important factors behind the growth and prosperity of the global economy today but there is also an insufficient understanding of the innovation process. In Legardeur (2010) we can find that over the last century, industry leaders have learned to master the production process to such an extent that today it is not a significant competitive advantage. According to Maier (2014), the new challenge is to master the process of innovation - capitalizing change, creating new competitive advantages by offering better products by using better processes, providing better service or offering entirely new solutions.

A good innovation culture can generate innovations which are turn into significant advantages and big profits for the innovative organization and also can bring small outsiders in dominant position. In Olaru (2015) we see that he basic idea in case of successful innovations is to understand the customer needs and to develop the products and services that satisfy those needs. In the same time over time the unpredictable character of innovation led to a wealth of failed innovation projects.

According to Vlachaki (2010) the resistance to change is illustrated by some organizations that tend to developed themselves and to get used with what they do (basic skills) such that they get stuck there, and when the environment changes (ex. changing customer requirements, changing regulations) they are unable to adapt quickly and easily. We have oriented the research towards the innovative culture and focused on the resistance to innovation from organization. On the literature the

part, of the resistance to innovation is not well represented, there are few research oriented mainly on the customer resistance to innovation, like Bruce (2013).

2. Changing Behavior of Individuals in an Organization

Innovation is currently a subject of great interest for scientists and practitioners, who consider that the new way of creating prosperity is through innovation. Even if innovation is studied for a long time there is still not developed a comprehensive theory of innovation that can be applied in any field, in any condition and that can guarantee the success of the innovation process. History reveals that some innovations, which seems very big and important, became just a technical virtuosity and other ones with less or no expectation have turned into giant and profitable businesses.

In the beginning of the research we have focused on the individual resistance to innovation. Innovation implies little of bigger change, first from individual level and then from the hole organization. In the literature there are studies that deal with the process of transition and how people react to change. A good visual presentation of the process of transition through change is the transition curve processed by John Fisher. The transition curve is presented in figure 1.

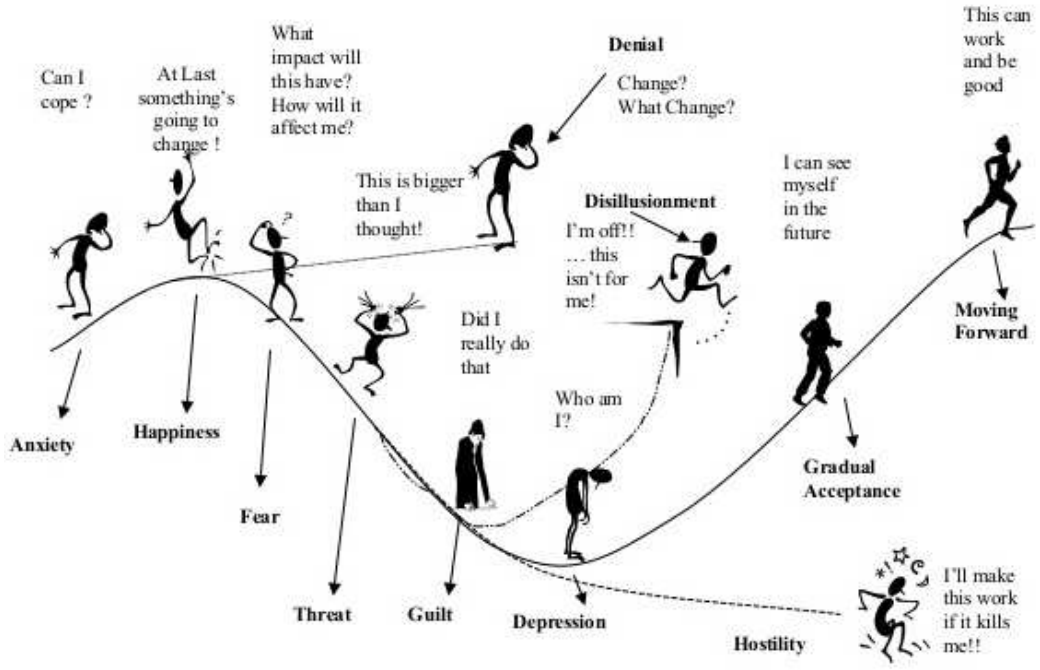

Fig 1. John Fisher's personal transition curve (Processed by author from *, 2016)**

As it can be observe there are a series of state through which a person passes, we will briefly present this stage according to Fisher. The first phase identified by Fisher is anxiety which appear, according to various specialists, when individuals cannot predict the future, is more like the fear of unknown. The second phase is happiness when something seem too happed, when a hope for a better perspective of the future appear. It is more like a dream phase, in some cases with high expectation and not necessary realistic ones.

The third phase is fear, this phase appear when the enthusiasm from the happiness phase begins to decrease and some little changes in the behavior occur, most of this changes are inevitable and they do not have a direct effect over situation, but they interpreted it like is a change that they also need to

do it. The fourth phase is the threat phase, this appear when the individual begins to realize that a change will happen, that he will be transformed, that the older choice must be changed.

Guilt is the fifth phase; this phase appears when the individual is aware of the past mistakes and realizes the inappropriateness of his previous actions and a sense of guilt develops inside him. From this phase the individual can pass to a phase of depression or to a phase of disillusionment or both. The phase of depression appears when individual sense a state of uncertainty over the future, over his ability to cope with new demands. In this phase there is a lack of motivation and confusion. In disillusionment phase the individual becomes unfocused, gradually withdraw his labor, unmotivated or even resign. This phase is associated with the period in which the goals, the beliefs and own values are different with those of the organization.

If the depression phase has a strong effect over the individual then is possible to pass to the hostility phase, when individual continue to operate processes proved to be failure and ignore the new processes. Another phase of rejection of change is the denial phase, defined by a lack of acceptance of any change and denies that there will be any impact on the individual.

As it can be seen from the transition curve there are also two phase that embrace the change, one is the phase of gradual acceptance and the other one is the moving forward phase. The gradual acceptance phase is the phase when the individual begin to make sense of his place within the change and he can see that he is going in a good direction, all this leads to an increasing level of self-confidence. In the moving forward phase the individual has more control, acts with more confidence, he is more positive and is starting to feel comfortable in this new situation.

The main conclusions from analyzing the transition curve are that in order to accept the change an individual must first understand the impact of the change on his construct system, any change regardless of size has an impact on the individual and generate a conflict between the existing knowledge and the anticipated ones. The role of managers is to find ways to transmit the needed information to every employee in order to understand the benefits of the change and to reduce the size of the conflict between new and old.

The acceptation of any change for individuals is not an easy thing because peoples act based on the previous experiences and those experiences can be positive ones, then the acceptation of change is easier to achieve, or they can be bad experience then is more likely to deny any future changes. Another interesting aspect is that a bad experience weighs much harder than a good experience in decision to accept of not the change, in the literature there is a ratio of 1 to 10 between bad experiences and good experiences.

3. Main Aspects that Led to Innovation Resistance

Innovation is a complex phenomenon, its success depends on a series of factors that cannot be controlled or exactly predicted. Innovation involves novelty, and to obtain novelty you should always force the limits. A very small percent of successful innovations came as a result of a genius idea; most of the innovations are the results of hard work performed during an innovation process. In order to have a successful innovation process a successful organizational innovation culture must exist to make possible to transform an idea into innovation.

The complexity of innovations leads to a series of different spectrum of responses to innovation; we have analyzed the aspects related with resistance to innovation. Fist types of innovations are those where there is no risk and no attempt to modify the existing habit. This type of innovation is considered as having a no resistance to innovations. But this type of innovations, with almost no risks is likely to transform the organization and have exponential growth.

The second type of innovations, when dealing with resistance to innovations, is those that have low risks but it involves some changes in the organizational culture of the company. As in case of first type of innovation adoption of the second type does not bring major profits or large growth for organizations. Another type of innovation is that involve high risks and changes in the organizational culture.

Innovation comprise in a number of activities that involve a certain degree of freedom for employees. This is more important in case of organizations that have a long period of existence on the market, their experience is formed by a certain way of dealing with employees, and the change to a different way is not always welcomed. By analyzing the individual perception to change and overlapping this resistance to change over the particularities of innovation we have identified some key aspects that influence the perception of innovation in an organization. In this research we have limited to the aspects that are in a manner controlled by every organization and we omitted the independent one, like the changing of the environment, the legislative change and so on.

A first aspect is related to the relation between the innovation resistance and the advantages of innovation. In this case the increase of innovation resistance is directly influenced by his advantages and disadvantages, the higher the perceived disadvantages the higher is the innovation resistance. Innovation is an unpredictable process and it is obvious that for any organization, no matter the size of it, in order to proceed in creating an innovation the advantages must overpass the disadvantages.

The perceived of risk associated with innovation is another aspect that influence the innovation resistance. For an organization when dealing with innovation it involve also adoption and acceptance of an existing risk, because the final result of an innovation is given by the client. This means that there is always the possibility of failure even if from the innovation process there are no major mistakes. The size of the risk that a company is willing to accept or it can handle influence the innovation resistance.

Another aspect that influences the innovation resistance for an organization is the complexity of the innovation process. It is known that in order to be a successful a innovation must be as much as simple possible. From organization point of view the higher the complexity of innovation the higher is its resistance to adopt it. The complexity of the innovation is given by two characteristics, the simplicity of the idea and the simplicity of execution, in this case it is important that this two characteristics to be as simple as possible in order to overcome the innovation resistance.

4. Overcoming the Innovation Resistance

As we saw in the previous chapters innovation is a very important characteristic of today's organizations. Although many organizations are aware of the importance of innovation in the current economic context, there is still a big innovation resistance among managers. Based on the above identified aspects, that influence the innovation resistance, we have formulated some key elements that every manager should consider in order to transform their organizations in to an innovative one and thus into a more competitive and profitable.

A first element is that the speed of adoption innovation will depend on the individuals self perception, other past experience and control position, and how these are combine to create the future perception of innovation. In this case managers need to be able to transmit clearly the advantages of every innovation process for the organization and in the end for each employee. Once the importance of innovation is well understood the innovation resistance will decrease.

The risk perceiving to innovation process is another aspect that need to be consider by managers. It is very hard and mostly impossible to eliminate any risk associated to innovation, as we said, innovation is a very hard to predict process, and the final results is influenced by a lots of factors and many of them cannot be controlled only by an organization. One of the possibilities to reduce the risk is to

transform the final result of the innovation in something with a high percent of the capability to be tried by the final customers, usually in form as a trial. This can be considering as the easiness on how customer can try the innovation before they adopt it.

Another element is related to the simplicity of innovation. Managers should consider that in case of innovation is better to have a simple idea and a easy way of achieve it. The process of finding a good and simple idea is not an easy one, it is important that within the organization to exist a good innovation culture. There are a lot of studies related to a successful innovation culture and its main characteristics therefore there should not be any problem for manager to adopt an innovative culture in their organizations.

5. Conclusions

Innovation, due to its complexity, is one of the most studied topics in the literature today. We consider that the results of our research are very useful both for practitioners and for scientists. This part of innovation, the part where aspects related to resistance to adopt, to begin or to receive innovation are analyzed, is poorly covered in the scientific literature. A solution for a less difficult and negative journey to a successful innovation is the positive view of the outcome.

We consider that this research results can be used as a base for future studies in this area, and that the part of the innovation resistance, from different points of view, is a topic that must be thoroughly examined due to its importance for organizations worldwide

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Challenges in Learning Cataloging Tools in Organization of Knowledge

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Abstract

Subject Cataloging is one of the most crucial courses in the area of library and information management. This study aims to examine the students perception towards the cataloging subject which comprises of Subject Cataloging and Classification. The objectives of this study are to investigate the student's perception on cataloging tools while learning the subject. This study used quantitative research method by using a questionnaire as the data collection tool . The respondents are the third year students from the Bachelor of Library Management (BLM) program. It is important to investigate the student's perception in learning the cataloging subject due the weight given to this subject as core components in the BLM program . Subject Cataloging and Classification is a major heart of library science and information management in every institution. It is also critical to ensure that the students understand the subject matter and are well trained in using all the tools in-order to ensure all resources are systematically organized and classified. There are few technical parts of the cataloging area which considered challenging by the students. Hence, this research will determine the positive and the negative interpretation towards the subject cataloging and classification. The findings show that i) students moderately agreed with the adequateness of the cataloguing tools provided in their learning process. This research discuss several suggestions in the cataloging tools and the student motivation.

Keywords: Cataloging, Subject cataloging, Classification, Library science, Organizational Knowledge

Literature Review

Subject Cataloging is one of the most crucial courses in the area of library and information management. This study aims to examine the students perception towards the cataloging subject which comprises of Subject Cataloging and Classification. Teaching cataloging subject is now becoming more challenging than before. The technological and content advancements of digitalization, e-resources, review of AACR or introduction of Resource Description and Access (RDA), Functional Requirements for Bibliographic Records (FRBR) have shifted the whole process of teaching involved. The level of acceptance by the students and their perceptions on the subject would also be a good basis to be considered in the development of the teaching methods. Hence this research will seek to find out the student's perception towards cataloging subject through cataloging tools while learning the subject. It is known that subject cataloging requires best practices of teaching and learning approach. It requires students to be exposed to the basic theories of subject access to information as well as follow up with in class exercise and relevant assignments to ensure the theory is concrete (Taylor & Joudrey, 2002). Furthermore, to ensure the students are well understood about the subject cataloging, it is necessary for them to have some practical skill building exercise. Since there are limited studies conducted in this area thus, the picture on the student's feedback towards subject cataloging in university is not clear. This current research attempts to explore this matter by using student of public university as the subject of the study, the researchers attempt to describe how

the student's perception towards subject cataloging course influence their achievements and their cataloging skills as well. The results of the study will be limited only to the gathered data that is relevant to the objectives of the study, and this may be affected should students in different universities provide different feedback on the cataloging tools towards cataloging subject and lecturer's accountability in teaching subject cataloging. Owing to the constraints of the specific scope of study, this study was carried out in only one university. As a result, the findings will not accurately show the whole perceptions towards subject cataloging.

Cataloging Tools

In learning subject cataloging, Folashade (2014) point out that the learning facilities should be provided adequately to all students. It is a must for every student to learn and be able to use these facilities and tools. In the usage of DDC compared to LCC, Taylor (2009) claim that DDC have more difficulties in number building. While for subject heading LCSH are more complex than SLSH and MeSH (Taylor, 2009), In contrast Aina (2012) described LCSH and SLSH are both holding own complexity in assigning subject headings. There are hardly any researches that study the perceptions of the students towards learning the cataloging tools. For educators they also need to know the perception of the students in order to create a live full learning environment. Teaching cataloging subject is now becoming more challenging than before due to technological advancements and challenges of digitalization, e-resources, review of AACR or introduction of Resource Description and Access (RDA), Functional Requirements for Bibliographic Records (FRBR). Diverse geometrical growth in information resources poses challenge to librarianship (Bello & Mansor, 2011). The utilization of educational technology, especially computer-aided and web-based training, influences education design and development tremendously. Outcomes-based education and educational technology play a vital role in the design and development of training and have to be considered in such studies (Cloete, Snyman & Cronje, 2003). The level of acceptance by the students and their perceptions on the subject would also be a good basis to be considered in the development of the teaching methods. Hence this research will seek to find out the student's perception towards cataloging subject through three different areas; cataloging tools, lecturer's accountability, and the knowledge on cataloging towards cataloging subject.

Research Methodology

This study used quantitative methods for data gathering, a questionnaire set of 40 questions are distributed to 183 respondents. The respondents are students in third year and enrolled for the IML555 : Subject Cataloging and Classification .

Conceptual framework

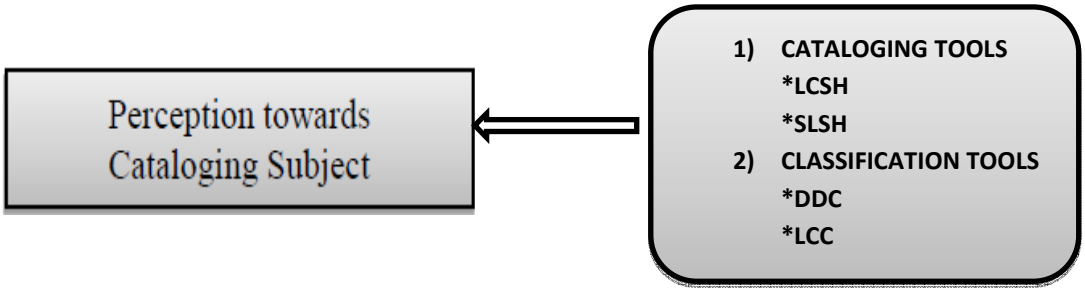

Diagram 1 : The above diagram shows the conceptual framework for this study, the dependent variable is Perception towards cataloging subject, while the independent variable are cataloging tools on cataloging and classification.

Findings

The findings of the study are reported in below tables and diagrams.

Student perception on the learning tools

a) The below table shows that subject heading learning tools such as (LCSH and SLSH) are moderately adequate for their learning in the classroom and lecturer.

Tools	Strongly disagree	Disagree	Moderate	Agree	Strongly Agree
LCSH	6 %	5.5 %	38.3 %	43.2 %	7.1 %
SLSH	4 %	6 %	44 %	41 %	6 %

Table 1: Adequateness of the Subject Heading learning tools

b) The below table shows that classification learning tools such as (DDC and LCC) are moderately adequate for their learning in the classroom and lecturer.

Tools	Strongly disagree	Disagree	Moderate	Agree	Strongly Agree
DDC	7.7 %	5.5 %	42.6 %	41.5 %	2.7 %
LCC	6.6 %	8.7 %	43.2 %	36.6 %	4.9 %

Table 2: Adequateness of the Classification learning tools

Based from Table 1 and Table 2, the study discovered that 43.2% agree that the LCSH tools are adequate for their learning process, and 43.7% rated moderate on the SLSH. Meanwhile, it was found that 42.6% rated moderate for the DDC tools are adequate for their learning proses and 43.2% of the respondents rated moderate for the LCC.

Analysis

Research Objective: to identify the student's perception on cataloging tools

Research Objective 1: to identify the student's perception on cataloging tools

Learning tools	Adequateness (%)
Library of Congress Subject Headings	50.3
Sears List Subject Headings	46.5
Dewey Decimal Classification	44.2
Library of Congress Classification	78.1

Table 7: Student's perception on cataloging tools

The Table 7 agree that the adequateness of cataloging tool is from LCC which is 78.1% , there is many copies for the students to get referred. Meanwhile the least adequateness is DDC which is 44.2% where the students need to utilize DDC tool in doing the technical works in a larger group. The other SLSH rated 46.5% meanwhile LCSH rated 50.3% of adequateness of the tool which they can utilize the tool in a very small group but still need to be shared.

Recommendation and Discussion

Based on the findings and discussions, this research would like to recommend the followings to the faculty and academicians. With respect to the nature of the subject, there are three main aspects in these recommendations which are:

i) Quantity of the learning tools including online tools

It need to be recommended that the organization learning have to upgrade the quantity of the learning tools including online tools. In order to measure the quality of the students in learning subject cataloging, it must be a total number of students reasonable with one set of cataloging tools used.

ii) Medium of Delivery

The medium of delivery should be attracted, harmonized, and enjoyful in learning technical topics of subject cataloging. It will recommend that the academicians to find another ways of method which will motivate the students interest towards this subject. Application of blended learning through mix method of traditional and online should be very attractive.

Conclusion

In conclusion, the study has been conducted for the purpose of investigating the perception towards Subject Cataloging in library science field. To accomplish this study, the researchers developed the framework which focuses of tools on cataloging and classification. In order to motivate and encourage for the cataloging knowledge, there should be full participation from all the cataloging academicians, faculty supports and libraries. These will definitely increase the success of knowledge sharing in library.

Acknowledgement

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Turn Point for Social Marketing Advertising. A Case Study about Healthcare and Humor Shock Appeals

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Abstract

This paper aims to assess the effectiveness of a health care shock advertisement with humor appeals. A sample of 100 first year university students was selected, as they have the characteristics of Generation Y. Findings revealed that the vast majority of respondents placed the health care shock advertisement in the moral offensiveness category, followed by indecency and sexual references. Moreover, the vast majority of respondents considered the advertisement not interesting, some of them considered it funny, sad, humorous and even disgusting. There were no gender differences detected when a comparison was conducted in terms of delivered answers.

Keywords: health care advertising, humor, shock appeals, social marketing, emotions

Introduction

Social marketing has always been promoting behavioral change. A field which was almost captivated by the application of social marketing instruments was the health care. Social marketing specialists used to promote behavioral change through advertising and several other shock appeals such as shame and fear. However, many studies revealed that other appeals have to be employed as the ones already tested, failed to deliver the expected results.

One appeal which has a higher degree of success but not tested on health care services was humor. Humor was depicted as being able to trigger a higher chance of behavioral change.

In this paper, we investigate the effectiveness of a public health shock advertising with humor appeals. The advertisement was part of a campaign related to the vaccination against HPV. The objectives of the case study are:

- Using Dahl et al's (1997) classification of shock appeals, in which category the Romanian consumer would place the health care advertisement with humor appeals.
- What are the triggered emotions when seeing a public health care shock advertisement with humor appeals emphasized?
- Are there any differences between genders in the perception of humor in health care shock advertising?

Literature review

1. Social Marketing and Health Care Services

Since Kotler and Zaltman (1971) first mentioned the term, social marketing has become a continuous growing specialized field. From 2005 onward, considerable academic research focused on the definition and scope of social marketing (Helmig and Thaler, 2010). More exactly, scholars have defined what encompasses social marketing, what are the common points with commercial marketing, targeting and segmenting audiences as well as influencing behavioral change (Andreasen, 1994; Gordan, 2011). Nevertheless, specialists for an in-depth approach, offered several practical and theoretical frameworks to determine the effectiveness of social marketing (Helmig and Thaler, 2010; Lefebvre, 2011; Wymer, 2011).

The vast majority of social marketing case studies have concentrated on health promotion issues, such as smoking and tobacco prevention, disease control, physical activity, alcohol abuse and breast cancer (Dahl, 2010). Social marketing was also adopted in issues concerning injury prevention and environmental prevention (Cheng et al, 2011).

In public health, practitioners address the disadvantaged populations and the populations who have greater chances to improve their behaviors (Stead et al, 2006). Practitioners also faced difficulties in measuring the effectiveness of social marketing due to various external factors, as for instance, governmental regulation, media coverage and pricing (Andreasen, 2003). However, as the discipline matures and scales for measurement are narrowed and refined, it is essential for researchers to continue sharing and growing their expertise.

Health care is a service that *most people need but do not want*, in other words, it is an unwanted service. In addition, it can be considered highly troublesome but critically important for the welfare of any individual (Berry and Beaudapudi 2007).

Berry and Beaudapudi (2007) pointed out some important similarities and dissimilarities between health care and other services which, sometimes, it is necessary to be acknowledged by specialists.

The *similarities* mentioned are the following:

- The health care services are in essence intangible because a performance is actually being delivered during a health care consultation;
- Health care is a service which presents a considerable variability in physician performance and service delivery. The variability not only refers to changeable skills of physicians and service style but also in technical skills.
- Health care services are inseparable of the service provider mainly because it is a service that addresses the contribution of individuals. For a clear and accurate diagnosis, patients must be physically present where the service is delivered.
- Like most other services, health care is perishable. The health care organizations offer value through physician's knowledge, equipment and time but when these elements are in turn, not created, the value cannot be measured.
- Health care is a more technical service which requires knowledge when it is used. Customers not having the technical knowledge, transform health care in a *credence service*.

Although health care services are similar, in some aspects to other services, they also have *several dissimilarities*, as follows:

- *Consumers are sick*. Health care consumers are usually ill and arrive at the health care organizations with a combination of stress, pain, uncertainty, fear which make them more vulnerable, demanding, sensitive and more dependent on the service provider.
- *Consumers are reluctant*. When it comes to health care services, most consumers become reluctant regarding the issue because they consider the service "unwanted".
- *Consumers relinquish privacy*. Health care services are personal but not entirely private services.
- *Consumers need "whole person" services* meaning that an individual needs to be holistically and personally understood. As such, health care services require a high degree of customization to fit the needs and requirements of a patient's medical condition.
- *Consumers are at risk*. There is no other service more dangerous than health care. On one hand, it is designed to cure patients and on the other hand, harm occurs due to several reasons such as not giving the proper medication, communication errors, hospital infections, errors in diagnosis, and errors in treatment.
- *Clinicians are stressed*. Serving continuously ill individuals is an exceedingly stressful activity because of the physical intensity required and the emotional stress that sometimes is very hard to cope with.

As a consequence, in order to put all the pieces together, health communication through advertising became a core element which enables health care consumers and providers to manage the complex information demands on both sides (Kreps, 1990).

2. Humor in health care shock advertising

Today, advertising is found everywhere, making consumers indifferent to it. In order to attract them, specialists have invented *shockvertising*, which is a type of advertising but it deliberately violates norms with the intention to raise awareness about a public issue. However, rather than producing a favorable expected buzz, some sock appeals just produced embarrassment (Berger and Chen, 2014).
There were several definitions of shock advertising ranging from controversial advertising (Fam and Waller, 2003), offensive advertising (Phan and Prendergarst, 2001) to provocative advertising (Vezina and Paul, 1997). In this article, we use Dahl et al's (2003) classification of shock appeals in advertising. So, the classification encompasses disgusting images, sexual references, profanity or obscenity, vulgarity, indecency, moral offensiveness and religious taboos.

Many important health problems such as addiction to drugs, mental illness, and sexually transmitted diseases have long been recognized to induce feelings of shame (Cunningham et al, 2002). Since shame is considered an emotion which triggers withdrawal and avoidance and, at the same time, discourages people to seek help (Nathanson, 1992), it is highly challenging for specialists to conduct health prevention campaigns of such medical issues. Humor in advertising is an instrument used to help rethink the negative issues focused on health care and provides emotional uplift and increase self-efficacy (Bandura and Adams, 1977). Thus, it has been used as a possible advertisement strategy that may attenuate negative effects and increase the degree of acceptance of health care messages. Although humor has been observed in negative health contexts such as threat persuasion (Yoon and Tinkham, 2013) and fear appeals (Mukherjee and Dube, 2012), it has seldom been tested as a strategy for health campaigns. Because humor has the power to ease the communication in social marketing, it is imperative to test its consequences in public health campaigns.

In health care shock advertising, humor may be applied on two dimensions, depending on the content and the technique, respectively. A commonly used content typology places humor in aggressive, sexual and nonsense classifications. Technique typologies have also been employed in the shape of a pun, an understatement, a joke, something ludicrous, satire, irony and humorous intent (Weinberger and Gulas, 1992). Furthermore, Spotts et al (1997), identifies five different humorous types: comic wit, sentimental humor, satire, sentimental wit and full comedy. Also, Spotts et al (1997) described three humorous messages:

1. Humor dominant message presents the overall experience of an advertisement.
2. Message dominant
    - Information focused: Humor is suggested with the help of semantics, contains message arguments and requires a different processing perspective. If the humor elements is removed, the advertisement still makes sense.
    - Image-focused: humor in the advertisement is more visual and closely related to the target audience. If the humor is removed, the ad makes sense.
3. Structural and thematic messages

Moreover, in order to establish consistency with previous literature, Catanescu and Tom (2001) have defined five types of humor:

- Comparison: putting two or more elements together to produce a humorous situation.
- Personification: the attribution of human traits to animals, plants and objects.
- Exaggeration: overstating and magnifying something out of proportion.
- Pun: Using elements of language to create new meanings, which result in humor.
- Sarcasm illustrates blatant ironic responses or situations.
- Silliness: this type ranges from making funny faces to ludicrous situations similar to the one created in commercials.

- Surprise: includes all advertisements where humor arises from unexpected situations.

Weinberger and Gulas (1992) pointed out that the benefits of humor in advertising are:

- Humor attracts attention.
- Humor can increase retention of the advertising message.
- Credibility of the source can be assessed with humor.
- Attitude toward the advertisement can be assessed with the use of humor.
- The use of humor acts as a tool to distract the audience from making cognitive responses.

Further, Weinberger and Gulas (1992) stated that humor is not a magic tool which assures more successful advertising, however success is assured. In spite of the upsurge of humorous advertisements, it is important to understand that humor can be effective in some situations and not in others.

Materials and Methods

The case study describes an exploratory research with the aim of gaining more insight into the health shock advertising with humor appeals.

To determine the objectives, a self administered questionnaire was conceived. The first part of the questionnaire consisted of items related to the demographic profile of the respondents such as gender and age. The second part of the questionnaire encompassed items related to a print advertisement. The printed advertisement was part of an HPV prevention campaign conducted by one of the biggest Romanian private hospitals. The public health care campaign used humor appeals in order to attract attention and to trigger a behavioral change. We have selected this print because it used sarcasm and exaggerated appeals.

The sample was made up of first year students, as they have the characteristics of Generation Y and, according to some experts, they respond better to irony and humor (Wolburg and Pokieyeczynski, 2001). Moreover, targeting university students has been a research practice for many years because they represent a homogenous group (Tinkham and Weaver-Larisey, 2004). As such, the sample consisted of 100 students with the ages between 20 and 25. This is a typical age which experts in shock advertising want to influence (Vezina and Paul, 1997).

Data was collected and analyzed using SPSS version 10. For the comparison between the respondents' genders in answering the items included in the questionnaire, we employed the Chi-square test.

Findings

a) Demographic profile
   - The mean age of the respondents was 20;
   - There were 66.7% female respondents and 33.3% male respondents.

b) Questionnaire findings

In accordance with Dahl et al's classification, more than 40% of the respondents placed the humorous shock advertisement in the moral offensiveness category, followed by sexual references and indecency (figure 1).

The respondents, when visualizing the health care shock advertisement considered it not interesting, funny, disgusting, sad and humorous. Other emotions reveled were guilt, irritation, silliness, optimism and hope (figure 2).

Using the Chi-square test, we could not find any significant differences between the answers given by the female respondents and the male respondents.

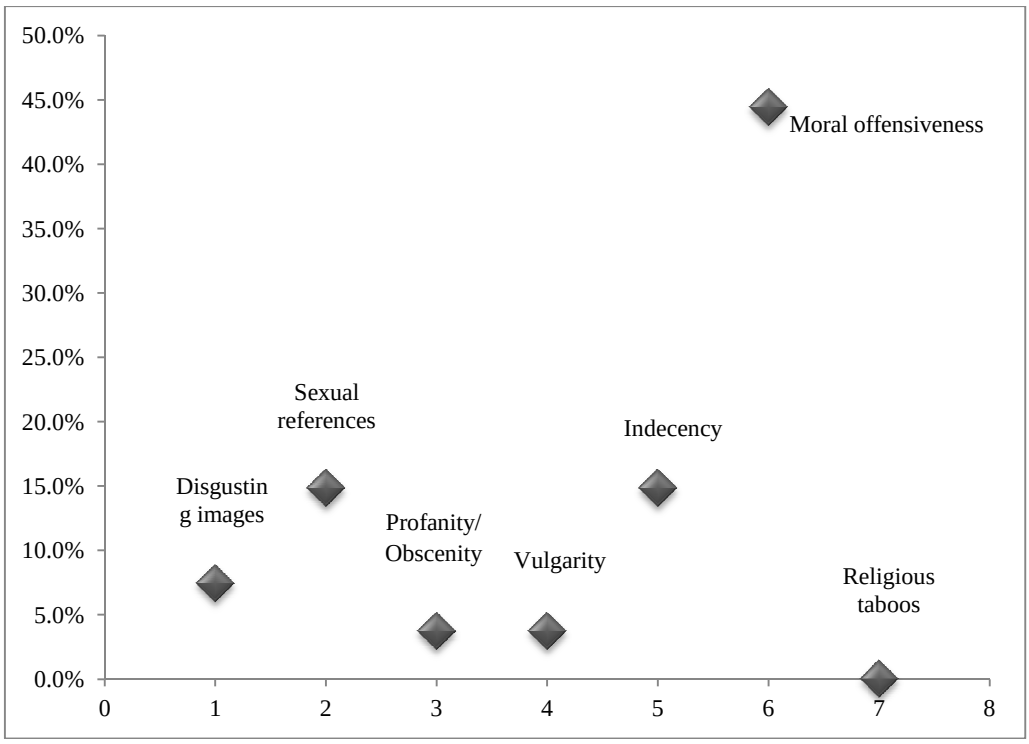

Fig 1. Respondents' categorization of the health care shock advertisement with humor appeals using Dahl et al's classification

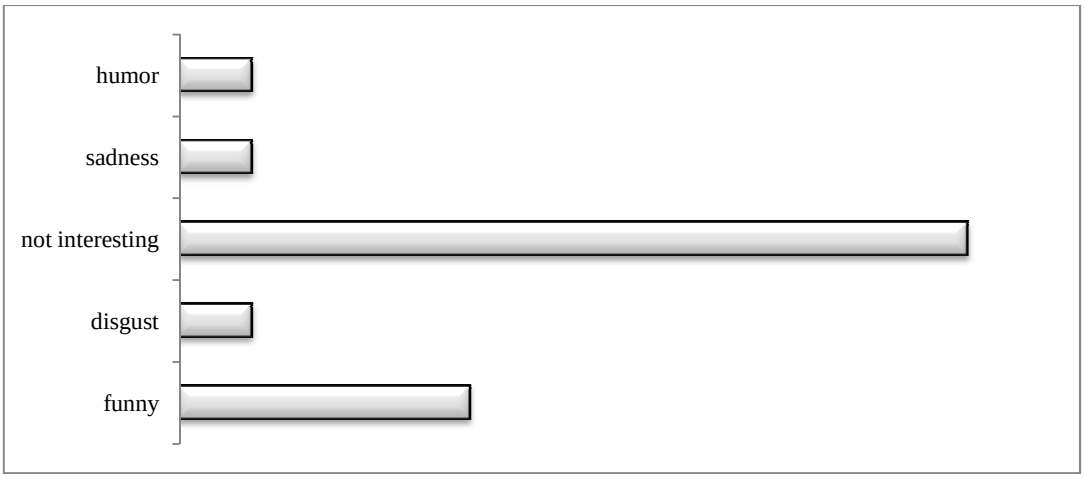

Fig 2. Emotions revealed by the respondents when visualizing the health care shock advertisement with humorous appeals

Discussion

The research outcomes revealed that, even if, in some cases humor is the key to success, in our case, it was not. Still, while the use of humor in advertising is high, the efficacy of humor as a communication appeal, in some fields, remains uncertain. As pointed out by several other studies, the impact of humor in advertising has proven to be rather elusive, dividing experts in two groups, one praising and supporting the effectiveness of humor appeals in advertising, and one decrying its employment.

Several studies on humor in advertising have been conducted over the past 25 years, but understanding the impact of humor has been extremely difficult (Weinberger and Gulas, 1992). Furthermore, Fatt and Poon (2002) argue that studies on the effectiveness of humor advertisements have produced mixed results. 64% of advertising specialists believe that humor has no effect or has a harmful effect on the message's understanding. As a consequence, it was concluded that the humorous message in advertising, is influenced by the nature of the social marketing cause promoted, the audience's characteristics, the communication appeals, the humor style, the humor relatedness and humor placement (Spotts, Wienberger and Parsons, 1997). All these factors should be taken into account for further research objectives with a special interest in health care shock advertisements.

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Descriptive Study on Demographic Characteristics and Bank Selection Criteria among Undergraduate Students in Malaysia

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Abstract

In Malaysia, there were 27 commercial banks, 16 Islamic banks and 12 investment banks, which provided financial services to the customers. Previous literatures showed that there were some similar and differences in bank selection criteria among undergraduate students. In this study, market failure and unprofitable banking business in Malaysia's banking industry was identified as one of the issues that alarming in banking sector. Thus, the purpose of this study was to identify the bank selection criteria among undergraduate students and the relationship between demographic characteristics and bank selection criteria. The bank selection criteria used in this study included (1) Convenience; (2) Financial benefits; (3) Bank reputation; (4) Technology-based services; and (5) Corporal efficiency. This study is a descriptive study which focuses on quantitative approach. A structred questionnaire was distributed to 375 respondent during September to November. However, only 320 questionnaire were returmed and valid for data analysis. Likert scale, frequency analysis and cross-tabulation analysis were used to analyzed the quantitative data. Findings shows that undergraduate students view the availability of 24 hour ATM services; high speed of transaction; financial stability of bank; highly confidentiality customer record; and good security management as the most importance criteria when selecting a bank. Furthermore, findings also indicated that there were some difference in bank selection criteria with respect to gender; age group; ethnic group; field of study and household income level. This findings contributed an overview of bank selection criteria among undergraduate students in Malaysia for banks to provide more appropriate marketing strategies to attract this market segement.

Keywords : *Bank selection criteria, Demographic characteristics, Undergraduate Students, Cross-tabulation*

1.0 Introduction

Customers are exposed to diverse choices and more concerned about the value for their money (Saleh *et al*., 2013). Rao & Sharma (2010), indicated that customers' bank selection dynamics have been given attention by many researchers and bank marketers in order to identify the appropriate marketing strategies. The traditional belief that only businesses and wage earning customers will bring income to the bank is now becoming inconsequent as students market was expanding in nowadays (Kaynak & Harcar, 2005). According Sufian (2007) and Institute Bank Malaysia (2015), the Malaysian financial system can be structured into two components, (1) Banking System and (2) Non-bank Financial Intermediaries. As indicated by Mokhlis, Salleh & Mat (2011), increasing levels of competition in Malaysian financial market has increased the need for banks to attract the new market segments. Previous literatures indicated that university students became a target market as a source of new accounts and future profitability in banking industry (Khaitbaeva *et al*., 2014).

Despite majority of the university students are umployed and "earning" comes mainly from education loan and parent contributions, however, they have become an important consumer market segment recently. In Malaysia, Bank Negara Malaysia (2009) indicated that the decrease in profitability of bank institutions had cause retail bank to merge into 22 commercial banks by 2009 from an initial 54 individual retail banks. As an evidence, Standard Chartered bank had cut and relieved 4000 staff in 2015 as a cost-cutting initiative (Mathew, 2015). Furthermore, previous literature also indicated that university students have represented a critically important market for bank marketers in recent years

(Chigamba & Fatoki, 2011; Khaitbaeva *et al.* 2014). However, many scholars indicated that the potential of undergraduate student segment as a customer has received lesser attention in the context of banking (Rao & Sharma, 2010; Singh, 2014). Rao & Sharma (2010) and Makhlis *et al*. (2011) added that although the previous findings have been conducted and made a significant contribution to the literature on bank selection criteria. However, a set of determinant variables may not be applicable to other countries due to the differences in culture, political, economic and legal environment (Almossawi, 2001; Makhlis *et al*., 2011). Therefore, market failures and unprofitable banking business in Malaysia was identified as one of the issue that alarming the finance institutions, government and other shareholders of banking sector.

This study was carried out with the aims to identify the bank selection criteria among undergraduate students in Malaysia and also to investigate the relationship between demographic characteristic and bank selection criteria of students in UTHM. Respondents of this study only focusing on undergraduate students who enrolled a range of degree courses in UTHM. A sample of 375 undergraduate students in UTHM was selected randomly in this study. This study is worth to be carried out in order to benefits the bank marketers to understand undergraduate students' bank selection criteria in Malaysia. In addition to this, it can be act as references and new knowledge contribution for advanced research in academics which related to this topic.

2.0 Literature Review

2.1 Bank Selection Criteria Variables

Previous literatures shows that there were plenty of studies have been conducted regards on the bank selection criteria in Europe, Africa and Asian countries. However, Mokhlis *et al*. (2008) indicated that there is no single agreement in choosing appropriate variables in bank selection criteria, and this is mostly related to banking behavior, intention, and attitude of customers. In this study, the chosen variables were adapted from Mokhlis *et al*. (2011). Therefore, this study suggests that (1) Convenience; (2) Financial benefits; (3) Bank Reputation; (4) Technology-based services; and (5) Corporal efficiency which consisted of 25 different attributes were considered to be very supportive variables for bank selection decision. These variables were used in order to study the relationship between demographic characteristics and bank selection criteria among undergraduate, as illustrated in **Figure 1** and briefly elaborated in the following subsections.

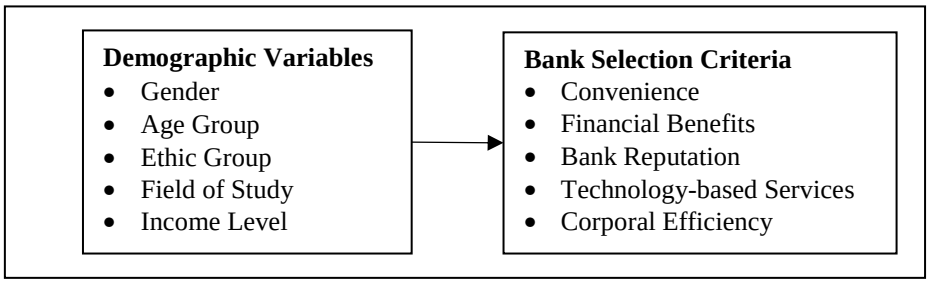

Figure 1: Bank Selection Criteria

2.1.1 Convenience

Rahid & Hassan (2009); Mokhlis *et al*. (2011) and Khaitbaeva *et al* (2014) defined convenience as location convenience, sufficient transaction time, strong global and local network. In this study, convenience in selecting a bank included (1) proximity of bank branch location to univesity; (2) the availability of parking facilities; (3) availability of ATM services in several locations; and (4) global branch network.

2.1.2 Financial Benefits

Financial benefits refers to the favorable loan experience, rate of return, cost of services, bank charge, ease of account opening procedure and free gifts for customers (Rahid & Hassan, 2009; Chigamba & Fatoki, 2011; Mokhlis *et al*., 2011).

2.1.3 Bank Reputation

Bank reputation refers to a bank which has a good brand name and good security management in order to provide perceived confidentiality to the bank customers (Rahid & Hassan, 2009; Holstius & Kaynak, 1995; Saleh *et al*., 2013).

2.1.4 Technology-based Services

According to Mokhlis (2009) and Khaitbaeva *et al*. (2014), technology-based services refers to the availability of 24 hours ATM services, mordern technology that used, internet bankig or mobile banking services. It also used to explain how fast a transaction can be done.

2.1.5 Corporal Efficiency

According to Rahid & Hassan (2009); Abduh & Ornar (2012) and Khaitbaeva *et al*. (2014), corporal efficiency refers to efficient managers, faster transaction and document processing, friendliness of bank personnel, responsiveness staff and employees attire apprearance.

2.2 The Relationship between Demographic Characteristics and Bank Selection Criteria

Previous studies indicated that there were some similarities and difference findings in bank selection criteria based on demographics charateristics (Safakli, 2007; Mokhlis *et al*., 2008; Rahid & Hassan, 2009; Mokhlis *et al.*, 2011). Customer's bank choices were also affected by demographic variables Denton & Chan (1991). In order to achived the second research objective, respondents were categorized according to four different demographic characteristics which consist of (1) Gender, (2) Age group, (3) Ethnic group, (4) Field of studies, and (5) Income level.

3.0 Research Methodology

This study is a descriptive study which focuses on quantitative approach. Questionnaire was used as instrument to identify the bank selection criteria and to gather the data. As indicated by Churchill & Lacobucci (2002) and Mattila (2003), descriptive analysis was chosen in order to identify and explain variables that exist in a given situation. In addition to this, it also attempts to describe the relationship that exists between these variables in order to provide a picture of a particular phenomenon (Churchill & Lacobucci, 2002; Mattila, 2003).

A three part structured questionnaire survey was used as instrument to collect the measurable data from the respondents.The first part asked about the demographic variables such as (1) Gender; (2) Age group; (3) Ethnic group; (4) Field of studies; and (5) Income level. The second part were regarding the five bank selection criteria: (1) Convenience; (2) Financial benefits; (3) Bank reputation and image; (4) Technology-based services; (5) and Corporal efficiency) which consisted of 26 different attributes. The final part of the questionnaire was established to obtain information on the banking behavior of the respondents. These included name of the banks at which savings accounts were maintained, length of time that respondents have been with their banks and so on.

According to International Colleges and Universities Net (2015), the whole population of students who enrolled at UTHM is estimated at 14,999 students in 2015. For the purpose of this study, undergraduate students of UTHM were taken as the sample of study due to each of them have a bank account and adequate to represent the population. According to Krejcie and Morgan (1970), the recommended sample size is 375 respondents of the population. Thus, a total of 375 questionnaires were distributed to the undergraduate students at different faculties, library and bus stop during

September to November, 2015. However, only 320 questionnaires were returned and used for data analysis.

4.0 Data Analysis and Results

In this study, Statistical Package for Social Science (SPSS) was used to analyze and interpret the quantitative data. The analysis adopted in this study were decriptive data analysis. The five point Likert scale ranging from 1 (not important at all) to 5 (very important) was used to rate the importance of each of the bank selection criteria among the undergraduate students. Furthermore, cross tabulation was used to explain the relationship that exists between demographic characteristics (gender, age group, ethnic group, field of studies, and income level) and bank selection criteria. As indicated by Mahat & Ali (2012), the mean score computed from the respondents were used to weight the bank selection criteria, while cross tabulation was used to explain the relationship between bank selection criteria and demographic characteristics. In this study, *n* represent the sample size of undergraduate students

4.1 Demographic Profile of the Respondents

Table 1 indicated the demographic charateristics of the respondents. Findings shows that majority of the account holders in this study were female (*n*= 164, 51%) and most of them were 4th year undergraduate students (*n*=108, 33.8%). The largest group of respondents came from aged 22 to 24 years old which account 157 or 49%. Results shows that 59.1% (*n*=189) were Malay respondent, while Chinese and Indian account 33.8 % (*n*=108) and 7.2% (*n*=23) respectively. Apart from that, findings indicated that respondents were more likely to select Bank Muamalat (*n*=100, 31.3%) due to the requirement of PTPTN loan. As indicated by Hinson, Osarenkhoe & Okoe (2013), bank accounts are needed because students' loans and bursaries were disbursed directly though student's bank accounts.

In addition to this, majority of the respodents were non-engineering students (*n*=164, 51%) and 156 or 49% of the respondents were engineering students. 58.8% (*n*=188) of the respondents were with RM 1,001 to RM 3,000 monthly household income, followed by RM 3,001 to RM 5,000 (*n*=73, 22.8%) and above RM 5,000 (*n*=35, 10.9%). This shows that majority of them were from middle-class group.

Table 1: Demographic Characteristics of the Respondents

Demographic Characteristics	*n*	%
(1) Gender		
Male	156	51.0
Female	164	49.0
(2) Enrolment		
1st year	76	23.8
2nd year	85	26.6
3rd year	51	15.9
4th year	108	33.8
(3) Age Group		
19-21	128	40.0
22-24	157	49.0
>25	35	11.0
(4) Ethnic group		
Malay	189	59.1
Chinese	108	33.8
India	23	7.2
(5) Bank Selected		

Maybank	88	27.5
CIMB	58	18.1
BSN	34	10.6
Public Bank	40	12.5
Bank Muamalat	100	31.3
(6) Field of Studies		
Engineering (FKMP, FKEE, FKAAS, FTK)	156	49.0
Non- Engineering (FPTV, FSKTM, FPTPT, FSTPi)	164	51.0
(7) Monthly Household Income		
<RM 1,000	24	7.5
RM 1,001 – RM 3,000	188	58.8
RM 3,001 – RM 5,000	73	22.8
>RM 5,000	35	10.9

4.2 Respondents' Banking Behavior

Table 2 indicated the banking behavior of the respodents in this study. Finding shows that 62.5% (*n*=200) of the respondents have their source of money come from PTPTN followed by parent as the source of money (*n*=86, 26.9%) and working as source of money (*n*=34, 10.6%). This is because a bank account needed for student's loan (PTPTN), bursaries and salaries purpose (Osarenkhoe & Okoe, 2013). In terms of type of bank accounts, 77.8 % (*n*=249) of the respondents operating only saving accounts with their respective banks, another 19.7 % *(n*=63) operate only current accounts. The remaining 2.5% (*n*=8) operate deposit accounts. Rao & Sharma (2010) explained that undergraduate students do not open an account for only for saving money but also want other services such as PTPTN loan.

Majority of the respondents have active account with 1 to 3 years (*n*=249, 77.8%) followed by respondents who have active account more than 6 years (*n*=98, 30.6%), only 5% or 16 of the respondents have active account less than one year. Result also shows that most of the respondents updating their account less than five times (*n*=153, 47.8%) annually. Those within 5 to 10 times and 11 to 15 times annually have about 28.1% (*n*=90) and 15.3% (*n*=49) respectively, while updating account with more than 15 times annually account for 8.8% (*n*=28). This indicated that respondents' bank account were updated and active.

Besides that, results indicated that 69.1% or 221 out of 320 respondents use the Internet banking to perform their banking activities such as check for account balance (23, 10.4 %), bills payment (86, 38.9 %), and transfer money between account (112, 50.7 %). Meanwhile, only 99 or 30.9 % respondents do not access to the Internet banking services when deal with their bank transaction.

Table 2: Banking Behavior

Variables	***n***	**%**
(1) Source of Money		
Parent	86	26.9
Working	34	10.6
PTPTN	200	62.5
(2) Types of Bank Account		
Current account	63	19.7
Saving account	249	77.8
Deposit account	8	2.5
(3) Active Account		
Less than 1 years	16	5.0
1-3 years	142	44.4

4-6 years	64	20.0
> 6 years	98	30.6
(4) Updating Frequency (annually)		
Less than 5 times	153	47.8
5-10 times	90	28.1
11-15 times	49	15.3
> 15 times	28	8.8
(5) Internet Banking Activities		
Check account balance	23	10.4
Bills payments	86	38.9
Transfer money	112	50.7

4.3 Respondents' Bank Selection Criteria

4.3.1 Convenience

In terms of convenience criteria, findings indicated that the availability of ATM services in several locations (mean=4.14), bank with global branch network (mean=3.92) and the availability of parking space near the bank (mean=3.81) were mentioned as importance determinants of bank selection decision among the undergraduate students. However,proximity of bank location to university scores the lowest priority with mean value of 3.71 This result is consistent with previous studies which done by Shevlin & Graeber (2001) and Rao & Sharma (2010) who claimed that ATM services was a determinant of intention to select a bank due to easy accessibility to their bank accounts and save time.

4.3.2 Financial Benefits

The mean value for high rate of return on saving account which account 3.99, low service charges (mean=3.96) and high interest rates on deposit (mean=3.75) shows the most important determinant criteria of bank selection decisions when selecting a bank. However, the respondents give less attention to the variables such as financial services counseling that provided by bank staff (mean=3.73) and the availability of obtaining credit card (mean=3.46) when they select a bank.As supported by Rao & Sharma (2010) and Mokhlis, Salleh & Mat (2011), economic factors such as interest rates on deposit and monthly charges weigh heavily on students' bank selection decisions because their want assurance of the services from the bank.

4.3.3 Bank Reputation

In terms of bank reputation criteria, financial stability of bank which account 4.42, the confidentiality of bank customer record which have mean value of 4.34, good security management (mean=4.33) and safety of fund (mean=4.28) also shows the vital determinant criteria that influenced undergraduate students' bank selection. Rao & Sharma (2010) explained that undergraduate students were more likely to have accounts in renowned banks and good security arrangement to assured safety of their money. Besides that, this also reflects respondents' desire of banking with a stable bank and assurance of confidentiality of customer record when dealing with their transaction (Ukenna & Monanu, 2012).

4.3.4 Technology-based Services

Results revealed that the availability of 24 hours ATM services (mean=4.50), high speed of transaction (mean=4.46), and the availability of mobile banking services (mean=4.29) has a strong influence on respondents' decisions compared to online bill payment (mean=4.13) and internet banking facility (mean=4.08) when selecting a bank.Selamat & Abdul-Kadir (2012) explained that the provision of higher transaction speed was in line with the product and services that provided by the bank. Selamat & Abdul-Kadir (2012) added that most of the banks were offering mostly similar

products such as PTPTN loan, saving deposit and other. Therefore, how fast and efficient the service they can serve in attaining competitive advantages became a key difference between two banks (Selamat & Abdul-Kadir, 2012).

4.3.5 Corporal Efficiency

Findings shows that helpful and efficient staff (mean=4.32), knowledgeable and skill staff (mean=4.29), staff responsiveness (mean=4.26), staff politeness (mean=4.21) and friendliness of bank personnel (mean=4.08) were attach importance to the criteria of bank selection decisions among undergraduate students. This indicated that better social interaction between banker and undergraduate students are gaining prominence due to the influence of Asian culture (Rao & Sharma, 2010).

4.4 The Significant of Bank Selection Criteria

Table 3:Ranking Importance of Different Variables related to Bank Selection Criteria

No	Variables	Mean	Importance Rank
1	Availability of 24 hours ATM services	4.50	1
2	High speed of transaction	4.46	2
3	Financial stability of bank	4.42	3
4	Confidentiality of bank customer record	4.34	4
5	Good security management	4.33	5
6	Helpful and efficient staff	4.32	6
7	Availability of mobile banking services	4.29	7
8	Knowledgeable and skill staff	4.29	7
9	Safety of fund	4.28	8
10	Staff responsiveness	4.26	9
11	Staff politeness	4.21	10
12	Availability of ATM services in several locations	4.14	11
13	Online bills payment	4.13	12
14	Internet banking facility	4.08	13
15	Friendliness of staff	4.08	13
16	High rate of return on saving accounts	3.99	14
17	Good brand name	3.97	15
18	Low service charges	3.96	16
19	Global branch network	3.92	17
20	Employees attire appearance	3.91	18
21	Availability of parking facilities	3.81	19
22	High interest rates on deposit	3.75	20
23	Financial services counseling	3.73	21
24	Proximity of bank location to university	3.71	22
25	Availability of obtaining credit card	3.46	23

As shown in **Table 3**, it presented a summary in the relative importance of choice criteria in respect of selecting a bank among undergraduate students. In this study, there were 25 different attributes extracted from (1) Convenience; (2) Financial benefits; (3) Bank reputation; (4) Technology-based serviced; and (5) Corporal efficiency criteria. Findings revealed that the availability of 24 hours ATM services (mean=4.50); high speed of transaction (mean=4.46); financial stability of bank (mean=4.42); confidentiality of bank customer record (mean=4.34); and good security of management (4.33) ranked as the top five bank selection decisions among the undergraduate students.

This can be concluded that undergraduate students were more emphasised on technology-based services (mean=4.31) and reputation of the bank (mean=4.25) compared to corporal effciency (4.23), convenience (mean=4.05) and financial benefits (mean=3.83). Mokhlis *et al*. (2011) explained that this is because undergraduate students were more reliance on modern technology and conscious of every aspect of their banks for the best deal.

4.5 The Relationship of Demographic difference and Bank Selection Criteria

4.5.1 Gender and Bank Selection Criteria

Table 4 shows that the availability of 24 hours ATM services, high speed of transaction and financial stability of bank have a great influence in bank selection decision among male and female respondents. However, male respondents (mean=4.36) view confidentiality of bank customer record more important criteria compare to female respondents (mean=4.32). This result was consistent with the previous studies which done by Omar & Orakwe (2006) and Ukenna & Monanu (2011). Traditionally, male were financial decision-makers while female were more conservative investors (Ukenna & Monanu, 2011). This shows that the perception and choice of banks are likely to vary significantly between male and female due to gender differences in financial behavior such as saving, investing, and the use of financial planners (Ukenna & Monanu, 2011).

Table 4: Gender Difference in Bank Selection Criteria

Criteria / Gender	Male		Female	
	Mean	**Rank**	**Mean**	**Rank**
Availability of 24 hours ATM services	4.49	1	4.51	1
High speed of transaction	4.46	2	4.47	2
Financial stability of bank	4.45	3	4.38	3
Confidentiality of bank customer record	4.36	5	4.32	4
Good security management	4.37	4	4.29	5

4.5.2 Age Group and Bank Selection Criteria

Table 5 shows that undergraduate students who aged 19 to 21 years old rated the availability of 24 hours ATM services (mean=4.52) and high speed of transaction (mean=4.52) as the most important criteria for their bank selection criteria, followed by confidentiality of the bank customer record (mean=4.44) and financial stability of the bank (mean=4.38). The higher transaction speed (mean=4.41) and financial stability of bank (mean=4.41) ranked the same value for respondents between 22 to 24 years old, while least important criteria for this category was the confidentiality of bank customer record (mean=4.27). Meanwhile, for undergraduate students belonged to the age group of 25 and above, financial stability of the bank (mean=4.57) ranked first, followed by high speed of transaction (mean=4.51) and the availability of 24 hours ATM serviced (mean=4.48). The speed of transaction is deemed to have different priority among these three age groups. It can be found that respondents with aged 19 to 21 years old (mean=4.52) and above 25 years old (mean=4.51) value their time higher and expect their banking transaction to be completed as quickly as possible compared to respondents belonged to 22 to 24 years old.

Table 5: Age Group Difference in Bank Selection Criteria

Criteria / Age Group	19-21		22-24		>25	
	Mean	**Rank**	**Mean**	**Rank**	**Mean**	**Rank**
Availability of 24 hours ATM services	4.52	1	4.49	1	4.48	3
High speed of transaction	4.52	1	4.41	2	4.51	2
Financial stability of bank	4.38	3	4.41	2	4.57	1
Confidentiality of bank customer record	4.44	2	4.27	4	4.26	5
Good security management	4.32	4	4.32	3	4.40	4

4.5.3 Ethnic Group and Bank Selection Criteria

Table 6 shows Malay respondents attach more important to high speed of transaction (mean=4.51) to save times. Meanwhile, both Chinese and Indian undergraduate students rated the availability of 24 hours ATM services as the central to the choice of banks due to easily access to their bank accounts. This indicated that both Chinese and Indian respondents have quite similar criteria in selection a bank. In terms of confidentiality of bank customer record and good security management, both criteria rate equally importance (mean=4.52) for Indian respondents. Chinese respondents more concerned with good security management (mean=4.54) compared to the confidentiality of bank customer record (mean=4.35). However, for Malay respondents, good security management (mean=4.19) and confidentiality of bank customer record (mean=4.31) had the least influence in the selection of banks. This shows that Indian respondents were more concerned on well keep and a highly confidentiality bank in dealing banking transaction.

Table 6: Ethnic Group Difference in Bank Selection Criteria

Criteria / Ethnic Group	Malay		Chinese		Indian	
	Mean	**Rank**	**Mean**	**Rank**	**Mean**	**Rank**
Availability of 24 hours ATM services	4.45	2	4.57	1	4.57	1
High speed of transaction	4.51	1	4.40	4	4.39	4
Financial stability of bank	4.34	3	4.51	3	4.56	2
Confidentiality of bank customer record	4.31	4	4.35	5	4.52	3
Good security management	4.19	5	4.54	2	4.52	3

4.5.4 Field of Studies and Bank Selection Criteria

Table 7 shows that both engineering students and non-engineering students have the same value traits in the availability of 24 hours ATM services and high speed of transaction due to save time and inefficiency counters during banking hours (Haron *et al.*, 1994; Rao & Sharma, 2010). Confidentiality of bank customer record was considered as third important criteria by engineering students, which ranked fifth by non-engineering students. Furthermore, results shows that non-engineering students (mean=4.42) were prefer to select a bank with more stable financial compared to engineering students (mean=4.41). This indicated that non-engineering students were more concerned about assurance of the bank services while engineering students gave a higher weight to privacy. This indicated that engineering students and non-engineering students have different perception in selecting their banks.

Table 7: Field of Studies Difference in Bank Selection Criteria

Criteria / Field of Studies	Engineering		Non-Engineering	
	Mean	**Rank**	**Mean**	**Rank**
Availability of 24 hours ATM services	4.51	1	4.49	1
High speed of transaction	4.47	2	4.45	2
Financial stability of bank	4.41	4	4.42	3
Confidentiality of bank customer record	4.42	3	4.26	5
Good security management	4.37	5	4.30	4

4.5.5 Income Level and Bank Selection Criteria

Table 8 shows the differences in bank selection criteria between middle-class (average household income within RM 1,000 to RM 3,000) and upper-class (average household income above RM 5001). Findings indicated that the most important criteria considered by upper-class respondents was confidentiality of bank customer record (4.34) and this criteria was ranked 4th places by middle-

class. This indicated that upper-class respondents were more focused on highly confidentiality bank and privacy when dealing banking transaction compared to middle class.

Table 8: Income Level Differences in Bank Selection Criteria

Criteria / Income Level	Middle-class (RM 1001 - 3000)		Upper-class (> RM 5,001)	
	Mean	**Rank**	**Mean**	**Rank**
Availability of 24 hours ATM services	4.51	1	4.26	3
High speed of transaction	4.45	2	4.29	2
Financial stability of bank	4.39	3	4.34	1
Confidentiality of bank customer record	4.32	4	4.34	1
Good security management	4.39	3	4.23	4

5.0 Discussion and Conclusion

The findings from the data collection were further discussed and summarized while looking into the two objectives determined in this study. As mentioned earlier, the findings of research objective (1) indicated that technology-based services which included the availability of 24 hours ATM services and high speed of transaction were the most importance criteria, followed by reputation of bank (financial stability of bank, confidentiality of bank customer record and good security management). Corporal effciency, convenience and financial benefits were found to be the least importance choice criterion in this study.

Results revealed that the criteria having the greatest influence on undergraduate students' bank selection decision was the availability of 24 hours ATM services. This show that current well-educated generation has a strong desire to make financial services available through the use of modern technology and less reliance on face-to-face interaction at the branch (Mokhlis, Salleh & Mat, 2011). The second most important criteria rated by undergraduate students were the higher transaction speed due to save time and no long waiting time at the bank counter (Kamenidou, Mamalis & Priporas, 2013). The financial stability of bank was rated as the third most important criteria influencing undergraduate students when selecting a bank. This findings indicated that university students in general have a greater knowledge regarding banking matters and more aware of the financial market (Mokhlis *et al*., 2011).

The fourth most important criteria were confidentiality of bank customer record, followed by good security management. Mokhlis *et al*. (2011) explained that this is due to consumers' high sense of insecurity such as financial risks, uncertainty on bank's stability and disclose their personal information. The proximity of bank to university which ranked twenty-two shows that location convenience is no longer a major influence on the undergraduate students' selection of a bank. As explained by Tank & Tyler (2005), the technological advances have replaced the previous placed on location convenience. Secondly, the findings of research objectives (2) clearly indicated that there is difference in bank selection criteria based on demographic variables. Results from the data analysis shows that male respondents view bank's financial stability and confidentiality of bank customer record were more importance than female due to gender difference in financial behavior (Ukenna & Monanu, 2011). In terms of age group, respondents with age 19 to 21 years old attach more to higher speed of transaction than the other two groups (22 to 24 years old and above 25 years old). Apart from that, Indian respondents were more concerned on a highly confidentiality bank compared to Malay and Chinese respondents when selecting a bank.

In addition to this, non-engineering students prefer to choose a bank with more stable financial whereas engineering students were more concerned on confidentiality of bank customer record. It is also found that respondents having higher income (above RM 5,001) were more attach to highly confidentiality bank record and their privacy than respondents having income level of RM 1,001 to RM 3,000. It can be concluded that the differences in demographic characteristics have different

perception in selecting a bank. As a result, this finding contributed an overview of bank selection criteria among undergraduate students in Malaysia for banks to provide more appropriate marketing strategies to attact this market segement.

6.0 Acknowledgements

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La Construction d'un Baromètre du Bien-Etre dans les Espaces Urbains Marocains

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Résumé

L'ambition de ce papier est d'étudier les déterminants du bien-être dans les espaces urbains.

S'inspirant de la démarche marketing urbain et fondée sur le cas des grandes villes marocaines, notre investigation essaie d'étudier le degré de compromis entre les variables quantitatives et variables qualitatives qui composent la qualité de vie des citadins marocains.

L'enseignement phare de notre recherche réside dans le fait que le bien-être tel qu'il est perçu par les habitants des grandes villes marocaines renferme plusieurs dimensions et que celles-ci devraient être déclinées en items pondérés selon leurs poids respectifs.

Mots-clés : Baromètre, Bien-être, citadins marocains.

Abstract

The aim of this paper is to study the determinants of well-being in urban spaces. Inspired by the urban marketing approach and based on the case of large Moroccan cities, our investigation is trying to study the degree of compromise between quantitative variables and qualitative variables that make up the quality of life of Moroccan citizens. The flagship education of our research lies in the fact that the well-being as perceived by residents of large Moroccan cities contains several dimensions and these should be broken down into items weighted according to their respective weights.

Keywords: Barometer, Wellbeing, Moroccan citizens.

Inroduction

Depuis le milieu des années 1990 et surtout depuis l'annonce en 2011 du projet de régionalisation avancée, les régions marocaines se sont vues attribuer de nouvelles missions à accomplir en vue de relever de nouveaux challenges. Les tendances actuelles convergent à confrirmer que le devenir du Maroc est dans la région et que l'Etat à organisation territoriale se substitue de plus en plus à l'Etat unitaire.

L'hebdomadaire marocain « La vie économique » en collaboration avec Valyans Consulting ont mené une étude le 24 septembre 2010 et ont constaté que les finances des communes sont excédentaires (cumulées dans plus de 25 milliards de DH en 2011) (Agoumi, 2011), ce qui fait contraste avec le besoin énorme en termes d'infrastructures et de maintenance. Pour pouvoir profiter de cette manne, il faut imaginer des projets, recruter des stratèges visionnaires et se comporter en marketers pour les commercialiser, lesquels stratèges et marketers sauraient se mettre à l'écoute du citoyen et répondre parfaitement à ces besoins en termes de confort et de bien-être.

Mais, encore faut-il savoir ce qui constitue le souci majeur des citoyens marocains. Plus précisément, nous nous posons les questions suivantes :

- Que peut-on entendre par confort, bien-être ou qualité de vie ?
- Comment peut-on le mesurer ?
- Quel impact de la taille des villes sur la perception du confort en espaces urbains marocains ?
- Quelle perception se font les marocains de leurs villes ?

- Le bien-être dans les zonnes urbaines étant pluridimenssionnel, quel équilibre y a-t-il entre ses composantes ?
- Comment une telle perception peut-elle orienter les décideurs locaux de telle sorte à répondre aux aspirations des citoyens ?

Tous ces questionnements sont focalisés sur les villes de Tanger, Casabalanca et Meknès puisqu'elles s'inscrivent dans le schéma de métropolisation et se positionnement sur des attributs différents en vue de répondre aux desideratas de leurs habitants respectifs.

Notre recherche se justifie par des intérêts d'ordre académique, pratique et méthodologique :

- Sur le plan académique, nous ambitionnons de mener une série d'investigations sur les villes vues sous une optique sociale, économique et managériale ;
- Sur le plan pratique, nous souhaitons nettement que les responsables locaux tireront des enseignements précieux à même d'élaborer des stratégies viables de développement urbain ;
- Sur le plan méthodologique, nous avons concentré notre réflexion sur la construction d'un baromètre de bien-être qui puisse allier pertinence (le baromètre est composé de thèmes jugés par les citoyens eux-mêmes) et soutenabilité (le baromètre saisit la perception du bien-être des citoyens d'aujourd'hui et ceux des générations futures).

En conjuguant le contexte ci-haut, nos questionnements et les intérêts de notre recherche, il nous a semblé impératif d'adopter une démarche aussi scientifique que rigoureuse possible. En effet :

- Nous avons débuté notre travail par une synthèse de la notion de bien-être (ou qualité de vie ou encore confort) telle qu'elle est appartient aux champs disciplinaires aussi variés que le marketing territorial, le management stratégique, les sciences sociales et politiques ;
- Ensuite, nous avons construit un outil qui permet de mesurer solidement le bien-être des citoyens des grandes villes marocaines ;
- Enfin, nous avons veillé à ce que la collecte des données et leur analyse obéissent aux normes de la recherche scientifique en préférant prendre, dans un premier temps, contacts et entrevues avec tous acteurs qui puissent apporter un éclairage sur le bien-être en milieu urbain et, dans un deuxième temps, fournir une grille qui puisse croiser les lectures des institutions internationales, des sources officielles nationales, de la presse et la perception propre des citadins marocains vis-à-vis de leurs cités.

Aussi, notre recherche est-elle structurée comme ci-après :
Dans un premier lieu, nous examinerons le sens que se donnent les chercheurs, praticiens, instituions internationales et les médias de la notion de la qualité de vie.
Dans un deuxième lieu, nous tenterons de synthétiser les différents thèmes qui ont été capitalisés au fil des années en vue de mesurer la qualité de vie tout en nous interrogeant sur la possibilité de hisser celle-ci en tant que concept solide et universel.

Dans un troisième lieu et après avoir rappelé notre démarche d'approcher le terrain en termes de recueil des données et de leur analyse, nous expliquerons la perception que se font les citadins marocains de la qualité de vie qu'ils mènent dans leur espace urbain.

1. Notion et Mesure de la Qualité de Vie en Milieu Urbain

En principe, le marketing adressé aux résidents vise deux populations : les résidents sur place et les éventuels habitants d'autres régions (nationales ou internationales) et qui pourraient être attirés par la ville (Meyronin, 2008). Cependant, dans la plupart des cas, on s'adresse moins aux potentiels (qui seraient à risques de chômage et d'insécurité) qu'aux habitants déjà établis, en s'efforçant d'améliorer leur qualité de vie.
Si les acteurs de la ville partagent le même espace urbain, ils sont tellement pluriels (Collectivités locales, citoyens, groupes d'intérêts, ONG, industriels, commerçants, Etat, organisations gouvernementales, établissements publics et para publics, etc.) que leurs préoccupations divergent.
L'ambition de ce paragraphe est d'essayer de dresser une liste d paramètres qui puissent mesurer la qualité de vie des habitants d'espaces urbains (§ 1.2). Mais, au préalable, il nous semble opportun de ratracer un fil historique de l'avenement du la notion de la qualité de vie (§ 1.1).

1.1. Sens de la qualité de vie

Déterminer les indicateurs de la qualité de vie demeure une préoccupation majeure à laquelle ne peuvent, désormais, pas se soustraire les recherches universitaires traitant de la gestion et du développement territorial. Il faut remarquer qu'une telle détermination n'est pas mécanique. Elle demeure une « approche » ou une « perception souvent subjective qui diffère d'une personne à une autre et d'un espace à un autre, et dont « l'objectivation », et partant, son « universalisation » demeure un exercice difficile et périlleux (Contrairement à l'OCDE qui aurait souhaité établir un indicateur objectif, solide et universel de la qualité de vie.).

La qualité de vie engendre plusieurs indicateurs dont la liste ne cesse d'être alimentée (mais par une espèce de capitalisation des indicateurs existants) d'année en année. Il existe des institutions, organismes et agences à l'échelle nationales et internationale qui définissent la qualité de vie.

Comme la qualité de vie se définit à travers les indicateurs qu'elle retient, les définitions qui lui ont été attribuées se distinguent par la nature des variables choisie pour la refléter. Or les vocables utilisés sont aussi divers que la qualité de vie, le bien-être, le confort ou le bonheur.

De point de vue marketing urbain, deux choix sont opérés quant à la terminologie : d'une part, et pour traduire la qualité de vie, on parle beaucoup de l'attractivité vis –à-vis des citoyens et, d'autre part, pour des soucis de sa déclinaison, on préfère soit la notion de batterie d'indicateurs (pour le suivi des politiques publiques), soit la notion de tableau bord (en vue de rappeler des points de repère, sensibiliser, alerter et surtout prendre des décisions locales appropriées) (Degron, 2010). Les américains, en inventant dès les années 1950 le concept *« the american best way of life »*, préfèrent le terme bonheur en vue de laisser le citoyen lui-même l'apprécier au lieu des scientifiques ou politiciens.

Dans ce qui va suivre, nous serons indifférents d'utiliser tel ou tel terme.

D'aucuns doutent de l'existence d'une définition de la qualité de vie communément admise (WHOQOLgroup, Kuyken, 1995) au sein de la communauté scientifique tous champs disciplinaires confondus, quoique le terme demeure récurent et à une grande échelle, essentiellement dans les discours politiques (Bech, 1987; Mercier, Filion, 1987 ; Spitzer, 1987*)*. Les tentatives de définition (oh ! combien massives) sont à chercher plus dans la tradition anglo-saxonne que dans le monde francophone puisque les dimensions qui composent la qualité de vie ne sont pas interprétées en français de la même façon qu'en anglais.

En revanches, des institutions internationales comme l'Organisation Mondiale de la Santé (OMS) ont tenté définir la qualité de vie comme « *la perception qu'a un individu de sa place dans l'existence, dans le contexte de la culture et du système de valeurs dans lesquels il vit, en relation avec ses objectifs, ses attentes, ses normes et ses inquiétudes. Il s'agit d'un large champ conceptuel, englobant de manière complexe la santé physique de la personne, son état psychologique, son niveau d'indépendance, ses relations sociales, ses croyances personnelles et sa relation avec les spécificités de son environnement* » (OMS, 1994). D'ailleurs, la majorité des théoriciens (Leplège, 2001; Rejeski, Mihalko, 2001), institutions et presses (Ipsos, 2008) internationales soulignent la multi dimensionnalité du phénomène dans la mesure où le concept englobe aussi bien l'état physique, l'équilibre psychique, la situation environnementale que l'aisance matérielle.

La littérature très abondante développée dans ce sens s'inscrit dans deux approches complémentaires, en l'occurrence l'approche liée à la santé et l'approche rattachée à l'environnement.

Sous une optique de situation environnementale (Mercier, 1994), la qualité de vie signifiait une panoplie de standards d'une vie confortable, standards supposés tous être objectifs comme la réduction du nombre de délits et de délinquants, la diminution du taux de pollution en termes de gaz à effet de serre, pollution sonore ou visuelle, la limitation de l'étendue des nuisances, l'augmentation des revenus et la multiplication de leurs sources, l'élargissement de l'ampleur du confort matériel, etc.

Or, très vite les différentes études (Irwin, Kamman, Dixon, 1979) menées sur le terrain ont fait ressortir deux constats majeurs qui vont battre en brèche l'objectivité stricte de la qualité de vie :

Primo, il n'existe pas de corrélation forte entre les standards objectifs et le bonheur quotidien des citoyens ;

Secundo, il n'existe pas toujours de corrélation entre une évaluation externe et une évaluation interne de la qualité de vie des individus.

Aussi, une nouvelle lecture subjective s'impose-elle de plus en plus dans la mesure de la qualité de vie.

Sous une optique de santé, il faut dire que le monde médical était très rigide quant à l'évaluation trop stricte du bien-être en prétendant le mesurer objectivement par le nombre de maladies, de troubles fonctionnels et le spectre des souffrances d'un individu. Il fallait attendre les années 1970 pour intégrer les notions « d'état de santé », de l'utilité et des liens sociaux (Bergner, Bobbit, Pollard, Martin, Gilson, 1976 ; Shea, King-Farlow, 1976), et la fin des années 1980 et au cours des années 1990 pour que les notions de capacités mentales, de liberté, d'indépendance, d'habiletés sociales, de compétences (Katz, 1987), de détresse psychologique, dépression (De Leval, 1995), de stress (Sorensen, 1994), etc., fassent partie intégrantes de la qualité de vie.

Bref, après s'être intéressé pendant longtemps aux variables objectives, le champ médical adopte largement les variables subjectives. Mais, il n'en demeure pas moins que des reproches lui soient adressés en optant pour des expressions souvent à connotation négative (souffrances, troubles, retard mental, détresse psychologique, stress, dépression, etc.) qui auraient traduit beaucoup plus le mal-être que le bien-être.

Qu'elle qu'en soit la mesure, la qualité de vie est un argument de poids de l'attractivité des territoires, alimentant la quasi-totalité des discours des responsables de la gouvernance locale. Encore faut-il savoir quels messages que ceux-ci véhiculent auprès des populations urbaines.

1.2. Mesure de la qualité de vie

La liste des indicateurs de la qualité de vie s'élargit de plus en plus, mais par souci de simplification, ils sont regroupés dans des catégories relativement homogènes. Par exemple, dans la rubrique « Equipements et infrastructures », on peut compter le nombre d'écoles par un périmètre donné, la présence d'une université, le nombre d'hôpitaux, la présence de services publics de proximité, le nombre de transport et de la mobilité urbaine, etc.

Quoique nombreux, les indicateurs de la qualité de vie sont définis selon des méthodes rigoureuses telles que le taux de chômage, le degré de pollution atmosphérique, le taux de participation aux élections, le nombre d'équipement sportifs ou culturels, le salaire net annuel moyen, etc.

Etant pluridimensionnelle, la notion de la qualité de vie pose le problème d'agrégation. A ce niveau, se pose le problème de la pondération des variables retenues et de leur substituabilité. Ces deux questions se posent à deux niveaux : intra et inter variables.

En France, la commission Stiglitz-Sen-Fitoussi (Commission Stiglitz, 2008) a mis en avant huit dimensions de la qualité de vie: conditions de vie matérielles (revenu, richesse …); santé ; éducation ; activités personnelles ; participation à la vie politique et à la gouvernance ; liens et rapports sociaux ; conditions environnementales ; insécurité physique et économique.

La pertinence de la mesure est garantie par une méthode appelée « vignettes » qui permet aux citoyens eux-mêmes de se retrouver le plus proche possible des situations qu'on lui propose, le but étant de ne pas influencer leur caractère optimiste ou pessimiste de l'individu. Cette pertinence est, par ailleurs, confortée par le fait que la qualité de vie est à la fois saisie dans son sens global et déclinée en sous indicateurs pondérés et hiérarchisés. La question de la synthétisation et de la hiérarchisation peut être résolue en proposant aux citoyens de pondérer eux-mêmes les dimensions de la qualité de vie, c'est ce que font les canadiens (Commission Stiglitz, 2008). Ces derniers, après

avoir mis le focus sur les métropoles et après avoir associé très fortement la qualité de vie à la santé des personnes (Sénécal, Collin, Hamel, Huot, 2008), le baromètre de la qualité de vie commence à partir des années 2000 à s'ouvrir, en s'inspirant de l'approche de Richard Florida sur de nouvelles dimensions telles que l'identité, la culture, le poids des artistes, la tolérance (Florida, 2004),

En comparant les pays les uns les autres, nous constatons que les catégories les plus fréquentes sont: équipements et infrastructure ; formation, emploi et revenus ; environnement, climatologie et reliefs ; aménagement territorial ; sécurité des personnes et des biens, etc.

La grande majorité des expériences internationales en matière de la qualité de vie ont été nourries par l'esprit de « maintenant et ici » et rares sont les pays (ou exactement quelques unes de leurs villes) qui ont lié la qualité de vie d'aujourd'hui à celle du futur. Concrètement, il fallait attendre les années 2000 pour qu'une nouvelle philosophie anime les responsable de l'ensemble de la planète, à savoir la soutenabilité (ou le développement durable) qui a entraîné de larges corrections quant au sens à donner à la qualité de vie en insistant sur la nécessité de réunir pour les générations futures des conditions de vie au moins égales à celle des générations actuelles. Dit autrement, il faut que le bonheur d'aujourd'hui ne fasse pas le malheur de demain. Il s'agit, d'une approche par le capital ou les stocks de ressources (Capital physique [comme les outils de production, bâtiments,], ressources naturelles [terres cultivables, ressources minérales, énergétiques et halieutiques, espaces verts, forêts et qualité de l'air, océans propres], capital immatériel [connaissance et techniques, moralité, principes, conscience et civilité]) et de capacités qu'il faut bien réserver aux citoyens futurs (UNECE/OECD/Eurostat, 2008), quoique le bien-être futur de chaque région ou de chaque pays soit fonction des externalités positives ou négatives qui viendrait d'acteurs appartenant à d'autres endroits (le réchauffement climatique n'est-il pas provoqué par le comportement de certains mais dont les méfaits sont subis par d'autres situés dans des régions bien lointaines ?)

C'est ainsi que les batteries d'indicateurs de la qualité sont mises à jour et se projettent de plus en plus dans le futur. Mieux encore, des pays (ou régions) ayant plus de conscience de la durabilité, non seulement intègrent le développement durable dans la mesure de la qualité de vie, mais aussi lui accorde plus de poids.

2. Perception de la Qualité de Vie dans les Grandes Villes Marocaines : Cas de Casablanca, Tanger et Mèknes

2.1. Objectifs et méthodologie de recherche

En 2011, l'hebdomadaire marocain La Vie économique (en collaboration avec Valyans Consulting) a établi un baromètre construit autours de six thèmes (santé [déclinée en : nombre de lits d'hôpitaux pour 10 000 habitants, présence d'un CHU, nombre de médecins pour 10 000 habitants, nombre de personnel paramédical pour 10 000 habitants.], éducation [déclinée en : scolarisation primaire et secondaire, étudiants du supérieur, réussite au baccalauréat], climat et environnement [déclinés en : climat, proximité à la mer, proximité à la montagne, environnement], culture [déclinée en : patrimoine culturel, n'ombre d'écrans de cinéma, nombre de bibliothèques nationales et régionales, nombre de festivals nationaux ou d'envergure internationale], logement [décliné en : disponibilité du logement, prix de l'habitat, équipements] et développement social [décliné en : indice de développement humain, sécurité, taux de pauvreté]).

Ce modèle est fondé sur des critères purement quantitatifs tout en distinguant les grandes villes de moyennes et de petites villes. Il a été promis de mettre à jour ce classement chaque année, mais aucune autre publication ne s'en est suivie.

A nos yeux, c'est une initiative très louable, parce que d'abord elle une première au Maroc, ensuite, elle a emprunté une démarche très rigoureuse et, enfin, on en tire des analyse denses et riches. Nous lui reprochons, toutefois, son caractère strictement quantitatif, sa nature statique (puisqu'il n'intègre pas la soutenabilité des critères de mesure du bien-être) et analyses purement descriptives n'éclairant pas suffisamment les responsables territoriaux sur les mesures à prendre et les actions à entreprendre. S'ajoute à ces remarques le statut institutionnel de la majorité des sources de données. Lesquelles sources ne font pas exprimer les citoyens sur leur perception de la qualité de vie qu'ils mènent, ne

sont pas actualisées et leurs statistiques collectées n'accordent pas suffisamment de poids d'ordre subjectif. Aussi, avons-nous jugé utile d'alimenter un tel modèle.

Ainsi, notre approche a-t-elle consisté à savoir les représentations que se font les citadins des grandes villes marocaines de leur espace urbain tel qu'il est vécu et interprété par eux-mêmes, d'après une enquête menée auprès d'un échantillon de 160 citoyens de la ville Tanger, 96 casablancais et quelques 48 citoyens de la ville de Meknes, un échantillon certes faiblement représentatif aux yeux des statisticiens, mais nous avons voulu mener des investigations approfondies en vue de nous approcher de la vérité. Puisque la prestation urbaine est coproduite entre offreurs et usagers, nous avons décidé d'intégrer des jugements des uns et des autres. Concrètement, et en vue de préserver notre neutralité, nous avons procédé par construire plusieurs indicateurs synthétiques composés par des items qui pourraient être modifiés par les enquêtés.

2.2. Essai d'élaboration d'un baromètre du bien-être dans les grands espaces urbains marocains

Désireux de coller à la réalité du terrain, notre modèle de mesure de la qualité de vie des citadins des grandes villes marocaines est le fruit de:

- la littérature concentrée sur la notion de qualité de vie ;
- l'étude de quelques expériences internationales ;
- les recommandations de la commission Stiglitz ;
- les définitions et directives des institutions mondiales ;
- la recherche exploratoire que nous avons menée auprès des habitants des grandes villes marocaines sur la signification qu'ils se font de la qualité de vie et les différentes rubriques composites.

Ainsi, avons-nous conçu la qualité de vie selon la grille suivante :

Grille de la qualité de vie en contexte urbain

Dimensions	Déclinaisons
Richesse, développement humain et pouvoir d'achat	▪ Dynamique économique ▪ Indice de développement humain ▪ Coût de la vie
Services à la population	▪ Etablissements de formation ▪ Etablissements de santé ▪ Raccordement aux services de base
Logement, transport et fluidité urbaine	▪ Accès au logement ▪ Mobilité urbaine ▪ Aménagement territorial
Climat, espaces verts et pollution	▪ Climatologie et reliefs ▪ Espaces verts ▪ Sources de pollution
Activités culturelles et sportives	▪ Organisation de festivals ▪ Salles de cinéma, espaces de culture ▪ Espaces et salles de sport
Soucis sécuritaires	▪ Sécurité physique ▪ Sécurité de biens et de patrimoine ▪ Sécurité économique
Identité locale	▪ Sentiment de fierté ▪ Tolérance

	▪ Citoyenneté

Conclusion

Au terme de cette recherche, comme les prestations urbaines sont co-produites entre offreurs et usagers (il en est de même pour la responsabilité qui ne peut être que partagée entre eux) et suite aux changements radicaux, en termes de défis et pomesses, qui se profilent à l'horizon des grandes villes marocaines (Haut Commissariat au Plan (HCP), 2004), notre grille de mesure de la qualité perdrait de son utilité si elle ne s'inscrit pas dans une approche dynamique. Au gré du temps, elle est invitée à être hiérarchisée, purifiée ou alimentée.

Les espaces urbains n'étant pas de même taille, la constructuction de cette grille serait probablement ajustée selon la taille des villes marocaines.

Ladite grille n'étant pas une fin en soi, il serait judicieux d'articuler à sa construction la perception que se font les citadins des grandes villes marocaines en les invitant à "noter" chacune des variables qui composent la qualité de vie dans leurs espaces urbains.

En parallèle, notre recherche fournirait matière à réflexion pour nos instituts de statistiques regionales et nationales en vue d'insérer dans leurs enquêtes des questions permettant de savoir la perception que tout un chacun se fait de la qualité de vie et de ses préférences. De tels instituts intervenants de façon périodique (après chaque dix ans!), notre vœu est plutôt de créer un observatoire permanent de la qualité de vie auprès des mairies (ou comunes urbaines) en vue d'étudier le degré de satisfaction de la vie des citoyens dans leur espace urbain. L'objectif ultime étant d'arriver un jour à dégager un débat public et obtenir un consensus sur les aspects de la qualité de vie urbaine tout en opérant des comparaisons entre individus, d'un même individu à travers le temps, entre villes d'un même pays et entre pays.

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Les Facteurs de Développement du Capital Humain des PME : Une Étude de cas Comparative entre les Projets ERP Open Source et Propriétaires

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Abstract

L'objectif de cette recherche consiste à étudier et à comparer les principaux déterminants du développement du capital humain des PME ayant implanté des systèmes ERP open source et celles ayant implanté des systèmes ERP propriétaires/commerciaux. L'étude empirique a été effectuée auprès de dix PME réparties en deux groupes: un groupe de cinq PME avec des systèmes ERP open source et un groupe de cinq PME avec des systèmes ERP propriétaires. Nous avons utilisé deux théories pour élucider notre question de recherche. Les résultats de cette étude indiquent qu'il n'y a pas de différence entre ces deux groupes de PME en ce qui concerne les facteurs de développement de leur capital humain. Les résultats de cette recherche montrent que, dans le contexte d'un projet ERP open source ou commercial, le développement du capital humain est influencé par plusieurs facteurs d'ordre technologique, organisationnel et environnemental. D'après nos connaissances, aucune étude n'avait encore identifié les principaux facteurs de développement du capital humain dans le contexte d'un projet ERP. Nous avons étudié ce phénomène dans deux contextes distincts (projet ERP open source et projet ERP propriétaire), ce qui constitue une de nos principales contributions. Concernant les implications pratiques, cette étude permet aux gestionnaires des PME ayant déployé un système ERP de connaître les principaux déterminants de développement de capital humain, ce qui leur permet de mieux gérer l'évolution de leur système ERP.

Keywords : PME; capital humain; système ERP; Open source; propriétaire

1. Introduction

Les PME occupent une place importante dans la performance économique, financière et industrielle des pays développés. Sous la pression interne et externe croissante, les PME ont besoin, au même titre que les grandes entreprises, de systèmes d'information intégrés tels que les systèmes ERP. À cet égard, on assiste à une expansion rapide des ERP au sein des PME. Cette expansion est causée essentiellement par deux phénomènes : l'avènement des versions allégées des ERP propriétaires et l'émergence des ERP *open source*. Les gestionnaires des PME voulant adopter un système ERP ont ainsi le choix entre les deux stratégies logicielles suivantes: la stratégie logicielle orientée vers les systèmes ERP *open source* et la stratégie logicielle orientée vers les systèmes ERP propriétaires. Les systèmes ERP, qu'ils soient de type open source ou commercial, sont des systèmes d'information extrêmement complexes et difficiles à implanter, car ils intègrent plusieurs domaines fonctionnels sous une seule plateforme technologique. Leur implantation et évolution nécessitent un grand volume de connaissances et d'expertises. Ces connaissances et expertises constituent, d'après la littérature, du capital humain. Le capital humain est un facteur très important pour les phases d'implantation et de post-implantation des systèmes ERP.

Lengnick-Hall et al. (2004) ont émis plusieurs propositions qui mettent en exergue les bonnes actions à entreprendre pour le développement durable de l'avantage compétitif dans le contexte de système ERP en vue du développement du capital humain. Ils soutiennent en effet que les entreprises exploitant le capital social offert par un système ERP pour accroître leur capital intellectuel seront plus performantes que celles qui utilisent le système ERP seulement pour développer leur base de connaissances. La littérature soutient en outre que les communautés *open source* offrent plusieurs opportunités d'apprentissage (d'acquisition et de développement des connaissances et compétences) et de développement du capital humain à leurs membres. L'objectif de cette recherche est donc d'identifier et de comparer les facteurs de développement du capital humain des PME dans le

contexte d'un projet ERP *open source* et celui d'un projet ERP propriétaire/commercial, plus précisément durant la phase d'implantation. Nous avons choisi la phase d'implantation, car c'est la phase où les entreprises font appel à des partenaires externes qui supportent le développement de leur capital humain. Pour ce faire, nous allons d'abord positionner notre recherche par rapport à la littérature dans le domaine de la mise en œuvre des projets de systèmes ERP dans le contexte des PME. Ensuite, nous présentons les fondements théoriques qui nous ont permis de résoudre notre problématique de recherche. Puis, nous exposons notre méthodologie avant de présenter et de discuter les résultats de la recherche. Enfin, nous terminons par une conclusion qui met particulièrement en lumière les principales avenues à la suite de cette recherche.

2. Revue De Littérature

a. PME et Adoption des systèmes ERP

Les PME jouent un rôle vital dans les économies des pays développés et ceux en voie de développement (Fink et Ploder, 2009; Metaxiotis, 2009; Ramdani et Kawalek, 2009). Elles sont néanmoins généralement exposées à un haut niveau d'incertitudes environnementales et subissent des pressions au même titre que les grandes entreprises. En plus de ces incertitudes et pressions environnementales, contrairement aux grandes entreprises, les PME disposent moins de ressources. Pour rester compétitives, les PME doivent par conséquent continuellement innover et évoluer (Thong et Yap, 1994). Dans ce sens, elles ont recours aux outils de SI/TI[i] pour développer leurs marchés, augmenter leurs ventes et leurs chiffres d'affaires, accroître leur profit tout en sécurisant leur position concurrentielle au sein de leur industrie (Thong et Yap, 1994). Par souci de renforcement de leur position d'affaires et leur volonté de construire ou de maintenir leur avantage compétitif, plusieurs PME ont alors changé leur stratégie de SI en adoptant des systèmes d'entreprises, plus précisément des progiciels intégrés communément appelés systèmes ERP (Park *et al.,* 2007; Esteves, 2009).

b. ERP Open Source et ERP commerciaux : deux stratégies logicielles distinctes

Notons que les ERP propriétaires sont développés par des éditeurs privés alors que les ERP *open source* sont développés par des communautés *open source.* La littérature sur les communautés *open source* montre que le réseau social derrière le modèle de développement des logiciels libres est très différent de celui du modèle de développement des logiciels propriétaires. Cette différence se manifeste au niveau de plusieurs aspects importants comme, par exemple, au niveau (1) des objectifs primaires, (2) des mécanismes et processus d'apprentissage, (3) des modes de fonctionnement, (4) de la structure des relations sociales entre les membres du réseau, particulièrement des liens sociaux entre les utilisateurs finaux et les programmeurs, (5) de la perception de la propriété des connaissances (une propriété privée vs une propriété publique) (Hemetsberger et Reinhardt, 2006; Valintino-Couros, 2006; Wu *et al.,* 2007). Les communautés *open source,* supportant le développement des ERP, offrent en outre plusieurs opportunités d'apprentissage (d'acquisition et de développement des connaissances) (Valintino-Couros, 2006) et, surtout, de développement du capital humain (Wu *et al.,* 2007) à ses membres (actifs ou passifs).

c. Implantation de système ERP : un processus de développement du capital humain

Un système ERP est un ensemble de modules logiciels dont chacun couvre un périmètre fonctionnel spécifique partageant une même base de données commune (Xue *et al.,* 2005). D'après Wang *et al.* (2007), un projet ERP est un processus intensif de transfert de connaissances et la réussite d'un projet ERP repose sur le transfert de connaissances des partenaires externes aux ressources internes de l'entreprise cliente (i.e., l'entreprise mettant en œuvre le projet ERP). L'implantation d'un système ERP nécessite ainsi un grand volume de connaissances diversifiées, de compétences tout comme d'expertises métier et techniques, très spécifiques (Timbrell et Gable, 2002; Li *et al.,* 2006). Ces ressources intellectuelles représentent, selon Bontis (1998), du capital humain. Cabrera et Cabrera (2005) notent que le capital humain représente le stock de connaissances d'une organisation. Plusieurs auteurs soutiennent que le capital humain est une des principales sources d'avantage concurrentielle de cette ère numérique (Cabrera et Cabrera, 2005; Snell *et al.,* 1996; Hayes, 2003; Bontis, 1998). D'après Lengnick-Hall et Lengnick-Hall (2006), pour tirer un avantage compétitif à

partir de leurs systèmes ERP, les organisations ont besoin d'un vaste réservoir de talent, autrement dit, l'appui d'un vaste réseau de connaissances et d'expertises accessibles.

Vu que le capital humain est source d'avantage compétitif, cette recherche a pour but d'explorer les différents facteurs du développement de capital humain des PME dans deux contextes distincts : le contexte d'un projet ERP open source et celui d'un projet ERP propriétaire/ commercial.

3. Fondements Théoriques

Bien que la plupart des efforts de recherche sur les ERP soient en grande partie de nature descriptive avec très peu d'explications théoriques convaincantes (Tomblin, 2010), il est fondamental de mentionner cependant qu'il existe des théories ou méthodes pour explorer les principaux déterminants de développement du capital humain des PME au niveau d'un projet ERP. Ainsi, pour élucider notre problématique de recherche sur le développement du capital humain des PME en fonction de la stratégie logicielle lors d'un projet ERP, nous avons fait recours au cadre théorique TOE (Technologie, Organisation, Environnement) et à la théorie de la diffusion.

a. Le Modèle TOE

Le cadre théorique TOE a été élaboré par Tornatzky et Fleischer (1990). Il a été testé et validé par de nombreuses études dans le contexte de l'adoption des TI dans les PME (Chau et Tam (1997); Ramdani et al. (2009); Scupola (2009), etc.). Souvent utilisé pour étudier les déterminants de l'adoption d'une technologie, ce cadre théorique est, par conséquent, approprié pour explorer les facteurs pouvant influencer un phénomène organisationnel ou social lors de la mise en œuvre d'une innovation technologique comme l'adoption d'un système ERP. Notons que le cadre de Tornatzky et Fleischer repose sur trois éléments (ou contextes) pouvant influencer les processus par lesquels les innovations technologiques sont adoptées: (1) le contexte technologique; celui-ci concerne les caractéristiques ou attributs de la technologie adoptée en soi et leur impact sur le processus d'adoption; (2) le contexte de l'environnement / social; il s'agit de l'arène sociale dans laquelle l'organisation mène ses affaires; et (3) le contexte organisationnel; ce contexte décrit les caractéristiques intrinsèques à l'organisation pouvant avoir un impact sur le processus d'adoption d'une technologie lors des phases d'adoption et de mise en œuvre d'une innovation technologique.

Le cadre TOE a été utilisé dans plusieurs recherches dans le contexte de PME, particulièrement dans le champ de SI. À ce titre, nous pouvons soulever l'étude de Ramdani et Kawalek (2009). Ces derniers ont utilisé le cadre théorique de TOE pour étudier et classifier les différents facteurs ayant un impact sur le processus décisionnel de l'adoption des systèmes d'entreprise tels que les systèmes CRM, SCM, ERP, etc. Ils trouvent que l'adoption des systèmes d'entreprises dans les PME est influencée par deux contextes du cadre TOE: le contexte technologique et le contexte organisationnel. Toutefois, ils ne trouvent aucun impact des facteurs du contexte environnemental/ social sur le processus d'adoption des systèmes d'entreprise. Dans le cadre de cette recherche, nous allons au-delà de la recherche de Ramdani et Kawalek en nous intéressant au développement du capital humain des PME, durant les phases d'implantation et de post-implantation, dans les deux stratégies logicielles : ERP open source et ERP propriétaire. Comme nous l'avons déjà mentionné, l'objectif de cette recherche est de comparer les déterminants de développement du capital humain des PME des deux stratégies logicielles (ERP open source et ERP propriétaire).

Dans cette présente recherche, le cadre TOE de Tornatzky et Fleischer sera utilisé dans le but d'explorer les facteurs de ces trois contextes pouvant avoir un impact sur le processus du développement du capital humain des PME sur leurs systèmes ERP. En somme, cette recherche tente de fournir une meilleure compréhension des contextes (Technologiques, Organisationnels, Environnementaux/Sociaux) ayant un impact sur le développement du capital humain des PME ayant implanté des systèmes ERP commerciaux et celles ayant implanté des systèmes ERP open source.

b. La Théorie de la diffusion

Rogers (1995) a proposé une approche scientifique qui aide à comprendre les facteurs relatifs aux caractéristiques de l'innovation pouvant influer sur l'adoption et sur le rejet d'une innovation (technologique) en mettant l'accent sur l'importance du système social dans le processus d'adoption ou de diffusion de l'innovation. Les recherches utilisant la théorie de Rogers sur l'adoption d'une innovation ont été réalisées dans de nombreuses disciplines différentes telles que la sociologie, l'économie, le marketing, la gestion des opérations et les systèmes d'information (Aloini *et al.,* 2007). Selon la définition de Poutsma et al. (1987) du concept d'innovation, les systèmes ERP sont des innovations technologiques qui regroupent les meilleurs processus d'affaires et pratiques de plusieurs industries (Shiau *et al.,* 2009; Li et Lai, 2007; Swanson, 1994) et qui commencent par la base (Chang *et al.,* 2010). Un système ERP, qu'il soit de type propriétaire ou *open source*, est une innovation technologique de type IIIc (Shiau *et al.,* 2009; Swanson, 1994). Par conséquent, le développement du capital humain d'une PME ayant implanté un système ERP, quel que soit le type, peut, au même titre que le processus d'adoption ou de diffusion d'une innovation, être influencé par les caractéristiques de l'innovation technologique en soi parce que le développement du capital humain se fait dans le même système social au sein duquel se déroulent l'adoption et la mise en œuvre de l'innovation technologique. Rogers (1995) a montré que les caractéristiques importantes d'une innovation telles que perçues par les adoptants potentiels sont: l'avantage relatif (c'est-à-dire l'avantage concurrentiel pouvant être tiré de l'innovation); la compatibilité de l'innovation avec les opérations internes et les systèmes de l'organisation; la complexité (reflétant la compréhensibilité et la convivialité de l'innovation); la 'testabilité' (c'est-à-dire la possibilité de tester une innovation avant son adoption); l'observabilité des résultats.

Une des limites du modèle de Rogers se situe dans son faible pouvoir à expliquer les systèmes humains complexes tels que les relations et les interactions sociales soutenant les échanges ou transferts de connaissances. Pour pallier cette limite, nous combinons, dans le cadre de cette recherche, d'autres théories telles que le modèle théorique TOE de Tornatzky et Fleischer. Premkumar soutient qu'il y a très peu d'études ayant examiné les impacts des caractéristiques technologiques d'une innovation dans le contexte des petites entreprises (2003, cité dans Scupola, 2009). Pour mieux contribuer à l'avancée de la littérature et combler cet écart soulevé par Premkumar, nous utilisons la théorie de diffusion de l'innovation de Rogers dans le contexte des PME afin d'analyser et de comparer l'effet des attributs relatifs à chaque innovation technologique (ERP *open source* et ERP propriétaire) sur le développement du capital humain.

4. Méthodologie

Le but de cette recherche est d'investiguer s'il y a de la différence sur les principaux déterminants du développement du capital humain entre les PME ayant adopté des systèmes ERP open source et celles ayant adopté des systèmes ERP propriétaire. Berrios et Lucca (2006) ont soulevé plusieurs points que doit remplir toute recherche de nature qualitative. Les points soulevés par ces auteurs, pertinents dans la conduite d'une recherche qualitative, se retrouvent dans notre étude. L'approche méthodologique de la présente recherche repose en effet sur les postulats ou axiomes d'une recherche qualitative et empirique (Maxwell, 1996; Strauss et Corbin, 2004; Creswell, 2008; Yin, 2009). Dans cette étude, le choix d'utiliser une méthode de recherche qualitative a été fait sur la base de notre objectif principal qui vise, d'une part, à explorer les déterminants du développement du capital humain dans un projet ERP et, d'autre part, à comparer ces déterminants au niveau du projet d'un projet ERP open source et d'un projet ERP propriétaire. À noter que la recherche qualitative ne consiste pas à établir et à mesurer les relations entre la variable dépendante et les variables indépendantes, ni à tester des hypothèses, mais elle cherche à comprendre un phénomène à l'étude (Bock et Sergeant, 2002).

Plus précisément, nous avons utilisé l'étude de cas comme méthode de recherche. Les chercheurs en sciences sociales, en particulier ceux du champ des SI, ont fait un large usage de cette méthode de recherche qualitative pour examiner des phénomènes contemporains en situations réelles (Dubé et Paré, 2003). Benbasat *et al.* (1987) considèrent que l'étude de cas est la méthode de recherche appropriée lors de l'exploration de nouveaux domaines où peu de théories sont disponibles ou lors de

l'exploration des domaines dans lesquels les recherches et les théories sont à leurs premiers stades. L'intérêt croissant sur des questionnements d'ordre managérial et organisationnel sur les phénomènes relatifs à l'adoption des SI fait que les méthodes de recherche qualitative, plus précisément la méthode d'étude de cas, sont couramment utilisées comme méthode d'enquête et d'interprétation dans le champ de SI (Myers, 1997; Kouki, 2009; Yin, 2009).

La méthode d'étude de cas a été utilisée en effet, d'après Myers (1997), dans plusieurs recherches concernant l'adoption, la diffusion et l'usage des applications TI. Selon Yin (2009), trois éléments ou conditions permettent de choisir l'étude de cas comme stratégie de recherche : 1- le type de question de recherche posée; 2- la portée de contrôle du chercheur sur le phénomène à l'étude; 3-le degré de concentration sur les événements contemporains par opposition aux événements historiques. Par conséquent, nous avons opté pour l'étude de cas multiples comme stratégie de recherche car cette démarche est la plus appropriée pour mener à bien et à terme une étude comme la nôtre (Yin, 2009; Chen *et al.,* 2008), car une étude de cas multiples permet d'étudier un phénomène dans des contextes différents. D'après Miles et Huberman (1994), une étude de cas multiples permet, en particulier, de fournir une compréhension approfondie du phénomène à l'étude et de ses résultats tout en garantissant d'accroître les chances de tester des hypothèses au sujet de ce phénomène. Quant à notre échantillon, composé de deux groupes de PME (un groupe de PME ayant implanté de système ERP open source et un groupe de PME ayant implanté un système ERP propriétaire), nous avons établi les critères suivants pour la sélection des unités: (1) la taille de l'entreprise, c'est-à-dire que les entreprises choisies doivent être enregistrées comme des PME (Scupola, 2009; Kontinen et Ojala, 2011); (2) les PME choisies doivent déployer au minimum trois modules majeurs du système ERP (Jones, 2005; Helo *et al.,* 2008); (3) les PME choisies peuvent appartenir à des secteurs d'activités (Scupola, 2009) autre que le secteur informatique.

Avant de mener l'étude de cas proprement dite, nous avons d'abord fait une étude pilote et, au total, nous avons fait quatre entrevues (deux entrevues avec deux PME ayant déployé des systèmes ERP *open source* et deux entrevues avec deux PME ayant utilisé des ERP propriétaires). La commodité, l'accès facile et la proximité ont été les principaux critères du choix de ces études de cas pilotes (Yin, 2009). Ces entretiens nous ont permis de valider le questionnaire au sein de ces deux groupes de PME distincts et de vérifier la compréhension commune du questionnaire entre ces deux groupes de PME dans le but d'anticiper tout biais causé par le guide d'entretien. Cette activité a duré deux mois et demi. Le guide d'entretien a été élaboré sur la base de : 1) la revue de littérature sur le capital humain; 2) la théorie TOE; 3) la théorie de la diffusion. Le protocole d'entrevue était composé de plusieurs questions divisées en parties en fonction des concepts clés (ou thèmes) de notre problématique. Nous avons utilisé une grille d'entretien pour normaliser la collecte de données au cours des entretiens entre les deux groupes de PME. La collecte de données reposait principalement sur des entretiens semi-structurés. Pour chaque PME, nous avons procédé à une série d'entretiens individuels auprès de deux à trois informateurs. Chaque entretien a duré environ 60 à 120 minutes. Comme Jones (2006), nous avons demandé aux dirigeants[ii] de chaque PME d'identifier les principaux employés ayant été membres de l'équipe de projet ERP (c'est-à-dire, les informateurs clés de l'équipe de projet). Les informateurs ont tous été directement impliqués dans le projet de mise en œuvre du système ERP (voir **Error! Reference source not found.**). Au total, nous avons complété plus d'une vingtaine d'entretiens semi-structurés. Dans l'ensemble, les entrevues des deux groupes de PME ont duré un total de 40 heures (environ 2400 minutes). La majeure partie des entretiens étaient des entretiens face-à-face pour le cas des PME ayant implanté des ERP propriétaires.

Cependant, nous avons fait quelques entretiens téléphoniques pour la collecte de nos données, car nos répondants se trouvaient dans des localités géographiques distantes. Vu la position géographique de certains de nos répondants, nous avons utilisé des applications de vidéoconférences pour faire des entretiens téléphoniques particulièrement dans le cas des PME ayant implanté des ERP *open source*. Notons que nous avons trouvé plus de PME avec des ERP *open source* en Europe qu'au Canada. La rareté des PME avec des ERP *open source* au niveau du Canada peut s'expliquer par le fait de la récente émergence de ces ERP au Canada. Nous avons adopté une méthode de recherche basée sur une approche interprétativiste.

Comme le suggèrent Miles et Huberman (1994), Maxwell (1996) et Yin (2009), une triangulation (ou la multi-angulation) des données a été réalisée avec la mobilisation de multiples sources d'information : les entretiens semi-structurés; les discussions informelles; l'examen des documents

pertinents du projet ERP tels que le cahier de charges, les documents de contrat, les cartographies des processus, etc.

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Les données recueillies, à partir de toutes les sources, ont été classées en fonction des PME (Supyuenyong *et al.,* 2009). Les transcriptions des entrevues faisaient environ quatre cents pages sans compter les documents consultés. En suivant la démarche de Doom et al. (2010) et de Parry et Graves (2008), les noms des sociétés et les noms des informateurs ne sont pas divulgués pour des raisons de confidentialité. Un des groupes de notre échantillon est composé de cinq PME ayant implanté des systèmes ERP *open source* et l'autre groupe est composé de cinq PME ayant implanté des systèmes ERP propriétaires. Les entreprises dénommées *PME A*, *PME B*, *PME C*, *PME D* et *PME E* pour composer le premier groupe de PME. Les cinq entreprises dénommées par *PME F*, *PME G*, *PME H*, *PME I* et *PME J* constituent le deuxième groupe de PME. Soulignons que dans une recherche utilisant une étude de cas multiples, le nombre de cas recommandé par Eisenhardt (1989) est de l'ordre de quatre à dix.

Pour l'analyse des données, nous avons appliqué les stratégies recommandées par Miles et Huberman (1994). Nous avons en l'occurrence élaboré des feuilles-résumés, des codes, des mémos, des tableaux et des matrices pour effectuer nos analyses. Ces stratégies nous ont permis d'extraire les données et de les réduire, autrement dit, de les condenser. L'analyse des données[iii] a été réalisée sur la base d'un codage de l'ensemble des entretiens et, ensuite, par une approche d'analyse de contenu comme celle proposée par Miles et Huberman (1994). Une liste de catégories prédéterminées et de codes a été établie sur la base de la revue de la littérature et des théories utilisées (Scupola, 2009). Cette liste, décrite par Miles et Huberman (1994) comme une liste de départ, a été enrichie durant et après la collecte des données jusqu'à l'obtention d'une liste de codes quasi définitive. Le codage des entretiens s'est fait avec l'appui du logiciel QSR Nvivo 10. Nous avons eu quatre-vingt codes, vingt-cinq catégories et sous-catégories.

Tableau 1: Les principaux répondants de chaque cas

Groupe de PME	PME	Participants (informateurs)
Groupe de PME avec des ERP *Open Source*	PME A	• Directeur du département Informatique • Le directeur-adjoint du département informatique • Directrice des opérations et de R&D
	PME B	• Directeur administratif et des finances (associé) • Directeur et coordinateur TI
	PME C	• Directeur général (associé) • Directeur technique (associé)
	PME D	• Directeur de la production et des Achats; • Directeur technique (responsable R&D et du service après vente)
	PME E	• Directeur technique et responsable TI et de la comptabilité. • Directeur administratif (co-fondateur)
Groupe de PME avec des ERP Propriétaires	PME F	• Directrice du département TI • Directrice du département de crédit
	PME G	• Directeur de l'usine et de la production • Directeur des achats et approvisionnements
	PME H	• Directrice du département TI • Responsable et contrôleur du département de finance
	PME I	• Responsable TI • Directeur des ventes et du marketing
	PME J	• VP des finances • Chef de projet et directrice des analystes financiers

L'analyse des données sur les cas est, d'après Miles et Huberman (1994), composée de trois flux concomitants d'activités analytiques : la réduction des données; l'affichage des données; l'élaboration des tableaux de vérification des conclusions. Les deux procédés complémentaires, la déconstruction et la construction, constituent le fondement de l'analyse qualitative. À la phase de réduction, les données recueillies auprès des PME ont fait l'objet d'une codification. La codification consiste à appliquer un symbole à chaque groupe de mots de manière à réduire les données en unités, plus facilement analysables, et à mettre en évidence les mots les plus significatifs (Huberman et Miles, 1994). Par la suite, sur la base des entretiens, les caractéristiques uniques de chaque PME ont été identifiées et classées dans les tendances observées dans les sous-thèmes issus des questions de recherche.

Les tableaux de synthèse (voir

Tableau 2 et

Tableau **3**) montrent qu'il n'y a pas une différence notable entre les PME des groupes en ce qui concerne les caractéristiques de leurs projets ERP. Cette première étape de comparaison des caractéristiques intrinsèques des deux groupes de PME de notre échantillon, nous a permis de réduire tout biais par d'autres facteurs non liés au phénomène étudié.

Tableau 2: Résumé des cas du groupe de PME avec des ERP open source

	Secteur / produit	Chiffre d'affaires $$$ (Millions US)	Nombre employés	Nombre utilisateurs	Type de système	Nom du système	Pays	Type de stratégie d'implantation	Durée projet
PME A	Vidéo et TV sur IP	5 à 7	50	45	open source	OpenERP V.6.1*	France	Big bang	6 mois (novembre 2008 à avril 2009)
PME B	Ebénisterie architecturale (présentoirs et des étalages de magasins)	10 à 20	91	21	open source	xTuple ERP V.3.7.4*	Canada	Big bang	1 an et 6 mois (janvier 2010 à juin 2012)
PME C	Mécanique/ Intégrateur industriel de machine mécanique	5 et 7	27	20	open source	OpenERP V.6.1*	Suisse	Stratégie graduelle (par module)	2 ans (janvier 2007 à janvier 2009)
PME D	Fabrication automates de comptage des espèces	5	25	20	open source	OpenERP V.5.0.11*	France	Big bang	9 mois (juillet 2010 à avril 2011)
PME E	Fabrication des stations de recharge électrique à libre service et des vélos électriques	4 à 5	17	14	open source	OpenERP V6.1*	Suisse	Stratégie graduelle (par module)	1 an (phase de déploiement du 1er janvier 2010 au 1er juillet 2010 et la phase de migration du 1er juillet 2010 au 1er janvier 2011)

Tableau 3 : Résumé des cas du groupe de PME avec des ERP propriétaires

	Secteur / produit	Chiffre d'affaires $$$ (Millions US)	Nombre employé	Nombre utilisateurs	Type de système	Nom du système	Pays	Type de stratégie d'implantation	Durée projet
PME F	Fabrication et distribution de vêtements et produits sportifs	35 à 40	100	53	Propriétaire	Microsoft Dynamics AX version 2009*	Canada	Big bang	9 mois (du 1er mars 2009 au 1er décembre 2009)
PME G	Fabrication de produits pharmaceutiques naturels et alimentaires	15 à 20	250	50	Propriétaire	Genius ERP V. 3.1*	Canada	Big bang	1 an (début de janvier 2007 au début de janvier 2008)
PME H	Manufacturier/ Fabrication et distribution de produits destinés à la construction et la rénovation	35 à 45	150	80	Propriétaire	Epicor Vantage V. 8.03.408*	Canada	Big bang	1 an (de janvier 2006 à décembre 2006)
PME I	Manufacturier/ Fabrication et distribution de portes architecturales	20 à 25	125	53	Propriétaire	MK-ERP*	Canada	approche graduelle (module)	19 mois (du mois d'avril 2010 au mois de janvier 2012)
PME J	Service/ financement de microcrédits des projets agricoles et forestiers à l'étranger	13 à 18	58	36	Propriétaire	ERP Sage Accpac V.6.0*	Canada	Big Bang	1 an et demi (du mois de mai 2010 au mois de septembre 2011)

5. Analyse des Résultats et Discussion

Plusieurs facteurs (technologiques, organisationnels, environnementaux et sociaux) ont été soulevés par les répondants des deux groupes de PME, comme étant des facteurs significatifs au développement de leur capital humain interne.

c. Contexte technologique

Complexité du système ERP

Les répondants ont jugé que la complexité est le facteur technologique le plus important dans le développement de leur capital humain. Rogers (2005) définit la complexité comme la perception du degré de difficulté relative à l'utilisation et à la compréhension d'une innovation. Cette étude a trouvé la complexité du système ERP (plus précisément de l'architecture, de l'interconnexion des modules et des flux informationnels) comme étant un facteur clé sur le développement du capital humain. Toutes les PME du groupe ERP open source (PME A, B, C, D, E) et celles du groupe ERP propriétaire (PME F, G, H, I, J) ont considéré la complexité de leurs systèmes ERP comme un facteur ayant eu un impact sur le développement de leur capital humain, même si certaines d'entre elles ont trouvé que leurs systèmes ERP déployés avaient des ergonomies très conviviales pour la navigation.

Cependant, elles étaient unanimes sur la complexité de ces systèmes. La complexité rendait difficile la compréhension du système, autrement dit, le développement de leur capital humain. La complexité des systèmes ERP des PME, issues des deux groupes, limitait la capacité de celles-ci à développer des connaissances et des expertises suffisantes leur permettant de pouvoir apporter des modifications majeures. Ceci est en accord avec les conclusions de Robey et al. (2002) indiquant que la complexité d'un système ERP crée d'importantes barrières au développement de connaissances.

De plus, ce résultat est consistant avec la littérature sur les ERP soutenant que le système ERP est le SI le plus complexe à implanter et à faire évoluer (Okoli et Oh, 2007; Li *et al.*, 2006; Lengnick-Hall et Lengnick-Hall, 2004; Pan *et al.*, 2007; Dong-Gil *et al.*, 2005; Soh *et al.*, 2000). Voici quelques propos de gestionnaires ayant mentionné la complexité de leur système ERP:

- « Après, ce qui était plus difficile, c'était la complexité du système ERP de manière générale parce que c'est (qu') à même un outil qui regroupe tout » (Directeur TI, PME E).

- « On savait qu'on avait quand même un ERP qui se situait dans les key one. Donc, il y avait un niveau de complexité assez élevé. Dès le départ, la stratégie était de se munir de consultants [externes] qui allaient nous accompagner dans la configuration du système et puis dans le fond pour pouvoir s'approprier le système » (Directrice TI, PME F).
- « Je pense que c'est trop vaste et trop complexe pour dire qu'on la connaît pleinement » (Directrice TI, PME F).

Quant aux autres caractéristiques des systèmes ERP (tels que l'avantage relatif, la compatibilité, l'observabilité et la testabilité), ces facteurs n'ont pas été jugés importants par les répondants du groupe de PME avec des ERP *open source* et ceux du groupe de PME avec des ERP propriétaires comme étant des facteurs clés ayant un impact sur le développement de leur capital humain. Ainsi, seul le facteur de la complexité a été jugé important par les PME issues des deux groupes. Ceci démontre que, peu importe la stratégie logicielle (*open source* ou propriétaire) adoptée par la PME, un système ERP reste toujours une technologie très complexe à mettre en œuvre et que cette complexité impacte l'apprentissage, le développement des connaissances et des compétences des ressources internes affectées à l'implantation du système ERP.

d. Contexte organisationnel

Plusieurs facteurs organisationnels ont été jugés par nos répondants comme étant des factcurs important dans le développement de leur capital humain.

Soutien / implication de la haute direction

La plupart des PME, issues des deux groupes, ont considéré le soutien de la haute direction comme un des facteurs organisationnels importants dans le développement de leur capital humain. Toutes les PME du groupe avec des ERP *open source* et celles du groupe avec des ERP propriétaires ont mentionné ce facteur, car toutes les décisions majeures du projet émanent des membres de la haute direction qu'il s'agisse de recruter de nouvelles ressources humaines, d'allouer de nouvelles ressources financières pour maintenir la relation avec les partenaires externes ou pour payer les frais de formation pour des certifications, de décharger les membres internes de l'équipe de leurs charges de travail quotidiennes (voir

Tableau 4).

La haute direction peut fournir les ressources nécessaires à la mise en œuvre du système ERP (Thong *et al.,* 1994) aussi bien que celles nécessaires pour le développement du capital humain interne. Elle peut aussi stimuler les échanges et la communication entre les membres d'un projet ERP (Thong, 1999) et créer un environnement favorable à l'adoption d'une nouvelle technologie (Ramdani *et al.,* 2009). Plusieurs recherches ont identifié le soutien de la haute direction comme étant un des facteurs clés de réussite d'un projet de SI tel qu'un projet ERP (Thong *et al.,* 1994; Kale *et al.,* 2010; Yulong, 2011).

Les résultats de cette recherche corroborent les études antérieures sur l'importance du soutien de la haute direction dans la réussite d'un projet ERP (Thong *et al.,* 1994; Ramdani *et al.,* 2009) et, de plus, ils apportent de nouvelles connaissances en ce qui concerne l'importance du soutien de la haute direction dans le développement du capital humain des PME entreprenant des projets ERP. Ainsi, nous n'avons noté aucune différence entre les PME avec des ERP *open source* et celles avec des ERP propriétaires sur ce facteur, car toutes les PME de ces deux groupes ont soulevé ce facteur comme un des facteurs organisationnels ayant affecté le développement de leur capital humain interne.

Expertise TI/ ERP du département informatique

Cette étude trouve que l'expertise TI/ ERP du département informatique des PME est un facteur organisationnel critique au développement du capital humain. Toutes les PME du groupe ERP *open source* ont mentionné que le manque d'expertise TI / ERP de leur département informatique a été un obstacle au développement de leur capital humain interne, plus précisément au développement du capital humain technique. Dans le groupe de PME avec des ERP propriétaires, le manque d'expertise TI / ERP a été soulevé par quatre PME (PME G, H, I, J) comme étant un facteur ayant limité leur capacité de développement de leur capital humain interne. Seule la PME F de ce groupe avait à l'interne une bonne expertise TI/ ERP au niveau de son département et c'était la seule de ce groupe ayant soulevé l'apport positif de l'expertise TI/ERP de son département sur le développement du capital humain organisationnel. Ceci peut s'expliquer par le fait qu'elle était la seule PME à disposer d'assez de ressources au niveau de son département capables d'exploiter les connaissances et expertises partagées par son intégrateur pour développer son capital humain interne.

Ainsi, les PME (du groupe ERP *open source* et du groupe ERP propriétaire (PME G, H, I, J)), ne disposant pas d'assez de ressources au niveau de leur département informatique, étaient limitées au plan du développement de leur capital humain interne, particulièrement au développement de leur capital humain technique. Ceci est consistant avec les études antérieures (Thong *et al.,* 1994) soutenant que les PME ont une faible compréhension de l'informatique et manquent énormément d'expertise informatique à l'interne à cause du manque de personnel au niveau de leur département informatique.

Comme le notent Gutierrez *et al.* (2009), nombreuses d'entre les PME ont ni un responsable informatique ni un département informatique et, par conséquent, leur expertise informatique est faible et dépend des ressources externes de connaissances (consultants ou intégrateurs). Ceci est corroboré par les résultats de nos investigations dans cette recherche. À titre d'exemple, la PME D (du groupe de PME avec des ERP *open source*) et la PME J (du groupe de PME avec des ERP propriétaires) n'avaient pas de département informatique au niveau de leurs structures.

Quel que soit le type de stratégie logicielle adoptée par les PME, cette étude trouve que le manque d'expertise TI / ERP (c'est-à-dire la faible compréhension de l'informatique) est un déterminant, plus précisément un handicap majeur, au développement du capital humain technique des PME des deux groupes.

Planification du projet

La bonne planification du projet regroupe plusieurs éléments tels que la bonne affectation des ressources au projet, une vision globale de l'entreprise claire et motivante, une définition claire des objectifs stratégiques et de la portée du projet ERP, etc. Cette étude trouve que la bonne planification

du projet est un facteur organisationnel affectant le développement du capital humain des PME entreprenant un projet ERP. Quatre PME sur les cinq du groupe d'ERP *open source* (PME A, B, D, E) ont mentionné que la bonne planification du projet ERP a été un facteur important pour le développement de leur capital humain interne. Au niveau du groupe de PME avec des ERP propriétaires, quatre entreprises sur les cinq de ce groupe (PME F, G, I, J) ont mentionné que la bonne planification de leurs projets ERP a été un facteur clé ayant facilité le développement de leur capital humain (voir

Tableau 4).

Par exemple, dans le groupe de PME avec des ERP propriétaires, la PME F avait un plan du projet ERP bien structuré et planifié. Elle avait bien établi les objectifs avant le commencement du projet. Un des objectifs clairs fixés, dès le début du projet, par la haute direction était de développer une autonomie durant la phase de post-implantation vis-à-vis des sources externes de connaissances. Pour cela, les ressources internes de l'équipe du projet de la PME F avaient comme mandat de développer leurs connaissances et des compétences métier et techniques du système ERP.

« Notre objectif était d'être autonome le plus rapidement possible. On savait qu'on avait un tout petit budget pour le support de post-implantation. Durant le projet, on souhaitait seulement acheminer ce qu'on n'était pas à mesure de régler à l'interne vers l'externe [c'est-à-dire l'intégrateur], sinon on voulait absolument le prendre en charge et bien comprendre [le système ERP]» (directrice du département TI, PME F).

Dans la plupart des projets des PME au niveau des deux groupes, nous avons remarqué que les ressources affectées aux équipes chargées du projet étaient des utilisateurs clés ou membres de la haute de direction et avaient de bonnes connaissances des opérations internes de leur entreprise. Quant à la PME H, les ressources affectées au projet étaient déchargées de leurs responsabilités internes afin qu'elles puissent passer plus de temps à collaborer avec les ressources externes, ce qui a permis plus d'interactions. Cette planification du projet a permis aux ressources internes de développer plus de connaissances et d'expertises sur leur système ERP Epicor Vantage. En somme, cette recherche a trouvé que, quel que soit le type de stratégie logicielle (ERP *open source* ou ERP propriétaire), la planification du projet est un facteur organisationnel important au développement du capital humain des PME entreprenant un projet ERP.

Cette étude corrobore les recherches antérieures relatant l'importance du facteur de planification du projet sur la réussite d'un projet ERP (Loh et Koh, 2004), mais, de plus, elle fournit de nouveaux résultats pertinents en ce qui concerne l'importance de la planification du projet au niveau du développement du capital humain des PME entreprenant des projets d'ERP.

Programme de formation

D'après Chen *et al.* (2009), dans la pratique, les entreprises peuvent renforcer (ou développer) leur capital humain (interne) en embauchant de nouveaux employés qualifiés, ou en fournissant une formation suffisante aux employés, ou en motivant les employés avec des incitations attrayantes à partager leurs connaissances. Cette étude trouve que les formations reçues par les PME ont été un facteur clé au développement de leur capital humain interne. Dans le groupe de PME avec des ERP *open source*, les ressources internes de quatre cas entreprises sur cinq (PME A, B, D, E) ont reçu une bonne formation de la part de leurs partenaires externes. Les répondants de ces PME ont jugé que ces formations ont été importantes dans le développement de leur capital humain.

Par exemple, dans la PME A, pour donner la formation aux ressources internes de l'équipe, l'intégrateur a utilisé plusieurs moyens : des manuels, des extraits vidéos (c'est-à-dire des '*Webcast*' et des '*Screencast*'), un guide d'utilisateur et des fiches de procédures, etc. Par les programmes de formation, les partenaires externes transféraient leurs connaissances et expertises et, par conséquent, ils supportaient le développement du capital humain de leurs clients. Selon les répondants de la PME B, la formation technique et les manuels de formation fournis par l'intégrateur ont grandement aidé le personnel TI à comprendre le fonctionnement technique et l'architecture modulaire de leur système ERP xTuple.

Quant à la PME C, elle était la seule entreprise du groupe de PME avec des ERP *open source* n'ayant pas reçu de formation formelle d'un partenaire externe et, aussi, celle qui avait le moins développé son capital humain technique. Elle s'est autoformée en se basant sur les forums, les livres de formation (gratuits) en ligne de l'éditeur OpenERP et les « *launchpad* ». Cette autoformation n'a pas permis à la PME C de développer un capital humain technique pour configurer et paramétrer son système OpenERP en fonction de ses besoins fonctionnels, mais elle lui a permis de comprendre les flux informationnels entre les processus d'affaires des modules, autrement dit, de développer son capital humain métier.

Quant au groupe de PME avec des ERP propriétaires, toutes les cinq PME de ce groupe ont reçu des formations formelles données par leurs partenaires externes. Les répondants des PME de ce groupe ont trouvé que les formations ont permis à leurs ressources internes d'acquérir de nouvelles connaissances (sur les pratiques d'affaires et sur le volet technique) sur leurs systèmes ERP, autrement dit, de développer leur capital humain métier et technique. Certaines PME avaient un plan de formation plus élaboré que d'autres comme le cas de la PME H où, pour chaque département, la formation était donnée en deux phases : une avant le déploiement du module et une après le déploiement du module. Aussi, nous avons remarqué que les partenaires externes donnaient deux types de formations : une formation fonctionnelle sur les pratiques d'affaires (c'est-à-dire sur le volet métier ou affaires) plus donnée aux utilisateurs clés (membres de l'équipe) et une formation technique (sur le paramétrage des modules, configuration du système, etc.) plus donnée aux ressources informatiques (membres de l'équipe). La formation technique reçue par la PME F était plus avancée que celle reçue par les autres PME (issues des deux groupes) parce qu'elle était la seule PME qui voulait développer son propre capital humain technique lui permettant d'apporter des modifications majeures au système.

Voici quelques extraits des propos de gestionnaires mettant en évidence l'importance de la formation :

- « Le système [Microsoft Dynamics], il est assez complexe. Il est presque impossible d'opérer à l'intérieur du logiciel [c'est-à-dire de pouvoir apporter des modifications] sans une formation » (Directrice du département TI, PME F).
- « Vers la fin de la phase d'implantation, on avait gardé du temps de formation plus technique. Moi, je voulais absolument avoir les best-practices de Microsoft pour gérer notre

environnement le mieux possible [c'est-à-dire développer plus de capital humain technique interne] » (Directrice du département TI, PME F).

- « Pour la formation des super-users, il y a eu une bonne formation, ce qui nous a vraiment aidé à mieux comprendre le fonctionnement du système ERP » (Directeur de l'usine et de la production, PME G).
- « On a reçu une formation, avant, pendant le projet et après le projet » (Directrice du département TI, PME H).

Robey *et al.* (2002) ont souligné l'importance de la formation au niveau des projets ERP. Selon eux, dans un projet ERP, la formation peut aider une entreprise à surmonter les obstacles de développement des connaissances relatives à l'assimilation des processus d'affaires et celles concernant la configuration technique du système. L'importance de la formation comme facteur de réussite d'un projet ERP a largement été soutenue par la littérature (Scupola, 2009; Dorobat et Nastase, 2010; Kale *et al.*, 2010; Momoh *et al.*, 2010; Ifinedo, 2011). D'après Wang *et al.* (2007), la formation (formelle) est une forme d'apprentissage guidée dans laquelle le partenaire externe (consultants / intégrateurs ou éditeurs) peut aider l'entreprise cliente à acquérir de nouvelles connaissances et compétences nécessaires pour la réussite d'une mise en œuvre de système ERP d'où, selon ces auteurs, l'importance de sélectionner des partenaires qualifiés avant la mise en œuvre du système afin de profiter de leurs connaissances et expertises.

Cette étude corrobore les études antérieures sur l'importance de la formation à la réussite de projet ERP, mais de plus elle fournit de nouvelles connaissances pertinentes entre la formation et le développement du capital humain des PME dans le contexte d'un projet ERP. Cette étude trouve que la formation est un facteur crucial au développement du capital humain des PME, quelle que soit la stratégie logicielle choisie (l'implantation d'un ERP *open source* ou propriétaire). D'un autre côté, cette recherche appuie les conclusions des études antérieures sur le capital humain (Baldwin et Johnson, 1995; Chen *et al.*, 2009) en ce qui concerne l'apport de la formation dans le développement du capital humain organisationnel. D'après Baldwin et Johnson (1995), la formation permet à une entreprise de prolonger le processus d'enrichissement du stock de son capital humain, en d'autres mots, ces auteurs soutiennent que la formation prolonge l'enrichissement du capital humain d'une entreprise.

Capacité d'absorption

La capacité d'absorption est la capacité d'une organisation, avec ses ressources humaines, d'acquérir, d'assimiler (c'est-à-dire de comprendre et d'interpréter) et d'exploiter les nouvelles informations et connaissances externes. Au niveau de la littérature, plusieurs études ont soulevé l'effet de la capacité d'absorption sur plusieurs dimensions organisationnelles telles que la performance organisationnelle, l'adoption de nouvelles technologies, le transfert des connaissances technologiques (Ko *et al.*, 2005; Matusik et Heeley, 2005; Kwark et Shyn, 2006; Park *et al.*, 2007). Quelques-unes des recherches antérieures (Szulanski, 1996; Ko *et al.*, 2005; Minbaeva *et al.*, 2003) ont particulièrement relaté l'importance de la capacité d'absorption dans le processus de transfert et d'exploitation des flux de connaissances. Le développement du capital humain interne est soutenu par le transfert des connaissances des sources partenaires externes.

Cette étude trouve que la capacité d'absorption est un facteur crucial au développement du capital humain des PME durant la phase d'implantation de leurs systèmes ERP. La majeure partie des PME du groupe *open source* et du groupe propriétaire avaient plus de facilités à acquérir, assimiler et exploiter les connaissances métier (c'est-à-dire les connaissances concernant les pratiques, règles et processus d'affaires) et avaient plus de difficultés à acquérir, assimiler et exploiter les connaissances techniques. Les résultats de cette recherche trouvent que le groupe de PME avec des ERP *open source* ne diffère pas du groupe de PME avec des ERP propriétaires en ce qui concerne leur capacité d'absorption. Exceptée la PME F, nous avons remarqué que les PME des deux groupes avaient plus de capacité à absorber les connaissances métier (ou des pratiques d'affaires) transférées par leurs partenaires externes que de capacité à absorber des connaissances techniques transférées par leurs partenaires externes.

En somme, la majeure partie des PME du groupe *open source* (PME A, B, C, D, E) et propriétaire (PME F, G, H, I, J) avait une capacité d'absorption des connaissances techniques moins élevée que celle des connaissances métier. La source de ce manque de capacité d'absorption des connaissances techniques des PME, des deux groupes, provient du manque de personnel au niveau de leur département informatique (particulièrement de leur faible compréhension de l'informatique). La majeure partie des ressources internes ayant participé aux projets ERP, au niveau des deux groupes de PME, étaient des membres de la haute direction et avaient de bonnes connaissances du métier (c'est-à-dire sur les principales fonctions opérationnelles, sur les processus et pratiques d'affaires) de l'industrie dans laquelle œuvraient leurs entreprises. Ce faisant, ces ressources internes des PME avaient plus de capacité à acquérir et assimiler de nouvelles connaissances métier. Comme la PME A, la majeure partie des PME issues des deux groupes comptaient des gestionnaires au niveau des équipes qui avaient déjà de bonnes connaissances des fonctions opérationnelles.
« Puis, il y avait mon responsable. Il avait une bonne connaissance fonctionnelle des domaines concernés, car il était l'un des fondateurs de la société. Il avait établi le cahier des charges et, donc, il savait ce qu'il voulait et comment il le voulait […] Quand il s'agissait de parler de la partie fonctionnelle, lui [mon responsable], il maîtrisait bien comment ça fonctionnait au niveau de notre entreprise [et au niveau de l'industrie]» (le directeur-adjoint du département informatique, PME A).

Ceci est cohérent avec les résultats de Ravichandran (2005) soulignant que la capacité d'absorption d'une firme est influencée par deux éléments : les connaissances antérieures et les investissements pour acquérir et assimiler de nouvelles connaissances. Concernant les connaissances antérieures, ce ne sont pas les mêmes quand il s'agit de connaissances fonctionnelles (c'est-à-dire des connaissances métier) et de connaissances techniques au niveau des PME. Les résultats de cette recherche appuient les propos de Wang *et al.* (2007) qui indiquent que, dans un contexte d'ERP, les firmes peuvent différer sur leur capacité à absorber et à assimiler de nouvelles connaissances du système ERP. Les résultats de cette étude corrobore la littérature (Kwark et Shyn, 2006) en ce qui concerne l'influence de la capacité d'absorption sur le développement du capital humain, mais de plus ils apportent de nouvelles connaissances en trouvant que, dans le contexte d'un projet ERP, la capacité d'absorption des connaissances métier n'est pas la même que la capacité des connaissances techniques au niveau des PME. Ainsi, nous n'avons noté aucune différence entre les PME avec des ERP *open source* et celles avec des ERP propriétaires sur ce facteur.

Culture organisationnelle

La culture d'une entreprise est l'ensemble des croyances, des idéologies et des normes qui influencent les actions de l'organisation ou son comportement (Jones *et al.*, 2006). Palanisamy (2007) trouve que, dans le contexte d'implantation d'un système ERP, la culture organisationnelle influence les quatre composantes du processus de gestion de connaissances : 1- la création de connaissances, 2-le stockage et la récupération de connaissances, 3-le transfert de connaissances, 4-l'application ou l'exploitation de connaissances. Plusieurs études antérieures ont mentionné l'effet de la culture sur le partage et la gestion de connaissances (Cabrera et Cabrera, 2005) et sur la réussite d'un projet ERP (Soh *et al.*, 2000; Zhang *et al.*, 2005; Jones *et al.*, 2006; Ke et Wei, 2008).

Toutes les cinq entreprises du groupe de PME avec des ERP propriétaires et quatre entreprises du groupe de PME avec des ERP *open source* ont indiqué que leur culture organisationnelle a été un facteur clé du développement de leur capital humain (interne), car les pratiques culturelles de leur structure respective ont encouragé la collaboration, la communication et le partage de connaissances (voir

Tableau 4). Elles ont toutes mentionné que leurs organisations étaient des organisations souples et ouvertes au changement. Seule la PME B a mentionné que la culture organisationnelle était plutôt un frein au développement de son capital humain. Ceci peut s'expliquer en partie par le fait que la PME B était la seule PME, de toutes les PME issues des deux groupes, qui avait auparavant eu un système ERP (c'est-à-dire que la PME B était la seule PME ayant implanté un nouveau système ERP en remplacement de son ancien système ERP désuet). Comme le note la littérature, le système ERP peut modeler et influencer la structure organisationnelle, les processus, les procédures, les politiques, autrement dit, la culture organisationnelle (Lengnick-Hall *et al.,* 2004). La culture organisationnelle de la PME B était toujours ancrée à l'ancien système ERP.

> « Je dirai que ça [la culture] était même un frein. La culture, c'est le plus dur à changer même après quatre ans. Il y a certaines idées reçues qui ne sont pas nécessairement vraies, mais qui sont là. Elles font partie de la culture. Il y a une résistance quand même. Il y a des idées, des façons qui étaient dans l'ancien système ERP ». (Directeur et coordinateur, PME B)

Ce résultat appuie les propos de ODell et Grayson (1997) indiquant que la culture organisationnelle peut, à la fois, être un facteur clé facilitant le partage de connaissances ou un frein. Jones *et al.* (2006) ont trouvé que, dans le contexte d'un projet d'implantation de système ERP, la culture organisationnelle (c'est-à-dire les huit dimensions culturelles) affecte le partage de connaissances des membres de l'équipe en influençant les attitudes associées au partage de connaissances de ceux-ci. Cette étude corrobore les conclusion de Jones *et al.* (2006), mais de plus elle apporte de nouvelles connaissances en ce qui concerne l'effet de la culture organisationnelle sur le capital humain des PME, dans le contexte d'un projet d'implantation de système ERP. Toutefois, cette étude ne décèle aucune différence entre le groupe de PME avec des ERP *open source* et le groupe de PME avec des ERP propriétaires concernant ce facteur.

Qualité de l'équipe chargée du projet

Dans un projet d'implantation des SI traditionnels, l'entreprise peut ne pas recourir aux services des sources externes de connaissances, car elle peut disposer à l'interne de toutes les connaissances et compétences techniques. Ceci n'est pas le cas pour les projets de SI complexes comme les projets de mise en œuvre de système ERP. L'équipe d'un projet ERP doit posséder une grande expertise dans le domaine technique aussi bien que dans le domaine fonctionnel (Loh et Koh, 2004). Les études antérieures (Aloini *et al.,* 2007; Doom *et al.,* 2010) soutiennent qu'une bonne équipe de projet ERP doit être équilibrée en termes de compétences, c'est-à-dire qu'elle doit regrouper des experts internes et externes qui ont des compétences du métier, des connaissances approfondies sur les pratiques et processus d'affaires de l'industrie, et des compétences en TI. Elle doit bien comprendre la stratégie d'affaires (commerciale) de l'entreprise cliente et les modèles d'affaires incorporés dans le système. L'entreprise cliente doit, par l'équipe chargée du projet, disposer d'un capital humain suffisant lui permettant d'accomplir l'intégration fonctionnelle et l'intégration technique du système ERP à implanter.

Vu l'insuffisance de leur capital humain interne, la majorité des PME du groupe de PME avec des ERP *open source* (PME A, B, D, E) et du groupe de PME avec des systèmes ERP propriétaires (PME F, G, H, I, J) ont engagé du capital humain externe dans leur équipe chargée du projet. Excepté la PME C, toutes les équipes chargées du projet du groupe de PME avec des ERP *open source* (PME A, B, D, E) étaient constituées de ressources internes et de ressources externes. Ces ressources externes provenaient des firmes d'experts TI (externes) spécialisées dans l'intégration de système ERP ou des éditeurs. Les ressources externes provenant de ces firmes externes constituaient du capital humain externe pour les PME de ce groupe, car elles possédaient les connaissances et expertises techniques aussi bien que fonctionnelles concernant le système ERP pour lequel elles offrent leurs services d'intégration. L'équipe chargée du projet de la PME C était seulement composée de ressources internes, plus précisément de trois utilisateurs clés et d'aucune ressource externe. Quant au groupe de PME avec les ERP propriétaires, toutes les équipes de projets des cinq cas (PME F, G, H, I, J) étaient constituées de ressources internes (plus spécifiquement de super-utilisateurs) et de ressources externes provenant des intégrateurs.

Dans tous les cinq cas du groupe de PME avec des ERP *open source* et les cinq cas du groupe de PME avec des ERP propriétaires, nous avons remarqué que la plupart des ressources internes des PME membres des équipes du projet étaient des membres de la haute direction provenant de divers départements et avaient une bonne compréhension du métier de leurs organisations, c'est-à-dire une bonne vision et une bonne compréhension des flux informationnels des différents départements de leurs organisations. En ce qui concerne les connaissances des affaires, nous avons constaté que les ressources internes de ces PME disposaient de connaissances métier locales (c'est-à-dire la logique opérationnelle des fonctions de leurs organisations), alors que les ressources externes des intégrateurs (ou éditeurs) disposaient plus des connaissances métier des processus d'affaires incorporés dans le système, autrement dit, la logique opérationnelle se trouvant derrière les modules du système ERP auxquels repose l'architecture du système ERP. Ceci supporte les idées de Loh et Koh (2004) et Jones et Price (2004) qui trouvent que la composition d'une équipe multifonctionnelle est cruciale à la réussite d'un projet ERP. Newell *et al.* (2004) font référence au capital intellectuel pour désigner toutes ces ressources intellectuelles que doivent posséder les membres de l'équipe du projet du système ERP.

> « Le fait d'avoir une équipe pluridisciplinaire a vraiment facilité le projet, car l'information était disponible autour de la table. On n'avait pas besoin d'attendre derrière une personne pour avoir l'information; c'est quelque chose qui a facilité le projet. Les gens autour de la table [c'est-à-dire les ressources internes et les ressources externes] pouvaient ensemble, avec les échanges et les essais, régler les choses tout de suite » (PME G, directeur de l'usine et de la production).

La qualité de l'équipe chargée du projet comprend plusieurs éléments tels que la nomination de leader (ou champion) au projet, la bonne dotation en personnel de l'équipe de projet. La composition des équipes de projet comprend des ressources internes et externes. La qualité de l'équipe chargée du projet ERP a été considérée comme un facteur critique au développement du capital humain par les PME des deux groupes, excepté la PME C. La PME F a formé des petites cellules très restreintes afin de permettre à ses experts internes de profiter des connaissances et des compétences des experts de l'intégrateur. Un expert interne a plus de capacité à absorber de nouvelles connaissances poussées qu'un simple employé. Dans cette étude, nous avons remarqué que les ressources externes des partenaires (intégrateurs / consultants ou éditeurs) n'interagissaient qu'avec le personnel affecté au projet, autrement dit, les ressources internes de l'équipe jouaient le rôle d'intermédiaire entre les partenaires externes et les utilisateurs finaux. Toutes les connaissances et compétences partagées par les ressources des partenaires externes (consultants/ intégrateurs ou éditeurs) étaient transmises d'abord aux ressources internes de l'équipe du projet qui, à leur tour, formaient le reste du personnel (c'est-à-dire les utilisateurs finaux). Dans tous les 10 projets, nous avons remarqué que les ressources internes, membres du projet (autrement dit les experts fonctionnels internes), étaient le socle ou le réceptacle du développement du capital humain des PME. Ceci rejoint les études antérieures sur les ERP (Deltour et Sargis Roussel, 2010) décrivant les experts fonctionnels internes, membres de l'équipe du projet, comme des intégrateurs d'interface, c'est-à-dire les acteurs frontières porteurs des connaissances reçus des partenaires externes. Voici les extraits d'un gestionnaire de la PME A ayant souligné le rôle clé des experts fonctionnels internes dans le développement du capital humain organisationnel.

> « Les partenaires externes n'avaient pas de contacts directs avec les utilisateurs [finaux]. Ils avaient un contact direct entre moi et mon responsable [c'est-à-dire avec le directeur-adjoint et le directeur du département informatique]. Moi et mon responsable, nous avons récupéré plein de connaissances parce qu'on a fait l'intégration avec eux [les consultants] que ce soit des connaissances fonctionnelles ou techniques » (Le directeur-adjoint du département informatique, PME A).

« Aujourd'hui, en personne, à l'interne, il n'y a que moi en fait qui est à mesure de faire des choses avancées sur notre système OpenERP en termes de connaissances. » (Le directeur-adjoint du département informatique, PME A).

e. Contexte environnemental et social

Dans cette partie, nous allons analyser les facteurs environnementaux ou sociaux jugés importants par les répondants dans le développement de leur capital humain.

Expertise TI/ ERP des partenaires externes

Comme le notent Bessant et Rush (1995), dans le contexte SI tel que le contexte d'un projet de mise en œuvre d'un système ERP, le développement de la capacité technologique d'une PME se fait avec le support (ou l'aide) des partenaires externes (consultants / intégrateurs ou éditeurs) qui sont les principales sources de connaissances externes. Une des particularités des projets SI de type III (contrairement au projet de mise en œuvre d'une innovation technologique de type I, II) est qu'ils nécessitent une grande expertise technique aussi bien que métier (Shiau *et al.,* 2009) dont les entreprises, surtout les PME, ne disposent pas à l'interne. Ceci explique la nécessité de recourir à des partenaires externes de connaissances disposant des ressources intellectuelles (c'est-à-dire des connaissances, compétences et expertises) nécessaires. Plusieurs études antérieures (Thong *et al.*, 1994; Ramdani *et al.,* 2009; Ifinedo, 2011) ont trouvé une relation positive de l'expertise externe sur la réussite de projet ERP. Thong *et al.* (1994) trouvent que, dans le contexte d'une mise en œuvre d'un système ERP au niveau des PME, la qualité de l'expertise externe en SI est d'autant plus importante que le support / implication de la haute direction à la réussite du projet. Les projets de SI nécessitent des compétences techniques et métier que la plupart des gestionnaires des PME ne peuvent fournir (Thong *et al.*, 1994).

Toutes les cinq entreprises du groupe de PME avec des ERP *open source* (PME A, B, C, D, E) ont soulevé l'importance de l'expertise ERP de leurs partenaires externes sur le développement de leur capital humain interne. La PME C, à un moment donné, a fait appel à un intégrateur pour configurer son système OPenERP. Après quelques mois, les deux dirigeants ont vu que l'expertise TI/ ERP de cet intégrateur n'était pas si élevée. Ils ont fait appel à un deuxième intégrateur qui disposait d'une très bonne expertise TI/ ERP. Ce deuxième intégrateur a bien réussi à faire l'intégration technique et fonctionnelle du système, mais de plus, il a soutenu le développement du capital humain interne de la PME C. Depuis quelques années, cette dernière s'est associée à ce deuxième intégrateur pour donner des services de consultation auprès des entreprises, œuvrant dans le même secteur d'activités (c'est-à-dire l'industrie mécanique), entreprenant un projet de mise en œuvre d'OpenERP. Quant au groupe de PME avec des ERP propriétaires (PME F, G, H, I, J), elles ont toutes soulevé le rôle clé de l'expertise TI/ ERP des partenaires externes au développement de leur capital humain interne métier aussi bien que technique. La PME H était obligée de changer d'intégrateur parce que celui-ci avait un différend avec l'éditeur du système et ne pouvait plus continuer le projet de mise en œuvre du système ERP Epicor Vantage (c'est-à-dire donner des services de consultation). La PME H a fait appel à une deuxième firme d'intégrateurs qui était moins compétente que le premier intégrateur, autrement dit, l'expertise TI/ ERP du deuxième intégrateur était faible par rapport à celle du premier intégrateur, ce qui a obligé la PME H à trouver un troisième intégrateur ayant une expertise TI/ERP suffisante.

> « Le nouveau partenaire n'était pas capable de répondre adéquatement à nos demandes [nos requêtes]…. Il n'avait pas les mêmes compétences que le premier partenaire » (Directeur du département de finance, PME H).

Les partenaires externes (consultants / intégrateurs ou éditeurs) peuvent posséder une grande expertise technique du système ERP qui est le résultat de l'accumulation des expériences tirées de leurs mandats antérieurs (Jones, 2005). Nous n'avons noté aucune différence entre les PME du groupe d'ERP *open source* et celles du groupe d'ERP propriétaire, car toutes les PME de ces deux groupes ont mentionné l'importance de l'expertise TI/ ERP sur le développement de leur capital humain interne. L'expertise TI/ ERP est cruciale non seulement pour l'intégration technique et fonctionnelle du système ERP, mais de plus elle est cruciale pour le développement du capital humain interne des PME. Ce résultat corrobore les études antérieures (Thong *et al.*, 1994; Ramdani *et al.*, 2009; Ifinedo, 2011) ayant indiqué l'influence de la qualité de l'expertise TI/ ERP des partenaires externes sur la réussite d'un projet ERP, mais de plus, il apporte de nouvelles connaissances en trouvant la relation de l'expertise TI/ ERP des partenaires externes et le développement du capital humain des PME. La qualité de l'expertise IT/ ERP des partenaires est déterminante dans le développement du capital humain des PME parce que, comme le notent Timbrell et Gable (2002), les partenaires externes (consultants/ intégrateurs ou éditeurs) sont des pourvoyeurs de connaissances aux entreprises clientes, c'est-à-dire qu'ils peuvent fournir l'expertise (métier ou technique) nécessaire ou orienter l'approvisionnement des connaissances aux entreprises entreprenant un projet ERP.

Le tableau

Tableau 4 résume les principaux facteurs clés de développement du capital humain des PME avec des ERP open source et celles avec des ERP commerciaux : 1-le soutien de la haute direction; 2-la complexité, 3-l'expertise TI/ERP du département informatique, 4-implication des utilisateurs finaux au projet; 5-la bonne planification; 6-la formation; 7-la capacité d'absorption; 8-la culture organisationnelle; 9- la qualité de l'équipe chargée du projet; 10-l'expertise (TI/ERP) des partenaires externes.

Tableau 4: Facteurs clés de développement du capital humain des deux groupes de PME

Groupe	Groupe de PME avec des ERP *open source*					Groupe de PME avec des ERP propriétaires				
PME / Facteurs clés	PME A	PME B	PME C	PME D	PME E	PME F	PME G	PME H	PME I	PME J
Soutien/implication de la Haute Direction	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Complexité	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Compatibilité	-	-	-	-	-	-	-	-	-	-
Avantage relatif	-	-	-	-	-	-	-	-	-	-
Testabilité	-	-	-	-	-	-	-	-	-	-
Observabilité	-	-	-	-	-	-	-	-	-	-
Expertise IT/ERP du département informatique	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Implication et la participation des utilisateurs finaux dans le projet	-	-	-	-	-	-	-	-	-	-
Bonne planification du projet	✓	✓	-	✓	✓	✓	✓	-	✓	✓
Programme de récompenses ou de compensations	-	-	-	-	-	-	-	-	-	-
Programme de formation	✓	✓	-	✓	✓	✓	✓	✓	✓	✓
Capacité d'absorption	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Culture organisationnelle	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Qualité de l'équipe chargée du projet	✓	✓	-	✓	✓	✓	✓	✓	✓	✓
Expertise TI/ ERP des partenaires externes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

6. Conclusion

Le taux d'échec des systèmes ERP est de l'ordre de 40 à 60 % (Umble *et al.,* 2003; Li *et al.,* 2006), malgré l'expérience accumulée par les sources externes (consultants et éditeurs) (Ko *et al.,* 2005) sur ce type de projet. La littérature soutient fortement que le système ERP est un système très complexe à implanter et à faire évoluer (Soh *et al.,* 2000; Lengnick-Hall *et al.,* 2004; Ko *et al.,* 2005; Li *et al.,* 2006; Okoli et Oh, 2007; Pan *et al.,* 2007) et nécessite une variété de connaissances, de compétences autant techniques que métier. Ces ressources intellectuelles requises, pour son implantation et la gestion de son évolution, constituent du capital humain. Même si les communautés *open source* offrent plus d'opportunités de développement du capital humain à leurs membres (Wu *et al.,* 2007) que celles supportant le développement des ERP commerciaux, les résultats de cette recherche montrent que les facteurs affectant le développement du capital humain des PME avec des ERP *open source* sont similaires à ceux affectant le développement du capital humain des PME avec des ERP propriétaires.

Les résultats de cette recherche montrent aussi que le développement du capital humain, dans les contextes de projets ERP open source et propriétaire, est influencé par plusieurs facteurs d'ordre technologique, organisationnel et environnemental. La complexité du système ERP a été l'unique facteur technologique trouvé dans cette recherche ayant un impact sur le développement du capital humain interne des PME, quelle que soit la stratégie logicielle (ERP open source et propriétaire). Ceci s'explique par le fait qu'un système ERP, qu'il soit *open source* ou propriétaire, reste toujours l'un des SI les plus complexes à implanter. La complexité des systèmes ERP a été soulevée dans plusieurs études antérieures sur les ERP (Okoli et Oh, 2007; Li *et al.,* 2006; Lengnick-Hall et Lengnick-Hall, 2004; Pan *et al.,* 2007; Dong-Gil *et al.,* 2005; Soh *et al.,* 2000). En ce qui concerne les facteurs organisationnels, cette recherche en a trouvé plusieurs ayant un impact sur le développement du capital humain interne des PME, quelle que soit la stratégie logicielle (ERP open source et propriétaire) : le soutien / implication de la haute direction; l'expertise TI/ ERP du département informatique; la planification du projet; la formation (c'est-à-dire le programme de formation); la capacité d'absorption; la culture organisationnelle; la qualité de l'équipe chargée du projet. Pour le facteur concernant la capacité d'absorption, nous avons trouvé que les PME, quelle que soit leur stratégie logicielle, avaient deux types de capacité d'absorption : la capacité d'absorption métier (c'est-à-dire la capacité d'absorber et d'intégrer les connaissances métier) et la capacité d'absorption technique (c'est-à-dire la capacité d'absorber et d'intégrer les connaissances techniques).

Cette recherche a également trouvé que la capacité d'absorption technique des PME, quelle que soit leur stratégie logicielle, est moins élevée que la capacité d'absorption métier des PME. Ceci s'explique aussi par le fait que les PME avec des ERP *open source* et celles avec des ERP propriétaires n'ont pas assez de ressources humaines au niveau de leurs départements TI pour absorber les connaissances et expertises que partagent leurs partenaires externes durant le projet ERP. En ce qui concerne le contexte environnemental, nous avons trouvé un seul facteur ayant un impact sur le développement du capital humain interne des PME, quelle que soit leur stratégie logicielle: l'expertise TI/ ERP des partenaires externes. En somme, cette étude montre que le développement du capital humain interne des PME, quelle que soit leur stratégie logicielle est influencé par les trois contextes: le contexte technologique, le contexte organisationnel et le contexte environnement/ social. Les contributions de cette recherche sont multiples.

Concernant les contributions théoriques (Whetten, 1989; Corley et Gioia, 2011), on note que la plupart des recherches sur le système ERP manquent de fondements théoriques (Robey *et al.,* 2002). Nous avons contribué à l'extension de la théorie de Rogers et du modèle théorique TOE dans le champ du capital humain dans un projet SI/TI aussi bien dans le champ de projet ERP (commercial et open source). La théorie de Rogers nous a permis d'approfondir les connaissances sur les caractéristiques de l'innovation technologique (c'est-à-dire du système ERP) pouvant avoir un impact sur le développement du capital humain des PME. Parmi les facteurs de la théorie de la diffusion de l'innovation, la complexité a été le seul facteur identifié comme étant un facteur clé au développement du capital humain des PME. L'application du modèle théorique TOE dans cette étude a permis d'approfondir les connaissances sur les principaux contextes pouvant avoir un impact sur le

développement du capital humain des PME dans le contexte de systèmes ERP open source et propriétaires.

Cette recherche montre l'existence de plusieurs facteurs clés sur le développement du capital humain des PME durant l'implantation d'un projet ERP. Ceci constitue une contribution empirique de notre étude sur l'avancement des connaissances. En ce qui concerne, les implications pratiques de cette recherche, les analyses de cette étude permettent de tirer des conclusions et des leçons fort intéressantes pour les praticiens (les gestionnaires des PME et les firmes TI spécialisées dans les projets ERP). Vu que le capital humain est source d'avantage compétitif, les gestionnaires des PME, voulant développer leur capital humain pour bien gérer leurs systèmes ERP, doivent se préoccuper des facteurs d'ordre technologique et environnemental, mais doivent surtout porter plus d'attention aux facteurs du contexte organisationnel.

Une des limites de cette recherche se situe sur la composition de notre échantillon. Toutes les PME sélectionnées dans cette recherche se trouvent dans des contextes francophones (Québec, France, Suisse). Toutes les cinq PME avec des ERP propriétaires (PME F, G, H, I, J) sont de Québec, alors que les PME avec des ERP *open source* sont localisées entre la France (PME A, D), le Québec (PME B), la Suisse (PME C, E). Un biais culturel pourrait exister entre les pays européens (Suisse, France) et le Québec. Les futures recherches pourront à cet égard considérer cette limite en prenant des PME localisées dans des contextes anglophones. Plusieurs avenues de recherche se dessinent avec les résultats de cette recherche. L'étude du développement du capital humain dans les entreprises de service TI est une piste future à explorer.

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[ii] D'après Jones (2006), la littérature a montré que les professionnels dans un domaine sont capables d'identifier les répondants clés qui ont l'ensemble des caractéristiques appropriées pour une étude dont ils connaissent.

[iii] Les données ont été traitées et analysées en utilisant le modèle itératif proposé par Miles et Huberman (2003).

Les Communautés de Pratique : Un Catalyseur de l'Apprentissage et l'Innovation Bidimensionnels (Cas des Banques Tunisiennes)

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Résumé

Bien que plusieurs études se soient attelées à l'analyse de la relation communautés de pratique et innovation, la majorité souligne une relation significative entre les deux concepts. Nous avons dans le cadre de ce travail de recherche, essayé de prendre part à ce débat et étudier cette relation en mettant l'emphase sur leurs caractéristiques, leurs orientations cognitives et la démarche d'apprentissage poursuivie. L'objectif de ce travail consiste à comprendre le rôle des communautés de pratique dans le développement de l'apprentissage et l'innovation. L'approche abductive que nous avons adopté, dans le cadre de notre positionnement interprétativiste, nous a permis d'enrichir le cadre conceptuel rattaché à l'innovation au sein des communautés de pratique. En effet, nous avons démontré que les communautés de pratique s'insèrent dans une perspective d'apprentissage adaptatif par accumulation de l'expérience et paraissent peu adaptées à des périmètres évolutifs et se limitent, donc, au développement de l'innovation d'exploitation. Mais contrairement à ce qui a été relevé de la littérature, les enseignements empiriques inhérents à l'analyse de six communautés de pratique, montrent que, les communautés de pratique favorisent essentiellement un apprentissage par exploitation comme elles peuvent atteindre l'exploration. Les constats soulevés montrent aussi que, généralement, ces communautés sont sources d'innovations d'exploitation. Cependant, nous avons constaté certaines exceptions. Dans certains cas, ces structures ne permettent pas l'innovation d'exploitation, quand elles ont comme objet seulement, la résolution des problèmes liés à la pratique. Dans d'autres cas, ces communautés se sont révélées être sources aussi bien d'exploitation que d'exploration de nouvelles solutions.

Mots clés : Communautés de pratique, apprentissage, innovation, banques, Tunisie.

Introduction

La performance des entreprises est le résultat de nombreux facteurs, parmi lesquels leur capacité à innover (Deltour et al, 2014). Les communautés de pratique sont nées du besoin éprouvé par chacun d'échanger et de se regrouper avec ceux qui ont des intérêts et des préoccupations identiques. De fait, son existence se renforce par le constat que la réflexion collective aide à la résolution des problèmes. Elles constituent, ainsi, un lieu de professionnalisation utile aux individus et aux organisations (Panisse, 2004). Les communautés de pratique, paraissent ainsi optimales pour la recherche de l'innovation : elles permettent à travers leurs capacités dynamiques d'apprentissage de reconfigurer les ressources et de s'adapter aux environnements changeants. Nous allons dans ce qui suit définir les communautés de pratique, présenter leur fondement et les objectifs retenus afin de comprendre leur rôle dans le développement de l'apprentissage et de l'innovation.

I- Revue de la littérature

Si la littérature consacrée à l'innovation et l'apprentissage est foisonnante, relativement peu de travaux étudient cette relation spécifiquement dans le cadre des communautés de pratique. Afin de dépasser leur simple description, différents cadres d'analyse peuvent être mobilisés pour comprendre les démarches et les modes de fonctionnement à l'œuvre.

I.1. Les communautés de pratique : un espace identitaire de socialisation

Le vif intérêt suscité aujourd'hui par l'idée de communauté de pratique tient au fait que les entreprises opèrent dans une économie basée sur la connaissance, dans laquelle le principal actif stratégique réside dans les savoirs. Les théoriciens des communautés de pratique, à l'instar de Brown et Duguid (1991, 2001), démontrent que c'est au sein de ces communautés que ces actifs stratégiques se développent le plus vite et le mieux.

La communauté de pratique résulte le plus souvent des insuffisances perçues dans le fonctionnement de l'organisation formelle, ainsi que des limites des compétences du personnel face aux exigences de la direction. Cette situation peut conduire les acteurs issus d'une même spécialisation à nouer des relations informelles afin de résoudre rapidement les problèmes rencontrés et orienter leurs actions sur la base des affinités culturelles ou religieuses (Nkakleu et al., 2004).

I.1.1 Définition du concept

Les communautés de pratique ont été largement analysées et étudiées en tant que nouvelle forme organisationnelle favorisant essentiellement le partage d'intérêts (Davenport et Hall, 2002) et permettant la création de savoirs collectifs. La définition proposée par Lave et Wenger (1990), met l'accent sur l'engagement des individus dans une même pratique impliquant une communication régulière au sujet de leurs activités. Ces derniers cherchent essentiellement à développer leurs compétences dans la pratique considérée (Créplet et al., 2000). Pour Brown et Duguid (1991), et Wenger (2000), elles représentent un groupe informel d'individus qui partage un intérêt, un ensemble de problèmes ou une passion pour un sujet, et qui approfondit ses connaissances et son expertise dans ce domaine en interagissant de manière continue. Ces individus ne travaillent pas nécessairement ensemble mais ils ont une histoire commune liée à leur pratique. Leur existence est informelle, les membres forment spontanément une communauté afin d'apporter des solutions à des problèmes communs ou proposer des améliorations dans une pratique commune (Cappe, 2005). Geynet (2003) les assimilent à des groupes d'individus ayant une même formation professionnelle ou encore concernées par un intérêt commun. Qu'elles soient formelles ou non, les communautés de pratique sont des groupes auto-organisés qui recrutent leurs membres par cooptation (Wenger et Snyder, 2000).

Dameron et Joserand (2005) la définissent comme un groupe auto organisé d'individus partageant le même centre d'intérêt, qui par des interactions régulières, développent des pratiques et expertises partagées dans ce domaine ; et par la même génèrent une identité commune par la socialisation. L'auto organisation se révèle comme une caractéristique essentielle distinguant l'existence d'une communauté de pratique, elle présente la capacité d'un système à acquérir de nouvelles propriétés en s'organisant lui-même ou en modifiant par lui-même sa propre organisation (Brown et Duguid, 1991 ; Lesourne, 1991 ; Wenger, 1998).

I.1.2. Concepts clés et critères d'identification des communautés de pratique

Wenger et Snyder (2000) présentent une communauté de pratique comme une association de trois fondements : un domaine de connaissances définissant un ensemble de sujets à traiter (l'existence d'un sujet présentant un intérêt commun pour un groupe), une communauté de personnes s'intéressant à ce domaine et une pratique partagée qu'ils déploient afin d'agir dans le domaine. D'après Cappe (2005), l'inscription de la communauté dans un périmètre défini permet à ses membres de bénéficier d'une légitimité, autorise et explique sa contribution à la communauté. Cette appartenance assure à la communauté que chaque membre a la connaissance du contexte nécessaire à la compréhension des sujets et des problèmes abordés. De même une vision claire des limites du domaine permet d'une part aux membres de se consacrer précisément et exclusivement à des sujets du domaine sans divergence et d'autre part, d'identifier au sein de la communauté de pratique, l'existence et le développement de compétences sur le domaine défini. Ce même auteur synthétise

neuf critères d'identification des graines de communautés de pratique comme le montre le tableau suivant :

Tableau 1 : Critères d'identification des graines de communautés de pratique (Cappe, 2005, p.8)

Concepts clés des CP	Composants	Critères d'identification des graines des communautés de pratique
Domaine		Sujet d'intérêt commun
Communauté	Entreprise commune	Action volontaire
	Engagement mutuel	Entraide Appréhension commune Connaissance mutuelle
	Répertoire partagé	Outils partagés Histoires
Pratique		Besoin de savoirs similaires Pratique similaire

L'entreprise commune peut, donc, se définir par la pratique que les participants de la communauté partagent en commun, incluant leur processus collectif permanent de négociation du comment mieux faire dans cette pratique. L'entreprise commune est basée sur l'idée que les individus appartenant à une communauté de pratique, s'engagent dans des actions collectives (Habhab-Rave, 2006). L'engagement mutuel suppose un rapport d'entraide entre les participants, nécessaire au partage des connaissances sur la pratique ou de concepts théoriques, notions et idées qui découlent du travail effectué (Lafferière et al., 2006). La notion d'identité, caractéristique clé de l'auto organisation, est visible dans l'engagement mutuel, elle est construite autour des activités comprises de façon commune et continuelle pour garantir la négociation des membres, comme le soulignent Créplet et al. (2003). L'engagement dans des pratiques communes fait ainsi naitre progressivement un répertoire partagé et entretient la construction sociale de significations (Vaast, 2001).

I.1.3. La valeur ajoutée des communautés de pratique

Les communautés de pratique ont une capacité à aider les entreprises à réaliser leur stratégie d'affaire, ouvrir de nouvelles perspectives, résoudre des problèmes, améliorer la transmission des meilleurs pratiques et développer des compétences professionnelles (Wenger et Snyder, 2000). Plusieurs chercheurs (Fontaine et Millen, 2004 ; Wenger et al., 2002) supposent que les communautés de pratique offrent pour l'organisation, une occasion d'échange entre salariés et métiers travaillant sur un même produit ou un même projet. Dans ce cas, elles réduisent le risque de duplication de l'information ou d'efforts permettant de développer des solutions similaires comme l'ont démontré Lesser et Storck (2001). Les chercheurs de CERFIO[1] (2005), soulignent ses bénéfices potentiels : Gains de productivité, apprentissage et innovation, et, explique qu'elles sont généralement reliées à la notion d'apprentissage, considérée comme source possible de gain de productivité et, facteur de motivation et de loyauté, sources indirectes de gain de productivité. Elles constituent un moyen de choix pour le transfert, l'échange et le partage de savoir entre employés expérimentés et novices, un foyer idéal de transmission de valeurs et des façons de faire. L'une des valeurs ajoutées des communautés de pratique, en tant que lieu et moyen facilitant l'échange et la résolution des

[1] Centre Francophone D'informatisation Des Organisations

problèmes, consiste donc à favoriser l'esprit d'innovation et permettre de mieux répondre et plus rapidement aux attentes du marché et celles des clients (Lesser et Everest, 2001).

I.2. Les spécificités du mode d'apprentissage dans les communautés de pratique

Les premiers travaux sur les communautés de pratique s'inscrivent dans le courant situationniste de l'apprentissage mettant en exergue le caractère réciproque de l'interaction dans laquelle les individus, sont considérés comme culturellement et socialement construits (Lave et Wenger, 1991), et par la contingence de l'apprentissage à la pratique (Brown et Duguid, 1991 ; Wenger, 1998).

Pour appréhender l'apprentissage à travers les communautés de pratique, nous allons, mettre l'accent sur les caractéristiques d'une communauté de pratique et, repérer les déterminants et les dimensions de l'apprentissage qui concordent avec ces caractéristiques ainsi que le résultat induit par l'apprentissage.

I.2.1. La pratique : source de structure sociale rattachée à un domaine spécifique

Wenger (1998) appréhende la pratique comme source de structure sociale et l'apprentissage comme une participation sociale où se négocient les significations relatives à l'action. L'engagement dans un processus d'apprentissage dans une communauté de pratique s'explique ainsi par l'acquisition et la création de connaissances étroitement associées à la pratique. Ainsi, ce qui importe dans une communauté de pratique sont les pratiques que développent les membres de la communauté en exerçant leur activité. Le type d'apprentissage développé est ainsi considéré comme un processus d'acculturation des individus à leur milieu (Soulier, 2005). Wenger (1998) utilise la négociation de sens comme caractéristique intrinsèque aux communautés de pratique, à travers une dimension sociale qui présume la conclusion d'un accord entre des individus, et une dimension pratique relevant du savoir-faire qui exige une adaptation aux situations. L'engagement dans une pratique sociale représente le processus fondamental par lequel on apprend et on évolue en tant qu'être humain. La notion d'action est alors, appréhendée en lien avec les pratiques quotidiennes des individus apprenants, engagés individuellement et collectivement dans des activités de résolution de problèmes (Barbaroux et Gode, 2011).

I.2.2. La socialisation : une caractéristique des communautés de pratique et un résultat induit par l'apprentissage

Les communautés de pratique sont assimilées par Lave et Wenger (1991) à des lieux de socialisation où les connaissances tacites sont transmises directement par la pratique. Elles sont considérées comme déterminantes pour faire émerger un apprentissage par la pratique dans l'action. Ils font ressortir un mécanisme d'apprentissage social propre aux communautés, que Cohendet et ses collègues (2006), qualifient d'apprentissage par socialisation indissociable de la pratique dans un contexte social donné d'activités. Un mécanisme qui à leur sens, permet l'échange de savoir-faire tacite socialement localisé (Brown et Duguid, 2001 ; Nonaka et Takeuchi, 1995), et facilité par la construction d'un répertoire partagé de ressources communes (routines, artéfacts, styles…) (Bootz et Kern, 2009).

I.2.3. L'accumulation et le partage des expériences passées : une voie d'apprentissage par ajustement au sein des communautés de pratique

Les expériences passées constituent un déterminant de l'apprentissage (Senge, 1990). Ce qu'un individu apprend dépend fortement de ce qu'il sait déjà mais aussi de ce que les autres savent et croient : c'est dans l'interaction que l'individu se construit et apprend (Leroy, 1998). Les acteurs d'une communauté de pratique recherchent parmi leurs expériences passées, des connaissances qui les amènent à lire les éléments d'une situation et agir d'une certaine façon, c'est ce qu'Argyris et Schôn (2002), appellent la réflexion dans l'action. Dans cette optique, il est possible de considérer l'apprentissage dans et par l'action à travers l'accumulation et l'interprétation des expériences individuelles et collectives détenues par les membres de l'organisation (Barbaroux et Gode, 2011).

Par l'expérience, la répétition ou l'exploitation des régularités (Koenig, 1997), les individus apprennent en améliorant constamment leurs pratiques (Sopranot et Steven, 2006) et tirer des enseignements pour les réutiliser dans des cas similaires.

I.2.4. Les routines statiques : un déterminant de l'apprentissage au sein des communautés de pratique

Dans le cadre d'une communauté de pratique, le maintien au cours du temps des expériences acquises est assuré par l'existence de routines individuelles humaines issues des expériences passées. La littérature fait ressortir les routines comme facteur déterminant dans le fonctionnement des communautés de pratique. Ce constat s'est considérablement enrichi au fil de l'étude exploratoire (2010) que nous avons effectuée. Les résultats dégagés soulignent le caractère statique des routines dans le cadre des communautés de pratique. Ces routines existantes, qui au sens de Fillol (2006) mettent en relief l'influence des expériences passées. La capacité des acteurs à mobiliser les routines statiques est en soi un savoir-faire opérationnel qui joue le rôle de véritables fondements de la communauté de pratique. Les routines, en tant que stocks de connaissances opérationnelles existantes, par leur mise en œuvre quotidienne, coordonnent les expériences passées des membres de la communauté avec son activité présente.

L'apprentissage est ainsi considéré comme une série d'ajustements des routines existantes en réponse aux situations problématiques. La répétition de la logique de résolution de problèmes sur la base de l'histoire et des expériences passées est ainsi privilégiée, dans la mesure où elle permet de réduire le temps de réponse et de faire l'économie d'une activité cognitive assez pesante pour les acteurs (Leroy et Ramanantsoa, 1996).

I.2.5. Optimisation de l'existant et circulation horizontale des connaissances

Depuis les travaux fondateurs de Lave et Wenger (1990), les communautés de pratique ont été avancées comme un lieu de circulation de connaissances tacites à travers l'optimisation des connaissances et compétences existantes pour renforcer les pratiques existantes. Le mode de création de connaissances s'apparente davantage à un mode de conversion de type socialisation (Nonaka et Takeuchi, 1997). La création de connaissances est un résultat largement involontaire (Créplet et al., 2000). Les communautés de pratique se situent clairement dans une logique d'utilisation des connaissances et compétences existantes (Bontis et al., 2002 ; Holmqvist, 2009). Ses acteurs se contentent d'utiliser au mieux les ressources et les compétences existantes dans une volonté de normalisation des comportements, d'anticipation du risque de volatilité des connaissances (Grimand, 2006).

L'apprentissage par exploitation est, décrit par des mécanismes qui améliorent les compétences existantes (Gatignon et al., 2002). March (1991) souligne que, l'exploitation porte sur ce qu'il appelle « the use of known solutions ». Dans cette optique, les communautés de pratique ayant pour objectif le développement des compétences et connaissances existantes propres à l'exercice de la pratique, favorisent un mode d'apprentissage par exploitation. Un mode permettant de construire, renforcer et pérenniser les compétences nécessaires à l'exercice de la pratique considérée (Lave et Wenger, 1990). Ces activités d'optimisation, d'amélioration et d'extension des compétences existantes, ainsi que l'utilisation et le raffinage de la connaissance existante représentent simultanément une caractéristique des communautés de pratique et un pilier d'apprentissage par exploitation.

Bartalier et Dupouet (2008), soutiennent que les communautés de pratique sont orientées vers l'exploitation, assurant une circulation horizontale des connaissances entre entités opérationnelles. Les afflux de connaissances horizontaux des membres sont associés à la connaissance venant de ce qui est égal dans une même structure, comme le soulignent Mom et al. (2006). Ces auteurs avancent que l'échange horizontal de connaissances a lieu entre des divisions, entre des unités opérationnelles et entre des unités d'exploitation. La circulation horizontale de connaissances permet d'améliorer des tâches plutôt analysables, claires et des problèmes associés. L'apprentissage par exploitation sert dans

ce cas, de canal de circulation horizontale des connaissances tacites existantes, essentiellement associées à la pratique.

I.2.6. L'efficacité de la capacité d'absorption dans le cadre des communautés de pratique

Van Den Bosch et ses collègues (1999) soutiennent l'idée que l'efficacité d'une capacité d'absorption touche positivement les adaptations et les activités d'exploitation. Jeremy (2011), souligne que la capacité d'absorption dépend du niveau antérieur des connaissances acquises par l'entreprise et l'importance de la connaissance préalable dans la formation de nouveaux savoirs ainsi que l'amélioration mutuelle de l'apprentissage dans des domaines similaires. Ces enseignements théoriques ainsi que ceux inhérents de notre exploration, mettent en exergue que les communautés de pratique poursuivent essentiellement des tâches d'exploitation. Un champ de l'utilisation de ce qui existe, peut provoquer un manque d'assimilation inhibant à son tour l'adoption de meilleures pratiques, et limitant, le développement de la capacité d'absorption et donc l'apprentissage à l'adaptation. Le travail des communautés de pratique repose sur un répertoire de routines statiques, qui se réfèrent à des stocks de connaissances opérationnelles existantes. Leur mise en œuvre coordonne des expériences passées homogènes qui, désormais, restreignent l'éventail des réponses et affecte de manière directe le degré de développement de la capacité d'absorption de ses acteurs.

I.2.7. Les communautés de pratique : un champ d'apprentissage par exploitation

Le constat que les communautés de pratique représentent une opportunité d'apprentissage par exploitation, s'est considérablement enrichi au fil des paragraphes précédents. D'autres recherches reconnaissent également cette démarcation de l'apprentissage : apprentissage par l'expérience (Koenig, 1997), apprentissage adaptatif (Cyert et March, 1963), routinier à la recherche de l'efficacité par la répétition à l'identique sans remettre en cause les normes et les valeurs de base (Kim, 1993), un apprentissage expérientiel par l'action et la socialisation (Soulier, 2005). Toutes ces qualifications attribuées et caractéristiques relevées renvoient à l'exploitation, que Argyris et Schôn (2002) assimile à la simple boucle d'apprentissage. L'apprentissage simple boucle consiste, lorsqu'un dysfonctionnement est constaté, à réadapter les pratiques à la théorie affichée (Argyris et Schôn, 2002). Il concerne essentiellement la production de connaissances tacites (Leroy, 1998), dont la principale caractéristique est traduite par leur pertinence opérationnelle dans la pratique. Cette voie d'apprentissage est, principalement liée à la révision et l'interrogation des pratiques courantes. Ce processus correctif fait d'ajustements réguliers, amène à les retoucher en fonction de la capacité des acteurs à réduire l'écart entre le résultat et l'objectif. Dans ce cas, les acteurs apprennent dans une succession d'erreurs et d'essais par réplication (Sopranot et Steven, 2006). Il s'agit d'un apprentissage opérationnel où les expériences précédentes prévalent et les solutions adéquates relevant du passé sont réutilisées dans des situations différentes (Levitt et March, 1988). Il suffit là où l'on peut rectifier les erreurs. Une sorte de résolution des problèmes installés dans l'action (Argyris, 1995) répondant aux besoins et l'objectif des communautés de pratique qui sont à la recherche de l'efficacité à travers leur pratique pour une meilleure pertinence opérationnelle.

Les communautés de pratique sont donc, comme le soutiennent Bartalier et Dupouet (2008), orientées vers l'exploitation ayant pour fonction de renforcer les pratiques existantes. Cependant, le caractère adaptatif de la démarche poursuivie favorise un mode d'apprentissage adaptatif (Merindol, 2006). Leurs caractéristiques ne permettent pas d'aller au-delà de l'adaptation, et l'apprentissage par exploitation. Sous l'éclairage de cette analyse, nous postulons que : Les communautés de pratique favorisent le développement d'un apprentissage par exploitation.

I.3. Les déterminants et les types d'innovation dans le cadre des communautés de pratique

Les entreprises sont incitées à innover afin de garantir leur compétitivité (Deltour et al, 2014). La conceptualisation de l'innovation dans une économie fondée sur la connaissance repose sur les capacités et les compétences organisationnelles. Pour innover, l'interaction est avantageuse pour exploiter l'existant et explorer de nouvelles conceptions. Les communautés de pratique semblent

ainsi être plus aptes à supporter ou mieux faire certains des processus fondamentaux d'exploitation (Baslé et Renault, 2004 ; Noteboom, 2006). Nous considérons ainsi que le processus d'apprentissage basé sur l'exploitation est un déclencheur d'innovation à partir des objectifs poursuis par la communauté de pratique.

I.3.1. L'objectif d'efficacité actuelle et le mode d'innovation résultant

Si nous retenons la conceptualisation de l'innovation comme reposant sur les compétences organisationnelles générées au sein d'une communauté de pratique, l'innovation est le résultat de l'agrégation des connaissances et expériences directement praticables dans l'apprentissage et plus particulièrement la résultante de l'exploitation et l'optimisation des compétences existantes. Nous supposons, comme l'indiquent Berson et al. (2006), que l'exploitation porte sur la recherche de la fiabilité. Elle incorpore l'apprentissage de routines standards, le transfert de connaissances existantes et l'adaptation progressive.

I.3.1.1. L'exploitation des expériences passées et l'optimisation de l'existant : source d'amélioration dans les communautés de pratique

Les acteurs d'une communauté de pratique apprennent par l'expérience. L'apprentissage basé sur l'expérience passée est centré sur l'acteur et implique la réflexion personnelle sur une expérience passée. Il fait, ainsi, appel à des activités réelles vécues auparavant résultant d'un apprentissage inférant, opérationnel pouvant s'appliquer à d'autres situations problématiques. L'observation sur l'expérience vécue implique, dans ce cas, l'ensemble des connaissances et compétences existantes sur le plan opérationnel de la communauté. Ce qui permet de réaliser une performance à court terme. La priorité est alors accordée à l'efficacité actuelle. Dans ce cas, la création d'un nouveau savoir (connaissance/compétence) passe au second plan des « best practices » d'hier à aujourd'hui (Szylar, 2006). Son but est de mettre en œuvre d'actuelles compétences plutôt que d'en développer de nouvelles. La simple reproduction des compétences acquises dans le passé ne peut être que source d'amélioration. Une amélioration reposant sur l'efficacité de l'intégration de la compétence existante et servant de base à des décisions pour des fins d'exploitation, d'amélioration des conceptions établies, au-delà d'extension des produits et des services existants. Ces caractéristiques s'appliquent, essentiellement, aux spécificités d'une innovation d'exploitation. Les travaux de Danneels (2002) et ceux de Benner et Tushman (2003) soulignent que, l'innovation d'exploitation est celle qui repose sur l'utilisation des capacités et des routines organisationnelles existantes de l'entreprise. Elle implique l'utilisation des connaissances et compétences existantes dans des processus de production existants, supposant ainsi l'amélioration continue des pratiques et processus via des mécanismes de changements incrémentaux (Noteboom, 2006). Cette conception de l'innovation d'exploitation permet de l'envisager comme une activité qui consiste à employer efficacement les actifs et compétences circulant, nécessaires pour survivre à court terme (Noteboom, 2004).

I.3.1.2. Capacité d'absorption et ampleur de l'innovation

Dans le cadre d'une communauté de praticiens, l'innovation est le fait de l'intérieur, le résultat interne d'un travail collectif d'acquisition de connaissances locales et similaires. La capacité d'absorption des acteurs détermine, ainsi, l'ampleur, la vitesse et la fréquence de l'innovation. En effet, les connaissances et compétences détenues par les acteurs sont essentiellement homogènes axées sur un domaine particulier. Dans cette optique, leur capacité d'absorption peu développée a un impact direct sur la capacité d'innovation. Alors que l'intégration des connaissances fait partie intégrante du processus de développement de nouveaux produits, l'homogénéité des acteurs qui appartiennent à des univers cognitifs communs, et qui partagent un répertoire de connaissances commun, réduit l'ampleur de l'innovation à des résultats mineurs. Szulanski (2000) souligne que le manque d'assimilation peut inhiber le transfert et l'adoption de meilleures pratiques et donc l'apprentissage, au-delà l'innovation.

I.3.2. Stabilité et adaptabilité

L'apprentissage généré au sein d'une communauté de pratique repose sur la répétition et l'adaptation, garantissant une certaine stabilité des routines statiques. Ces dernières forment les compétences d'individus et représentent les règles générales qui constituent la mémoire de la communauté (Reynaud, 2000). L'activité d'une communauté de pratique liée à l'innovation est donc déterminée par certains critères relativement stables pour évaluer les changements proposés dans les routines. L'effort de résolution de problème tombe dans des modèles de routines fixes, anticipées à partir des expériences passées à travers des efforts de résolution de problèmes similaires. Ce mode d'apprentissage moins adapté à des espaces évolutifs, ne peut que contribuer à l'innovation d'exploitation, ayant pour objectif d'introduire des modifications mineures ou épidermiques dans l'offre existante (Liouville, 2009) pour des fins d'adaptation.

I.3.4. Les changements incrémentaux et l'activité d'exploitation au sein des communautés de pratique

L'exploitation désigne ce qui est incrémentale, soient des améliorations sur les designs dominants existants (Nooteboom et al., 2005). Elle implique l'utilisation des compétences existantes dans des processus de production existants et suppose l'amélioration continue des pratiques et processus via des mécanismes de changements incrémentaux (Noteboom, 2006). L'amélioration renvoie ainsi à des changements incrémentaux, à travers lesquels, les acteurs cherchent à s'adapter à l'environnement actuel et maximiser la performance actuelle. Les communautés de pratique en tant que lieu de socialisation, sollicite un apprentissage qui repose sur l'utilisation, le raffinement des connaissances et compétences existantes (Levinthal et March, 1993), la répétition des routines statiques anticipées des expériences passées et la concentration sur la production d'un changement plutôt incrémental (Tushman et O'Reilly, 1996). Ce type d'apprentissage poursuit un objectif d'alignement et d'adaptabilité, impliquant comme le souligne Lennox et King (2004), une correspondance à la connaissance en réponse au statut de l'environnement permettant de générer des améliorations mineures.

L'acquisition de connaissances locales vieilles stimulent l'exploitation (Bennet et Tushman, 2002 ; Katila et Ahuja, 2002 ; Nerkar, 2003 ; Rosenkopf et Nerkar, 2001 ; cité par Mom et al., 2006). Une communauté de pratique cherche donc de préserver le statu quo. Cette recherche de l'efficacité actuelle implique la recherche continue d'améliorations dans un ensemble de conditions initiales où il s'agit d'affiner des produits, processus ou des capacités, existants. En effet, l'exploitation s'appuie sur une structure stable garantissant la réalisation répétitive des opérations, l'apprentissage par exploitation permet d'obtenir des gains à court terme, demeurant peu importants en termes d'innovation. Les modalités de développement des connaissances et compétences revêtent, dans ce cas, les caractéristiques d'une innovation d'exploitation traduite par des simples améliorations incrémentales. Nous admettons ainsi que les communautés de pratique sont sources d'innovation d'exploitation, à travers le développement d'un apprentissage par exploitation. Ses caractéristiques et les modalités d'apprentissage ne permettent pas d'aller au-delà de l'exploitation.

II. Méthodologie

Cette étude qualitative exploratoire s'inscrit dans le paradigme interprétativiste. Nous avons adopté une démarche abductive. Nous avons depuis le début, procédé à des allers et retours entre la théorie et le terrain. Nous avons mené une étude de cas multiples auprès du secteur bancaire Tunisien. Notre exploration a porté sur six communautés de pratique identifiées dans six banques Tunisiennes privées et à majorité étrangère. Ces banques sont caractérisées de porteurs pour l'établissement de ce genre de regroupement informel à travers le développement d'une culture de partage, des interactions sociales, d'une confiance mutuelle et des routines organisationnelles. Nous avons réalisé des investigations en se basant principalement sur la technique de l'entrevue semi directif (avec un premier responsable membre de la communauté), l'observation non participante et la documentation. Et nous avons réalisé une analyse thématique à l'aide de Nvivo 7.

III. Résultats et Discussion : Analyse de la Relation Communautés de Pratique, Apprentissage et Innovation dans les Banques Tunisiennes

Nous revenons tout d'abord sur le mode d'apprentissage pratiqué au sein des communautés de pratique identifiées. Ensuite, nous analysons sa contribution à l'innovation.

III.1. L'appréhension de l'apprentissage à travers les communautés de pratique identifiées

Notre analyse auprès des banques explorées, nous a permis de relever l'existence de six communautés de pratique qui répondent aux critères d'identification soulevés de la littérature. Ces communautés ont montré un fonctionnement conforme aux concepts développés par Wenger. Les membres des communautés de pratique, se fixent des objectifs et cherchent à les atteindre. Ils participent librement à l'activité communautaire en se basant essentiellement sur un processus d'échange volontaire.

III.1.1. Communauté de pratique et apprentissage par exploitation

Les résultats induits par notre analyse, montrent que généralement les communautés de pratique favorisent le développement d'un apprentissage par exploitation. L'exploration des communautés de pratique identifiées permet de réconforter les prédictions théoriques à l'exception d'une seule communauté de pratique (cas 5) dont l'analyse a révélé qu'elle était capable d'atteindre l'exploration en termes d'apprentissage.

Les communautés de pratique, objet de notre étude, définissent leurs objectifs pour une meilleure démarche d'apprentissage comme suit :

- Assurer une meilleure représentation des experts et connaisseurs du domaine ; améliorer la connaissance mutuelle dans la banque (savoir qui sait quoi)
- consolider les connaissances des membres existants
- renforcer les liens interactionnels par le biais de la pratique
- Favoriser le partage d'expériences et des savoirs faire métiers
- Créer des connaissances contextualisées ; augmenter les compétences dans la pratique
- Résoudre des problèmes ; éviter la duplication des erreurs
- Accéder aux connaissances de référence.

L'objectif du regroupement informel est d'être un véritable appui à la banque, afin de contribuer à l'amélioration de sa performance. Dès qu'un problème se présente, l'ensemble des acteurs se mobilisent pour trouver une réponse en fonction de leurs connaissances préalables. La routinisation de leur activité, constitue la forme la plus importante de stockage de connaissances opérationnelles. Ces communautés ont pour vocation d'assurer la convergence entre les intérêts individuels et collectifs, assurer le partage et l'exploitation des connaissances pour rendre plus efficace le processus de socialisation dans lequel les membres sont impliqués. Leurs orientations renvoient à une démarche adaptative d'apprentissage qui vise l'échange de connaissances, d'opinions, de solutions à des situations difficiles rencontrées dans leur domaine de pratique commune. Ceci leur permet de renforcer leurs connaissances existantes pour des fins d'ajustement. Les discussions conduisent à la construction progressive d'une base de connaissances communes leur permettant d'acquérir une compréhension partagée des pratiques du métier.

L'apprentissage sert de canal assurant le partage à petite échelle de connaissances opérationnelles et la réflexion quotidienne sur la pratique commune. Il consiste en un moyen d'adaptation, ou d'exploitation selon la terminologie de March (1991). Les compétences et connaissances inhérentes à des expériences passées représentent ainsi la principale source d'apprentissage dans le cadre de ces communautés de pratique. Un apprentissage réalisé de manière sociale avec l'objectif d'améliorer l'efficacité de l'action collective, de revoir de manière continue son fonctionnement. Il vise la recherche de l'efficacité pratique en répétant régulièrement le même type d'action. Dans cette optique, l'apprentissage renvoie, selon les termes d'Argyris (2002), aux situations où l'on met

en œuvre l'une des stratégies d'action disponible dans le répertoire existant, sans modifier le système d'informations en amont.

III.1.2. La contribution des communautés de pratique à l'apprentissage par exploration

Les communautés de pratique favorisent seulement le développement d'un apprentissage par exploitation comme le stipule la littérature. Cependant, nous avons remarqué que dans le cas 5, on a dépassé cette relation pour remarquer la possibilité d'une exploration même dans une communauté de pratique. Ainsi, il ressort de notre analyse que cette dernière développe aussi bien l'apprentissage par exploitation que l'apprentissage par exploration de nouvelles solutions. En effet, par expérimentation et exploration de nouvelles solutions, les acteurs de la communauté ont orienté leur effort vers l'exploration et ont généré un apprentissage par lequel des données anciennes sont combinées avec de nouvelles données et sont mises en œuvre collectivement dans des actions ou dans la préparation d'actions futures (Charreire, 2002).

Ses acteurs cherchent à apprendre pour augmenter leurs propres connaissances. En dialoguant ensemble de leur pratique, ils connectent des contenus et partagent des ressources afin de s'approprier des savoirs analogues pour enrichir les leurs et les intégrer dans leur pratique de travail. L'animateur de la communauté encourage ses collègues à s'engager continuellement dans la discussion et le partage des idées. Ces acteurs, face à une situation nouvelle, ont cherché non seulement à utiliser les connaissances existantes, mais ont été aussi capables de modifier leurs habitudes de travail. L'apprentissage est, dans ce cas, conçu comme rompant avec les hypothèses préconçues. Ainsi à travers l'engagement visible de ces acteurs ainsi que leur implication, leur participation s'est concrétisée par une production de connaissances nouvelles. Ils sont conscients que lorsque les normes acquises ne permettent plus de répondre à la situation présentée, il faut savoir modifier leur schéma d'interprétation et leur façon de penser. La combinaison des différents corps de connaissances exigent une souplesse de la part de ces acteurs qui ont fait preuve de flexibilité au niveau de leur capacité d'absorption. Le développement de capacité d'absorption (flexible) et leur capacité de rompre avec l'existant explique principalement leur contribution à l'apprentissage par exploration. Notre analyse montre également que l'interaction et l'échange entre la présente communauté de pratique avec une communauté épistémique existante dans le cas exploré (cas 5) favorise le passage d'un apprentissage par exploitation à un apprentissage par exploration.

III.2. La contribution des communautés de pratique à l'innovation

Dans le cadre de notre analyse, nous allons interpréter la contribution des communautés de pratique à l'innovation en mobilisant l'apprentissage qu'elles génèrent. Les résultats empiriques soulèvent que généralement, les communautés de pratique sont sources d'innovations d'exploitation. Cependant, et contrairement à ce qui a été relevé de la littérature, nous avons constaté certaines exceptions. Dans le cas 3, l'apprentissage mobilisé n'a pas été source d'innovation. Dans d'autres cas (2-5), ces communautés se sont révélées être sources aussi bien d'exploitation que d'exploration de nouvelles solutions.

III.2.1. Les communautés de pratique : une source d'innovation d'exploitation

Les banques sous la lumière de la concurrence dynamique, se veulent tournées vers ses acteurs pour s'adapter au contexte mouvant. Tel est le rôle des praticiens au sein des cas d'analyse 1,4, et 6**.** Les acteurs réunis autour d'une démarche de praticiens, poursuivent un objectif cognitif essentiellement orienté vers l'alimentation et la consolidation des meilleures pratiques attachées à leurs champs de compétence. Ils cherchent à faire les choses mieux sans renoncer à leurs préconçus sous-jacents. Dans cette optique, l'apprentissage généré, réfléchie sur le répertoire existant, sans modifier le système de connaissances. Du point de vue des directeurs prescrits, les connaissances et compétences développées suite à l'apprentissage permettent d'accroitre la valeur des produits et services que propose les banques. Des innovations à une échelle réduite,

essentiellement par l'accroissement de ses connaissances et compétences de base. L'innovation en question est, d'après les témoignages avancées, une amélioration incrémentale d'un produit, ou de l'une de ses composantes (caractéristiques fonctionnelles, intrinsèques, extrinsèques pour les cartes…) et qui a remporté un succès commercial rapide. Elle correspondait à l'introduction d'un service sensiblement amélioré sur le plan de ses caractéristiques ainsi que de l'usage auquel il est destiné. Aussi, elle portait sur des méthodes de travail pour mieux gérer les connaissances éparpillées dans chaque département. Ces témoignages appuyés par des exemples corroborent avec l'idée que les communautés de pratique sont sources d'innovation d'exploitation à travers le développement d'un apprentissage par exploitation.

III.2.2. L'apprentissage de la communauté de pratique identifiée dans le cas 3 : un processus non générateur d'innovation

Le directeur interrogé déclare que la résolution de problèmes est au cœur de l'apprentissage, de la pensée et du développement. Selon lui, l'apprentissage éclaircit les idées et les pensées des acteurs. Il considère que toute connaissance générée suite à l'apprentissage peut être source d'innovation. Néanmoins, cette perception ne reflète pas la contribution de la communauté de techniciens identifiée en matière d'innovation, dont l'activité est essentiellement axée sur la correction des erreurs. L'innovation ne fait pas partie de ses priorités et ses acteurs ne visent aucunement l'innovation comme objectif cognitif. L'apprentissage servait donc de simple moyen de résolution de problèmes et de réduction de la duplication des erreurs commises dans le passé. La communauté représente plutôt un système d'alerte permettant de démultiplier la capacité de ses membres à trouver des solutions aux réponses et à identifier qui sait quoi pour obtenir la réponse à leur question.

L'affaiblissement de l'apport de l'apprentissage s'explique, également, par un effort d'animation insuffisant, de plus que la communauté s'adresse à un nombre restreint d'acteurs. Nous pouvons ainsi déduire que les communautés de pratique ne sont pas sources d'innovations d'exploitation, si elles ont comme objet seulement, la résolution des problèmes liés à la pratique.

III.2.3. Les communautés de pratique : un générateur d'innovation bidimensionnelle

L'analyse des données révèle que dans le cadre des communautés de pratique identifiées dans les cas 2 et 5, les experts du domaine sont dotés d'une critique imaginative et innovatrice. L'innovation est un objectif cognitif visé. Elle commence par l'apprentissage de l'existant, comprendre les atouts de l'existant et agir pour apporter des améliorations.
Ces dernières portent sur des produits existants mais faisant la différence avec la concurrence. Les acteurs, observent, s'inspirent des modes de fonctionnement des autres banques, pour ajuster l'offre à la demande dans le contexte Tunisien. Sous l'effet de l'expérience, les membres de la communauté, cherchent à combiner des données anciennes avec d'autres nouvelles. Ces communautés étaient ainsi capables de proposer de nouvelles idées qui ont mérité l'attention de la direction. Cette connaissance nouvelle issue de la pratique été étudiée, ajustée et retenue par la direction vue son originalité.
Passionnés par leur domaine de travail, les acteurs des présentes communautés ont mobilisé toutes leurs compétences et connaissances acquises et assimilées pour évoluer dans l'entreprise. Ils ont cherché à reconnaitre de nouvelles connaissances, les assimiler et les appliquer à des fins commerciales. La flexibilité de leur capacité d'absorption a permis de générer de nouvelles connaissances. La représentation qu'ils ont fait de l'innovation ne s'est pas conformée à une logique d'exploitation. Ils ont réussi à proposer une nouvelle offre sur le marché. Ces explorations leur ont permis d'être incomparables aux autres banques. Elles n'ont pas cessé d'être améliorées par les membres de la communauté par recherche, optimisation et approfondissement de la base de connaissances. Il s'avère de ce fait que les communautés de pratique peuvent dépasser l'innovation d'exploitation pour atteindre l'exploration de nouvelles solutions. Ceci s'explique par leur volonté accrue de se développer et d'être reconnus sur le plan professionnel. De même que leur rapprochement cognitif, le développement de leur capacité d'absorption ainsi que la reconnaissance de leurs efforts par la direction qui étaient à la base de l'exploration.

Le passage d'un apprentissage par exploitation à un apprentissage par exploration justifie également les retombées en termes d'innovation dans ses deux dimensions. L'apprentissage par exploitation permet l'optimisation des connaissances et compétences dont l'appropriation et l'utilisation pouvant pousser l'exploration et inversement. Les retombées de l'exploration peuvent ainsi être consolidées par des activités d'exploitation. Par conséquent, il émerge de notre étude de l'empirie qu' au sein d'une même communauté, la complémentarité entre innovation d'exploitation et innovation d'exploration repose sur l'interaction entre les deux dimensions de l'apprentissage.

IV. Synthèse

Au terme de cette analyse qui intègre aussi bien la synthèse de la littérature et la réalité des cas étudiés, nous pouvons conclure que généralement, les communautés de pratique favorisent seulement le développement d'un apprentissage par exploitation comme le stipule la littérature. Cependant, nous avons remarqué que dans le cas 2, on a remarqué la possibilité d'une exploration même dans une communauté de pratique. Ainsi, il ressort de notre analyse que cette dernière développe aussi bien l'apprentissage par exploitation que l'apprentissage par exploration de nouvelles solutions. Contrairement à ce qui a été relevé de la littérature, les enseignements empiriques montrent aussi que, généralement, les communautés de pratique sont sources d'innovations d'exploitation. Cependant, nous avons constaté certaines exceptions. Dans certains cas, ces structures ne permettent pas l'innovation d'exploitation quand elles ont comme objet seulement, la résolution des problèmes liés à la pratique (cas 3). Dans d'autres cas, ces communautés se sont révélées être sources aussi bien d'exploitation que d'exploration de nouvelles solutions (cas 2-5). À ce propos, il convient de souligner le rôle modérateur de la direction dans la relation entre l'apprentissage et l'innovation d'exploration. La direction est le seul responsable à retenir ou non la connaissance générée par l'apprentissage pour des fins d'innovation, même si, les idées avancées sont nouvelles, sauf si elles sont exceptionnelles. Les principales contributions de notre recherche sont d'ordre managérial. Il s'agit de valoriser le rôle des communautés de pratique présentées comme les lieux privilégiés d'apprentissage d'exploitation et d'exploration. Mieux comprendre la dynamique et le fonctionnement des acteurs dans un contexte de communauté de pratique pour contribuer à l'innovation. Et finalement aider les dirigeants des banques à comprendre les défaillances de la démarche poursuivie et consolider leur mécanisme de coordination afin de tirer bénéfice des effets d'apprentissage qu'ils pourraient obtenir.

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Annexe : Guide d'entretien

1- Peut-on décrire votre contexte organisationnel de porteur pour l'établissement des regroupements informels ? Veuillez citer les éléments qui sont à la base de cette description.
2- Qu'en pensez-vous des communautés regroupant des acteurs homogènes appartenant à un même domaine d'activités ?[2]
3- Pouvez-vous avancer ce qui à votre sens pourrait définir une communauté de pratique ? Comment jugez-vous l'apport et les finalités espérées ? Quelle est la valeur ajoutée de ce travail en groupe pour votre entreprise ? Quels sont les bénéfices potentiels ?
4- Veuillez appuyer vos propos par des exemples concrets ? Quelles sont les éléments qui sont à la base de votre description ?
5- Comment jugez-vous la contribution de ces communautés de pratique en termes d'apprentissage ? Veuillez expliquer ?
6- Veuillez préciser si les caractéristiques propres de ces communautés impliquent des différences au niveau du mode d'apprentissage pratiqué ?
7- Selon vos observations, au sein d'une communauté de pratique, s'agit il d'un apprentissage de type routinier capable d'amorcer des corrections nécessaires pour remédier aux écarts sur la base de compétences et connaissances existantes ; ou d'un apprentissage basé plutôt sur l'expérimentation capable de sentir, suivre et explorer de nouvelles solutions ?
8- Selon vos connaissances, de quel apprentissage peut-on parler au sein des communautés de pratique précitées ?
9- Quelles sont les modalités de fonctionnement ?
10- Pouvez-vous décrire la nature des connaissances développées suite à l'apprentissage dans chaque communauté ?

[2] Les questions sont élaborées à partir de la théorie sociale de l'apprentissage de Wenger. Nous nous sommes inspirés des grilles de lecture proposées par Cappe (2005), Lafferière (2005) ainsi que celles proposées par Langelier (2005). Nous nous sommes essentiellement inspirés de la distinction principale entre communautés de pratique et communautés épistémiques proposée par Snyder et Wenger, (2000).

11- Comment les acteurs de ces communautés de pratique parviennent à circuler les connaissances acquises et absorber les connaissances des autres membres ?
12- Comment percevez-vous le rôle de l'apprentissage dans le développement de l'innovation ?
13- Pouvez-vous décrire l'apport du mode d'apprentissage pratiqué au sein des communautés de pratique ?
14- Veuillez préciser si la capacité d'absorption des acteurs, a été capable d'appliquer la connaissance pour des fins d'exploitation ou d'exploration ?
15- L'exploration de nouvelles solutions représente le résultat d'une remise en cause des connaissances de base ou autrement ?
16- Pouvez-vous déduire si la nature de chaque communauté de pratique et le mode d'apprentissage pratiqué affecte la nature d'innovation générée ? Pouvez-vous conclure avec des exemples concrets ?